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FORMATION OF MANAGEMENT DECISIONS REGARDING THE RECONSTRUCTION OF THE DESTROYED INFRASTRUCTURE OF UKRAINE

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The state of force majeure conditions of doing business as a result of military events during 2022–2024 in Ukraine became a prerequisite for conducting a study based on the state of external environment of enterprises in the construction industry operating in such conditions. These conditions made it possible to determine their typical problems: shortage of financial resources for the reconstruction of the country's destroyed infrastructure, loss of established partnerships, in particular among enterprises in the construction industry, shortage of production personnel, production capacities of enterprises may not meet market requirements, imperfection of approaches to assessing the ability of enterprises to be reliable business partners, insufficiency of factories, and mobile installations for industrial recycling of construction materials. This led to formulating the goal of this scientific study: the development of theoretical and methodological approaches to the formation of management decisions regarding the reconstruction of destroyed infrastructure in Ukraine. As a result, approaches that have been developed regarding to the management tools using for the formation of management decisions and the reconstruction of the Ukraine destroyed infrastructure. A diagram of the management tools using for the formation of management decisions concerning the reconstruction of the Ukraine destroyed infrastructure is constructed. The scientific novelty of the study is the proposal to apply the management tools for enterprises in force majeure conditions at any stage of the military and political situation in the country, taking into account the transitions from one stage of military and political conditions to another and the readiness of enterprises for their application. The practical value is that the article proposes management tools for assessing enterprise's state and further making management decisions regarding business partnerships, in particular, in contracting works with state and local government bodies regarding the reconstruction of destroyed infrastructure in Ukraine at any stage of the country's military and political situation. This prism of considering the problem and finding ways to solve it will ensure a reliable perspective of partner business relations and their transparency, which will meet the requirements of the world's leading business practice.

Keywords: management decisions, reconstruction, war events, management tools, business partnership relations, recycling of building materials.

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Introduction and formation of the problem

During the military events of 2022-2024, which have been going on for more than 2 years, Ukraine has undergone radical changes in politics, economy, business and society. Negative trends in modern politics

on the political map of the world have become decisive for Ukraine and have had a powerful impact on changes in the country's economy, revision of business partnership relations, innovation in production processes, and transformations in society. Changing

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Formation of management decisions regarding the reconstruction of the destroyed infrastructure of Ukraine

the political vector of development requires initially from manufacturing enterprises to focus on the main problems and mobilize all resources and effectively use them for their rational in order to form new approaches to making management decisions regarding the reconstruction of the destroyed infrastructure in Ukraine as a result of the full-scale invasion of the Russian Federation. Specifically, this issue arises for the construction industry enterprises, whose production load is increasing as the war continues and the demand for their products for the reconstruction of the destroyed territories increases. The demand for products of construction enterprises is increasing among the population during prolonged military events. However, this stochastic and dynamic nature of changes in business conditions requires construction enterprises, in addition to consolidating partnership efforts, to orientate enterprises to profitable activities, using all their resources.

The long-term escalation of the military-political conflict leads to the need to implement management decisions regarding the reconstruction of the destroyed infrastructure in the territories, where Ukraine regained back control. However, before the implementation of such management decisions and the formation of new approaches to the formation of partnership relations, Ukraine needs to solve numerous problems that hold back the start of the reconstruction process.

First, in the country that came under the attack of the invaders, the availability of financial resources is extremely low, the attraction of which would allow financing the general construction works for the reconstruction of its destroyed infrastructure. Second, as a result of the war, many enterprises were evacuated together with their production facilities to less dangerous Ukrainian regions. Some enterprises were destroyed or expropriated by the occupiers. Therefore, Ukrainian companies have lost many of its previously established partnership relations. Third, as a result of mass mobilization, there is an acute shortage of production personnel with the necessary level of qualification, experience, and physical ability to perform heavy work at production enterprises. Fourth, the production capacities of enterprises may not meet market requirements due to changes in demand among customers. Fifth, the issue of transparency in the use of foreign investors' funds by local self-government bodies for the reconstruction of destroyed infrastructure is of concern due to potential corruption risks when cooperating with construction contractors. As a result, the issue of approaches to assessing the ability of enterprises to be reliable business partners is very high. The sixth is the lack of a sufficient number of factory complexes and mobile installations for

industrial recycling of building materials in the regions of Ukraine due to the destruction caused by wartime events. The practice of using secondary raw materials in construction is also undeveloped.

