AIR TRANSPORTATION AND FORMATION OF NEW LOGISTICS HUBS IN THE CONDITIONS OF GLOBAL INSTABILITY

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Abstract

Logistics is a key factor not only in the economy but also in the social sphere. Its predictability, synchronicity, and stability are the basis for the effective functioning and development of the transport industry and supply. Those features are also the basis for creating a multiplicative effect in related industries. Air transportation is a significant link in the modern global logistics system. As a result, air transportation activities are carried out in fierce competition not only among air transportation companies but also with companies in other modes of transport. Air transport plays a significant role, especially in international long-distance commercial and passenger transportation. Its advantages, in addition to speed, are the quality of supplies, and geographical mobility, which makes it easy to expand and change routes. But it is expensive. The network of scheduled airlines covers the entire world. Its routes stretch over millions of kilometers. The reference points, or in other words, logistics hubs, are concentrated in more than five thousand airports. Now, in conditions of geopolitical instability, logistics routes and air hubs established and formed for decades are being transformed and moved to new locations. The increase in the routes' length and the growing costs of fuel led to the aviation companies' profitability decreasing. Some participants in this market are very close to bankruptcy. The article intends to comprehend the current trends, conduct a critical analysis of the state of the aviation industry, and formulate prospects for inter-country logistics links further developments.

INTRODUCTION

The COVID-19 pandemic has caused a series of disruptions in freight and passenger transportation worldwide. Countries responded to the spread of the coronavirus with harsh measures by lockdowns. Soon after, the vaccination and air-travel games began. Countries

started to choose which vaccines to recognize and which not to. That greatly limited the mobility of people, although it did not prove to be an effective tool. The disease spread with constant virus mutations. The pandemic has significantly affected the economy, especially air transportation. Many airlines were grounded. Some maintained a minimum number of flights to keep their licenses and maintain contracts with airports. Companies significantly reduced their international passenger air traffic. To reduce operational costs most companies have reduced the number of employees to a minimum. [1]

After the easing of movement restrictions caused by the pandemic, trade, and tourism grove sharply. That resulted in increased demand, primarily for air transport. The reduction of employees had a particularly negative impact at that time, in the middle of 2022. Airline companies experienced record demand for personnel. The situation aggravated the absence of workers from work due to illness. And while passenger traffic was returning to normal, that was not the case with global supply chains. They still suffered from pandemics. [1]

Then, there came a "special intervention" of Russia in Ukraine. It started to be a geopolitical conflict having a far-reaching impact on the air freight market. Most expect it will continue in the coming months, maybe, years. The changes happened quickly and showed how one large and developed system, like logistics, can come into crisis suddenly. The EU actively joined the war and adopted a series of sanctions to undermine Russian economic and financial ability to wage war. Some measures were the closure of the EU airspace for Russian aircraft, the banning of Russian transport operators, and bans on the export of goods and technology to the aviation and space sectors [1]. Russian Federation answered the same way. Now, transport companies faced restrictions from both the Western countries and the Russian Federation.

There is no end in sight to the war in Ukraine, and probably not to the sanctions against Russia and Belarus. Although the US complicates the situation with China and Taiwan, it is hard to expect sanctions extensions to China, with which Russia has strong economic relations. Such an unstable situation requires a deeper analysis and finding alternatives. This article aims to review current trends, perform a critical analysis of the state of the airline industry and formulate prospects for the further development of interstate logistics connections.

PURPOSE OF THE STUDY

The purpose of this work is to systematize and summarize information about the situation in the global logistics system in recent years, as well as to analyze trends in further air transportation development, considering the changed geopolitical landscape. Due to the circumstances and the interest of researchers in the issue raised in this article, we focused on the analysis of the situation in the aviation industry of Russia, as well as the direction of the shift of logistics routes after the introduction of an unprecedented number of sanctions against almost all sectors of the economy and finance of the Russian Federation.

RESEARCH METHODS

The conceptual basis of the study is a system-functional approach. In our research, we used general scientific methods and techniques (scientific abstraction, induction, deduction, comparison, statistical and financial analysis, and generalization), as well as private methodological tools of economic development (economic and statistical groupings, graphical interpretations, etc.) to substantiate theoretical positions and argumentation of conclusions. The above-presented methods, used in solving the tasks set, made it possible to ensure a high level of representativeness of the results and conclusions in the context of a single algorithm for achieving the goal.

RESULTS AND DISCUSSION

The preamble to the Convention on International Civil Aviation (Chicago, 1944) reads: "Taking into account that the future development of international civil aviation can greatly

contribute to the creation and preservation of friendship and mutual understanding between States and peoples of the world, and its abuse can turn into a threat to universal security ..." [2]

This quote illustrates the importance and necessity of observing the principle of rationality when making decisions related to restrictions on the movement by air of the population of countries under sanctions.

