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Challenges and prospects of innovation and investment development of enterprises in the post-war period

■ **Abstract.** Innovation and investment development a key factor that will influence the recovery and development of enterprises in the post-war period. Investments in innovations can become a source of economic growth after the war, which will stimulate the creation of new jobs, and increase the productivity and competitiveness of enterprises, which will contribute to the development of all sectors of the economy. Thus, the study aimed to identify the main problems and opportunities for investment and innovative business development in the country in the post-war period. Theoretical research methods such as generalisation, statistical analysis, in particular, data aggregation and sample grouping, and analysis of development indices were used to achieve this goal. The study, based on the analysis of key factors, substantiated the relationship between investment and innovation, as well as between investment opportunities and financial results

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of business entities. Several key issues that hinder the innovation and investment development of enterprises in Ukraine and will have an impact in the future were identified and analysed in detail using statistical data, including the lack of financial resources, lack of proper infrastructure, problems with human resources, and corruption, which significantly affects Ukraine's position in certain international investment ratings, resulting in difficulties in attracting foreign capital. It was established that all the above problems were significantly escalated as a result of the war. The features of innovative activity of enterprises in the conditions of war were studied and the main directions of support required by business in this area were formed. The necessity of comprehensive state support to stimulate the innovation and investment development of enterprises in the post-war period was substantiated. The results of the study can be used by public authorities, business entities and the scientific community dealing with the issues of innovation and investment activities of enterprises

■ **Keywords:** competitiveness; financial resources; economic recovery; infrastructure; government support; financial incentives

■ INTRODUCTION

The war that has been going on in Ukraine since 2014 has triggered transformational changes both at the national level and at the level of business entities, which have partially or completely changed their operating conditions, from reorientation to new, European, markets to relocation of production facilities and revision of business strategies. The challenging socio-economic conditions currently prevailing in Ukraine have a significant impact on business development. New problems that business entities face all the time require rapid adaptation to modern realities. The innovation and investment component can become a catalyst for restoring and unlocking the economic potential of enterprises, both now and after the end of the war. The innovation and investment development of enterprises in the post-war period is critical for economic recovery and further sustainable economic growth. As a result of the war, businesses faced destroyed infrastructure and production capacity, as well as economic instability. Therefore, opportunities for innovative solutions and investment projects need to be created to help restore production capacity, increase productivity, and provide a positive impact on the economy (Garafonova *et al.*, 2023).

The problems of innovation and investment activity in the period of post-war reconstruction of Ukraine were studied by V. Levytskyi & S. Radynskyi (2023). The authors concluded that the regulatory framework needs to be improved to ensure the development of the country's innovation system and the gradual application of the principles of attracting public investment and managing innovation. However, they did not indicate what exactly in the legal documents should be changed to promote innovation and stimulate investment, and how this will affect these processes in the post-war period. The conditions for preserving and post-war development of the innovation and investment potential of Ukrainian enterprises were studied by R.V. Mann & S.V. Makhno (2022). According to the results of the study, the researchers argued that the introduction and intensification of the investment and innovation component in the activities of enterprises is a long-term and systematic process that involves the comprehensive work of both business entities and government agencies. In particular, the authors proposed to develop an algorithm for the practical implementation of legislatively enshrined instruments aimed at stimulating both investment and innovation activities, with an emphasis on protecting investors' rights and expanding government programmes of preferential business lending.

M. Panchenko (2023) dedicated considerable emphasis to digital transformation as one of the key areas of post-war revival and the development of innovation and investment opportunities in the national economy. The author concluded that the introduction of digital technologies into the national economy will contribute to a more effective disclosure of the innovation and investment potential of Ukrainian business, as well as contribute to the modernisation of Ukrainian society, making it more adaptable, mobile and ready for change. However, the study did not explore how to implement digital transformation and how to encourage businesses to do so. O. Popelo & V. Malyshev (2023) noted that the prolonged economic changes caused by the war create a need for accelerated implementation of innovative solutions, which involves the use of new management methods that should also consider the specifics of state regulation and support for small and medium-sized businesses, both during the war and in the post-war period. In other words, the authors considered adaptive management as a key approach that should be used by domestic enterprises for innovation and investment opportunities. O. Kulakov (2023) analysed the current state of innovation and investment activity in Ukraine in his study. The results obtained gave grounds to assert that the key indicators of innovation and investment activity indicate insignificant changes in this area, which hurts the competitiveness of the Ukrainian economy. The author noted that the problems of the low level of innovation orientation of enterprises and the lack of investment attractiveness remain unresolved.

