Tools for improving the strategic positioning of aviation enterprises in Ukraine

N Liskovych

Department of Management of Foreign Economic Activity of Enterprises, National Aviation University, 1 Liubomyra Huzara ave., Kyiv 03058, Ukraine

E-mail: nazariy.liskovych@gmail.com

Abstract. The research is aimed at improving the tools of strategic positioning of aviation enterprises based on the identification of strategic groups of both airlines and airports in Ukraine. The research is based on the use of a competency-based approach to form a list of key competencies of types of aviation enterprises. Cluster analysis is used to identify strategic groups of airlines and airports in Ukraine. A methodological tool has been developed for identifying strategic groups of both national airlines and airports based on cluster analysis.it uses key performance indicators of aviation enterprises in Ukraine and takes into account the existing restrictions on the openness of their financial and operational indicators in Ukraine. The results of the study revealed five groups of domestic airlines and airports that are homogeneous in classification parameters. A methodological approach to identifying strategic groups of airports is proposed, which takes into account the diverse parameters of their technical condition and activity, and can be used to develop models of private management typical for each strategic group of airports, including on the basis of public-private partnership and concession, depending on priority and economic feasibility. To ensure effective strategic positioning and management of an aviation enterprise, it is advisable to proceed from the existing ones and focus on acquiring key competencies that are leading for each type of aviation enterprise, both internal and external.

1. Introduction

The specifics of providing air transport services determine the characteristics of strategic management of aviation enterprises. Thus, air transportation is carried out by airlines, and sending and receiving flights with passengers, cargo and mail is carried out by airports that accept both domestic and international flights of national and foreign airlines. Usually, foreign airlines are allowed to operate international flights to a certain country on the basis of bilateral agreements between the two countries. These agreements define air carriers from both countries and all commercial conditions for the operation of air lines. In essence, such transactions act as a barrier to airlines entering a certain aviation market. Of course, such agreements significantly limit competition in the air transport markets. Therefore, for the development of markets from about 1990, first in the United States, and then in Europe and around the world, the processes of liberalization of aviation space began [1, 2]. Taking into account the development of integration processes and taking into account the orientation of Ukraine to enter the European aviation space and the gradual adaptation of domestic aviation legislation to the implementation of the agreement on "open" skies with the EU, the problem of ensuring proper strategic positioning of domestic airports, airlines and other aviation entities involved in international air transport becomes relevant. In the

economic literature, the study of the use of the competence approach in the strategic positioning of enterprises is devoted to the work of Rekiyanov S O, Verba V A, Prahalad SK, Vartanova AV, Tidd J, Pogorelov Y, Belousova K and others. However, the aviation industry has its own characteristics related to both the formation of demand and the activities of aviation enterprises involved in the formation of market supply in the air transport market. The purpose of the research is to develop methodological issues of using the competence approach in the strategic positioning of aviation enterprises, determining their strategic groups, aimed at developing recommendations for improving their competitive position in the international air transport market.

2. Materials and Methods

The strategic positioning of the enterprise represents a set of management measures, the development and implementation of which is aimed at ensuring that the enterprise reaches the target competitive position in the market, the planned results of its activities in accordance with the adopted development strategy. The tools that are often offered for use in enterprises are based on the use of SWOT analysis (English: S-Strength – strengths; W-Weakness-weaknesses; O-Opportunities – opportunities; T-Threats) in order to assess the current state of its business strengths and weaknesses. This approach allows you to evaluate the market position of a certain aviation company, such as an airline, even in dynamics, but the task remains to compare its position relative to other airlines, that is, taking into account the dynamic competitive environment. In this direction, we consider it appropriate to focus on using a competency-based approach to both evaluating and shaping the airline's strategic position. As is known, the company's competencies as sources of obtaining competitive advantages are used in the competitive and strategic positioning of the enterprise [3-8]. Using this approach makes it possible to determine the strategic position of an airline or airport, and allows you to systematize their competitive advantages. Based on the results of the assessment of factors influencing the strategic positioning of Ukrainian aviation enterprises, the development of specialized SWOT matrices for analyzing airlines and airports, it is possible to form a list of key competencies of airlines and airports that determine their competitive advantages of industry and functional features. Based on the analysis of scientific sources [3, 4], [9], the list of key competencies of airlines and airports in Ukraine has been formed, which reveals the peculiarity of using the competence approach and the specifics of the activities of aviation enterprises. So, to the main airport competencies include: class of airport infrastructure of the airport, the presence of a basic airline that provides transfer of passenger traffic to the airport, transparent and flexible system of motivation of airlines, availability of efficient business processes of the organization and service of passengers and airlines, high security and quality of service, availability of qualified staff, effective communication with suppliers, development of non-aviation spheres of activity, availability of reliable sources of the airport development.