Therefore, in order to solve the complex problem of restoring the destroyed infrastructure of Ukraine, it is necessary to solve a number of the listed problems. This requires the reorientation of the economy to a new path of production modernization, the adoption of a number of reforms, changes in legislation and approaches to conducting partnership relations, the development of management solutions and approaches to the assessment of enterprises regarding the adaptation of domestic enterprises to new conditions of economic activity aimed at restoring the destroyed Ukrainian infrastructure.

Analysis and research of publications

Today, the scientific work of American scientists is devoted to the subject of post-war restoration of the destroyed infrastructure of Ukraine, in which management studies of this war were carried out, a theory was built about the expediency of supporting the country with experienced practitioners, which proves the readiness of their support [1]. The scientific work of a Spanish specialist is also devoted to this issue, in which the creation of smart cities is proposed using a recovery plan based on sustainable development [2]. But such an approach requires the investment of a large amount of financial resources, which are not enough in the country today.

In the practical matter of rebuilding the destroyed infrastructure of the country, the experience of Germany is known to the whole world. To date, German scientists are also conducting research in this direction, actualizing the issue of socio-digitalization of the future in construction in Germany. At the same time, the emphasis is placed on the competition of four visions: increasing the efficiency of the use of production construction capacities in order to achieve competitiveness, partnership cooperation, digitization of architecture with a priority of unique logic and sustainable construction technologies with reduction of waste, harmful emissions and resource consumption. This approach allowed specialists to assess the potential and limitations of socio-digital opportunities [3]. The debatable nature of such scientific research indicates the actualization of such an approach and at the same time the difficulty of developing concrete management decisions in practice due to the aforementioned competition of 4 visions.

In their journalistic work, the builder-practitioner, the founder of the construction company BUILD TRUST, discusses the shortage of production personnel

at construction enterprises. They noted that there is a shortage of almost all working construction specialties due to the mass mobilization of men with experience in making and setting up equipment in the territories where military events are taking place. At the front-line areas, such physically trained workers in construction specialties are most needed. This publication also noted that the market among consumers today is quite low among the population and lacks the financial resources from the enterprises to complete construction [4]. Therefore, it can be argued that businesses that dealt with the construction of multi-story housing during the war experienced a decrease in market demand.

During the two years of the war, there have been periodic negotiations between Ukrainian and foreign partners seeking to participate in the reconstruction of Ukraine's destroyed infrastructure. For example, on 07.03.2024, regular partnership negotiations took place in the format of a round table between the leadership of the Confederation of Builders of Ukraine, the leadership of the State Agency for Reconstruction, Development of Infrastructure of Ukraine and representatives of leading Finnish construction companies dealing with construction and reconstruction issues. Agreements were reached on the prospects of further cooperation, which indicates the development of strategic plans for the support and reconstruction of Ukraine, in which special attention is paid to the use of the latest ecological technologies in construction [5].

International exhibitions and conferences are already traditionally held in Warsaw in the format of an offline platform, dedicated to the reconstruction of the destroyed infrastructure of Ukraine with the use of innovative energy-efficient technologies, materials, etc. Within the framework of these measures and in accordance with the reconstruction projects of the destroyed territory in general, a mechanism for the interaction of future business partners, the specified stakeholders, including state organizations, specialized design, architectural, construction engineering companies, financial institutions-investors, international financial donors-investors was developed [6]. Such measures are focused on international cooperation, internationalization of businesses, exchange of experience, and allowed to find business partners, outlined global strategies for the country's development. However, at the same time almost no attention is paid to the management tactics of implementing such measures, the correctness of making managerial decisions, the expediency and ability to use the involved international investments.