Despite the existing developments, the issue of factors that influence the innovation and investment activities of enterprises in the current crisis conditions remains insufficiently covered and the relationship between investment and innovation of business entities in Ukrainian realities is not sufficiently substantiated. Therefore, the study aimed to identify the main problems and barriers in the innovation and investment activities of Ukrainian enterprises and assess the prospects for their post-war development based on investment in innovative solutions.

■ MATERIALS AND METHODS

To establish and substantiate the relationship between investment and innovation in enterprises, as well as to determine the role of the state in investment and business development, scientific studies were analysed. Theoretical methods were used to analyse and interpret existing theories and concepts in the field of investment and innovation

development, in particular, the generalisation of induction and deduction. The relationship between the financial results of enterprises and their investment and innovation activities was established. Using empirical data, based on the method of formalisation, several barriers had been formed that limit the innovation and investment development of enterprises in Ukraine and will increase in the post-war period. Analysis of statistical data published by the State Statistics Service of Ukraine (Capital investment by type..., n.d.; Capital investment indices..., n.d.; Expenditure on research..., n.d.; Net profit..., n.d.; Sources of financing..., 2020; Implementation of innovations..., 2021; Number of innovatively..., 2021) was carried out.

The structural analysis method, in particular, the share indicator, which determines the relative contribution or importance of a particular element in the formation of the final result, was used to determine the share of expenditures on research and development (R&D) about gross domestic product (GDP), the share of implemented investments in R&D in the total amount of capital investments, the share of innovatively active enterprises in the total number of business entities, as well as the share of the volume of sold innovative products. To analyse investment and innovation activity, the indicator of capital investment was used, since it characterises the financing of costs incurred for the purchase or production of both tangible and intangible assets, including investments in the purchase, development, and creation of rights to use natural resources, various property assets, information technology products and databases, patents, licences, and other copyrighted items. At the same time, the dynamics of the capital investment index were studied to determine the impact of inflation.

Based on the graphical method of grouping and displaying data, which uses graphs to visualise and analyse relationships to identify patterns, the trends in the change in the capital investment index and the share of innovative products sold in the total number of all products sold by industrial enterprises in Ukraine were identified. Indicators of time series analysis, particularly the growth rate, which characterises the percentage rate of change relative to a certain period, were used to determine the percentage change in R&D costs in 2015-2022, official statistics for 2023 are not available. A sociological survey of Ukrainian business conducted by the Institute for Economic Research and Policy Consulting (Kuziakiv et al., 2023) was used to assess the relevance of innovation activities of enterprises in Ukraine during the war, and the key desirable factors for Ukrainian enterprises to stimulate their investment and innovation activities were formed.

■ RESULTS

Innovation and investment activities involve enterprises investing financial resources in the R&D of new, innovative products, technologies, or processes to increase their competitiveness and revenues (Hou & Feng, 2024). Several key aspects can be identified. The relationship between innovation and investment is key to the development of any economy (Cherep et al., 2021). Innovations contribute to the creation of new products, services, technologies and processes that can improve productivity, competitiveness and quality of life. Investment, in turn, provides the resources to implement innovative ideas and projects. Investment

provides financial support for R&D, the introduction of new technologies and the creation of innovative products. Without adequate funding, innovative projects may remain at the conceptual stage or lack sufficient resources for effective development (Shabbir & Wisdom, 2020). Undoubtedly, investment and innovation activities stimulate competitiveness. Innovations can help companies differentiate themselves from competitors by creating unique products or services (Audretsch et al., 2024). Therefore, investments in such innovations allow companies to maintain or enhance their competitiveness in the market.

On the other hand, innovative activities create opportunities for additional capital attraction. Successful innovation projects can attract new capital to companies or regions. Investors are interested in promising innovations that can generate high returns in the future (Gonçalves et al., 2024). Investing in innovation can create new market opportunities for businesses and their investors. Innovations often open the door to new market segments or allow businesses to take leadership positions in existing markets. In addition, innovation can lead to an increase in the efficiency of resource use. Innovations can contribute to more efficient use of resources, which in turn can lead to increased profitability and lower costs (Ocadiz Amador & Robles Acevedo, 2023). Therefore, investing in such innovations is beneficial from an economic point of view. Thus, innovation and investment are interconnected and interdependent, as innovation requires investment for its development, and investment can stimulate innovation, which in turn contributes to the growth of both business entities and the country's economy as a whole.

