Ensuring safety of the use of transport enterprises' resources participating of air carriers' international alliances

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Abstract. The basis for the formation of an effective mechanism for ensuring the sustainable development of transport enterprises in the field of air passenger transportation should be the requirements of strategic orientation to flight safety standards. The purpose of the article is to summarize the international practice of forming and using a comprehensive mechanism for the use of economic resources for sustainable development of transport enterprises participating in global alliances in the international passenger transportation cluster, which aims to ensure the maximum safety of air flights. The formation of the mechanism of management of global aviation alliances' sustainable development resources in the passenger air transportation cluster in order to ensure the safety of air flights is associated with the need to adapt to the conditions of their activities the procedures for the constant updating of key strategic factors. To form promising strategies for unconditional safety of air passage transportation, it is necessary to form the Boston Consulting Group Matrix and single Internal-External Matrix (IEM), SPACE matrix and QSPM model for every aviation enterprises as alternative strategic management decisions, as it ensures the development of several acceptable strategic alternatives.

1 Introduction

The basis for the formation of an effective mechanism for ensuring the sustainable development of transport enterprises in the field of air passenger transportation should be the requirements of strategic orientation to flight safety standards. Some theoretical aspects of ensuring these standards are set forth in the studies of T.Yu. Kolomiets, I.V. Kurilo, V.V. Mankov, P.S. Polyntsev [1], S.P. Douglas [2], Yu. Malakhovskyi [3], Ye.G. Sycheva [4-5], A.S. Yutkina [6] and others. These works state that personnel, technologies, aircraft, information flows, motivation system, quality management mechanism are recognized as

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systemic elements of improving the efficiency of management of economic resources of air transportation in order to ensure flight safety. In order to further improve the management system of production and economic resources of air transportation to ensure flight safety, it is necessary not only to detail and specify the composition of its functions, but also to investigate the widespread practice of introducing these procedures into the daily activities of aviation transport companies – participants in international alliances of air carriers.

The purpose of the publication is to summarize the international practice of forming and using a comprehensive mechanism for the use of economic resources for sustainable development of transport enterprises participating in global alliances in the international passenger transportation cluster, which aims to ensure the maximum safety of air flights.

2 Literature review

According to the research of Yu. Malakhovskyi [3], Ye.G. Sycheva [4-5], the introduction of a systematic approach to the management of economic resources of aviation enterprises in order to ensure flight safety (MERAEEFS) is carried out with the obligatory observance of a number of principles. Their list includes integrity, structurally, hierarchically, system-environment interconnection, adaptability and flexibility, multispecty. According to numerous representatives of the professional society, the MERAEEFS needs to plan organizational measures to identify and eliminate the risks of incidents P. Doyle, Z. Gidengil, [7], D. S. Lee et al. [8], cooperation on their prevention by all participants of the aviation transport system during flights (P. Upham, J. Maughan, D. Raper, C. Thomas [9], V.Isaienko, M. Pawęska, V. Kharchenko, D. Bugayko, [10], their provision and investigation of the consequences of non-standard events. The problem of ensuring air flights is of particular importance under modern conditions.

3 Results and discussion

At the beginning of the XXI century owners of aviation enterprises (AE) began to be interested in the international economy. Over the past 20-25 years, in the field of their activities has appeared, developed and continues to develop such a direction of processes and trends, which in the future in the next decades will determine the state of the entire economic life of the modern world – globalization. As the basics of globalization AE began to think about ways of its further development. Large companies, which had an extensive network of overhead lines, became increasingly resilient in a market environment, which was constantly changing. They applied programs to encourage passengers to frequent flights. Thereby, the AE created an image of those who care about the interests of their passengers. Savings on the scale of activity allowed to reduce the cost of air transportation due to the distribution of fixed costs for a larger number of units of products – tons and kilometers, passenger kilometers. At the same time, AE – giants became such that they are difficult to manage due to the growth of the bureaucracy, significant overheads. The way out of the situation was seen as a step through integration. In addition, some large AE from the very beginning were based on the concept of the alliance.

Consolidation took place in several directions: complete merger of equal aviation companies; association of main and regional aviation companies; creation of the first marketing and strategic alliances [7, 11].

On international markets began to form the first alliances that did not provide for the exchange of property rights. The companies that joined them coordinated flight schedules, provided their terminals to alliance partners, and together provided information about their services in computer booking systems. At their core, they were the unification of AE, both

financially interdependent and maintaining full independence, in order to increase competitiveness and role in the air transport market. Alliances allowed to rapidly increase production capacity, replenish the fleet of aircraft, obtain commercial rights that belonged to other AE. In addition, AE takeovers, which had their own Hab, made such an airport inaccessible to competitors.

