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## **EXPLORING WAYS TO INCREASE PROFITABILITY OF AIRPORTS AFTER THE PANDEMIC CONSIDERING EU AND WORLD PRACTICES**

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### **ДОСЛІДЖЕННЯ ШЛЯХІВ ПІДВИЩЕННЯ ПРИБУТКОВОСТІ АЕРОПОРТІВ ПІСЛЯ ПАНДЕМІЇ З УРАХУВАННЯМ ЄВРОПЕЙСЬКИХ ТА СВІТОВИХ ПРАКТИК**

*The pandemic has affected considerably all areas of business, specifically aviation industry. Under the conditions of COVID-19 spread and overcoming its negative consequences, the relevance of studying the ways to increase profitability of airports is growing. Previously used options are no longer effective due to new challenges and tasks enterprises face. COVID-19 impact on airport performance in the EU and other countries were considered, measures to overcome problems encountered which could be used by airports in Ukraine were analyzed. It can be already seen that*

airports and the entire air transport industry as a whole are gradually recovering from the predicament caused by the pandemic. The comprehensive measures implemented to address the crisis situation have had a positive effect, which is demonstrated by the growing profitability of these enterprises.

The paper is devoted to identifying and analyzing possible directions of overcoming crisis effects by airport to become profitable again after the pandemic. As the result of the study the effective measures of increasing profit of airports were determined: cost reduction through optimization in various areas of operation through redundancy, optimizing daily costs, stopping purchases of irrelevant products, investing in implementing technologies to reduce costs in the perspective.

Increasing revenues of the airport was considered through the attracting of new partners (airlines, freight carriers), conducting the analysis of customer needs and supply of necessary goods and services, increasing the number of freight traffic and others. It was outlined that the ways of improving profitability of the airport could vary, since measures that are effective for the particular airport could not work for another. Therefore, it is the main task for the airport management to make the deep analysis of all spheres and find bottlenecks.

It was concluded that profitability is an indicator characterizing the efficiency of the airport in terms of its ability to generate profit and ensure the effective reproduction of resources used. At the same time, there are ways to increase profitability by optimizing the enterprise's costs or implementing innovative solutions to help airport attract more customers.

Пандемія значною мірою вплинула на всі сфери діяльності, зокрема авіаційну галузь. В умовах поширення COVID-19 та подолання негативних наслідків зростає актуальність дослідження шляхів підвищення прибутковості аеропортів. Раніше використовувані варіанти перестають бути ефективними у зв'язку з новими викликами та завданнями, що стоять перед підприємствами. Розглянуто вплив COVID-19 на показники ефективності діяльності аеропортів у ЄС та інших країнах, проаналізовано заходи щодо подолання проблем, що можуть бути використані аеропортами України. Вже зараз можна відзначити, що аеропорти та вся авіатранспортна галузь в цілому поступово виходять із скрутного положення, викликаного пандемією. Реалізовані комплексні заходи для боротьби з кризовою ситуацією мали позитивний ефект, що доводить зростання прибутковості цих підприємств.

Стаття присвячена виявленню та аналізу можливих напрямів подолання кризових наслідків аеропортом, щоб знову стати прибутковим після пандемії. У результаті дослідження було визначено дієві заходи щодо збільшення прибутку аеропортів: зниження витрат шляхом оптимізації в різних сферах діяльності за рахунок зменшення кількості персоналу, оптимізації щоденних витрат, припинення закупівель неактуальної продукції, інвестування у впровадження технологій для зниження витрат у перспективі.

Збільшення доходів аеропорту розглядалося через залучення нових партнерів (авіакомпаній, вантажоперевізників), проведення аналізу потреб клієнтів та постачання необхідних товарів та послуг, збільшення обсягів вантажоперевезень та інші. Відзначено, що способи підвищення прибутковості аеропорту можуть варіюватися, оскільки заходи, ефективні для конкретного аеропорту, можуть не спрацювати для іншого. Тому основним завданням керівництва аеропорту є глибокий аналіз усіх сфер та пошук вузьких місць.