In turn, to core competencies of the airline includes: an extensive network of routes, flight punctuality, modern fleet of aircraft, the possibility of its quick replacement and expansion, efficient business processes, high safety and service quality, expanded network of transportation, high adaptability, availability of qualified staff, effective communication, relationship with suppliers, the availability of reliable sources of development of the airline, the active position of the owners in ensuring its development. It is important that in order to ensure effective strategic positioning and management of an aviation enterprise, it is advisable to proceed from the presence and aim at achieving both internal and external key competencies of the enterprise, using susceptible external factors.

On the basis of comparing the competence of a national airline with the competence of foreign airlines competing with it in the international air transport market, it is possible to build a list of competitive advantages of such a national airline. It clearly demonstrates and allows you to determine the direction of benchmarking of a national airline, based on the results of a pairwise comparison with competing companies, including foreign ones. A similar approach should be used for benchmarking domestic airports.

As a result of the competence assessment, it becomes possible to determine the competitive advantages (disadvantages) of an airline in the international air transport market. A pairwise comparison

of the calculated values of the airline or airport competencies with the competencies of a foreign competitor forms an index of the competitive advantage of such an airline for a certain competence. If the value of such index of a national airline for a certain competence exceeds 1, then its existing competence is higher than the corresponding competence of a foreign competitor airline. The same sequence of actions is performed for the entire list of competencies defined for other types of aviation enterprises. If the competitive advantage index of an airline is less than 1, then the corresponding competence of the airline has a lower rating than that of a competitor airline, which weakens the competitive position of such an airline. Thus, the formation of a list of competitive advantages of aviation enterprises allows us to determine their strengths and weaknesses in the international air transport market.

To develop regulatory solutions by the aviation administration of Ukraine to support national aviation enterprises in the context of gradual liberalization of the aviation space of Ukraine based on the removal of restrictions in bilateral interstate agreements, it is advisable to develop analysis tools for systematization of all domestic airlines and airports into certain strategic groups.

There are quite a lot of articles published in international publications on the definition of strategic groups of enterprises, including airlines [10-13]. Thus, researchers Murthi B P S, Rasheed A A, Goll I in the source [11] revealed the features of using the latent Class Regression Model to identify strategic groups of American airlines. But unfortunately, despite the state of corporate relations, this approach cannot be used to identify strategic groups in the Ukrainian air transport market. This is due to the lack of public information from the financial statements of airlines: only two airlines – PJSC "International Airlines of Ukraine" and PJSC "Dniproavia" are joint-stock companies that publish their reports in the public domain. Other airlines are limited liability Companies by their legal form and do not publish their reports openly. More often, experts in the transport aviation industry recommend using the approach of M Porter [8], according to which it is advisable to form strategic groups of competing firms that use similar competitive approaches and positions in the market. According to this methodological approach, a study was conducted by Kling J A and Smith K A [12] to determine the strategic groups of American airlines.

In our research, we use the methodological approach of M. porter, based on the systematization of characteristic features of the activities of aviation enterprises in Ukraine (by type of aviation activity) using cluster analysis to identify strategic groups of both national airlines and national airports. The cluster analysis is based on a range of values of key external indicators, which, of course, is achieved due to the appropriate functioning of the internal environment of each airline, its business processes and culture. Identification of strategic groups of airlines and airports should take into account their competitive position in the air transport market. This is why hierarchical cluster analysis is used to identify data from strategic groups, in which the Euclidean distance method is used to determine the distance between arbitrary pairs of clusters. Clusters of both airlines and airports are selected using a set of dummy variables that reflect the absence or presence of certain characteristics for the airline "0" and "1", respectively. The result of cluster analysis is to identify clusters of airports (airlines), that is, their strategic groups, which have common features and similar problems in their activities. We consider it appropriate to identify strategic groups of airlines based on indicators that are available from open sources of information. Since most of the Ukrainian airlines that operate on the international air transport market are limited liability companies in their legal form, their financial and cost-effectiveness indicators are not publicly available. In the Table 1 the criteria for recognition of strategic groups of domestic airlines are presented, respectively, in Table 2 the criteria for determining the strategic groups of airports in Ukraine for cluster analysis are given.