The ability of enterprises to implement innovation and investment projects is influenced by the performance of their core business activities (Sinoimeri & Teta, 2023). The profitability of an enterprise determines its financial capacity and ability to invest in innovation. The relationship between profitability and investment in innovation can be viewed from several perspectives. The first is access to capital for investment, i.e. firms with high profitability usually have better access to capital. They can more easily raise funds through equity, bank loans, or corporate bonds. This allows them to finance innovative projects and research without significant financial constraints. In addition, companies with successful financial performance attract investors and risk capital. Investors who see the potential in enterprises with high profitability may be more inclined to invest in innovative projects of this enterprise (Liang et al., 2023). Another aspect is an accumulation of internal reserves for innovation, i.e. high profitability allows enterprises to build up internal reserves that can be used to finance innovation. This is important because it reduces dependence on external sources of funding and the risks associated with external loans or investments.

Businesses that are focused on long-term success and strategic development may be more inclined to invest in innovation, even if it requires significant upfront costs. These organisations recognise that innovation can be a key factor in ensuring long-term competitiveness (Peng et al., 2022). Therefore, given all the above, it is possible to argue that an enterprise's profitability determines its ability and propensity to invest in innovation, which in turn can contribute to its development and maintain

competitiveness in the market. Before the full-scale war, enterprises in Ukraine faced several challenges in innovation and investment. Lack of financial resources was one of the key barriers in this area. Many enterprises in the Ukrainian economy had limited access to financial resources for R&D, the introduction of new technologies

and the creation of innovative products, and the full-scale war further impeded the development of innovation (Makohon & Adamenko, 2023). For example, R&D expenditures in 2016-2022 grew by an average of only 1.07% per year, and comparing 2022 to 2015, expenditures increased by only 6.1 billion UAH (Table 1).

Table 1. Expenditure on R&D by type of work

Year	Expenditure on R&D		Including			Share of R&D expenditures in GDP, %
	million UAH	Growth rate, %	Basic research, million UAH	Applied research, million UAH	R&D (experimental), million UAH	
2015	11,003.6	-	2,460.2	1,960.6	6,582.8	0.55
2016	11,530.7	4.79	2,225.7	2,561.2	6,743.8	0.48
2017	13,379.3	16.03	2,924.5	3,163.2	7,291.6	0.45
2018	16,773.7	25.37	3,756.5	3,568.3	9,448.9	0.47
2019	17,254.6	2.86	3,740.4	3,635.7	9,878.5	0.43
2020	17,022.4	-1.34	4,259	3,971.4	8,792.1	0.41
2021	20,923	22.91	5,155.2	4,782.9	10,985	0.38
2022	17,117.8	-18.18	4,081.3	4,827.6	8,208.9	0.33

Source: compiled by the authors based on Expenditure on research and development by type of work by region (n.d.)

The share of expenditures on research in GDP for all years was extremely small and averaged only 0.437% over the study period. Over the period 2015-2022, this indicator showed a downward trend, so when comparing 2022 to 2015, it is possible to establish that the share of expenditures in GDP decreased by 0.22%. The lack of a developed infrastructure for R&D significantly affects innovation

activity and development opportunities in this area. Ukraine has an insufficiently developed scientific and technical base and infrastructure that could meet modern requirements, particularly the criteria of high technology, for effective R&D, which hinders the innovation activity of enterprises. The key aspect of this situation is the lack of capital investment (Table 2).

Table 2. Capital investment figures for the period 2018-2022

Indicators	2018	2019	2020	2021	2022
Total capital investments, million UAH	578,726.4	623,978.9	508,217	673,899.3	409,660
Capital investments in R&D, million UAH	1,511.4	2,057.6	2,076.2	2,629.9	3,185.2
% of investments in R&D	0.2612	0.3298	0.4085	0.3903	0.7775

Source: compiled by the authors based on Capital investment by type of economic activity of industry by region (n.d.)

Despite the growth of capital investment in R&D in 2022, when the indicator grew by more than 20%, the capital investment index showed negative dynamics due to significant inflationary processes caused by the war (Fig. 1).

