

Strategic adaptation of Ukrainian airlines to the challenges of post-war air traffic organization

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Abstract

The ongoing Russian-Ukrainian war has profoundly disrupted the global air transportation system, presenting unprecedented challenges for Ukraine's civil aviation sector. This study investigates how Ukrainian airlines strategically adapt to the challenges of post-war air traffic management (ATM), focusing on restoring safe and efficient operations. It examines the effects of damaged infrastructure, restricted airspace, and evolving international safety standards on airline performance. Additionally, the research delves into integrating advanced ATM technologies and collaboration with global aviation authorities to bolster operational resilience. Furthermore, the study highlights the importance of developing robust contingency plans to address potential future conflicts and crises. It emphasizes the need for investment in modernizing airport facilities and enhancing training programs for personnel to ensure compliance with international regulations. The research also explores the role of public-private partnerships in facilitating the recovery process and fostering innovation within the aviation sector. The findings offer strategic recommendations for Ukrainian airlines to enhance their competitive positions and support the sustainable recovery of the national aviation industry, ultimately contributing to the broader economic stability of the region.

Keywords

air carrier, airlines, aviation, post-war challenges, strategy, strategic adaptation

1. Introduction

War is a challenge and a test of strength for any society, economy or industry. Entire sectors of society, business, government and citizens are put to the test in wartime. However, it is not only wartime but also the post-war period that is a new test of resilience, requiring new adaptations. Aviation is an important dimension of the economic and non-economic functioning of society and the state. As Suvorova I.M. and Ignatusha M.S. note, aviation is not just a means of transport, but an instrument of the modern world. Its active growth around the world makes people's lives more comfortable, boosts the economy and creates new opportunities for cooperation. At the same time, the researchers note that the development of the aviation industry in the post-conflict period is an investment in the future, which promises to be dynamic and fast [1].

The issue of adaptation of Ukrainian airlines to post-war challenges is of general economic importance and therefore requires special attention and study.

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2. Materials and methods

In order to answer the question of the strategic adaptation of Ukrainian airlines to the post-war challenges of air traffic management, it is necessary to determine what should be understood by strategic adaptation in this area. To this end, it is worth examining the provisions of current legislation, reference publications and the views of scholars.

First of all, it is necessary to analyse legislative acts, since the issue of air traffic management is regulated by a number of regulatory acts, the most important of which is the Order of the State Aviation Service of Ukraine "On Approval of the Aviation Rules of Ukraine "Air Traffic Management" dated 09.12.2021 No. 1920 [2].

Current national legislation does not provide a definition of 'strategic adaptation'. At the same time, the concept of "adaptation" is defined in the context of law enforcement. According to paragraph 1.2. of Section I of the Order of the Security Service of Ukraine of 1 March 2012 No. 79 "On Approval of the Instruction on the Procedure of Organising and Conducting Professional and Psychological Selection of Candidates for Training in Higher Military Educational Institutions of the Security Service of Ukraine", adaptation is the adjustment of the body and psyche of a person to the requirements and peculiarities of training and military service as a cadet [3]. Thus, in the context of this normative act, "adaptation" is understood as a process of adjustment.

According to the 11-volume Dictionary of the Ukrainian Language, the term "strategic" means to contain general, basic guidelines that are important for the implementation of a particular activity [4]. The same source defines "adaptation" as the adjustment of organisms or sensory organs to the conditions of existence, to the environment [5]. Thus, it can be concluded that the concept of 'strategic' implies the existence of basic principles or guidelines for activities, while 'adaptation' reflects the process of adapting to changing conditions.

According to Y.O. Kapitanets, the forms of strategy should correspond to the characteristics of the exogenous environment and the potential of the enterprise. The means of achieving such conformity is strategic adaptation - a process characterised by rapid response and flexible adjustment of the enterprise's endogenous capabilities (resources) to future changes in the exogenous environment of its functioning [6]. From this it can be concluded that strategic adaptation is a form of development that involves rapid response and adaptation of internal resources to changes in the external environment.

According to the provisions of Clause 1 of Section I of the Aviation Rules of Ukraine "Air Traffic Management", these Aviation Rules establish requirements for air traffic services through air traffic management and the application of certain operational procedures in the airspace of Ukraine and at civil aerodromes of Ukraine [2]. Air traffic management is a set of rules that establishes requirements for air traffic services through its organisation and application of operational procedures in the airspace of Ukraine and at civil aerodromes. In general, it is a system of rules aimed at regulating air traffic services.