Зроблено висновок, що прибутковість – це показник, що характеризує ефективність роботи аеропорту з погляду його здатності генерувати прибуток і забезпечувати ефективно відтворення використовуваних ресурсів. Водночас існують способи підвищення прибутковості за рахунок оптимізації витрат підприємства та впровадження інноваційних рішень, які допоможуть аеропорту залучити більше клієнтів.

**Keywords:** profitability; increase of income; cost reduction; airport development; pandemic; passenger traffic; EU and world practices.

*Ключові слова: прибутковість; збільшення доходів; зниження витрат; розвиток аеропорту; пандемія; пасажиропотік; європейські та світові практики.*

**Stating of the problem in general terms and definitions of its interrelation with important scientific or practical tasks.** Profit is a source of providing continuous business development. Enterprises combine all the production factors – capital, labor, natural resources, technologies, and entrepreneurial skills – to create a product or to provide service followed by its sale aimed at making a profit.

The implementation of enterprise's development strategy is significantly dependent on the amount of profit received, since part of the profit can be invested in further improving or expanding operations. Profit margin depends on the enterprise's ability to serve clients considering existing demand, opportunities for the development of material and technical base and financing of reproduction processes, prime cost of production and amount of other costs, proper use of resources, tax policy, payment of dividends and more.

In 2020, as COVID-19 began to spread, making a profit from activities has become much more difficult for enterprises in the aviation industry and at some point even impossible, due to the fact that the coronavirus has hit in this particular area harder than other ones. Previously, enterprises in the aviation industry had formed growth strategies, which now had to be completely revised in view of the crisis. Therefore, it is important to identify ways out of this situation in the direction of recovering from a severe stroke caused by the pandemic.

**Analysis of recent investigations and publications which initiated the solution of the stated problem and on which the authors rely.** The directions of improving airport performance leading to increasing revenue and profitability have been extensively studied by various researchers. In particular, Zuidberg J. [1] determined addressing traffic features and seasonality nature, attracting low-cost air carriers, and improving cost efficiency as main directions of increasing airport profitability. In turn, Roger T. and Dower D. [2] noted a major role in generating additional revenue for the airport from the non-aviation activity. The mentioned studies were conducted before pandemic. New conditions required the consideration, assessment and solution of urgent problems. So, numerous studies on the impact of the pandemic on the development of aviation enterprises with identifying options to overcome current problems have also appeared, including advanced research of specialized international organizations as ICAO [3], EUROCONTROL [4] and International Financial Corporation [5].

Researchers mostly focused their works and findings on the consideration of scenarios of the air transport market development and directions of its recovery [6-8], peculiarities of airports' development [9], and appropriate measures for improvement of their activity in such conditions, including examples of EU and other airports [10].

Despite the significant number of studies, effective ways to increase airport profitability in the Ukrainian realities after pandemic remain incompletely disclosed. This calls for additional research in this area taking into account successful practices of airports located in the EU and other countries.

**Setting objectives.** The article is aimed at identifying and analyzing the main ways and means to increase the profitability of airports after the pandemic, considering the specifics of the environment.

