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THE INNOVATIVE INFRASTRUCTURE OF UKRAINE: CHALLENGES DURING THE WAR

The innovative infrastructure is an important factor for the development of national economies. It creates conditions for the development of new ideas, technologies and products, which contributes to increasing the country's competitiveness in the global market environment. With the beginning of the full-scale invasion, Ukraine faced numerous challenges that significantly affected the development of innovative infrastructure.

There is an objective need for the formation and development of innovative infrastructure, which can fundamentally affect the structural restructuring of the economy and accelerate the development of the country as a whole. It is she who is able to organize and combine all the necessary human and material resources for the transformation of various sectors of the economy in a relatively short period of time. For this, the state needs to create conditions for the development of innovative infrastructure, determine the specifics of its functioning, and minimize bureaucratic influence.

One of the main challenges during war is the destruction of infrastructure. Military actions have already caused and may cause in the future serious damage to research institutions, technology parks and other innovation centers. This leads to the loss of not only material assets, but also the loss of knowledge that has been accumulated in these institutions over many years.

In addition, economic instability accompanying military conflict also jeopardizes the development of innovative infrastructure. Funding for scientific research and innovation projects is limited, as military needs require significant financial resources. This usually leads to a reduction in the budget allocated to the development of science and innovation. On the other hand, it is in the period of military operations that the importance of innovation increases and can become one of the key factors of victory.

The impact of military conflict on the development of innovative infrastructure can be long-lasting. Reconstruction and restoration of damaged infrastructure requires time, resources and specialists. In addition, the loss of

human capital, in particular scientists and specialists, can lead to a decrease in the potential for innovative development of the country.

There were problems in the field of innovation and innovative infrastructure in Ukraine even before the start of a full-scale war. In particular, according to the European Innovation Scoreboard 2021 [2], indicators of innovative development in Ukraine decreased compared to 2014. And for some indicators, there are even no data for comparison. These are data such as the number of product and process innovators, categories with innovative potential (but not yet innovators), etc. The fall in available indicators is observed in such indicators as investments in innovative activities, government support for R&D.

According to the Global Innovation Index 2021 [3], Ukraine ranked 49th among 132 economies. In 2021, Ukraine has better results in terms of innovation indicators than in 2019–2020 and ranks third among 34 lower-middle-income countries, and overall 32nd among 39 European economies. Among our best indicators is the traditionally high quality of human capital, while the worst are the state of institutions and infrastructure (91st and 94th respectively). In the Global Innovation Index 2023 report [4], Ukraine dropped its indicators to 55th place in the rating, and we continue to receive the highest positions in terms of the quality of knowledge and the quality of human capital. The worst are the blocks of infrastructure and market sophistication.

As a positive trend, the activation of the startup infrastructure in Ukraine should be noted. In recent years, in the field of innovative development, in particular, the development of startups has received a lot of attention, including from state structures. The appearance and active activity of the Ukrainian Startup Fund, which immediately became noticeable, was initiated by the state. To one degree or another, the state supported the launch of individual incubators and accelerators (more than 10 of them in total), the Lviv School of Startups, promoted PR and the promotion of many other initiatives aimed at promoting the startup ecosystem. If we add to these private investments such as Unit.city, as well as a number of large holdings, a large number and activity of intermediaries – actors of innovative ecosystems and business – associations with their initiatives, etc. – all together [5], this created a rather powerful environment for the development of startups.

However, the main question is whether these efforts have changed the picture of innovation in industrial sectors? Have our innovation development institutions strengthened and infrastructure improved – that is, those components in which (according to the global innovation index) we are lagging behind?

In our opinion, no, on the contrary, the situation is getting worse. Ukraine has serious problems with the development of infrastructure sectors, in

particular, their development is largely determined by the government's ability to implement systemic institutional changes aimed at reform. Of course, these issues can only be resolved after victory. But you can work on certain aspects already now.

First of all, it concerns the implementation of European integration policy. These are favorable conditions for business development and real decentralization authorities and complete the administrative-territorial reform, ensure further liberalization of foreign economic activity and increase the effectiveness of financial resources allocated by the EU to support economic reforms in our country countries [6].

For many years, Ukraine has not had an effective innovation strategy that would be recognized and supported by all categories of domestic innovators and expert communities. The situation in industry is particularly difficult – in this area, all governments of previous years were unable to propose effective changes, and the trend of general deindustrialization of the country's economy began to dominate in previous years. Today, war can finally bury the remaining remnants of science and innovation in the industrial environment. But it also creates new opportunities.

In fact, innovation support funds exist and are significant. The problem lies in something else – Ukrainian companies use them insufficiently and inefficiently. For example, since 2014, only 79 small and medium-sized Ukrainian enterprises (SMEs) have taken part in the Horizon 2020 European competitions, the main science-intensive development fund with 100+ billion euros, while Polish ones, for example, 520, and Czech ones – 378. And in his of the I4MS subprogram, which is designed for the digitalization of industrial SMEs – these are literally units of Ukrainian SMEs, while there were hundreds of them from neighboring countries in Eastern Europe. Among the top winners of various H2020 contests are Motor-sich, KB "Southern", several research institutes and Kharkiv Aerospace University, but which are practically unrelated to SMEs. And it is clear that there are practically no SMEs there [5].

In order to overcome financial challenges and ensure financing of innovative projects in the conditions of a military conflict, it is necessary to develop effective mechanisms for attracting investments. This may include the creation of special investment funds, establishment of preferential conditions for investors, attraction of external sources of financing and partnership with international organizations.

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