In the context of the globalization of the economy, unification of AE efforts to gain significant advantages in the competition against other unions and unions, airlines that did not find partners found themselves unable to resist alliances alone.

The conditions for creating alliances were as follows: the reasons for joining the alliance had to be more serious than simply eliminating competition; the organizational structure of aviation companies and the culture of their management had to be comparable and similar; partners coordinate their local and global strategies; everyone's contribution to the market had to be taken into account and balanced; the possibility of turning a partner into a competitor in the future is very low, since they know all the strengths and weaknesses of each other.

According to the International Air Transport Association (IATA) classification, almost all international aviation companies that act as partners in the field of commercial cooperation have the following forms: strategic alliances; global alliances; marketing alliances [2].

Market (marketing) alliances, which include cooperation under the “Interline” scheme – joint performance of flights under the same number by agreement, are very important for aviation companies in understanding the increase in their market share, transportation volumes, reducing costs and increasing the profitability of air lines. However, commercial partnerships, as a rule, do not deny alliances with competitors, do not also provide for joint ownership of property and mutual investments.

Unlike commercial partnerships, strategic alliances are more permanent and long-term in nature, which, however, does not exclude their further convergence until the merger of aviation companies. Strategic alliances leading to transnational associations in international air transport, unlike other industries, have become visible only in recent years, but they have a significant impact on the future structure of the international air transport industry. The reason was that the dominant in air transport for a long time was the concept of national ownership of the AE. And only recently began to show signs of inclination of states to one or another degree of foreign ownership of them. In the 80s of the twentieth century, it became clear that many state AE could not simultaneously earn the necessary profit for the government and provide the need for air transportation for the poorest segments of the population, while flying along unprofitable lines. State property began to become inefficient, while privatization of state AE began. They stopped using government subsidies and loan repayment guarantees [12-15].

The main reason for the formation of global aviation alliances (GAA) is the expectation of interaction, that is, getting more efficiency from joint work than individual companies could achieve, as well as reducing costs, which becomes important in times of global financial and economic crises and natural disasters. In addition, consolidated carriers seek to achieve economies of scale, which leads to an increase in production associated with this reduction in production costs (services). However, there is always a saturation point, for which, with an increase in the production program, the cost of production no longer decreases, so this factor can exhaust itself. A characteristic feature of the GAA can be called leadership and mastering key positions in them, mainly classic long-haul carriers, as well as a small proportion of low-tariff airlines that are only gaining strength. This indicates, on the one hand, the commitment to historical roots, because the initiators of the formation of alliances have traditionally been of European or American origin, whose history dates back more than a decade, and on the other hand, they often become the parent

companies of their low-tariff subsidiaries, which are more flexible and susceptible to the changing needs of the air transportation market [16-19]. Thus, in the GAA, two models of the air tourism business coexist and complement each other: classic and low fare. GAA's production indicators indicate the viability and competitiveness of such a model in the near future. It should be noted that further progress in the development of high-speed land transport, especially rail transport, may in the long run lead to dominance in the traditional market of low-tariff carriers and their comprehensive cooperation with other modes of transport.

The most complete set of components of the organizational and economic mechanism (OEM) of the GAA's stable development resources, carrying out passenger transportation, ensuring maximum safety of air flights, will be considered on the example of Lufthansa [20]. The goal of purposeful development of Lufthansa Group (LSG) as a leading European company participating in the GAA Stars Alliance in the passenger transportation sector is to take a key role in shaping the global aviation market and remain a top priority for consumers, shareholders involved in activities in the future. In this context, the strategy is aimed at the systematic development of LSG, which consists of Network Airlines, Eurowings and Aviation Services. The first two elements form the core of the Lufthansa Group. The differentiated portfolio of Network Airlines and Eurowings activities allows servicing all relevant market segments representing an attractive offer in the relevant geographical markets for both premium customers and more budget travelers. Compared to services, Network Airlines and Eurowings are expected to grow faster than average growth rates in the future. Services provide the provision of classic aviation services – logistics, maintenance and repair, food, which, in addition to the profile business, allow the airline to improve customer service and in every way contribute to increasing their level of loyalty.

