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FINANCING OF INNOVATIVE SCIENTIFIC PROJECTS DURING THE HYBRID WAR (UKRAINE AS EXAMPLE)

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Abstract: *Modern warfare is hybrid. It is carried out in all directions of the functioning of society, it affects on all aspects of every person's life. The war has two main stages. The first stage is a sudden attack on the country. The second stage begins when the attacked country moves the war into the "long-term", positional stage. An example of a modern war between two countries where modern weapons are used is the war between Russia and Ukraine. Russia without a declaration of war attacked Ukraine on February 24, 2022 and occupied more than 20% of the territory. From the end of May 2022, the war entered the positional phase. The front-line changes very slowly. However, an important feature is that the entire territory of Ukraine is under constant shelling by missiles of various classes. The case of Ukraine allows you to use most of the tools used by developed countries during World War I and World War II. Specific features for the involvement of science (within R&D) during the war are also separately highlighted. The obtained results will be important both for the Government of Ukraine and for the countries that support Ukraine financially and with equipment for military, dual and civilian purposes. Described methods make it possible to more effectively integrate Ukraine into the socio-economic space of Europe and developed countries as a whole. They also make it possible to significantly reduce the costs of foreign countries to help Ukraine in the war. This becomes possible due to the implementation of joint Projects, which are economically and socially beneficial both for Ukraine and for foreign countries.*

Key words: Modern War; Ukraine; Science; R&D; International Financing.

Features of modern war.

Modern warfare is always hybrid. It is carried out in all directions of the functioning of society, it affects all aspects of every person's life.

The war has two main stages. The first stage is a sudden attack. As a rule, war today begins suddenly. In any case, for the country that is being attacked.

The second stage begins when the attacked country moves the war into the "long-term", positional stage.

During the war, the biggest challenges arise for the economy of the country on the territory of which military operations are taking place. First of all, it is the need to produce new weapons and necessary components (for example, ammunition) and restore damaged weapons. At the same time, it should be taken into account that the enemy keeps all these enterprises under constant fire, tries to destroy or damage them. Therefore, these enterprises must be built in such a way that the enemy's influence on them is the least.

Modern war includes a powerful informational and psychological influence on the population as a mandatory component. Therefore, during the war, the population of the country, on the territory of which military operations are carried out, is in a vulnerable state. Note that the population of the occupying country has a serious advantage because its troops "win".

At the first stage of the war, the population of the partially occupied country is in shock. There is a lot of new and incomprehensible things here for him, to which he needs to adapt. The need for adaptation, the need to move to a new way of life, to new realities requires all psychological strength from the population. At this stage, the main negative factors have an informational and psychological origin.

At the second stage of the war, the population of a partially occupied country begins to solve other problems. They concern how exactly people will live for a long time in new conditions. If at the first stage the population is ready to "tolerate" for some time a rather large volume of "inconveniences" of various origins, then at the second stage the population already refuses to "tolerate". At the second stage, economic conditions come to the fore here.

In addition, at the second stage, people are under the influence of two powerful multidirectional vectors. On the one hand, they feel the presence of war in the country (especially in the information space). On the other hand, they want to move on to a stable life and solve their own current problems. For example, visiting doctors and taking care of your health, pursuing a career, getting an education, etc.

Therefore, the formation of a single vector that has these two components is the main task of the Government in a partially occupied country. It should be noted that this stage can be decisive for the outcome of the war for a partially occupied country.

An example of the war in Ukraine.

An example of a modern war between two countries where modern weapons are used is the war between Russia and Ukraine. Russia without a declaration of war attacked Ukraine on February 24, 2022 and occupied a significant territory of Ukraine (according to various estimates, about 20% of the territory). Today, the war has been going on for almost a year.

Let us consider the challenges of an economic nature and possible ways of solving them for the second stage of the duration of the war using the example of Ukraine.

From the end of May 2022, the war entered the positional phase. The front-line changes very slowly. However, an important feature is that the entire territory of Ukraine is under constant shelling by missiles of various classes.

Today, the number of refugees in Ukraine is estimated at more than 10 million, which is almost a third of the population. At the same time, almost half of the refugees are outside the borders of Ukraine. For refugees and native residents of Ukraine, the main problem today is finding a job that will allow them to maintain a sufficient standard of living. Enterprises are closing, business is in a very depressed state, logistical connections between enterprises are mostly broken. Thus, unemployment covers a large part of the population of Ukraine (both on the territory of Ukraine and refugees abroad).

Lack of work and sufficient income for life, excessive amount of free time constitutes a powerful threat to national security. People who find themselves in such a situation have an increasing state of stress, they immerse themselves in rumors, fakes, etc. A person is not able to stay in this state for a long time. Therefore, the barrier to transition to a protest state is reduced. And this creates great challenges for National Security.

Peculiarities of involvement of science (within R&D) during the war.