Table 1. Criteria for determining strategic groups of domestic airlines for cluster analysis

Criteria	Value
Type of air transport	Passenger, cargo, mixed
Type of flights performed	Regular, charter flights

Annual number of flights	Up to 5,000 flights, from 5,000 to 10,000 flights, more than 10,000 flights
Number of aircrafts in operation	Up to 5 aircraft, 5-15, more than 15 aircraft
Average age of the aircraft fleet	Up to 10 years, 10-20 years, more than 20 years
The punctuality of the airline	Up to 60%, 60-70%, more than 80%
Presence of integration interactions	The presence or absence of code-sharing transactions, interline transactions, and the like
Loyalty program	Presence or absence
Timely settlements with business partners and clients	Presence or absence

As shown in Tables 1 and 2, most of the criteria indicators are available from open sources, in particular, periodic reports of the Ministry of infrastructure of Ukraine, including punctuality. Airline punctuality is an external indicator of the effectiveness of the airline's business processes and communications. Due to the developed integration interactions with other air carriers, airlines can ensure an increase in punctuality by using their airport slots.

Table 2. Criteria for determining strategic groups among Ukrainian airports for cluster analysis

Criteria	Value
Type of airport	International, domestic
Airport class by technical characteristics of flight lanes	A, B, C, D, E
Passenger traffic, pass. per year	Up to 500 thousand passes, from 500 thousand pass. to 1 million pass., from 1 million pass. to 7 million pass., more than 7 million pass.
The development of airport infrastructure	Presence or absence
Availability of a basic airline that provides transfer passenger traffic	Presence or absence

Among those presented in Table 2 criteria for determining the strategic groups of airports in Ukraine based on cluster analysis, special attention should be paid to the criterion "type of service", which indicates "international", "domestic", which is due to the established classification. It should be noted that international airports include receiving and sending international flights. But the scale of activity of domestic international airports and their specifics differ significantly. Therefore, such criteria as "Airport class according to technical characteristics of runways", "Passenger ships sent and arrived", "Passenger flow", "Postal traffic flow", "Capacity (passengers)", "Development of airport infrastructure", "Availability of base airline, which provides transfer passenger traffic". The approach used by us in the study differs significantly from the approach to the classification of Marintseva KV [13, p.124], which is based on the use of purely technical parameters of the runway and technical aeronautical means of takeoff - landing as the main classification criteria. The set of criteria used by us allows to carry out systematization of strategic groups of airports taking into account their technical parameters, operational, and also commercial opportunities of their development.

3. Results

Based on the results of the cluster analysis conducted with the profile identifiers, five strategic groups of domestic air carriers were identified, as shown in Table 3.

Table 3. Strategic groups of Ukrainian airlines based on the results of cluster analysis.

Name of the strategic group of national airlines				
(ACC) Air cargo companies	«NHA» Network hybrid airlines	«HSCA» Hybrid scheduled charter airlines	«HLCCA» Hybrid low-cost charter airlines	«HCA» Hybrid Charter airlines
Classification of national airlines as a strategic group				
Air transport enterprise (ATE) State enterprise «Antonov», ATE «Yuzhmashavia», «CAVOK Airlines», «ZetAvia», «Maximus Airlines»	" Ukraine International Airlines»	«Azur Air Ukraine», «Wind rose», «Yanair», «Bukovyna», «Atlasjet Ukraine», «SkyUp»	«Wizz Air Ukraine», «UTair Ukraine», «Jonika»	«Anda Air», «UM Air» Airline, «Motor Sich JSC» Airline, «Dniproavia» «Meridian», «Air Charter», «Mars RK»

