

УДК 332

JEL Classification: L1, L86

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ANALYSIS FACTORS OF THE EXTERNAL ENVIRONMENT FOR CIVIL AVIATION

DOI: <https://doi.org/10.32620/cher.2023.4.09>

Problem statement. In the article, the authors indicate the strategic goals of analyzing external factors in civil aviation. The study identified the key factors that most influence Civil Aviation and for one factor a detailed analysis was made and recommendations for solving problems were given. *The purpose of the article* is to conduct an analysis of the factors of the external environment for civil aviation and give recommendations on their use. *Methods used in the study:* comparative analysis, detailing and generalization, comparison and grouping, etc. *The hypothesis of the study.* The external environment can present not only threats, but also opportunities for the company. *Present of the main material.* It is only by maximizing the opportunities of the external environment and minimizing the threats that a company can remain competitive and succeed in the market. It is by analyzing the factors of the external environment and forecasting their impact on the company that an organization can quickly adapt to changes and make strategically correct decisions for further development and advancement. *The originality and practical significance of the study.* The main stage in setting long-term goals and developing an effective strategy is strategic analysis, which should provide a realistic assessment of the company's own resources and capabilities in relation to the state (and needs) of the external environment in which the company operates. *Conclusions.* On the basis of this analysis, a rational choice of strategies from a possible set of options should be made. The questions arise, how and with what help to make the analysis? Various tools can be used, including PEST-analysis, which will be discussed in our work. Thus, the relationship between the factors of the economic group was identified. The result, based on this analysis, is that increased attention should be paid to changes in oil prices. The final decision is that this factor should be thoroughly investigated, taken into account in the SWOT analysis, and a response program developed.

Key words:

method of Pest analysis, factor, external environment, civil aviation, solution.

АНАЛІЗ ФАКТОРІВ ВПЛИВУ ЗОВНІШНЬОГО СЕРЕДОВИЩА ДЛЯ ЦИВІЛЬНОЇ АВІАЦІЇ

Постановка проблеми. У статті автори визначають стратегічні цілі аналізу зовнішніх факторів цивільної авіації. Дослідження визначило ключові фактори, які найбільше впливають на цивільну авіацію, і для одного фактора було проведено детальний аналіз та надано рекомендації щодо вирішення проблем. *Метою статті* є проведення аналізу факторів зовнішнього середовища цивільної авіації та надання рекомендацій щодо їх використання. *Методи, використані в дослідженні:* порівняльний аналіз, деталізація та узагальнення, порівняння та групування та ін. *Гіпотеза дослідження.* Зовнішнє середовище може становити для компанії не тільки загрози, але й можливості. *Виклад основного матеріалу.* Лише максимізуючи можливості зовнішнього середовища та мінімізуючи загрози, компанія може залишатися конкурентоспроможною та досягати успіху на ринку. Саме аналізуючи фактори зовнішнього середовища та прогножуючи їх вплив на компанію, ор-

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ганізація може швидко адаптуватися до змін і приймати стратегічно правильні рішення для подальшого розвитку та просування. *Оригінальність і практична значущість дослідження.* Основним етапом у постановці довгострокових цілей і розробці ефективної стратегії є стратегічний аналіз, який має забезпечити реалістичну оцінку власних ресурсів і можливостей підприємства щодо стану (і потреб) зовнішнього середовища, в якому підприємство працює. *Висновки.* На основі цього аналізу повинен бути зроблений раціональний вибір стратегій з можливого набору варіантів. Виникають питання, як і за допомогою чого зробити аналіз? Можна використовувати різні інструменти, в тому числі PEST-аналіз, про який і піде мова в нашій роботі. Таким чином, виявлено взаємозв'язок між факторами економічної групи. Результатом цього аналізу є те, що слід приділяти підвищену увагу змінам цін на нафту. Остаточне рішення полягає в тому, що цей фактор слід ретельно дослідити, врахувати в SWOT-аналізі та розробити програму реагування.

Ключові слова:

метод аналізу шкідливих організмів, фактор, зовнішнє середовище, цивільна авіація, рішення.

