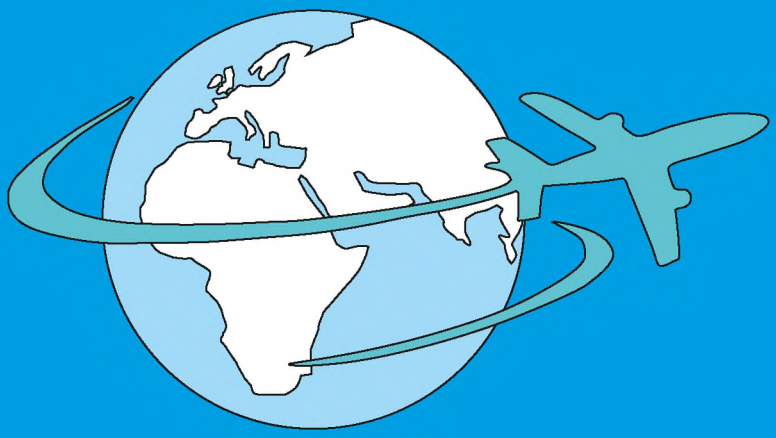
МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
НАЦІОНАЛЬНИЙ АВІАЦІЙНИЙ УНІВЕРСИТЕТ
Навчально-науковий інститут міжнародного
співробітництва та освіти

# Світові виміри освітніх тенденцій



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# НАУКОВІ ТА ОСВІТНІ СТРАТЕГІЇ ВОЄННОГО ЧАСУ

***Olga Shevchenko***
e-mail: deanfsf@nau.edu.ua

***Dmytro Bugayko***
e-mail: bugaiko@nau. edu.ua

***Tadeusz Popkowski***
e-mail: t.popkowski@gmail.com

## CHALLENGES OF THE AVIATION EDUCATION SYSTEM DURING THE WAR AND POST WAR PERIOD

Авіаційна освіта є системою відкритого типу, на яку мають вплив велика кількість як пов'язаних, так і не пов'язаних між собою чинників. Однією із найбільш вразливих її складових під час війни є діяльність університетів як міжнародних осередків освіти, науки та культури. На жаль, повномасштабна воєнна агресія проти України з першої хвилини нанесла руйнівний удар по діяльності національної системи освіти взагалі та авіаційної освіти зокрема. У статті з метою формулювання стратегічних сценаріїв післявоєнного відновлення та сталого розвитку авіаційного транспорту України пропонується використання Концепції національного управління інтегрованими ризиками авіаційного транспорту України.

*Ключові слова:* авіаційна освіта, управління ризиками, повоєнне відновлення, сталий розвиток авіаційної освіти.

Aviation education is an open system influenced by a large number of related and unrelated factors. One of its most vulnerable components during the war is the activity of universities as international centers of education, science and culture. Unfortunately, the full-scale military aggression against Ukraine from the first minute dealt a devastating blow to the activities of the national education system in general and aviation education in particular. In order to formulate strategic scenarios for the post-war recovery and sustainable development of air transport of Ukraine, the article proposes to use the Concept of National Integrated Risk Management of Air Transport of Ukraine.

*Keywords:* aviation education, risk management, post-war recovery, sustainable development of aviation education.

**Introduction**. Aviation education is an open system influenced by a large number of related and unrelated factors. One of its most vulnerable components during the war is the activity of universities as international centers of education,

science and culture. Unfortunately, the full-scale military aggression against Ukraine from the first minute dealt a devastating blow to the activities of the national education system in general and aviation education in particular. In order to support the sustainable development of the national system of higher education and taking into account the peculiarities of the wartime period, the Strategy for the Development of Higher Education in Ukraine for 2022–2032 and the Operational Plan for its Implementation in 2022–2024 were approved at the national level (Order of the CMU of February 23, 2022, No. 286-r). This strategic document defines the priorities of the higher education system at the current stage of development of society and the country's economy, as well as the main characteristics that will be formed by 2032. The goals and objectives of the Strategy are a detailed road map for rebuilding and continuing the reform of the higher education system in the post-war period. Completing the tasks defined by the Strategy will reduce the destructive consequences caused by the full-scale invasion of the Russian Federation on the territory of independent Ukraine.

The document provides for the implementation of 5 strategic goals:

1. Effectiveness of management in the higher education system.

2. Trust of citizens, the state, and business in the educational, scientific, and innovative activities of higher education institutions.

3. Ensuring high-quality educational and scientific activity, competitive higher education, which is accessible to various population groups.

4. Internationalization of higher education of Ukraine.

5. Attractiveness of higher education institutions for study and academic career [Fakhova peredvyshcha…].

**The Aim.** Confirming the conceptual significance of the Strategy for the entire system of higher education in Ukraine, I would like to dwell on a more detailed analysis of the risks of aviation education, as well as propose scenarios for its post-war recovery. The article is a logical continuation of a number of

publications devoted to the sustainable development of Ukrainian aviation educational system and branch risk management of Ukrainian scientists O. Shevchenko [Bugayko D. O. & Bugayko D. D.; Shevchenko, Bugayko, Popkovskyi], Y. Kharazishvili [Bugayko & Zamiar; Kharazishvili & Lyashenko; Kharazishvili & Baranov], D. Bugayko [Bugayko; Bugayko D. O. & Bugayko D. D.; Bugayko, & Zamiar; Bugayko, Shevchenko, Bugayko; Bugayko, & Bahrii; Bugayko, Ierkovska; Kharazishvili & Lyashenko; Kharazishvili & Baranov], Y. Ierkovska [Bugayko, & Bahrii; Bugayko, Ierkovska], V. Lyashenko [Kharazishvili & Baranov], Polish scientists T. Popkowskyi [Shevchenko, Bugayko, Popkovskyi], Z. Zamiar [Bugayko & Zamiar] and scientists of other countries.