Thus, among domestic airlines, five strategic groups can be distinguished, one of which is a group of purely cargo air carriers, while the other four strategic groups of airlines operating both passenger and cargo transportation on a regular and irregular basis are hybrid in their business model. An interesting fact is that almost all national carriers use the budget pricing model when forming passenger air transportation fares ("low-cost" - fare), but the share of this fare is different for airlines. Thus, «International airlines of Ukraine» - a representative of the «NHA» group offers "low-cost fares" on some routes, but their share is not as significant as that of the strategic group's airlines «HSCA» or «HLcCA». At the same time, charter flights to seasonal tourist destinations are operated by all four hybrid airlines, but their ratio to regular flights and budget flights differs significantly for airlines of different strategic groups. Therefore, the results of cluster analysis have shown that all strategic groups, except "ACC" are hybrid, which have different ratios of characteristics of charter, regular, and budget carriers. Moreover, modern foreign airlines often adhere to the "purity" of their model within a single business unit. Thus, integrated forms of aviation business are now common, when powerful foreign low-cost airlines are subsidiaries of well-known network carriers, such as "Air Asia" and "Asia Asia", which makes it possible to get advantages from integration [14]. On the basis of a pairwise comparison of the competencies of a leading national airline in a certain strategic group with the competencies of foreign airlines that compete with it in the international air transport market, it is possible to build a table of competitive advantages of such a national airline. This will make it possible to better determine the direction of benchmarking of a national airline, based on the results of pairwise comparisons with competing airlines, including foreign ones. A similar approach should be used for comparative analysis of domestic products. Based on the results of the cluster analysis carried out taking into account the profile identifiers, four strategic groups of domestic airports were identified, as shown in Table 4.

Table 4. Strategic groups of airports in Ukraine based on the results of cluster analysis.

Name of the strategic group of airports			
«AH» Airports-hubs	«IRA» International and regional airports	«ISRA» International sub-regional airports	«LA» Local airports
Classification of domestic airports as a strategic group			
«Boryspil»	«Kyiv», «Odesa», «Lviv», «Kharkiv»	«Zaporizhzhia», «Dnipropetrovsk» «Kherson», «Ivano-Frankivsk», «Chernivtsi»,	«Poltava», «Mykolayiv», «Rivne», «Zhytomyr», «Vinnytsia», «Uzhhorod», «Kryvyi Rih», «Bila Tserkva»

	and others

In general, in recent years, commercial flights of domestic and foreign airlines have served 19 airports in Ukraine. According to 2019 data, about 98% of passenger traffic is concentrated in 7 airports (Boryspil, Kyiv, Odessa, Lviv, Kharkiv, Zaporizhzhia and Dnipropetrovsk). The table shows the variation of strategic airport groups: hub airports, international regional airports, sub-regional international airports, and local airports, which is proposed based on the analysis of current trends in the activity of foreign airports and takes into account the results of the cluster analysis. After all, the well-known classification of airports in Ukraine: "international", "domestic" does not meet modern realities and does not reflect the specifics and scale of their activities, since most airports accept international flights. For example, since 2020, two domestic airports in Kharkiv and Lviv are the base location of the Hungarian airline "Wizz Air", which operates flights from them to five European countries: Denmark, Estonia, Portugal, Germany and Poland. At the same time, attributing an airport to a certain strategic group only based on the technical characteristics of the flight lanes will be one-sided. The proposed approach to identifying strategic groups of airports, which takes into account the diverse parameters of their technical condition and activities, can be used to develop a model of private management typical for each strategic group of airports, including on the basis of public-private partnerships and concessions, depending on priority and economic feasibility.