It should be noted that Ukrainian legislation does not contain a definition of the term "air carrier", but there are regulations in its history that reveal the meaning of the term "air carrier". According to paragraph 4 of the Resolution of the Cabinet of Ministers of Ukraine "On Approval of Temporary Control Regulations for Ensuring Civil Aviation Safety" dated 02.08.1995 No. 592 (which has ceased to be in force), an air carrier was defined as any air transport company providing or operating air services [7]. At the same time, the Aviation Code of Ukraine dated 19.05.2011 No. 3393-VI and the Aviation Rules of Ukraine "Air Traffic Management" use the term "airline".

Taking into account the provisions of the legislation, scientific research and reference sources, it can be assumed that the strategic adaptation of Ukrainian airlines to the post-war challenges is to respond quickly and flexibly to the updated requirements for the organisation and provision of air traffic services.

As noted by Zaitseva O.I., Zhosan G.V. and Betina V.O., strategic adaptation is the newest tool of business development [8]. In view of the war against Ukraine, it is advisable to consider strategic adaptation in this context, since martial law directly affects the activities of Ukrainian airlines and

will have long-term consequences even after the end of hostilities. One of the modern definitions considers strategic adaptation as the process of finding and implementing solutions to systemic problems that affect the entire course of war [9]. This definition can also be applied to the adaptation of Ukrainian airlines to post-war realities, as strategic adaptation will involve the development and implementation of solutions to restore the aviation industry and ensure the efficient functioning of air transport.

Ukrainian airlines face a number of challenges, and preparations to meet them should begin now, before the end of hostilities. The military aggression against Ukraine has caused significant destruction and economic loss to the aviation industry: aircraft and airports have been destroyed and damaged, passenger and cargo traffic has decreased, resulting in a significant loss of revenue for airlines.

With the outbreak of hostilities, the airspace over Ukraine was closed and air traffic was suspended. At the same time, immediately after the start of the full-scale invasion, Russian troops actively fired missiles at all major airfields in Ukraine in an attempt to deprive the Ukrainian state of its ability to provide air defence. At the same time, attacks on Ukrainian airfields continue to this day. In the first year of the war, 19 out of 35 airfields were damaged, including 12 civilian and 7 dual-use airfields, not including military airfields. Some facilities were repeatedly bombed [10].

An important factor affecting the recovery of the industry is the security situation, the state of the infrastructure and the availability of qualified specialists. As noted by Suvorova I.M. and Ignatusha M.S., a full resumption of air transport in Ukraine is impossible as long as hostilities continue. In addition, the lack of experienced personnel, especially pilots and technicians, may significantly complicate this process. At present, pilots are losing their licences and flight hours, and ground and airport personnel are losing their certifications and permits, with the risk that their return to professional duties will be delayed [1].

Although most Ukrainian airlines are currently unable to operate, some operators continue to operate in international airspace. In particular, in 2023 the charter airline SkyUp offered its Boeing 737 aircraft on so-called wet lease to foreign carriers, provided that they did not operate flights to the Russian Federation and the Republic of Belarus. Under this model, the company cooperates with Tailwind Airlines (Republic of Turkey), Corendon Dutch Airlines (Kingdom of the Netherlands), HiSky (Republic of Moldova) and FlyEgypt (Arab Republic of Egypt) [11, 12].

Also in 2023, the WindRose airline resumed operations, operating flights from Tivat (Republic of Montenegro) to various European cities under the Air Montenegro brand [12]. As Suvorova I.M. and Ignatusha M.S. note, the operation of Ukrainian airlines outside the country is an effective tool for the maintenance of the aviation fleet and the preservation of personnel qualifications in closed skies. The researchers add that, with the right approach, the development of the aviation industry can become one of the key factors in Ukraine's post-war economic recovery.

Experts suggest a number of measures to help the aviation industry in general, and Ukrainian airlines in particular, adapt to the challenges of post-war air traffic management. These include: a) government support; b) restoration of infrastructure; c) stimulation of demand; d) development of human resources; e) introduction of innovative technologies; f) application of an ecosystem approach, etc. Addressing these issues will contribute to the development of a competitive, safe and innovative aviation industry, which in turn will become a driver of Ukraine's economic growth.

As noted by Kovalenko N.O. and Gornostaiev O.V., the development of civil aviation is a particularly relevant issue in the context of the country's post-war economic recovery. The reconstruction of the aviation infrastructure and the growth of air traffic play a key role in reviving economic activity, integrating Ukraine into global markets, ensuring the mobility of the population and stimulating strategic sectors of the economy. At the same time, the post-war period presents a number of challenges related not only to the reconstruction of the destroyed infrastructure, but also to the adaptation of the aviation industry to the changed economic, political and environmental conditions [13, 14].