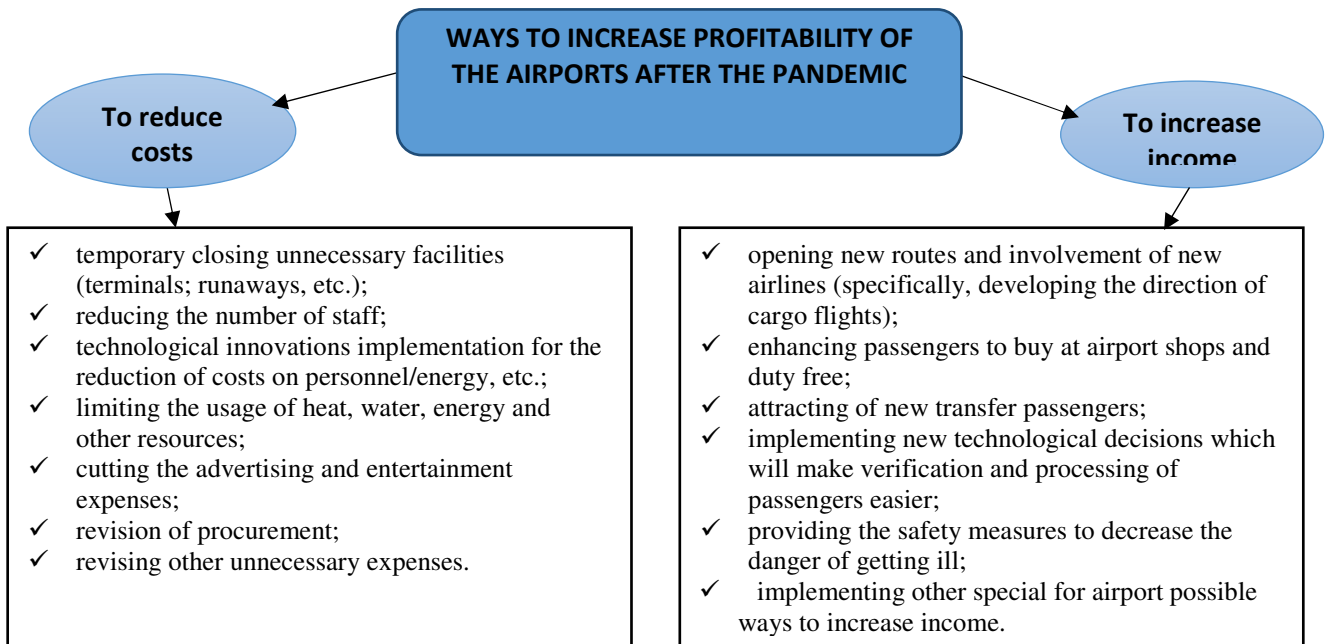
The study was conducted within the Module "EU Transport Policy" in the framework of Erasmus+ Programme: Jean Monnet Actions No 619652-EPP-1-2020-1-UA-EPPJMO-MODULE.

**The wording of the main material of the research with comprehensive argumentation of obtained outcomes.** 2020 has become a year of severe challenges for almost everyone, from small domestic companies to large global corporations around the world. Obviously, the main suffering spheres were connected with providing services, in particular entertainment, catering, shopping, air transportation, tourism, etc. Different companies providing tourism services faced huge losses due to closed borders of almost all countries in the world. Air transport enterprises had very high day-to-day costs while there was hardly any income for months, so it was a death battle for them to survive. So, due to this, the profitability was not even worth mentioning. Airports as the key components of aviation business faced various challenges. It was inevitable for them to dismiss employees, including well-trained and competent ones, or send them on unpaid leave, looking for any possibility to cut huge daily costs.

From June 2020, considerable fluctuations were observed, countries periodically closed borders and re-opened them, making restrictions for tourists or declining tourist visas at all. Although the airports were resuming their operation from time to time, number of passengers was not enough to cover costs and recover. Performing cargo transportation did not save the situation, as they mostly represent only few percent of the whole airport income. The largest part of revenues airport gets from serving passengers, that's why the pandemic had so harmful effect on any airport.

At present the main goal of any airport is to ensure covering its costs with income and return to profitability at least to the level before pandemic started. It is a tough task due to the fact that airports got a lot of debts for that period. Therefore, there is a need to understand what can be implemented to make profit or to get higher profit.

In general, the profit should primarily be used for development of the economic entity, to be important source of investments and only then to be considered as income of owners. It should be considered in such a way. It can be noted that there are two possible ways to gain more profit – to increase income or to reduce costs. Therefore, for airports that are trying to become profitable after crisis, there is a choice between two main directions, specifically to work on costs optimization or to find ways how to earn more money (Fig. 1). It is worth considering these two options for getting higher profit in details.



**Figure 1. Main ways to increase profitability of the airports after the pandemic considering EU and world practices**

*\*Developed by the authors on the basis of [3; 5; 7-12]*

Firstly, the option of making more profit through reduction of costs can be considered. This is very helpful as airports have a lot of excess costs. These costs were mainly related to relevant needs for operation in pandemic conditions, among them buying of temperature measurement devices, gloves, masks, special robes, disinfection equipment and means, sanitizers, etc. Also there was a need in involving additional staff and machinery to speed up the process of passengers' processing while complying with all necessary sanitary norms. As a result, airports have higher costs than they had before the pandemic. That's why it is so important to deeply analyze all costs components, find unnecessary and reducible ones and make some efforts to cut them.