Formulation of the problem. For successful business development, it is important not only to define goals, but also to choose, reflected in a set of interrelated strategies, a course of action that guarantees the most effective way to achieve them. The external environment can present not only threats, but also opportunities for the company. It is only by maximizing the opportunities of the external environment and minimizing the threats that a company can remain competitive and succeed in the market. It is by analyzing the factors of the external environment and forecasting their impact on the company that an organization can quickly adapt to changes and make strategically correct decisions for further development and advancement. The main stage in setting long-term goals and developing an effective strategy is strategic analysis, which should provide a realistic assessment of the company's own resources and capabilities in relation to the state (and needs) of the external environment in which the company operates. On the basis of this analysis, a rational choice of strategies from a possible set of options should be made. The questions arise, how and with what help to make the analysis? Various tools can be used, including PEST-analysis, which will be discussed in our work.

The purpose of the article is to conduct an analysis of the factors of the external environment for civil aviation and give recommendations on their use.

Analysis of recent research and publications. PEST-analysis was developed in 1967 by Francis J. Aguilar, an American scientist in the field of strategic planning and general management, as a basic tool for scanning and analyzing the environment of an organization (first of all, on the macro-environment).

And so, firstly, the abbreviation PEST is made up of the English words:

- 1) Politics – Political environment;
- 2) Economics – Economic environment;
- 3) Socio – Culture – Socio – Cultural environment;
- 4) Technology – Technological environment.

Using PEST analysis of a company, the following important questions can be answered:

- 1) Will the product be in demand in the market?
- 2) Is it worth entering the market of another country?
- 3) What could negatively affect the development in the future?

The results of a PEST analysis are important for assessing the potential threats and opportunities of the environment in which a company operates. Hence the first rule - when conducting a PEST-analysis, it is necessary and important to first of all define a strategic timeframe: we are investigating what is now or what will be in a few (how many?) years.

Presentation of the main research material. An important difference between external and internal factors is that internal factors can be influenced somehow by the company, but not external factors.

1. Political, Political factors.

These factors determine the extent to which the government can influence the economy or a particular industry. Political factors include elements such as: tax policy, fiscal policy, trade tariffs, etc. that the government can levy during the financial year and this can sufficiently affect the business environment (economic environment). What questions can help to identify the political factors in a PEST analysis?

When is the next local or national election?





Is it likely to affect the business and your industry in any way?

To what extent is the rule of law present in the state? Is there a high level of corruption?

What is happening in foreign policy? Are there tendencies to impose sanctions on one side or the other?

2. Economic factors

These factors are the determinants of economic performance that necessarily affect the company and have long term consequences. Economic factors include elements such as: inflation rates, interest rates, foreign exchange rates, economic growth patterns, etc. What questions can help determine the economic factors of a PEST analysis?

How is the economy behaving now: is it growing, falling or stagnating?

Are consumer incomes rising or falling?

Are there conditions for an increase in the cost of raw materials and energy resources?

3. Socio-cultural - socio-cultural factors

Here we assess consumer preferences, their tastes, the likelihood of their change and the level of future demand for our products. Questions that will help you find and define the main social factors of PEST-analysis:

What social attitudes might be reflected in our business?

How fast is the population growing or shrinking?

How are customer expectations and preferences changing in your business?

4. Technical - Technological factors

This type of factors helps to see and identify opportunities for growth and, most importantly, to keep up with competitors in terms of technology. Questions that help to identify the main technological factors of PEST analysis:

Are there any recent inventions that can be applied to the development of your company?

Do other participants have any technological developments that we are not yet using?

Are there any major changes expected in technology that could completely change the way the industry works?

Stages of analyzing the external environment of an enterprise on the basis of the PEST method

Assessment of the external environment of the industry is a prerequisite for creating the right strategy for the organization. It can happen

that circumstances change so dramatically that all the elaborated concepts are of no use and make no sense. Due to the instability of the environment, any long term planning becomes redundant. The following methods are used for PEST analysis and macro environment forecasting:

trend forecasting;
scenario analysis;
factor analysis;
expert methods.