The United States and the European Union countries have imposed sanctions to put pressure on Russia, some of which are aimed at creating difficulties in the smooth operation of civil aviation and civil aircraft construction.

The main ones include:

- closure of airspace for Russian air carriers' aircraft.
- stopping the supply of civil aircraft and their components.
- termination by Airbus, Boeing, and other foreign aircraft manufacturers of access to mandatory information on maintaining airworthiness.
- revocation by foreign states of registration of airworthiness certificates for aircraft of Russian air carriers.
- revocation of certificates of foreign aviation administrations from Russian maintenance organizations.
- unilateral early termination of leasing agreements with Russian air carriers on the initiative of lessors.

Air carriers are the most vulnerable to downtime, and decision-making aimed at maintaining the smooth functioning of the industry has formed the basis of the Russian Program for the Development of the air transport industry until 2030. [3]

The main theses of the Program are aimed, first, at the development of aircraft construction and import substitution in the aviation industry.

The state program with a price of 700 billion rubles (~9 billion euros) assumes an increase in the production of new aircraft from 15 units in 2022 to 25 units in 2023 and 69 in 2024. [3] In 2029, the Russian aviation industry should produce 186 new aircraft. The focus is on the production of the Sukhoi Superjet New (SSJ-New) and Irkut MS-21, as well as Tupolev TU-214, which is currently being produced in a limited series to order, but soon may become the basis for passenger transportation. The sanctions will lead to the fact that over time the operation of foreign equipment will become impossible due to the lack of repair facilities and technical support from Boeing and Airbus manufacturers, and the Russian market will be saturated with domestic equipment, thereby significantly easing the sanctions pressure. At the beginning of 2022, the fleet of Russian aircraft numbered approximately 1,270 units. The structure of the aircraft fleet by the manufacturer is shown in Figure 1.

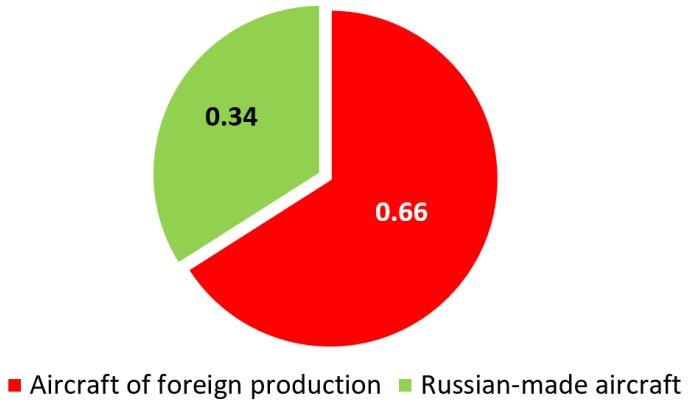

Fig. 1 The structure of the fleet of the Russian Armed Forces by manufacturers at the beginning of 2022. [4]

Currently, the task remains to increase the volume of domestic air transportation and flight affordability.