**Results and discussions.** Threats to the system of aviation education and science of Ukraine:

- air and ground strikes on buildings, infrastructure and equipment of the aviation education and science system;

- threats to the educational process and scientific activity of the aviation education and science system.

Therefore, the above-mentioned threats led to an increase in the vulnerability of aviation education and science of Ukraine, which is expressed in:

- vulnerabilities of buildings, infrastructure and equipment of the aviation education and science system in the conditions of direct hostilities;

- forced evacuation of leading scientific and pedagogical personnel, doctoral students, graduate students, and students from the war zone.

The combination of the mentioned threats and vulnerabilities leads to the following consequences for the aviation education and science system of Ukraine:

- buildings, infrastructure and equipment of the aviation education and science system received damage of varying degrees of severity, which continues to be under the threat of air and ground strikes; termination or transfer to a remote

form of the educational process and scientific activity of the system of aviation education and science of Ukraine;

- a significant decrease in funding of aviation education and science in conditions of a significant decrease in GDP.

The main negative results of the above were the decrease in the level of efficiency and safety of the aviation education and science system of Ukraine, which consists of:

- significant destruction of buildings, infrastructure and equipment of the aviation education and science system of Ukraine;

- reduction in the effectiveness of the educational process and scientific research in the conditions of remote communication;

- lowering the level of the educational and scientific process in the conditions of reduced financing of Ukraine [Bugayko D. O. & Bugayko D. D.].

We offer to consider optimistic, realistic and pessimistic strategic scenarios of post-war recovery and sustainable development of the aviation education and science system of Ukraine.

The optimistic scenario includes:

- development and implementation of the national program for training aviation personnel and scientific research in the field of aviation for the purpose of post-war recovery and sustainable development of aviation transport of Ukraine;

- stopping the destruction of buildings, infrastructure and equipment of the aviation education and science system; comprehensive reconstruction of the system of aviation education and science;

- restoration of a full-fledged off-line educational and scientific process;

- gradual rise to the level of funding of the aviation education and science system in the second year after the war [Bugayko; Bugayko D. O. & Bugayko D. D.; Kharazishvili & Lyashenko].

A realistic scenario includes:

- development and gradual implementation of the national program for training aviation personnel and scientific research in the field of aviation for the purpose of post-war recovery and sustainable development of aviation transport of Ukraine;

-minor further damage to buildings, infrastructure and equipment of the aviation education and science system as a result of military actions; step-by-step reconstruction of the system of aviation education and science;

- partial restoration of a full offline educational and scientific process; gradual rise to the level of funding of the aviation education and science system in the third year after the war [Bugayko; Bugayko D. O. & Bugayko D. D.; Kharazishvili & Lyashenko].

The pessimistic scenario includes:

- development and delayed implementation of the national program for training aviation personnel and scientific research in the field of aviation for the purpose of post-war recovery and sustainable development of aviation transport of Ukraine;

- significant further destruction and damage to buildings, infrastructure and equipment of the aviation education and science system as a result of military operations;

- partial reconstruction of the system of aviation education and science; the impossibility of restoring a full-fledged offline educational and scientific process; gradual exit to the level of funding of the aviation education and science system for the fifth year after the war [Bugayko; Bugayko D. O. & Bugayko D. D.; Kharazishvili & Lyashenko].

Taking into account possible scenarios for the development of events can allow scientists, aviation education specialists and government officials to develop a set of measures to support the sustainable development of aviation education in

Ukraine. In fact, aviation education is an integral part of the national air transport system.

Ukraine is among the ten countries that have a closed cycle of development, production, operation of aviation equipment, and also has a developed network of aviation educational institutions. The recognized leader among them is the National Aviation University, which over 90 years of its activity has trained over 200 thousand specialists for 140 countries of the world.

The post-war restoration of the national air transport system requires the application of a systematic approach and the development of a strategic vision of this process. From the point of view of the authors, the development of the National Program for the Development of Aviation Education and Science seems promising, which should become an integral part of the Strategy for the sustainable development of the industry. At the same time, the National Aviation University has every opportunity to play a leading role in its implementation.

**Conclusion.** Considering the special importance of the aviation industry for Ukraine, the role of the sustainable development of its aviation education and science is crucial for the further development of the national economy. The industry, which during the period of military operations is in a state of forced downtime, will require comprehensive training and retraining of aviation specialists with the aim of quickly, efficiently and safely returning the industry to a working operational state. This set of tasks requires state support by developing and implementing the National Program for the Development of Aviation Education and Science, which will allow maintaining the image of Ukraine as a world-class aviation state. At the same time, the use of the scenario approach of post-war recovery and sustainable development of aviation education and science in Ukraine seems expedient.

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