As an example of effectiveness in undertaking measures for costs reduction, International airport "Lviv" can be taken. It reached the break-even level during the coronavirus crisis by optimizing all costs. It was indicative of the adequate response from the side of the airport management. Currently, Danylo Halytskyi Lviv International Airport operates a number of scheduled domestic flights to/from Kyiv, Odessa and Kherson with "Sky Up Airlines" and "Windrose" along with a number of regular international flights to/from Poland, Turkey, Hungary, Germany, Great Britain, Lithuania, Bulgaria, Belarus and Italy. They are served by "LOT Polish Airlines", "Pegasus Airlines", "Wizz Air Hungary Ltd", "Sky Up Airlines", "Turkish Airlines", "Belavia" and "Ryanair" [11]. Example of "Lviv" airport shows that good management in sphere of cutting unnecessary costs can improve the profitability level of the enterprise even in such hard conditions as coronavirus crisis.

As the pandemic started, State Enterprise "Boryspil" International Airport also began to cut costs by closing the main terminal and to implement actions toward optimizing economic activity. In this direction, reducing costs of infrastructure maintenance was carried out, as well as transferring charter, sanitary, evacuation and other technical international flights from Terminal D to Terminal F [12]. It was an appropriate reaction to a negative situation.

For such big airports as "Boryspil", which have more than one terminal, closing some of them and provide all activities from one terminal is also a good example of costs optimization. Terminal maintenance, including cleaning, lighting, water and heat supply, security etc., can cost airport millions. Therefore, it is necessary to evaluate how many terminals can satisfy the current passenger traffic and close the excess ones. Such approach can not only save airport from bankruptcy and closure, but can also help to get profit.

The other approach which is very painful for employees but efficient for airports is the staff reduction. Such type of cost optimization was also used by "Boryspil" International Airport. The airport administration decided to keep only the needed number of employees, in view of maintaining regular and emergency structural units of the airport involved in ensuring the proper security level in case of emergencies [12]. A lot of airports in different countries offered the unpaid leave to their personnel or dismissed excess one in order to save money. This cruel decision also made a big influence on airports possibility to stay on float. Even now, when number of flights is gradually resuming and employees are needed in higher quantity, the airport should make careful staff management decisions in order to optimize costs.

The technological upgrading of the airport can be considered as another approach hard and expensive in implementation but paying off in the future. It will need huge one-time investments, but this technological upgrade will cut more costs in long-term prospect than it can be imagined. Some examples of such technological implementations can be represented by automatic baggage check-ins, new technologies of temperature measurement, automatic smart

passport control system, etc. There are a lot of opportunities in technologic world which will make all processes in the airport faster and more efficient and will cut costs by reducing number of personnel, saving electricity, time, etc.

Other possible ways of cost optimization which can't save the situation but will make a difference for the airport are the following:

- maintaining the minimum allowable room heating temperature regime;
- ensuring the strengthening of control over the use of electrical appliances;
- suspension of entertainment and advertising expenses;
- limited use of vehicles and infrastructure;
- revision of the area for maintenance and cleaning of premises, territory and frequency of services;
- revision of procurement contracts, namely: ordering only goods and services aimed at measures to prevent the

negative development of the epidemic situation and support the operation of the airport, revision of already submitted orders to suppliers in order to postpone the delivery of goods/services.

Every airport should control their costs very strictly regardless the pandemic or other crisis. Costs cutting are essential for making enterprise's profit. Therefore, there is a need to pay more attention to it, not only run towards income increase.