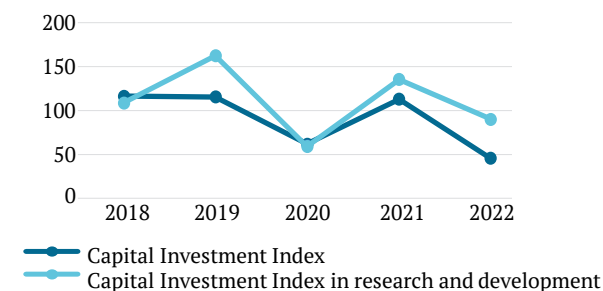


Figure 1. Dynamics of individual capital investment indices, %

Source: compiled by the authors based on Capital investment by type of economic activity of industry by region (n.d.), Capital investment indices by type of economic activity (n.d.)

The lack of appropriate human resources also has a significant impact. The low level of skills of employees in some

sectors of the economy limited the ability of enterprises to implement innovative projects and introduce new technologies. In addition, an unstable legislative framework and the lack of effective tax support for innovative projects created uncertainty and risks for businesses willing to invest in innovation. Therefore, the number of enterprises engaged in innovation and classified as innovation-active is declining. Thus, the number of innovation-active enterprises in Ukraine in 2018-2020 decreased by 5,982 business entities compared to 2016-2018 (Table 3).

Table 3. Innovation-active enterprises in Ukraine

Number of innovation-active enterprises		Share of innovatively active enterprises in the total number of enterprises, %	
2016-2018	2018-2020	2016-2018	2018-2020
8,173	2,281	28.1	8.5

Source: compiled by the authors based on Number of innovatively active enterprises by type of economic activity (2016-2018, 2018-2020) (2021)

The share of innovation-active enterprises in the total number of business entities in 2018-2020 decreased significantly, by 19.6%, compared to 2016-2018. Official statistics are available only for 2020, but the number of both

business entities and innovation-active enterprises has decreased over the past two years of the war due to the occupation of the territories and economic instability. The most negative dynamics are in the field of industrial enterprises, where the number of innovation-active business

entities decreased by more than 60% over the study period. Accordingly, the share of the volume of innovative products (goods and services) sold in the total amount of all products sold by industrial enterprises in Ukraine is constantly decreasing (Fig. 2).

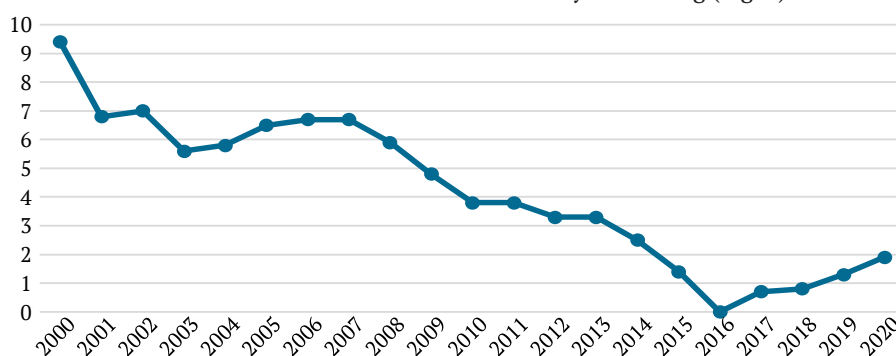


Figure 2. Share of innovative products sold in the total volume of all products sold by Ukrainian industrial enterprises, %

Source: compiled by the authors based on Implementation of innovations at industrial enterprises (2000-2020) (2021)

As can be seen from Figure 2, despite a slight increase in the indicator since 2017, Ukrainian industrial producers have not reached the level of 2014. The main sources of

financing investment activity of enterprises in Ukraine are internally generated resources, which are formed as a result of financial and economic activity (Table 4).