And so below are the following steps in performing the analysis.

Step 1: Determining the environmental factors affecting the industry. First we have to clarify and identify those factors that affect our industry.

Step 2. Collect data on the status of each factor. It is recommended to use reports of analytical agencies, market research, specialized literature, internet and mass media to collect primary information and create a database.

Step 3: Draw up a summary table using the example of Table 1,

indicating in it the significant factors of influence.

Step 4. Assess the level of influence of each factor. Use a scale of 1 to 3 points, where:

1 - the impact is insignificant and has little or no effect on performance;

2 - only matters if there is a major change;

3 - the slightest fluctuation will have a major impact on the industry.

Step 5: Estimate the probability of the factors changing on a scale of 1 to 5. For example, to estimate the inflation rate:

will not change - 1;

will probably change - 2;

will grow insignificantly - 3;

will grow appreciably - 4;

will grow very strongly - 5.

The importance of assessing the factor is that you need to forecast its state in the nearest years, not at the present moment.

Step 6: Determine an estimate of the likely change for each factor. It is necessary to calculate an estimate that will show the actual importance of the factor and the need to monitor it, using the formula:

Factor influence \div sum of influences \times
average expert judgement
 $(i \div \Sigma i) \times j = G_{ij}$

Table 1 – Table layout for calculating the average grade with correction

Description of the factors	Influence of the factors i	Expert assessment j					Average score \bar{j}	Weight-adjusted assessment G_{ij}
		1	2	3	4	5		
Political factors								
Factor 1	2	5	3	1	2	4	3	0,35
Factor 2	3	2	1	2	3	5	2,6	0,46
.....								
Economic factors								
Factor 1	1	3	4	5	2	5	3,8	0,22
Factor 2	2	4	3	5	4	2	3,6	0,42
.....								
Socio-cultural factors								
Factor 1	3	1	2	4	5	2	2,8	0,49
Factor 2	2	5	3	1	4	3	3,2	0,38
.....								
Technology factors								
Factor 1	1	3	5	4	2	3	3,4	0,2
Factor 2	3	4	3	2	1	3	2,6	0,46
.....								
OVERALL TOTAL	17						25	

Source: made by the authors

Step 7: Conclusions. Identify the likely changes that may affect the industry and develop measures to reduce the negative impact of the external environment.

Analysis of the main publications and studies. PEST analysis of the civil aviation industry.

Civil aviation (CA) is one of the basic industries of the economy, on the efficiency of which the development of other industries and society as a whole depends. Due to the sharp increase in the mobility of the population, integration of economic relations of different countries, the level of air transport development can often be considered a characteristic of the development of the economy as a whole. Air transport along with other types of transport is an integral part of the transport system of the state.

The most important advantage of air transport is high speed of delivery. Due to high speed, air transport provides significant savings of socially useful time and reduces irrational losses of time for travelling and cargo delivery.

Having analyzed the external environment of the air transport industry, we have identified the factors affecting this industry and grouped the identified factors. Then having fulfilled 4 consecutive stages we proceed to the following ones - placement of factors in a summary table, assessment of the influence of each factor on a scale from 1 to 3 and expert assessment of the probability of change of factors on a scale from 1 to 5. We can see all these criteria in Table 2 below. For clarification, expert judgement is

given for a period of 5 years.

In Table 2, after the above calculations, we have provided adjusted estimates and according to these estimates, we have identified one factor in each group that affects the air transport industry the most. In table 3 we have considered factor 4 of the group of economic factors in terms of what will be the probable change, how it will affect the industry and what will be the possible solutions.

At the end of our analysis we can summarize the advantages and disadvantages of this tool.

The main stage in setting long-term goals and developing an effective strategy is strategic analysis, which should provide a realistic assessment of the company's own resources and capabilities in relation to the state (and needs) of the external environment in which the company operates.

It is only by maximizing the opportunities of the external environment and minimizing the threats that a company can remain competitive and succeed in the market. It is by analyzing the factors of the external environment and forecasting their impact on the company that an organization can quickly adapt to changes and make strategically correct decisions for further development and advancement.