Many scientific works among domestic and

foreign specialists are devoted to the issue of making managerial decisions regarding the assessment of business partners. At the same time, theoretical developments and practical experience of conducting business on the basis of the formation of long-term reliable partnership relations acquire special importance. In this direction, it is possible to note the scientific publication of European scientists, in which attention is paid to the formation of a virtuous corporate brand together with business partners, taking into account perspectives and tactics of working with business partners, strengthening joint strategic agreements [7]. But this approach is more expediently used in countries with a stable economy and almost no corruption risks.

When discussing the risks in the conditions of force majeure during the ongoing military events in Ukraine, many foreign investors delay investing in the reconstruction of the country. If we add to this the imperfection of Ukrainian legislation regarding conducting business for foreign investors, then in real world practice such a tool as electronic residence (E-Residence) is known, which allows foreign investors to attract funds and manage their own business remotely with minimal risks. The applied nature of the application of this tool is considered in a scientific study by a French scientist [8]. However, at the moment, the Verkhovna Rada does not announce anything about possible plans to develop a corresponding draft law.

Performing a consistent analysis and researching previous scientific works, theoretical publications and applied approaches to solving individual issues of the problem of rebuilding the destroyed infrastructure of Ukraine, we came to the formulation of the scientific article's purpose.

Purpose of the article

The purpose of the article is to develop theoretical and methodological approaches concerning to the application of management tools and the formation of management decisions regarding the reconstruction of the destroyed infrastructure of Ukraine.

Presentation of the main material

During wartime events in the country, the nature of the influence of the external environment on the economic activity of enterprises can be characterized as fast developing and unpredictable. When force majeure circumstances of doing business arise then sudden obstacles arise as well. Such events require entrepreneurs to immediately respond to changes, to make management decisions, sometimes even radical in nature, which involve ensuring the optimal operation of enterprises, taking into account the rational use of their resources. At the same time, each enterprise has its own characteristics and specifics of work.

In order to recognize the scope of the work on the reconstruction of the destroyed infrastructure of Ukraine, statistical studies must first be carried out. According to the State Agency for Reconstruction and Development of Infrastructure of Ukraine, for almost two years of the war, more than 250,000 infrastructure objects were registered in the Register of Damaged and Destroyed Property, of which 220,000 were private houses and 30,000 objects of social infrastructure, and according to calculations, \$60 billion [5].

Statistics of the destruction of the residential

infrastructure of Ukraine mainly in the regions: Donetsk, Luhansk, Kyiv, Kharkiv, Kherson and Chernihiv. A study by the Kyiv School of Economics (KSE) is given as of January 2024. 250 thousand buildings were damaged and destroyed, including: multi-apartment buildings – 27 thousand, private – 222 thousand, dormitories – 526. According to calculations, the total amount of damage is estimated at \$58.9 billion. Infrastructure losses - \$36.8 billion, losses of industry and enterprises almost \$13.1 billion (Fig. 1) [9].