Table 4. Share of sources of financing of innovation activities of industrial enterprises in Ukraine, %

Year	Own funds of enterprises	State budget funds	Funds of non-resident investors	Funds from other sources
2014	85	4.5	1.8	8.7
2015	97.2	0.4	0.4	2
2016	94.9	0.8	0.1	4.3
2017	84.5	2.5	1.2	11.8
2018	88.2	5.2	0.9	5.7
2019	87.7	3.9	0.3	8.1
2020	85.4	1.9	0.9	11.8

Source: compiled by the authors based on Sources of financing innovation activities of industrial enterprises (2020)

Furthermore, as shown in Table 4, the low level of trust in the investment climate in the country, in the stability and transparency of institutional actors, led to a limitation of opportunities to attract investment flows from sources other than own funds, which caused postponement of decisions on the development of innovative projects. In particular, the share of investment funds attracted from foreign investors has been very low throughout the study period, as they are reluctant to invest in the

real sector of the economy, based on Ukrainian positions in various international rankings (Table 5). In terms of internal capacity to invest in innovation, due to the coronavirus pandemic and the restrictions imposed on their ability to operate and generate income, in 2020, the net profit of enterprises in Ukraine decreased significantly (only 13% of the previous period), and the number of enterprises that incurred losses increased significantly due to the war (Table 6).

Table 5. Ukrainian positions in selected international rankings

Global indices	2019	2020	2021	2022	2023
Global Innovation Index, ranking	47	45	49	57	55
Legatum Prosperity Index (investment environment), ranking	123	123	124	121	124
Investment Freedom Index, score	35	35	35	35	–
Investment Risk Index	–	–	–	–	18.2% (very high)

Source: compiled by the authors based on World Intellectual Property Organization (2023), A. Damodaran (2023), Index of economic freedom (n.d.)

Table 6. Profitability (loss) of Ukrainian enterprises, 2016-2022

Year	Net profit (loss), thousand UAH	Enterprises that generated profit	Enterprises that suffered losses
		As a % of the total number of enterprises	As a % of the total number of enterprises
2016	29,705,020.1	73	27
2017	168,752,792.7	72.4	27.6

Table 6. Continued

Year	Net profit (loss), thousand UAH	Enterprises that generated profit	Enterprises that suffered losses
		As a % of the total number of enterprises	As a % of the total number of enterprises
2018	288,305,468.1	73.9	26.1
2019	523,779,001.5	73.6	26.4
2020	68,054,905.5	71	29
2021	885,276,479.5	72.9	27.1
2022	-276,277,742.8	65.8	34.2

Source: compiled by the authors based on Net profit (loss) by region (n.d.)

All the above-mentioned problems hindered the innovation and investment activities of Ukrainian enterprises and required a comprehensive approach from the government, businesses and the public to address them, the war only exacerbated all these negative processes, and as a result, a significant number of enterprises in Ukraine, especially in the industrial sector, suffered losses and, accordingly, had little opportunity to invest, including in innovation. In general, the war contributed to the economic crisis, which decreased consumer demand and increased production costs. In addition, the decline in investment and the deterioration of the investment climate harmed the development and expansion of enterprises. There were fewer opportunities to export goods and services, which affected the profitability of enterprises. In addition, companies were forced to increase spending on security and personnel protection. It is also important to note that the military conflict caused significant exchange rate fluctuations, which affected the cost of imported materials and products used by domestic producers (Varnalii & Bondarenko, 2023). Finally, the war has reduced the labour market in the country due to the large number of refugees, mobilisation and other factors. Such conditions have significantly narrowed the opportunities for investment and innovation development of business entities in Ukraine.

According to a survey conducted by the Institute for Economic Research and Policy Consulting, the implementation of innovations in times of war is relevant to a varying degree for most enterprises (Kuziakiv *et al.*, 2023). For example, about 23% of companies, despite the war, emphasise that innovation is an extremely urgent and necessary process that is their priority. At the same time, for 46% of companies, innovations are relevant in the case of individual

cases, mainly for competitive purposes. However, for 30% of the surveyed businesses, innovation is not relevant. It should also be noted that there is a certain level of uncertainty about the relevance of innovations, as about 16% of respondents could not answer this question specifically. It is worth noting that there is a connection between the relevance of innovation and the size of the enterprise. The larger the size of the business, the more likely it is that innovation will be implemented or is relevant for certain projects. Thus, approximately 43% of small enterprises do not consider innovations to be relevant at all, in contrast to medium and large enterprises, where the figure is 27% and 20%, respectively. In other words, about 80% of large industrial enterprises understand the importance and relevance of innovation, with 38% of enterprises making it a priority. After the outbreak of the all-out war, many enterprises were forced to cut spending on innovation (development and introduction of new or improved products and production methods), which accounted for half of businesses (42%). Only large businesses slightly increased their spending on innovation (35%), while 36% of large enterprises kept their spending at the pre-war level, which can be considered a good indicator.