Secondly, it is necessary to consider the option of making a profit by increasing income. The more enterprise gets from its activity, the easier it is to overcome costs and invest profit into further development. It became a big problem for airports to get more income, even when borders are open, due to following reasons:

1. A lot of airlines have closed down because of the pandemic.

In 2020 Flybe announced the introduction of a temporary administration and the cessation of flights, so the airline actually went bankrupt. The company was unable to obtain a loan of £100 million (\$129 million) from the UK government. Virgin Atlantic has announced it will not support the company and said one of the reasons for the bankruptcy was a coronavirus pandemic [13]. The Austrian airline Level Europe operated flights within Europe declared its bankruptcy in mid-June 2020. The private Italian airline Air Italy, the second largest in the country after Alitalia, decided to stop its activities (regular traffic) in February 2020 due to the situation with the global pandemic. In March-May 2020 Miami Air International operated charter flights to all continents declared bankruptcy and terminated its activities [14].

The above mentioned airlines ceased their operation due to pandemic are only a fraction of the total number of affected. This situation has badly influenced airports, as they lost a lot of partners and passengers as the consequence.

2. Many passengers are not ready to travel even when the borders are open. The survey handled by web-site The Vacationer showed such results about question on how frequently do people plan to travel once the COVID-19 pandemic is officially over: more than before COVID-19 – 25.00%; less than before COVID-19 – 16.98%; same as before COVID-19 – 58.02% [15]. There is some amount of people, which are not ready to travel as much, as before due to some fears or other reasons. It will not be easy for all participants in the air transport market to regain passengers' confidence and trust in travel safety.

3. Some people don't travel due to additional complications and spending connected with vaccines and PCR tests. Also it becomes harder to plan the trips, because requirements are constantly changing. One week the borders are open, for next there is a need to have negative test result or vaccine, for another it is not even possible to visit the country. Such uncertainty also affects the number of passengers which are going to travel.

Nevertheless, there are enough of willing people to travel, so airport may take some actions to attract more travelers. Therefore, together with air carriers and handling companies, airports must do everything possible to make it as easy as possible for passengers to go through pre- and post-flight formalities in a pandemic. Here is a list of the main technological solutions implemented in "Boryspil" IA last year, which can help other airports to attract more people:

1. Complete PCR without leaving the terminal. Together with medical laboratories, the airport has introduced a completely new service. In the terminal, there are special rooms for the collection of biomaterials. Today passengers can choose one of 5 laboratories to undergo testing upon arrival in Ukraine or to be sent abroad. In case the country requires the original test for crossing the border, the passenger can receive the document immediately before departure. For many passengers, testing at the airport turned out to be a convenient option. More than 23,000 passengers were tested from September to December 2020. Also, an additional express testing service was organized to determine the SARS-CoV-2 antigen. Testing time is up to 20 minutes.

2. Self-verification to mitigate risks. Previously, for verification before security control, a passenger had to hand over his passport and boarding pass to an airport employee. At the airport, the technology was changed to a more hygienic one. Now the passenger independently carries out verification – he brings the boarding pass to the reader, shows the passport, and the operator sees all the information on the screen. Thus, contact with documents of other persons is reduced.

3. "Diya" application simplifies passport control. The unusual situation around the world is accelerating the introduction of new contactless technologies. Since 2020, passengers of Boryspil airport's domestic flights can present digital versions of a passport of a citizen of Ukraine or a biometric passport for verification through the Diya application.

4. Comfortable embarkation/disembarkation from the car. Convenient on-call parking areas are located in the multi-level parking near Terminal D. Clear signs show the way. With the onset of cold weather, the zones have become very convenient since passengers can get to Terminal D from the parking lot without going outside.

5. Electric cars: charge in the covered parking lot. The first stage of charging stations for electric vehicles has been installed and is operating in the multi-level parking lot. Owners of electric vehicles can, by downloading a mobile application, charge the car and pay for the service with a bank card [12; 16].

In addition, companies continue to develop cargo aviation to generate more revenues from operations. The global crisis in passenger air transportation due to COVID-19 has given impetus to the expansion of the freight traffic. Therefore, “Lviv” Airport started a program of international cargo transportation in cooperation with one of the Ukrainian airlines. The airport currently accepts a number of international freight flights to/from Latvia and Germany [11].

Boryspil, against the background of a decrease in the number of passenger flights in 2020, also recorded an increase in the number of cargo flights. Last year the airport served 1,653 cargo flights compared to 1,095 flights in 2019. During the cancellation of passenger flights, some carriers operated cargo flights with regular passenger aircraft dismantling seats from part of their fleet [16].