Finally, another important direction of economic development in wartime is the involvement of scientists. This is necessary both for solving urgent problems of a military nature and for developing programs for the reconstruction of Ukraine after the war, taking into account the possibility of a new attack by Russia. Funds should be allocated exclusively for specific scientific programs and scientists from developed countries must be included without fail. Separate programs can finance the participation of Ukrainian scientists in scientific conferences and scientific schools. It is possible to create a number of specialized conferences with a significant number of Ukrainian scientists and researchers. The main task of such specialized conferences and schools will be to create a platform for possible scientific and R&D cooperation between Ukrainian and foreign specialists.

During the World Wars in the 20th century, the science of each state was mobilized to fulfill military tasks. During the First World War, hydrophones were developed to counter submarines, aircraft construction developed rapidly, tanks appeared, etc. Scientists were involved in solving applied problems that the military put before them.

During the World War II, scientists made an even greater contribution to the development of their countries. Nuclear power and the atomic bomb, the first computers, radar, the use of mathematical models in logistics, probability theory to improve the reliability of military equipment, the use of new scientific developments, and much more were put into production and used immediately.

For many years, the authorities in Ukraine claim that Ukraine has great scientific potential. But does he work to protect Ukraine today? We will describe only a few organizational opportunities that can be used today in Ukraine.

The Ministry of Education and Science can forcefully oblige every candidate (PhD) and doctor of sciences to prepare substantiated Proposals about what he can offer for Ukraine in wartime. There are many opportunities for Offers. From the improvement of the equipment used in the Armed Forces of Ukraine today (both domestic and foreign) and to new methods of its use. Development of military equipment of a new generation. Logistic tasks. Medical and psychological support during the war for both military and civilians. Optimizing training and retraining technologies for new professions and functional duties, both military and civilian. Development of effective methods of counteracting the negative informational and psychological influence of the enemy and methods of destabilizing the socio-economic state of the enemy country. The development of new political steps of Ukraine and the purposeful formation of a coalition of countries that will support (politically and economically) Ukraine both during the war and after it.

Note. Today, Ukraine has the opportunity to lead a political movement to ensure the inviolability of the borders of those countries that do not have nuclear weapons. This will require decisive steps by the entire world community. Perhaps, for this, it will be necessary to change the Charters of a number of International Organizations and the conditions of a number of International Treaties (for example, directions for changing the UN Charter are discussed in [1]). Ukraine has a chance to initiate the creation of a new political space on the planet, but the window of opportunity for this is rapidly narrowing.

It is also necessary to include here the Proposals of each scientist on increasing the defense capability of Ukraine after the end of the war (results may be available in 3-5 years). These Proposals should be worked out not only by scientific experts from Ukraine, but also by the international scientific community from those countries that support Ukraine in the war. This will help to avoid possible destructive corruptive influences in science, which are taking place in Ukraine today.

Based on the results of such an analysis, a number of Ukrainian scientists may join international scientific groups developing military or dual-use projects. This will allow us to talk about the real integration of Ukraine as a full member of the security space of Europe and beyond. To achieve the result, it is necessary to create special international teams of high-level specialists, which include scientists (some features of the creation of such teams are described in [2]).

At the same time, the Government of Ukraine will receive information about the real state of science in Ukraine. Moreover, specific names of those scientists who are able to work at the international level will be obtained. This will allow the authorities to start the transformation of higher education in Ukraine and bring it to the world level in a short time. Also, the Government of Ukraine can identify those people who are not capable of creating a scientific product. This will make it possible to deny them, with reason, both teaching at a higher school and receiving allowances of various kinds for “scientific” activity.

All this will also allow the Government of Ukraine to obtain information about the real possibilities of science in Ukraine for the development of the economy in the post-war period.

Note. Recently, a mathematician of Ukrainian origin, a professor at the University of Lausanne in Switzerland, Maryna Viazovska became the second woman in the entire history of awarding the Fields Prize in mathematics. She got her results after emigrating from Ukraine. The President of Ukraine awarded her with the Order of Ukraine immediately after the award. Professor Maryna Viazovska perfectly understands the role of science during the war. In an interview with Ukrainian mass media, she said (translated into English by the author): “At the same time, I think that war is an accelerator of progress. If you look historically, you can see regularities between periods of war and the development of science. It seems to me that war is a time for the development of applied science, because many practical questions arise and they often require a technological solution. Therefore, I hope that, despite the difficult and destructive consequences that the war will have for Ukrainian science, Ukrainian society will not miss this time for modernization.”

Conclusion.

International financial aid to a partially occupied country can effectively influence both the course of the war and the post-war political situation in the region. On the example of the war that began as a result of Russia's attack on Ukraine, promising directions for international financing are proposed.

As a result of the introduction of proposed in the article financial projects, the costs of war can be significantly reduced. At the same time, social tension is significantly reduced both in Ukraine and in countries where a significant number of refugees are located.

The use of the approaches proposed in the article allows the effective economic and social integration of Ukraine into the global social and economic space of Europe and the developed countries of the world as a whole.

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