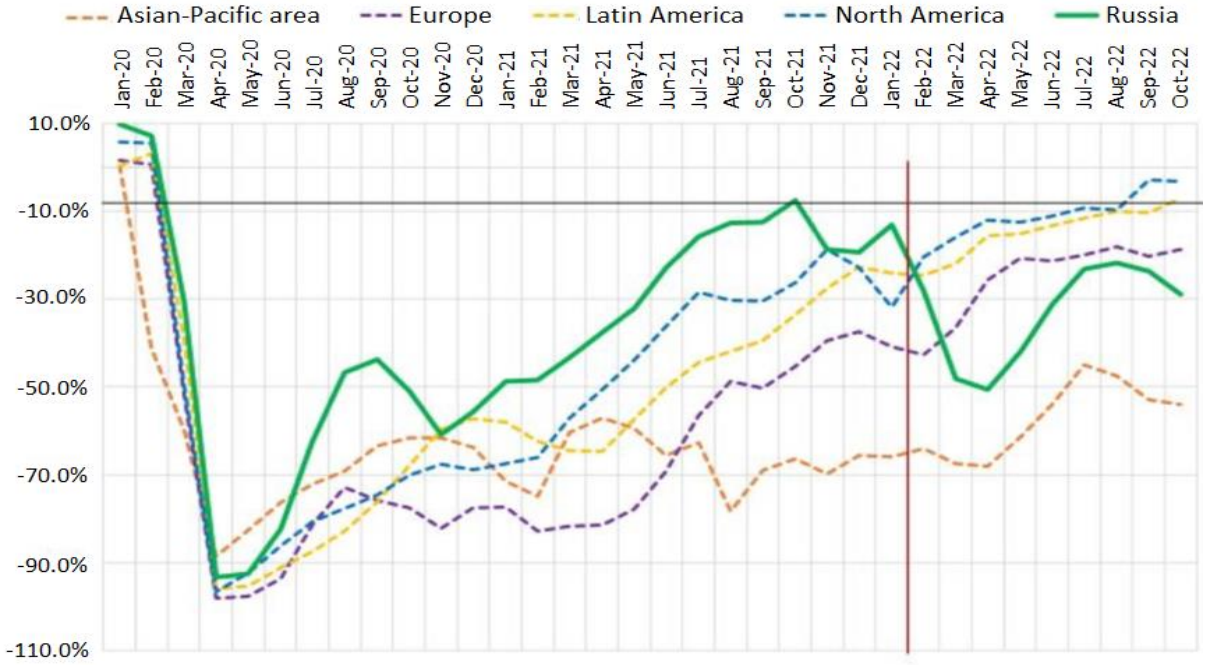

Fig. 2 Dynamics of passenger turnover (RPK) by regions of the world, as a percentage of the same month of 2019 for October 2022. [5][1]

In the second half of 2021, the active recovery of the Russian air transportation market began, and by the beginning of 2022, it had almost reached the pre-pandemic 2019. The main driver against the background of the existing quarantine restrictions in the world and the closure of the airspace of many foreign countries for Russian vessels has become domestic transportation. Figure 2 shows the dynamics of passenger turnover.

At the time before the sanctions, the main corridors from West Europe led over the Russian air space. Figure 3 shows an example for Finnair's flights.

Figure 3 Finnair's flights from Helsinki to Asia across Russian airspace [6]

The closure of the skies over Europe for Russian aircraft led to a decrease in passenger traffic in traditional Russian air harbors (Domodedovo lost more than 15% of its passengers, Vnukovo — almost 9%, and Sheremetyevo — just over 7%). At the same time, decreases in passenger traffic in regional air hubs were in:

[1] Sources: for foreign markets — [11], for the Russian Federation — [12].

- Zhukovsky 50%,
- Mineral waters 27.5%,
- Irkutsk 25%,
- Makhachkala 23.6%,
- Barnaul 20.5%,
- Sochi 17%, etc.

The Ministry of Water and Sochi took over the traffic of 11 temporarily closed southern airports. Irkutsk, Makhachkala, and Barnaul correspond to the most popular points on the map of domestic tourism: Baikal, Dagestan, and Altai.

Regional air hubs were opened to actively expand the route network in domestic and in international directions. Transport accessibility of the regions, provided by their route networks, reveals the potential of the subjects of the Russian Federation and contributes to their economic progress. It also allows significant social problems solving and opens new tourism opportunities.

The experience of developing new hubs turned out to be successful. Thus, Sochi Airport, among all the carrier's base air harbors, became the most popular destination for Russian travelers in 2022: more than 388 thousand people used flights to the south of the Russian Federation. The most popular routes from Sochi were Istanbul, Antalya (Turkey), and Yerevan, (Armenia). Many vacationers from Russian regions took advantage of the transit opportunity and went on airline flights abroad. Since 01.10.2022 alone, Russian, and Belarusian airlines have performed more than 2,100 flights to Turkey. [7]

In response to the sanctions imposed, Russia has closed the skies for flights over its territory for European aircraft. The most used logistics routes to connect Europe with the Far East, formed for decades, led along the trans-Siberian route. They are now closed. For air transport operators, closing caused increased costs (time, operational, financial).

Figure 4. Air routes from London in 2022 [8]

Figure 4[2] shows data on the duration of flights from London to Tokyo and Delhi. So, considering the new realities, the route from London to Tokyo is 17h versus 11h 10 min in the pre-crisis period, increasing by 65%, and from Paris 14 hours instead of 9. The situation is similar for all flights to the Asian region, to such business and tourist centers as Singapore, Shanghai, Seoul, etc. European airlines suffer losses due to the duration of transnational transportation increase. In practice, it is possible to travel from London to Tokyo directly in 13 hours, but it is still longer and much more expensive way.

[2] Figure 4 Authors used for illustration purposes only.

After the closure of Russian airspace for the EU countries, the USA, and Canada, most of the air traffic takes place on more southern corridors as shown in Figures 5 and 6.