Such strategy of cost increase can also be successful since cargo flights don't depend on quarantine restrictions and are performed on regular basis. Airports can make some agreements with cargo handlers to increase the number of cargo flights, which are performed from and to the airport. This will ensure some stable safe ground, which won't depend on pandemic situation.

Main part of airport income consists from airport charges, which include: landing-take-off fee for aircraft, fee for passenger service at the airport, aviation security fee, and fee for excessive parking of the aircraft. From this it can be concluded that the more flights are performed to and from the airport, the more income the airport gets as a fee. To increase this indicator, it is necessary to attract new airlines that handle regular flights. Airport management should make agreements with new successful partners, which will bring new flows of passengers to the airport. Also airport can stimulate existing partners with some benefits, supportive programs, reduced fees to make them encouraged to work more efficient. To maintain the level of competitiveness and encourage airlines to cooperate airport can:

- introduce special motivational programs that can interest carriers in opening new flights and increasing transfer passenger traffic. Such programs include schemes of application of reduction coefficients and special prices to tariffs for airport services, including airport charges;

- participate in forums for the development of a network of air routes. Within the framework of these forums, meetings are held and plans for the development of the existing network of routes, the potential of new directions, the possibility of cooperation are discussed;

- plan and organize joint PR campaigns with airlines, participate in various ratings, prepare information on the achievements of the airport in order to maintain a positive image of the enterprise and consumer loyalty.

In addition, all airports get a lot of income from commercial services (through selling some goods or services directly to the travelers). Unfortunately, there are a lot of passengers which buy nothing in the airport. The task of the latter is to analyze the customer needs and divide passengers on some groups: “dedicated” shoppers – passengers who plan to buy a product at an airport and who do buy something; “failed” shoppers – passengers who plan to buy something but fail to do so; “window shoppers” – passengers who visit shops but who do not buy; “impulse” shoppers – passengers with no plans to purchase but who are persuaded to actually buy something; “non-shoppers” – passengers who do not intend to buy and who do not purchase anything [2].

According to the statistics there are only 30% of “dedicated” shoppers in Europe [2; 5]. Therefore, every airport need to work forward increasing this percentage. Frequently, passengers don't shop as they don't want to carry any more bags and packages. That's why some leading airports today are investing in “You Shop, We Drop” systems whereby the airport delivers purchase to the passenger's home address [2]. Also, there is a need to understand the travelers' interests in order to provide only needed products and services, which will bring money to the airport. Putting some funding in this research will repay very fast and will provide airport with successful products/services selling in the future. Sometimes it is useful to provide some discounts or interesting offers for the clients to catch their attention and pursue people to buy.

The other possibility to gain income is to attract transfer passengers. This can not only enlarge passenger traffic but increase the number of sales in goods/services, as transfer passengers mostly have more time to buy. From 2015 largest Ukrainian airport “Boryspil” IA started to implement the “hub” strategy, which gave it ability to raise the number of transfer passengers. Such strategy is not appropriate for every airport, but for some it will be the opportunity to get more profit and develop in the future.

**Conclusions.** From the conducted study it can be concluded that profitability is an indicator characterizing the efficiency of the airport activity in terms of its ability to generate profit and ensure the effective reproduction of resources used. At the same time, there are enough ways to increase profitability, specifically by optimizing enterprise's costs or implementing technological and innovative solutions, just like “Boryspil” International Airport did, which in turn will help airports attract more customers. Cost reduction through optimization in various areas of operation through redundancy, optimizing daily costs, stopping purchases of irrelevant products, investing in implementing technologies to reduce costs in the perspective were determined as appropriate measures of the EU airports and airports of other countries to improve profitability under COVID-19 conditions. To increase passenger traffic, airports can attract new airlines and freight carriers in the particular ways taking into account the relevant customer needs and ensuring supply of necessary goods and services. It can be noted that airports and the entire aviation industry in general are gradually recovering from the difficult situation caused by the pandemic, and the methods used to combat the crisis have had a

positive effect. But there is a need to continue to implement specific measures to maintain the results, which are successfully carried out by various airports, especially in the EU countries.

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