Almost three-quarters of companies note that they need special long-term support programmes at the industry level. Many firms need specific financial (including tax) incentives and support measures to establish contacts with relevant innovators. In addition, one-third of companies need support in training relevant specialists in this area. At the same time, there is a high level of uncertainty, meaning that companies are unable to determine what exactly can stimulate their innovation activities in the current and future environment (Fig. 3).



Figure 3. Desirable factors for stimulating investment and innovation activities for Ukrainian enterprises (% of responses of the surveyed enterprises)

Source: compiled by the authors based on Capital investment by type of economic activity of industry by region (n.d.)

Different business support programmes can be useful for different types of firms. Micro-enterprises usually need financial incentives. Connecting with innovators and training professionals is critical for small and medium-sized businesses. The construction materials sector, which was heavily affected by the war, is best suited to targeted sectoral support programmes. At the same time, national steelmaking is likely to benefit the most from financial and fiscal incentives.

■ DISCUSSION

Thus, as the study results showed, investments have a decisive impact on the innovation activities of enterprises and shape their ability to develop and compete. Several important aspects can be identified in this area. This includes the development of new products and services. Investment allows enterprises to finance R&D to create new innovative products and services. This may include the introduction of new technologies, design, production processes and other innovative elements. Technological development itself plays an important role. Investment in technology is a key element of innovation. Businesses can invest in the development of new technologies, and upgrades to equipment and software, which increases their technical competitiveness. Investments provide enterprises with research centres, laboratories and groups to conduct scientific research. This is an important element for innovation, as it provides incentives for the creation of new knowledge and technologies. In addition, an important element of innovation and investment development of an enterprise is the unlocking of human resources, i.e. investments can be directed to the training and development of personnel specialising in innovation (Kichurchak, 2023).

Competent and creative employees are a key element for successful innovation. This is consistent with C. Lehmann *et al.* (2022), who addressed investment and innovation as drivers of the circular economy, that investment can be directed at creating and strengthening an innovative culture within the enterprise. This includes creating a favourable environment for creativity, supporting the idea of experimentation and risk-taking, and forming the basis for further investment in innovations that can provide the enterprise with a market advantage, increasing its competitiveness and attracting customers. Furthermore, in the context of innovation and investment development of enterprises, there is feedback between innovation and investment. This was confirmed by the results of the study. Companies that demonstrate innovative potential and successful results in this area can attract the attention of external investors (Ilchuk *et al.*, 2023). These can be venturing capitalists, private investors, corporate investors, or government funds that are interested in investing in companies with high growth and profit potential. Innovations can increase the value of a company by creating new products or services, expanding markets, improving production efficiency and other factors. Z. Wang *et al.* (2024) investigated methods and ideas for fostering resource efficiency and sustainability by creating robust resource markets. In order to support sustainable resource recovery and the ideas of the circular economy, the researchers looked at the function of resource markets.

O. Radchenko *et al.* (2023) concluded in their research that to implement investment and innovation projects, it is necessary to generate appropriate resources. This was confirmed by the results of the study, which determined that the most important source of funds in the Ukrainian context is the profit of the enterprises themselves. Enterprises with positive financial results can use their internal resources to finance innovative projects (Denysiuk *et al.*, 2022). This may include the profit remaining after paying all expenses and taxes, as well as accumulated reserves. As the results of the study showed, a positive financial result can increase an enterprise's access to external sources of funding, such as bank loans, corporate bonds or attracting investors. This allows the enterprise to raise additional funds for the implementation of innovative ideas and projects and increases the market reputation of the enterprise and, accordingly, the trust of investors, who may be more inclined to invest in such an enterprise that already demonstrates successful financial performance, thus making it easier to raise funds for innovative initiatives. As summarised by Ş.C. Gherghina *et al.* (2020), in a study that addressed the issue of investment and innovation of enterprises as a driving force for economic growth, and confirmed by the study, the financial performance of companies shapes their innovation activity, which cannot be implemented without appropriate investments that are formed from the company's profits.