4. Discussion

The research has shown that the distinctive feature of the strategic positioning of Ukrainian airlines from the strategic positioning of foreign airlines is its focus. Thus, the target audience of domestic airlines is only two of its categories: consumers of its services-passengers and cargo owners, as well as partners in the aviation business (suppliers) – tour operators, other airlines with which intelain agreements are concluded, code sharing, and the use of a block of seats. Integration interactions with such partners make it possible to ensure and increase passenger traffic and improve the quality of aviation services. It is important that among the target audience of domestic airlines, there are no real or future potential owners (holders of airline shares-investment and other funds), due to the underdevelopment of the secondary financial market. Only four of them are joint stock companies: PJSC "International Airlines of Ukraine", PJSC "Dniproavia», airline PJSC "Motor Sich", JSC "Bukovyna". Despite the fact that the secondary financial market in Ukraine is not developed, the owners and management of airlines do not care about changes in the share price. But the issues of ensuring the financial and economic security of national airlines are becoming important. For example, the bankruptcy of the leading national airline "AeroSvit" in 2013 was associated with significant amounts of unsecured financial obligations. The young airline "SkyUp" also faced a shortage of working capital to pay for the services of contractors in the aviation business in mid-summer 2018. Recently, the practice of providing state support to airlines with financial difficulties has been spreading in leading countries, taking into account the contribution of the aviation business to the country's GDP [1]. Such processes have occurred and continue to occur from time to time in the United States and the European Union [15], [16]. Government support in the form of subsidies, share buybacks in the authorized capital is provided during the crisis of such airlines, which is often associated with the actions of stronger competitors and economic, financial and other crises, sometimes global in nature. Other tools are also used. For example, in the EU, certain levers are used to partially offset the consequences of forced anti-pandemic measures (COVID19) to protect airlines from the financial consequences of the global coronavirus pandemic in order to ensure their financial stability. For example, EUROCONTROL decided to postpone the payment of invoices for airlines issued by them during February-May 2020 to mid-2021 [17].

In conditions of limited budget funding, the use of the proposed methodological approach for determining strategic groups of airports makes it possible:

- develop programs for the development of airport aviation infrastructure, taking into account the needs and characteristics of a certain strategic group of airports;

- determine the sources of financing for the modernization and development of airport infrastructure, depending on the strategic group of the airport;

- use alternative models of airport ownership and operation, depending on their strategic group;

- implement models of private airport management, in particular public-private partnerships and concessions for airports of a certain strategic group, and so on.

In particular, the development and implementation of a standard model of private airport management, including on the basis of public-private partnerships and concessions, should be considered for the airports of the strategic groups " LA "and" ISRA", taking into account the General needs and features of their development, in particular, despite the lack of centralized funding for the modernization and expansion of their production infrastructure. Confirmation of the feasibility of this approach is that according to world practice, low-cost airlines often choose secondary airports, which should be pulled up by the airports of the Strategic group "ISRA". The attracted investments will be recouped thanks to the activities of foreign low-cost airlines and domestic airlines of the Strategic group "HLCCA".

In general, a principled approach to building an organizational and economic mechanism for ensuring effective strategic positioning of aviation enterprises in Ukraine should include the following main stages:

Stage I – analysis of the Ukrainian air transport market (domestic and international flights of domestic and foreign airlines, passenger traffic to Ukrainian airports);

Stage II – formation of a set of criteria for identifying strategic groups of Ukrainian aviation enterprises within a certain type of economic activity in the aviation industry (strategic groups of airlines, strategic groups of airports);

Stage III – identification of strategic groups of domestic aviation enterprises (by type of economic activity)

Stage IV – identification of leading airlines in each strategic group based on key competencies;

Stage V – determining the competitive advantages (and weaknesses) of leading airlines in comparison with foreign competitors.

Stage VI – determining the areas of benchmarking of aviation enterprises (by type of economic activity), based on the results of pairwise comparisons of their key competencies with foreign competitors.

Despite the limited state sources of financing for the real economy of Ukraine, it is advisable to introduce the practice of providing financial and other assistance to aviation enterprises of such strategic groups that are strategically important for Ukraine, ensure the formation of its strategic positions in the region and experience significant competitive pressure from foreign airlines and airports. Such actions will contribute to strengthening the strategic positioning on the international market and the state of economic security of both such aviation enterprises and Ukraine.

Conclusions

To ensure effective strategic positioning and management of an aviation enterprise, it is advisable to proceed from the existing ones and focus on acquiring leading internal and external key competencies. A methodological tool has been developed for identifying strategic groups of both national airlines and airports based on cluster analysis.it uses key performance indicators of aviation enterprises in Ukraine and takes into account the existing restrictions on the openness of their financial and operational indicators in Ukraine. The results of the study revealed five groups of domestic airlines and airports that are homogeneous in classification parameters. The use of a competency-based approach allowed us to form the stages of building an organizational and economic mechanism for ensuring effective strategic positioning of aviation enterprises in Ukraine. The proposed beginning of the practice of supporting national airlines only target strategic groups will help strengthen their strategic positioning in the international market and improve their economic security, as well as contribute to the growth of the country's competitiveness as a whole. A methodological approach to identifying strategic groups of airports is proposed, which takes into account the diverse parameters of their technical condition and activity, and can be used to develop models of private management typical for each strategic group of

airports, including on the basis of public-private partnership and concession, depending on priority and economic feasibility.