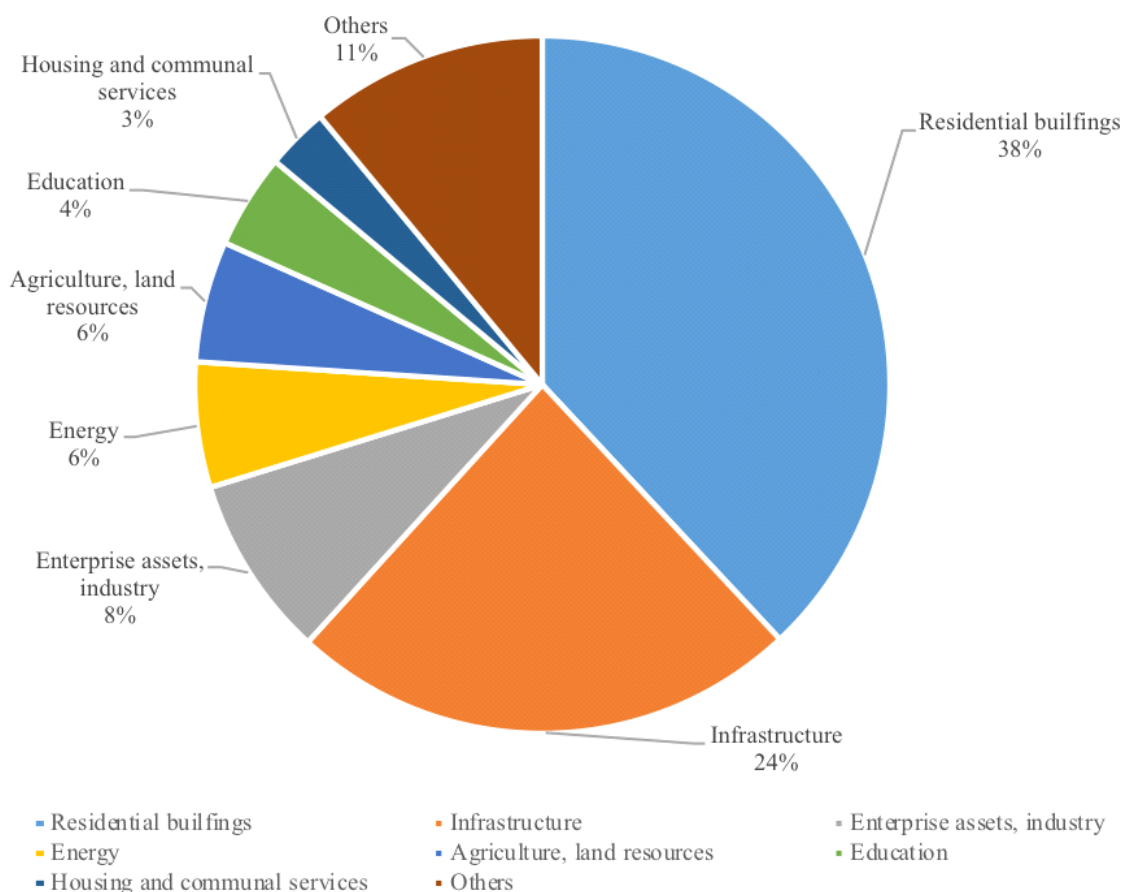


Fig. 1. Sizes and shares of the damage to Ukraine's infrastructure by industry as of January 2024, estimate of direct costs, bln. \$
Source: built by the authors on the basis of [9]

The authors of the study provide detailed information on the types of destroyed or captured buildings within the infrastructure components shown in Fig. 1: 3.8 thousand educational institutions, 1.8 thousand cultural institutions, 580 administrative buildings of state and local administrations, 426 hospitals, 50 medical centers, 348 religious institutions, 31 boarding schools, 48 social centers, 31 shopping centers, and others [9]. These data indicate a large volume of work, which requires the development of large-scale complex strategic programs and the

involvement of a large number of construction companies in order to restore the destroyed infrastructure.

The construction market of primary housing today is in a state of slowing down of market activity: destruction of partnership relations, untimely supply of both foreign and domestic building materials. Construction companies do not have enough funds to complete construction. It is clear that the demand for such enterprises decreased due to the war events, which caused consumer uncertainty in the feasibility of

purchasing housing, especially in the primary market. Therefore, today the production capacities of enterprises do not meet the requirements of the market, and the structure of demand has changed mainly due to housing rental contracts, especially among the displaced persons from the occupied territories of Ukraine. The instability of the political situation in the country and the decrease in solvent demand require the search for involved financial resources to help Ukrainians solve the housing issue and find their rational use, which can be partially implemented through the recycling of construction materials, the practice of which is not sufficiently developed in Ukraine, and the search for new and promising partners-stakeholders in the construction business.