Based on the study results, it was possible to state that the innovation and investment activities of enterprises in Ukraine had long suffered from several major problems, which were particularly acute during the full-scale war and will continue to exist in the post-war period. The primary constraint to innovation and investment development is the lack of funding. The lack of capital and affordable financial resources is one of the biggest obstacles to the development of innovative projects in Ukraine. The low level of investment in domestic start-ups and innovative enterprises forces many of them to seek funding abroad, limit their development to a slower pace, or postpone innovation due to a lack of resources. Another important factor is the outdated or non-existent infrastructure for innovation (Kramskyi *et al.*, 2023). Ukraine faces challenges in creating an effective innovation infrastructure, such as incubators, technology parks, and research centres, which, according to the study, is evidenced by the low level of capital investment. It is these structures that could create innovations that could be commercialised in the future. The absence of such institutions limits the opportunities for cooperation between businesses, research institutions and government agencies, which complicates the process of creating and developing innovative products. The high level of corruption also has a significant negative impact. Corruption is a serious impediment to business development in Ukraine, including the innovation sector (Buka *et al.*, 2023). Insufficient transparency, lack of stability and high risk in dealing with government agencies and regulators complicate the process of attracting investment, especially foreign investment. This was evidenced by the results of the study, including Ukraine's low positions in various international investment rankings. The lack of qualified personnel is also an urgent problem, as the results of the study showed, and will remain so in the post-war period. Insufficient level of

education and relevant skills in the field of innovation is an obstacle to the successful implementation of innovative projects. It is necessary to ensure an adequate level of state support for the training of specialists in science, technology and innovation to ensure sustainable economic development, so close cooperation between enterprises and scientific and educational institutions in this area will be critical. This was also confirmed by J. Schot & W.E. Steinmueller (2018), which substantiates the importance of state support for science and research after the Second World War in promoting economic growth and addressing the inability of the private sector to create new knowledge independently.

All the above problems require a comprehensive approach by the state, business and research institutions to create a favourable environment for the development of innovation and investment activities in Ukraine. R.V. Mann & S.V. Makhno (2022), in their study of the innovation and investment potential of Ukrainian enterprises, identified the need to ensure transparency and accessibility of information about investment opportunities, both for enterprises and start-ups and directly for investors. However, this statement is not entirely valid, as this is already being effectively implemented. Back in 2016, UkraineInvest, a governmental investment promotion and support organisation, was established to encourage foreign direct investment and to help existing investors scale up their businesses in Ukraine. This structure provides reliable and up-to-date information on optimal investment prospects and opportunities, advises on doing business in Ukraine, facilitates communication between investors and government agencies at various levels, and provides support and assistance in solving systemic problems that investors face. However, the authors rightly noted that the state plays a key role in enhancing the investment and innovation development of enterprises. The leading role of the state as a catalyst for these processes was confirmed by the results of the study, but it should be noted that enterprises themselves must understand the need to spend their funds on innovative developments to ensure their sustainable development. Encouraging innovation and entrepreneurship can be an important element of post-war economic recovery, as confirmed by the study by O. Garafonova *et al.* (2023). Therefore, it was possible to state that the government can create favourable conditions for investment in start-ups and innovative enterprises, for example, through financial incentives, grants and tax breaks, thus motivating business owners and management to implement innovations and increase the level of innovation culture in enterprises.

In general, the results of the study showed that in the post-war period, the prospects for innovation and investment development of enterprises will be shaped by several important aspects. First, it is the restoration of infrastructure. It is worth noting that modern investment in innovative technologies, in construction, transport, logistics, and energy, will ensure a quick and efficient restoration of infrastructure capabilities. The war shifted priority to security and defence technologies (Strilets *et al.*, 2024). Therefore, the prospects for innovation and investment development in this sector may include the development and improvement of innovative security systems, drones, cyber defence and other innovative technologies that are already in use and will help ensure the security of both

individual business entities and the state in the future. Given the unique opportunities provided by the use of innovative developments during military operations, it can become a competitive advantage for Ukrainian defence companies at the international level in the post-war period.

Thus, the investment and innovation development of enterprises in the post-war period is critical for the economic recovery and stabilisation of the country, which will be necessary due to the destroyed infrastructure, lack of resources, shortage of human resources and low level of trust in the country's financial and economic sector. In such circumstances, the effective use of investment and innovation can become a catalyst for economic growth. In general, the investment and innovation development of enterprises in the post-war period should play a leading role in economic recovery and sustainable development. An important condition for this is the creation of a favourable environment for investment and innovation, as well as careful planning and coordination of government measures, considering the specific needs and capabilities of businesses.