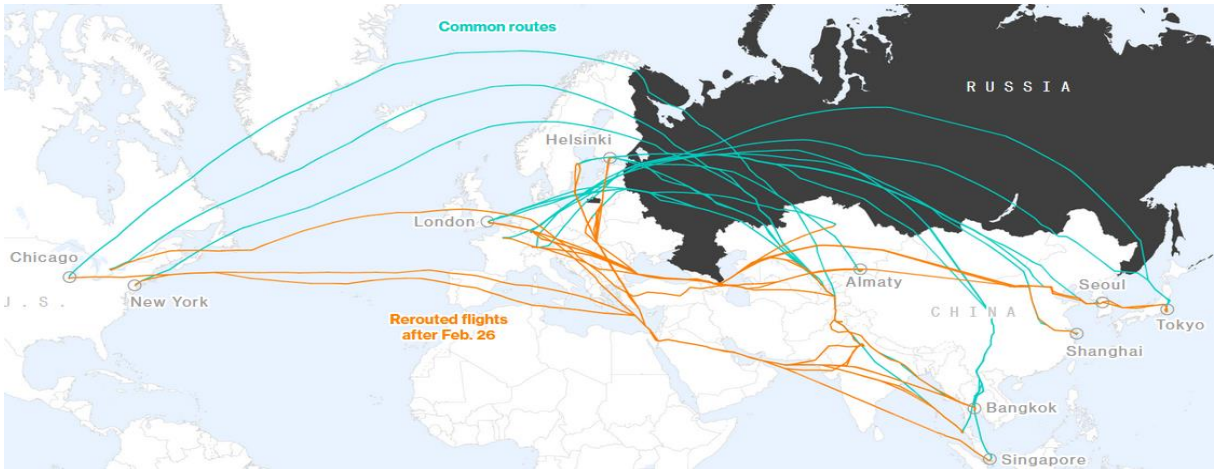

Figure 5. Reruted flightsfrom U.S., Canadian and European airlines [9]

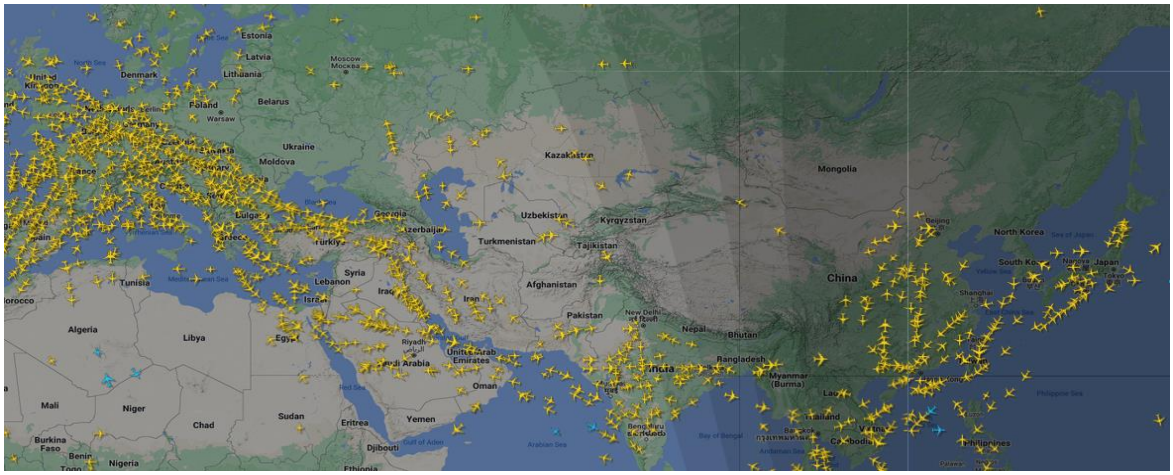

Figure 6. Live air traffic on 11.2.2023 at 13:15 [10]

The journeys are significantly longer in terms of hours and kilometers. This hurts the price of transportation, the comfort of passengers, and the speed of transportation of goods.

That way, those countries that continued to fly to Russia and expanded outbound opportunities for passengers, become, in fact, new international hubs and benefited from the closed EU sky.

CONCLUSIONS

Analyzing the results of 2022 in the field of passenger air traffic, we can notice some features that will have long-term consequences for air traffic in Russia.

The need for long-haul and medium-haul aircraft is decreasing because the number of routes on which these aircraft can be used has also decreased. As a result, the route network of the main air carriers is changing. The number of regional routes is increasing while bypassing Moscow, which until now was the main hub for international traffic.

The production of new Russian civil airplanes and the transparent distribution of those aircraft to Russian airlines are of vital importance to Russia. This is where the help of the state is necessary.

During the restructuring of the route network, it is possible to limit the increase in ticket prices for passengers, at least until the network is stabilized.

In a situation where there is no growth in the real income of the population, state support measures for demand, such as Government Regulation no. 761 from 2022, gain importance and

enable the maintenance of economy-class transportation prices within the framework of inflation.

Despite all the supply and demand shocks and challenges (fleet, IT products, etc.) in 2022, the volume of traffic in Russia on the internal air lines speaks for itself. Russia is a big country. Connectivity between regions (especially the Russian Far East, Siberia, and Central Russia) is a necessity and a daily need of the population..

The current discussions will help to comprehend the deep processes taking place worldwide, but now it is necessary to look for ways to overcome conflicts, extreme situations, and possible threats. We all must concentrate efforts on creation, not destruction.

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