In most cases, families whose homes were destroyed are left with all their means of subsistence, and the amount of compensation they receive from local authorities is extremely low, which does not correspond to their losses. In such situations, they can only count on the help of volunteers. Even today, the destroyed infrastructure of Ukraine requires the reconstruction of territories, which can reduce the cost of construction of recycled building materials by the recycling method. Recycling of building materials allows you to get double savings compared to purchasing new raw materials.

Today, the recycling of construction materials is widely used all over the world: Netherlands – 90%, Belgium – 87%, Denmark – 81%, Great Britain – 45%, Finland – 43%, Austria – 41% [10]. Recycling of construction waste is a profitable industry. In the USA and European countries, the disposal problem is solved at the state level: in some countries, the export of such waste to construction sites is prohibited by law, in other countries, the export significantly exceeds the cost of processing. Therefore, in terms of cost and time, recycling and disposal is much more profitable for construction companies than taking it to construction landfills. In Ukraine, such companies have just begun to appear that can provide services for processing construction materials resulting from destruction into secondary raw materials.

As a result of the above, it is recommended that construction companies reorient their activities to the application of the principles of circular economy, which will consist, first of all, in the investigation of construction destruction, for the further reconstruction of the destroyed infrastructure of Ukraine. Ukraine planned to launch urban planning reform, but some provisions of the draft law do not meet the European requirements of the European Commission due to the delegation of control powers in the field of urban planning to private organizations instead of state

enterprises. The National Agency for the Prevention of Corruption believes that this bill does not comply with the Anti-Corruption Strategy. And this increase corruption risks in construction activities in Ukraine, the facts of which are constantly established by detectives from the National Anti-Corruption Bureau of Ukraine (NABU), even among state authorities [11].

In the middle of 2023, the State program “eRecovery” started its work, aimed at the restoration and repair of housing as a result of war events [11]. However, the issue of transparency in the use of state funds, funds of foreign investors, remains unresolved. Failure to comply with the requirements of the European Union in matters of Constitutional Court reform, judicial reform, the work of the Specialized Anti-Corruption Prosecutor’s Office (SAP), the fight against money laundering, the implementation of the anti-oligarchic law, etc. will delay the process of investor financing of projects to restore Ukraine’s destroyed infrastructure.

For the transparency of the use of investors’ funds for the reconstruction of the destroyed infrastructure of Ukraine, it is advisable to establish business partnerships with reliable enterprises and according to reliable schemes of work without numerous facts of the transfer of subcontracts along a long chain of enterprises. Therefore, it is expedient for state authorities to develop approaches to the assessment of contractor enterprises that will meet all requirements regarding the transparency of the use of funds, reliability of work performance, conformity of production capacity with the requirements of contracts to satisfy the interests of consumers and the resource capabilities of these contractor enterprises.

In general, any commercial enterprise must first of all be profitable, must be provided with technical production capabilities in sufficient quantity and have the necessary number of human resources with appropriate qualifications, and its products must be in demand by the market. This approach requires requirements that entrepreneurs set for their enterprises, which implies the consistency of these four components. If there is no consistency and balance of these components, then the enterprise will have a small amount of profit or will not be able to be profitable at all, begin to develop, establish promising business partner relationships and achieve success in the market.

Among the main trends of unforeseeable influence of the external environment on enterprises, the following can be noted. Today, many production personnel of enterprises are involved in the armed forces of Ukraine in order to defend and liberate Ukraine, and new workers do not have the necessary

qualifications, which indicates a loss of working potential and leads to an imbalance in the system. The fixed assets must be either suddenly demanded in large quantities, or vice versa, which will require changes in the production program, procurement and warehousing procedures, changes in work schedules, which also leads to a destabilization in the system. Sudden changes in the structure of market demand (consumer preferences, their purchasing power among others) directly affect the company's income: an increase in demand can lead to a load on the production subsystem of the company and personnel, and a decrease – to an overload of warehouses with undemanded products, a decrease in the company's profitability and liquidity indicators. This causes, respectively, either a surplus or a shortage of financial resources, which also establishes an instability in the system. Long-term force majeure conditions that create an unpredictable impact of external environment for enterprises during wartime events require the use of management methods and tools to ensure development sustainability of all system components, rational use of resources for their successful economic activity. And for this, it is necessary to change approaches to the use of enterprise resources for making management decisions, with the aim of adapting them to force majeure conditions of conducting business activities during wartime events.