■ CONCLUSIONS

Investments and innovations are closely interrelated, i.e. both investments influence innovation activities and innovations influence the ability of businesses to generate their resources and attract external investments. Innovative development of enterprises is possible only if this area of activity is adequately financed. The basis of investment in innovation at Ukrainian enterprises is their funds, but the opportunities for Ukrainian business have been significantly reduced because of the war, so the prospect of further development on an innovative basis will largely depend on the ability of the state to support and stimulate this process. Thus, the main problem in the investment and innovation sphere of Ukrainian business is the lack of financial resources. Expenditures on innovation as a percentage of GDP are constantly decreasing, and the share of innovatively active enterprises in the total number of enterprises in the country is also showing negative dynamics. The decline in the capital investment index confirms the fact that Ukraine has an insufficiently developed scientific and technical base and infrastructure for R&D, which further slows down the innovation activity of Ukrainian enterprises. Businesses need special long-term support programmes at the sectoral level, which would include specific fiscal benefits and incentives, facilitate communication with innovation developers, and provide training for relevant innovation specialists.

In general, after the war, the prospects for innovation and investment development of enterprises will be determined by the need to restore infrastructure, so investments in infrastructure reconstruction and modernisation will be extremely important, and innovative technologies and developments can be used in this direction, by enterprises in the construction, transport, and energy sectors. Investments in the innovations of defence enterprises in Ukraine, because of the war, can be a good basis for further development of this industry, shaping the security and effectiveness of Ukrainian defence and strengthening the competitiveness of national defence enterprises in the international arena, which is determined by the possibility of implementing and testing innovations in real conditions.

The state will have to lead the innovative development of enterprises by creating a favourable environment for attracting investment and stimulating entrepreneurship and innovation. This may include providing financial support, implementing development strategies, carrying out state orders providing tax incentives for innovative enterprises, and funding research programmes in priority areas of the economy. Further research should focus on the development

of practical sectoral support programmes for enterprises to stimulate their investment and innovation development.

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■ CONFLICT OF INTEREST

None.

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Виклики та перспективи інноваційно-інвестиційного розвитку підприємств у післявоєнний період

■ **Анотація.** Інноваційно-інвестиційний розвиток є ключовим фактором, який впливатиме на відновлення та розвиток підприємств у післявоєнний період. Інвестиції в інновації можуть стати джерелом економічного зростання після війни, що стимулюватиме створення нових робочих місць, підвищення продуктивності та конкурентоспроможності підприємств, що сприятиме розвитку всіх галузей економіки. Таким чином, метою дослідження було визначення основних проблем та можливостей інвестиційного та інноваційного розвитку бізнесу в країні в післявоєнний період. Для досягнення поставленої мети були використані такі теоретичні методи дослідження, як узагальнення, статистичний аналіз, зокрема, агрегування даних та групування вибірки, аналіз індексів розвитку. На основі аналізу ключових факторів у дослідженні обґрунтовано взаємозв'язок між інвестиціями та інноваціями, а також між інвестиційними можливостями та фінансовими результатами суб'єктів господарювання. Виявлено та детально проаналізовано з використанням статистичних даних кілька ключових проблем, які стримують інноваційно-інвестиційний розвиток підприємств в Україні та матимуть вплив у майбутньому, серед яких нестача фінансових ресурсів, відсутність належної інфраструктури, проблеми з кадрами та корупція, що суттєво впливає на позиції України в певних міжнародних інвестиційних рейтингах, що призводить до труднощів із залученням іноземного капіталу. Встановлено, що всі вищезазначені проблеми значно загострилися внаслідок війни. Досліджено особливості інноваційної діяльності підприємств в умовах війни та сформовано основні напрями підтримки, якої потребує бізнес у цій сфері. Обґрунтовано необхідність комплексної державної підтримки для стимулювання інноваційно-інвестиційного розвитку підприємств у післявоєнний період. Результати дослідження можуть бути використані органами державної влади, суб'єктами господарювання та науковою спільнотою, які займаються питаннями інноваційно-інвестиційної діяльності підприємств

■ **Ключові слова:** конкурентоспроможність; фінансові ресурси; економічне відновлення; інфраструктура; державна підтримка; фінансові стимули