LSG structuring by value chain helps to maximize synergy between segments and, at the same time, scale the business taking into account external influences. The goal is to consistently use the potential synergy around the LSG kernel. Key drivers include the synergy of revenues between air travel and miles in terms of loyalty and simultaneous cargo activities, as LSG transports a significant share of its cargo in passenger aircraft. Consolidation, flexibility and digitization are still seen as key drivers of development in the aviation market. They form the main elements of group strategy both for the entire population and within individual segments. LSG Group regularly analyzes market consolidation options in segments, which generally adds value to its services, is used as factors of organic and inorganic growth in order to improve customer service, increase LSG's market position in Europe/world due to economies of scale and interaction development. The airline industry is still operating under changing market and competitive operating conditions, including increased exogenous uncertainty and shifts in the value chain. They include new virtual services, within which travel service providers – online travel agents – can use their systems to combine different flight segments, as well as increase the scale of service provided by aircraft and engine manufacturers. The formation of such a dynamic flexible environment is becoming an increasingly important success factor. LSG thus coordinates its services, business models and organizational structures with a comprehensive, network and dynamic market environment. That is, cost efficiency and adaptability of LSG is guaranteed by means of creating flexible organizational structures and competition between providers of infrastructure and other services.

Increasing the level of flexibility of the air fleet is due to a decrease in the number of subflots and their standardization. This makes it possible to increase the synergistic potential of the level of operation, its flexible acceleration with the involvement of the group's production sites. The introduction of new aviation technologies also contributes to cost reduction. The introduction of LSG savings philosophy and activity program is combined with appropriate staff training to apply these methods within large transformation

projects with a focus on the client, end-to-end (E2E) flight management processes and value creation. The constant application of Lean in all areas makes processes transparent, measurable and accessible for management. LSG expects this to ensure a constant focus on the value that is actually added by the service delivery process. LSG aims to improve its position as one of the most innovative and digital airlines in the world. Therefore, it actively uses the opportunities created by digitalization to increase business efficiency and stability in order to add more value to customers by developing commercially attractive products and business models, as well as to maintain a permanent quality strategy. Key focus areas include increased service personalization, digital support for the travel process, for example by sending in-app latency notifications or automatically rebooking customers in case of disruptions to flight schedules. Active digital activity strengthens the level of e-commerce, its impact on the formation of internal and external sales channels.

Network Airlines in LSG offer a locally differentiated Premium class product for the constant implementation of a strategy for improving quality and forming an optimally attractive image for customers. Network Airlines strives to provide a more attractive, high-quality product in the long run based on the creation of a stable system. In addition, LSG cooperates with its system partners to create conditions for greater stability of work and sustainable growth of satisfied demand. It is envisaged to further expand the leading positions of Network Airlines in both European and global passenger traffic. There is a constant focus on cost savings, especially in those areas that do not affect the perception of quality by customers. They include streamlining the organizational structure of Network Airlines, systematically harmonizing their commercial management and organizational system (landscape), reducing costs for infrastructure service providers, and upgrading the process of coordinating staff salaries. As a result, the reduction in the cost of a unit of services continues, and customer perception is becoming more positive.

Eurowings segment LSG provides innovative and competitive development of the field of activity, which is highly sensitive to the needs of service-oriented customers using low basic tariffs and a list of basic additional services that can be booked quite flexibly. Focusing on key areas allows achieving a competitive cost structure in the activity segment, maintaining its integration potential and developing leading digital experience. At the same time, Eurowings enjoys the benefits of belonging to one of the world's largest aviation groups and a wide range of aviation services; for example, savings from scale, fleet upgrades, LSG equipment maintenance skills.

Aviation Services segment is constantly adapting its business models to change the cost chains and competitive conditions. LSG Technik concentrates sources of value added in the direction of intellectualization by servicing based on digital data. LSG Miles & More is developing its business side, while LSG Air Plus improves payment systems and services during business trips. LSG regularly conducts reviews of the attractiveness of market segments, their current competitive position, the future potential income of segments and their interaction, the combined contribution to the cost of airlines.

LSG's financial strategy is to increase the value of the company on an ongoing basis. It focuses on three dimensions: increasing profitability, using capital and protecting financial stability. LSG applies a cost management system. At its center is the company's profitability, which is measured by Adjusted EBIT. In order to implement profitability management in all decision-making processes, the level of payment of managers is associated with this indicator.