The history of the management science development includes many management approaches, methods and tools that using of which involves making the right and timely management decision. In countries where military-political conflicts (MPC) periodically arise, it is not possible to give enterprises general or standard recommendations on the formation of management decisions, taking into account the management science development, the industry development, the life cycle of enterprises, etc. Such countries are constantly in a state of unstable development, constantly in need of continuous reconstruction of destroyed territories and infrastructure facilities, restoration of the work of enterprises, etc.

Therefore, in this scientific work, we have proposed approaches to the application of management tools for the management decisions formation regarding the reconstruction of the destroyed infrastructure of Ukraine (Table, Fig. 2).

Thus, it can be argued that the application proposed management tools for enterprises in force majeure conditions at any stage of the military-political situation in the country is appropriate and can be applied in assessing the state of the enterprise in order to make management decisions regarding its further profitable operation and business partnerships.

Conclusions

Taking into account the force majeure conditions of conducting business during wartime events in Ukraine, the purpose of the article was to provide theoretical and methodological approaches to the formation of management decisions regarding the reconstruction of the destroyed infrastructure of Ukraine. As a scientific novelty, we have proposed the application of the management tools for enterprises in force majeure conditions at any stage of the military and political situation in the country.

The emphasis is placed on enterprise management tools, which are relevant during the transition from one stage of military and political conditions to another, and the readiness of enterprises to use them.

The practical result is the universality of the application of the proposed management tools to the assessment of the state of the enterprise and further management decisions regarding business partnerships, in particular, during contractual work with state and local government bodies regarding the reconstruction of the destroyed infrastructure of Ukraine during wartime events. This approach will ensure a reliable perspective of partner business relations and their transparency, which will meet the requirements of the world's leading business practices.

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The approaches to the management tools application for the management decisions formation regarding the reconstruction of the Ukraine destroyed infrastructure

Name of the indicators	Stages of the military and political state of the country				
	Conflict situation	Escalation of the military industry	Military operations	De-escalation of the military industry	Post-conflict syndrome
The state of destruction of the country's infrastructure	No destruction	The growth of destruction	Mass destruction of the f the combat zone territories, adjacent and sometimes distant	The reduction of destruction	No destruction
The state of reconstruction	Lack of reconstruction	Temporary local reconstruction	Temporary local reconstruction	The start of massive reconstruction of the infrastructure, restoration of logistics routes	Massive reconstruction
Management tools that should be applied at enterprises	Matrix analyses, system approaches to the indicators analysis, standard management approaches	Orientation and transition to the Objectives and Key Results (OKR) tool	“Goals and Key Results” (OKR) (Objectives and Key Results)	Lean manufacturing (lean manufacturing production) Kaizen system	Universal system of indicators (TPS) (Total Performance Scorecard), Kaizen system
Justification of the management tool using	Analysis of the enterprise activity, finding weak points and solving problems	In order to mobilize the efforts of enterprises and use their resources for the methodology of setting tasks and achieving goals	Focusing on achieving a limited number of ambitious high-priority goals: 3-5 goals with an inflated plan in advance, efforts mobilization, increased employee motivation	The reduction of available funds of enterprises requires the search of ways to increase profits by reducing production losses	Improved on the basis and covers: balanced scorecard (BSC), total quality management (TQM), performance management and competence management. Kaizen system.
The main tasks that will be solved at using management tools	1. Formation of strategic plans and their implementation. 2. Consolidation in the market. 3. Increasing competitive advantages.	1. Focus on key problems and their solution. 2. Adjustment of goals. 3. Reorientation of the activities of enterprises for their adaptation to changes in the influence of the external environment.	1. Hard focus on the problem. 2. Mobilizing the efforts of employees, teamwork and increasing motivation. 3. Achievement of established actual ambitious goals by 60-70% when they are correctly set.	1. Doubling of labor productivity, production rates, production areas and stocks. 2. Almost no financial costs. 3. Team work. 4. Continuous improvement.	1. Continuous improvement of processes and work of individual workers. 2. Training and retraining of personnel, personality development. 3. Optimal use of personnel capabilities. 4. Consolidation of the “goals-personality” system) and comparison with the goals of the organization.