In order to develop strategic approaches to the post-war adaptation of airline companies, it is necessary to outline the basic factors that determine the conditions for the functioning of the airline sector during the war and the transitional period of recovery.

The closure of Ukraine's airspace on 24 February 2022 as a result of a full-scale invasion had critical consequences for the aviation sector, which must be taken into account when developing the concept of strategic adaptation of industry participants:

- Losses to aviation companies: According to various sources, the daily losses to these transport companies are estimated at several million US dollars, due to the suspension of regular flights and a reduction in traffic;
- Changes in the tourism sector: According to various opinions and studies, Ukraine could lose several billion US dollars annually in international tourism revenues due to the closure of airports and the inability to travel. This, in turn, has had a negative impact on the operations of hotels, restaurants, transport companies and other tourism-related businesses;
- Losses in business travel: according to various studies, business travel spending fell by 60-80%, depending on the sector, resulting in losses of hundreds of millions of US dollars annually;
- Reduced investment activity: the lack of direct flights has made it difficult to attract foreign investment, as potential investors are unable to visit Ukraine to implement projects. Total losses are estimated to be in the billions of US dollars;
- Macroeconomic downturn: according to various estimates, the reduction in transport activity due to the closure of airspace will lead to total economic losses of USD 30-50 billion in 2022 alone, including an impact on the country's GDP;
- Reduced competitiveness of aviation companies and the economy as a whole;
- Environmental problems: a significant deterioration in the state of the environment will directly require updated approaches to the business activities of aviation companies. According to various studies, the environmental damage caused by military operations is estimated at around USD 71 billion. Such losses affect the overall economic condition of the state, of which the transport sector is one of the most important [15, 16].

In light of the above, it is worth outlining a number of possible steps and measures for the strategic adaptation of Ukrainian airlines to the post-war challenges of air traffic management. Let us look at them in more detail [17].

The new post-war environment will require airlines to transform, expand or re-profile, driven by the opening of airspace and access to global and regional transport markets, which have changed during the war in Ukraine and the absence of most Ukrainian airlines in the transport sector. At the same time, companies will need to attract specialists by offering favourable conditions, as well as retraining and refresher courses. Emphasis should be placed on training programmes for professionals who, due to mobilisation, need additional training to return to the aviation industry. Simulator training and certification programmes should be re-established. It is also necessary to develop and implement a set of measures to train a new generation of pilots, technicians, engineers and a wide range of industry professionals. With regard to the return of personnel with combat experience or directly affected by hostilities, programmes for the psychological support, adaptation and recovery of such professionals should be implemented with the utmost care [18, 19].

Another factor that specialists will have to deal with in the post-war period is the introduction of new standards and new conditions for air transport, caused by the European integration processes that continue despite the hostilities. It is not only a question of training specialists in new rules, but also of new approaches to training itself, based on the principles common to the European Union [20, 21]. A separate aspect of the personnel issue in the context of the strategic adaptation of aviation companies to the post-war challenges of air traffic management is the possible need to attract foreign specialists to the aviation sector due to the personnel shortage caused by the war. In this case, there

will be a problem of adaptation of foreign specialists to the Ukrainian air transport system, as well as adaptation of Ukrainian airlines to working with specialists who may have a different professional culture and approach to work tasks.

It should also be noted that the restoration of aviation infrastructure will require some form of participation by Ukrainian airlines in meeting this challenge, as the construction or repair of airports, terminals, runways and other infrastructure elements cannot be undertaken by the state and international institutions alone [22, 23]. The damage and scale of destruction are unprecedented in the history of Europe and Ukraine since the end of the Second World War. The involvement of private investors appears to be a prerequisite for the restoration of aviation infrastructure, and Ukrainian carriers should contribute to this process according to their capabilities. In addition, their participation in the restoration of this sector will allow them to influence the formation of the infrastructure concept in the post-war economy. Even in the absence of significant financial investment by the airlines, their consultative participation can help to ensure that modern technological requirements, energy efficiency, environmental friendliness and inclusiveness are taken into account, which will ensure competitiveness at the regional and global air transport level.

The fundamental adaptation of airline companies to the post-war transport environment will require significant investment in innovation and technological development. The greatest competitiveness can be achieved when the economy is able to generate innovation itself, rather than relying on borrowing. Meeting this challenge will be an important step in ensuring not only the ability to adapt to new conditions, but also the ability to shape those conditions.