The second key element of LSG's capital management and development strategy is the regulation of the company's weighted average capital value (WACC). As a result of interim calculations, the company's net product – Earnings After Cost of Capital (EACC) and the Return on Capital Employed (ROCE) is estimated. Adjusted ROCE is measured for LSG as

a whole and individual group companies. If Adjusted ROCE exceeds the weighted average cost of capital (WACC), the company creates value.

After all, the third element of OEM of sustainable development resources' management is to ensure financial stability, the level of which is determined by external independent rating companies. Practical means to ensure an adequate level of financial stability of LSG are: adjusting the Adjusted net debt/Adjusted EBITDA ratio as an indicator of the company's ability to service its obligations; introduction of structured risk management of the company; diversifying forms of financing in order to increase the level of liquidity; development of SWOT analysis segments according to the methods of assessing the level of credit rating of leading agencies in order to implement calculations to OEM management.

The non-financial components of the OEM's management of LSG's sustainable development resources in the passenger transportation sector include six areas of activity that are conditionally characterized by the level of corporate social responsibility.

The formation of the OEM management of GAA sustainable development resources in the passenger air transportation cluster in order to ensure the safety of air flights is associated with the need to adapt to the conditions of their activities the procedures for the constant updating of key strategic factors.

As means of determining and continuously updating strategic factors of activity, we consider the matrix of estimation of external influence factors – EFEM and internal influence factors – IFEM [21].

The peculiarity of matrix formation is that the list and weight level of factors is specific to the aviation industry, and their ratings are specific to each company in its individuality.

As factors are considered:

- first, social, cultural, demographic, ecosystem, such as the age of the population; ratio of different age groups; income per resident; the number and types of special interest groups the depth of the gap between rich and poor; the number of persons who are married/divorced; ethnic/racial minorities; level of education; trends in the purchase of housing, store purchases, building a service career, doing business; birth rate and mortality rate; the percentage of emigrants and immigrants, etc.;
- secondly, economic, such as the growth rate of the economy; level of savings, investments, use of capital; inflation; foreign exchange rate, stock market trends, income level, which are administered by households, export/import factors and barriers on their way; product lifecycle (determined by the special product life cycle methodology); government/budget expenditures; industrial property; the scale of management; barriers to entering the industry market of activity; level of product differentiation, level of competition (determined by Michael Porter's five forces model technique), etc.;
- thirdly, political, factors of government influence, trends in business development, current legislation, such as globalization trends; government regulation and policy; global trends in relation to similar consumer structures; Internet and communication technologies (e-commerce); protection of rights (patents, trademarks, antitrust regulation); level of state subsidization; international trade regulation; taxation; terrorism; electoral and political situation inside and outside the country [22-23].

The EFEM is developed simultaneously with the IFEM. The IFEM together with the EFEM is a strategic tool that can be used to identify and evaluate the internal strengths and weaknesses of the company. Conceptually, the method of constructing an IFEM can be attributed to the method of developing balanced indicators (implemented according to a special algorithm using the Balanced Scorecard methodology).

Regardless of whether a key factor is assessed as internal strength/weakness, the highest weight should be assigned to the factors most important in organizational activities. The weight assigned to a given factor indicates the relative importance of the factor for the

successful functioning of the GAA. The weight of the factor is determined at the level of industry activity as a whole.

The rating of each factor of activity is determined by expert preferences. In the next step, the two previous matrices are combined into a single IE Matrix (IEM) of GAA.

The formation of the OEM management of GAA sustainable development resources in the passenger air transportation cluster in order to ensure the safety of air flights is associated with the need to adapt to the conditions of their activities the procedures for the constant updating of key strategic factors. Unlike the Boston Consulting Group (BCG), the IEM provides hailstones on its axes, while BCG only records market growth and market share. The IEM measures the specific numerical value of a group of external and internal factors. This also means that the IEM requires more business information than the BCG matrix. Although the values for each axis in the BCG matrix are single-factors, the values for each axis in the IEM are determined by several digits. Given that the IEM is more informative, it is advisable to simultaneously develop both matrices in order to form GAA development strategies [24-25].

4 Conclusions

To form promising strategies for unconditional safety of air passage transportation, it is necessary to form both matrices, despite the fact that the BCG matrix and the IEM are based on the evaluation of factors related to current conditions of activity.

The prospect of developing an IEM is the development of a SPACE matrix. In addition, the formation of the SWOT analysis matrix is mandatory for use. The QSPM model is another step in the development and adoption of final alternative strategic management decisions, as it ensures the development of several acceptable strategic alternatives.

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