Source: built by the authors

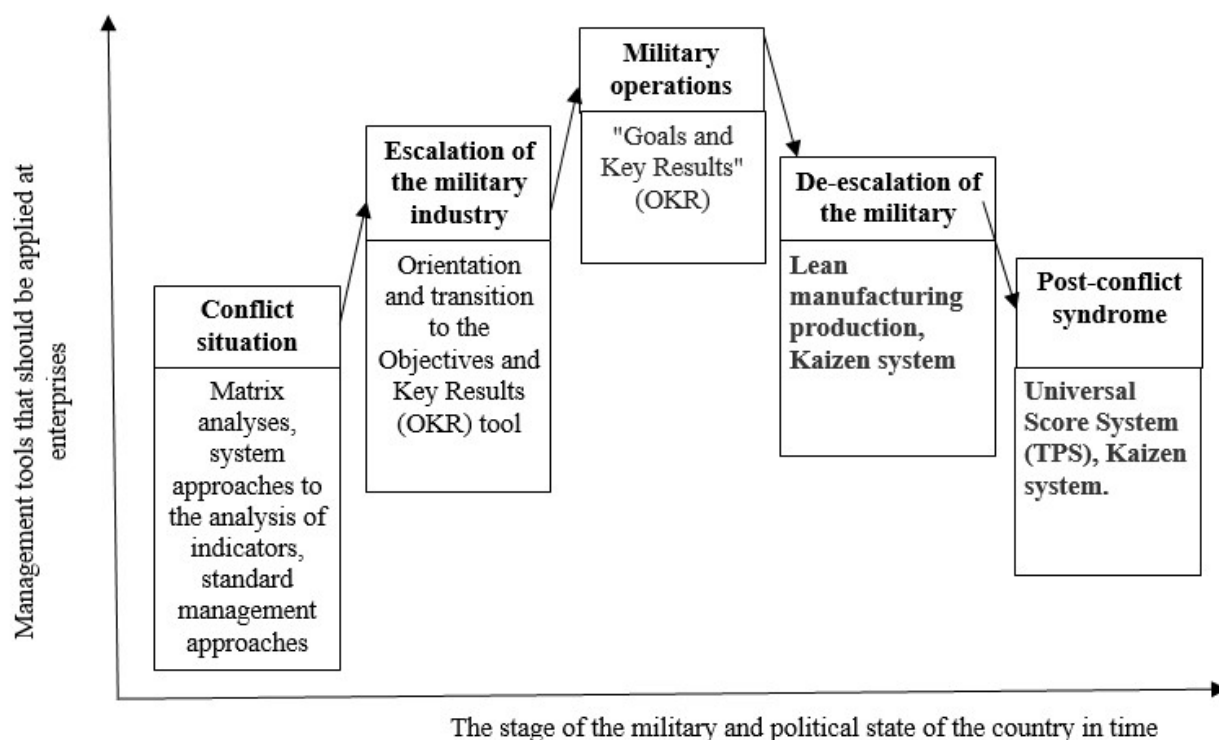


Fig. 2. Diagram of the management tools application for the management decisions formation regarding to the reconstruction of the Ukraine destroyed infrastructure

Source: built by the authors

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ФОРМУВАННЯ УПРАВЛІНСЬКИХ РІШЕНЬ ЩОДО ВІДБУДОВИ ЗРУЙНОВАНОЇ ІНФРАСТРУКТУРИ УКРАЇНИ