Table 2 – Factors of groups most influencing Civil aviation

Description of the factors	Influence of the factors /	Expert assessment /				Average score \bar{g}_j	Weight-adjusted assessment G_{ij}
		1	2	3	4		
Political factors							
Legislation on the use of air transport	2	2	4	3	2	2,75	0,13
The level of development of international relations	3	5	3	4	3	3,75	0,27
Forecast of political changes	2	3	1	4	3	2,75	0,13
The level of development of international relations	3	2	3	4	3	2,75	0,2
Economic factors							
Inflation	2	4	4	4	2	3,5	0,17
Currency rate	3	2	3	2	3	2,5	0,18
Oil Prices	3	4	3	4	2	3,25	0,23
Dynamics of GDP per capita	2	3	3	3	2	2,5	0,12
Socio-cultural factors							
General demographic indicators	3	4	1	4	3	3	0,21
Availability of qualified personnel	2	2	3	3	2	2,5	0,12
The Level of income per capita	3	4	3	3	3	3,25	0,23
Cultural and national specificities in society							
Technology factors							
Digital transformation of the industry	3	4	4	4	4	4	0,28
Renewal of aircraft fleets	2	3	5	4	3	3,75	0,18
introduction of innovations in the field of maintenance and aviation equipment	2	5	4	5	4	4,5	0,21
Impact of digital technologies on the demand and customer service of air travel services	2	4	5	4	4	4,25	0,2
introduction of innovations in the industry infrastructure	3	5	4	3	3	4	0,27
OVERALL TOTAL	42						

Source: made by the authors

Table 3 – Detailed analysis of the oil prices factor

Significant factors	Probable change	Effect on the industry	Potential solutions
<i>Economic</i>			
Factor 4 Oil prices	Increase in oil prices due to OPEC decisions, decrease or increase in oil reserves, attempts of state regulation of the fuel market	The cost of aviation petrol will rise or fall, fuel shortages will occur, airfares will have to rise, this will lead to lower demand for aviation tickets, and this will lead to lower profitability, not only airlines but all service providers will suffer.	It is necessary to reduce the time spent on the ground before take-off and the time spent in the waiting area before landing, to purchase aircraft with lower fuel costs, and to look for alternative suppliers with lower prices.

Source: made by the authors

Conclusions and prospects for further research. PEST analysis helps to: examine the present and future position of the company; create a strategy that is effective in the long term; identify possible threats and risks; identify attractive development opportunities.

But we should not forget that factors can change rapidly at any moment. In addition, the assessment of individual factors may not be sufficiently accurate because it is based on assumptions and subjective opinion. Therefore, sources should be carefully cross-checked during

the data collection process. Periodically, factors should be monitored, forecasts made should be compared with the current situation, and the strategy should be adjusted.

Among the disadvantages of PEST analysis are:

- The risk of not taking into account important groups of factors for evaluation, thus reducing the effectiveness of this tool;

- The risk of making a mistake and drawing false conclusions or making mistakes in the formulation of proposals that are necessary



for the analysis;

- Lack of competence of the analyst who has gaps in understanding of any factors important for PEST analysis.

In conclusion, we would like to add that there are quite a few different tools for visualizing the results of PEST analysis and one of them, which is a very convenient tool, is presented below in Figure 1.

This tool is a petal diagram, which as we can see clearly and distinctly shows the most important factors for each category, in our case we have provided a petal diagram for the economic factor called "Oil Prices". The reason for this is that this factor affects not only the factors of the economic group, but also all other categories of factors.

The result, based on this analysis, is that increased attention should be paid to changes in oil prices. The final decision is that this factor should be thoroughly investigated, taken into account in the SWOT analysis, and a response program developed.

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Стаття надійшла

до редакції : 10.11.2023 р.

Стаття прийнята

до друку: 28.12.2023 р.

Бібліографічний опис для цитування :

Alekperova F., Mammadova V. Analysis factors of the external environment for civil aviation. *Часопис економічних реформ*. 2023. № 4 (52). С. 60–65.