Airlines will need to actively cooperate internationally, particularly in seeking support and integration into the global aviation market. This means participating in international and intergovernmental projects as well as developing their own initiatives that will not only help restore pre-war routes but also open up new destinations.

It is also worth considering the possibility of actively involving airlines in the recovery of the tourism sector, trade and business travel as key factors in the development of the industry. In this context, it is important not only to launch an awareness-raising campaign, but also to establish organisational and technological cooperation with representatives of the tourism industry and a wide range of entrepreneurs.

The post-war period has been characterised by the creation of conditions for the introduction of innovative technologies in the aviation sector, including the use of new types of fuel, the development of unmanned aerial vehicles and the integration of artificial intelligence and digital technologies into transport management processes. At the same time, innovation will be inextricably linked to environmental safety, which will require the industry to adapt to European and global standards.

The strategic adaptation of Ukrainian airlines to the post-war challenges of air traffic management should include active participation in the development of both international and domestic air transport. It is important to develop proposals for government authorities on benefits, subsidies, special regimes for regulating transport, improving conditions for the emergence of new airlines, public-private partnerships and generally stimulating the development of the industry. At the same time, the need for regional recovery should encourage airlines to expand their presence or enter the regional air transport market, which will contribute both to economic activity in the regions and to the development of the airlines themselves.

Special attention should be paid to the study of the impact of artificial intelligence on the global aviation industry. Analysing the potential use of AI in aviation at the stage of developing strategic adaptation will allow Ukrainian airlines to implement technological innovations more effectively and improve their competitiveness.

Another important aspect of adaptation is the need to meet the requirements of European Union aviation legislation and industry standards. In view of Ukraine's active European integration and the fulfilment of key tasks for EU membership, airlines must take into account these regulatory requirements and adapt their operations to European standards.

It is also necessary to take into account the complexity of the post-war international markets, where destinations linked to the markets of countries that committed aggression against Ukraine (Russian and Belarusian markets) and supported this aggression (Iranian market) may lose commercial attractiveness and suffer reputational damage. The possibility of sabotage or terrorist acts by representatives of the special services of these countries or radical groups cannot be ruled out. This factor should be taken into account when taking measures to strategically adapt Ukrainian airlines to the post-war challenges of air traffic management.

The problems of climate change caused by global warming require radical changes in the entire world economy and in the aviation industry. In this context, the strategic adaptation of Ukrainian airlines should be based on global approaches to the new realities caused by anthropogenic environmental changes. Only real steps in this direction by Ukrainian airlines will allow them to adapt to global changes in the air transport market. The ability to reduce the negative environmental impact of their operations will increase their attractiveness in the national and global air transport sector.

Strategic adaptation should also be based on an understanding of the critical importance of the national environment. The scale and depth of the damage caused by the war to the Ukrainian environment forces us to resort to a nationwide economic transformation, in which the aviation sector plays a particularly important role. The national airlines can and should not only adapt to the increased environmental restrictions, but also propose them for implementation at the national level and participate in the formation of the state's environmental policy.

3. Conclusions

The strategic adaptation of Ukrainian carriers to the post-war challenges of air traffic management should take into account the changes in legislation that will become relevant after the opening of the airspace and the lifting of martial law. It is expected that a significant number of suspended regulations will need to be reinstated or revised. In addition, new legislation will be enacted to govern post-war relations.

It should also be borne in mind that the organisation of air transport in the post-war period will not be possible at the pre-war level, in particular because the official announcement of the end of the war, the signing of a ceasefire and the lifting of martial law will not eliminate the problems of post-war demining and the possibility of subversive activities by independent sabotage groups. Such threats and problems will significantly change the rules of air transport and aviation law, which should be taken into account by Ukrainian airlines when developing the concept and implementing measures for strategic adaptation to the post-war challenges of air traffic management.

Therefore, it can be assumed that the strategic adaptation of Ukrainian airlines to the post-war challenges of air traffic management should include prompt response and flexible adaptation to new air traffic management requirements. It will involve addressing a number of complex tasks, including restoring and modernising air transport infrastructure, restructuring the industry and strengthening human resources, integrating into the European aviation system, investing in innovation, technological development and digitalisation, adapting to global climate challenges and national environmental issues, attracting international support and developing cooperation, ensuring compliance with new post-war air traffic regulations, taking into account new security threats, and addressing new challenges of the air transport industry. Thus, the strategic adaptation of Ukrainian airlines is a crucial step towards the restoration and sustainable development of the aviation industry in Ukraine, ensuring its competitiveness in the international market and improving the level of aviation safety.

Declaration on Generative AI

The author(s) have not employed any Generative AI tools.

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