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Стан форс-мажорних умов ведення бізнесу внаслідок воєнних подій протягом 2022-2024 рр. в Україні стало передумовою здійснення дослідження стану зовнішнього середовища підприємств будівельної галузі, що функціонують в таких умовах, дозволило визначити їх типові проблеми: дефіцит фінансових ресурсів для відбудови країни зруйнованої інфраструктури, втрати налагоджених партнерських відносин, зокрема серед підприємств будівельної галузі, дефіцит виробничого персоналу, виробничі потужності підприємств можуть не відповідати вимогам ринку, недосконалість підходів до оцінювання спроможності підприємств бути надійними бізнес-партнерами, недостатність заводських комплексів і пересувних мобільних установок для промислового рециклінгу будівельних матеріалів. Це зумовило сформулювати мету даного наукового дослідження: розробка теоретико-методичних підходів формування управлінських рішень щодо відбудови зруйнованої інфраструктури України. В результаті розроблено підходи щодо застосування інструментів менеджменту задля формування управлінських рішень щодо відбудови зруйнованої інфраструктури України. Побудована діаграма застосування інструментів менеджменту задля формування управлінських рішень щодо відбудови зруйнованої інфраструктури України. Науковою новизною стало запропонування застосування інструментів менеджменту для підприємств в форс-мажорних умовах на будь-якому етапі воєнно-політичного стану в країні, акцентуючи увагу на переході від одного етапу воєнно-політичного стану до іншого та готовності підприємств до їх застосування. Практичною цінністю є те, що в статті запропоновано до застосування інструментів менеджменту щодо оцінювання стану підприємства та подальшого прийняття управлінських рішень щодо бізнес-партнерства, зокрема при підрядних роботах з органами державного та місцевого управління щодо відбудови зруйнованої інфраструктури України на будь-якому етапі воєнно-політичного стану країни. Така призматика розгляду проблеми та пошук шляхів її вирішення забезпечить надійну перспективу партнерських бізнес-відносин та їх прозорість, що відповідатиме вимогам провідної світової практики ведення бізнесу.

Ключові слова: управлінські рішення, відбудова, воєнні події, інструменти менеджменту, бізнес-партнерські відносини, рециклінг будівельних матеріалів.

FORMATION OF MANAGEMENT DECISIONS REGARDING THE RECONSTRUCTION OF THE DESTROYED INFRASTRUCTURE OF UKRAINE

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The state of force majeure conditions of doing business as a result of military events during 2022-2024 in Ukraine became a prerequisite for conducting a study based on the state of external environment of enterprises in the construction industry operating in such conditions. These conditions made it possible to determine their typical problems: shortage of financial resources for the reconstruction of the country's destroyed infrastructure, loss of established partnerships, in particular among enterprises in the construction industry, shortage of production personnel, production capacities of enterprises may not meet market requirements, imperfection of approaches to assessing the ability of enterprises to be reliable business partners, insufficiency of factories, and mobile installations for industrial recycling of construction materials. This led to formulating the goal of this scientific study: the development of theoretical and methodological approaches to the formation of management decisions regarding the reconstruction of destroyed infrastructure in Ukraine. As a result, approaches that have been developed regarding to the management tools using for the formation of management decisions and the reconstruction of the Ukraine destroyed infrastructure. A diagram of the management tools using for the formation of management decisions concerning the reconstruction of the Ukraine destroyed infrastructure is constructed. The scientific novelty of the study is the proposal to apply the management tools for enterprises in force majeure conditions at any stage of the military and political situation in the country, taking into account the transitions from one stage of military and political conditions to another and the readiness of enterprises for their application. The practical value is that the article proposes management tools for assessing enterprise's state and further making management decisions regarding business partnerships, in particular, in contracting works with state and local government bodies regarding the reconstruction of destroyed infrastructure in Ukraine at any stage of the country's military and political situation. This prism of considering the problem and finding ways to solve it will ensure a reliable perspective of partner business relations and their transparency, which will meet the requirements of the world's leading business practice.

Keywords: management decisions, reconstruction, war events, management tools, business partnership relations, recycling of building materials.

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