References

[1] Ovsak O P and Liskovych N Yu 2019 Macroeconomic aspects of the impact of air transport development on the economy of Ukraine. *Black Sea Economic Studies*. Vol.1 48. (PU Black Sea Research Institute of Economics and Innovation) pp 133-141 DOI: https://doi.org/10.32843/bses.48-

[2] Ovsak O P, Liskovich N Yu and Nazarenko O P 2020. Ukraine on the path of aviation liberalization. *Market infrastructure* Vol. 40 P. 3-13. https://doi.org/10.32843/infrastruct40-1

[3] Rekiyanov S.O. 2011 Competence as a source of competitive advantage in strategic enterprise management. *Culture of the peoples of the Black Sea region* Vol 218 pp 154-156

[4] Verba V A 2004 Problems of identification of enterprise competencies. *Problems of Science. Vol* 7 pp 23-28

[5] Prahalad C K and Hamel G 1990 The core competence of the corporation. *Harvard Business Review* Vol 68 no 3 pp 79-91

[6] Vartanova O.V. 2009 Strategic competence of the enterprise as an object of strategic management of the enterprise] *Bulletin of the Volodymyr Dahl East Ukrainian National University Vol* 2 (132) pp 49-55

[7] Pogorelov Y and Belousova K 2014 Strategic positioning of the enterprise: the content of the concept. *Scientific Bulletin of Poltava University of Economics and Travel* Vol 6 no 68 pp 95-102

[8] Porter M E 2008 Competitive advantage: how to achieve a high result and ensure its sustainability (Moscow: Alpyna Byznes) 715 p

[9] Ovsak O P and Nazarenko O P 2018 Integration processes in ensuring the strategic positioning of aviation enterprises. *Ways to increase the efficiency of construction in the formation of market relations* Vol 36 (2) pp 236-248

[10] Tidd J 2006 From strategic management to strategic competence: measuring technological, market and organization innovation. (2nd ed. London: Imperial College Press) 437 p

[11] Murthi B P S, Rasheed A A and Goll I 2013 An Empirical Analysis of Strategic Groups in the Airline Industry using Latent Class Regressions. *Managerial and Decision Economics* Vol 34 No 2 pp 59-73

[12] Kling J A and Smith K A 1995 Identifying strategic groups in the U.S. airline industry: an application of the Porter model. *Transportation Journal*. Vol 35 p 226-34 https://trid.trb.org/view/458134

[13] Marintseva K V 2014 Classification of airports and priority of their reconstruction. Science and progress of transport. *Bulletin of Dnipropetrovsk National University of Railway Transport*. Vol 2 (50) pp 119-129

[14] Wu C Y, Heiets I and Shvindina H 2020 Business Model Management of Low-Cost: in a Search for Impact-Factors of Performance (Case of AirAsia Group Airlines). *Marketing and Management of Innovations*. 2 pp 354-367 eISSN 2227-6718, ISSN 2218-4511 [online] https://essuir.sumdu.edu.ua/bitstreamdownload/123456789/78434/1/Chen_Yuh_Wu_mmi_2_2020.pd

[15] Budd T 2019 The end of liberalization? Selected papers from the 4th European Aviation Conference (EAC), UK, *Journal of Air Transport Management*. Vol 74 pp 20-21

[16] Morrison W G, Jaap de Wit 2019 US open skies agreements and unlevel playing fields. *Journal of Air Transport Management*. Vol 74 pp 30-38 Available at: https://www.sciencedirect.com/science/article/abs/pii/S0969699718303909

[17] GTP editing team. Covid-19: Airlines Allowed to Delay Payments of Air Traffic Control Charges. Available at: https://news.gtp.gr/2020/04/08/covid-19-airlines-allowed-delay-payments-of-air-traffic-control-charges.