MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
NATIONAL AVIATION UNIVERSITY
Faculty of Transport, Management and Logistics
Air Transportation Management Department

PERMISSION TO DEFEND GRANTED
Head of the Department
_____ Yun G.M.
“_____”___ _____ 2020

MASTER THESIS
(EXPLANATORY NOTES)

Theme: “Organization of cargo transportation at the airline”

Done by: F. Pohorilyi
Supervisor: G.M. Yun, Professor, Doctor of Techinal Science
Standards Inspector: PhD in Economics, Associated Professor Yu. Shevchenko

Kyiv 2020

МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
НАЦІОНАЛЬНИЙ АВІАЦІЙНИЙ УНІВЕРСИТЕТ
Факультет транспорту, менеджменту і логістики
Кафедра організації авіаційних перевезень

ДОПУСТИТИ ДО ЗАХИСТУ
завідувач кафедри
_____ Юн Г.М.
«_____»_____ 2020 р.

ДИПЛОМНА РОБОТА
(ПОЯСНЮВАЛЬНА ЗАПИСКА)

ВИПУСКНИКА ОСВІТНЬОГО СТУПЕНЯ
«МАГІСТР»

Тема: «Організація вантажних перевезень авіакомпанії»

Виконавець: Погорілий Ф.

Керівник: професcор, д.т.н., Юн Г.М.

Нормоконтролер: к.е.н., доцент Шевченко Ю. В.

Київ 2020

NATIONAL AVIATION UNIVERSITY

Faculty of Transport, Management and Logistics

Air Transportation Management Department

Major 8.07010102 «Air Transportation Management»

APPROVED BY
Head of the Department
_____ Yun G.M.
“_____”_____2020

TASK

of completion the master thesis

Filipp Pohorilyi

1. Theme of the master thesis entitled “Organization of cargo transportation of the airline” was approved by a decree of the Rector order №2401/st. of October 17, 2019.
2. Term performance of thesis: from 14.10.2019 to 04.02.2020.
3. Initial data output: statistics on production and economic activity of UIA for 2007-2018.
4. Contents of the explanatory note: analysis of production and economic activity of UIA airline for the years 2007-2018; project proposals for the organization of cargo charter flight on the route Kiev-Berlin-Kiev, which will be performed by the aircraft type B-737-300SF upon the ordering of DHL and TNT companies for the purpose of transportation of term cargoes.
5. The list of obligatory graphic (illustrative) material: indicators of production and financial activity of the airline "UIA" for 2007-2018; dynamics of volumetric indicators of UIA airline; dynamics of UIA financial indicators; the structure of cargo flows performed by UIA in 2018 worldwide; the structure of cargo flows of the UIA airline by destination 2018; quantity of preloaded cargo

on UIA flights Kiev-Berlin-Kiev for 2017-2018; number of passengers on UIA flights from Kiev to Berlin-Kiev for 2017-2018; commercial loading of passenger flights of UIA for 2017-2018; results of cargo charter flight Kiev-Berlin-Kiev on the results of the year.

6. Planning calendar

№	Assignment	Deadline for completion	Mark on completion
1.	Collection and processing of statistical data	14.10.19 - 27.10.19	done
2.	Writing of the analytical part	28.10.19 - 18.11.19	done
3.	Writing of the design part	19.11.19 - 22.12.19	done
4.	Writing of the introduction and summary	23.12.19 - 29.12.19	done
5.	Execution of the explanatory note, graphic matters and the presentation	20.01.20 - 04.02.20	done

7. Given date of the task: October 14, 2019.

Supervisor of the master thesis: _____ G. Yun
Task was accepted for completion: _____ F. Pohorilyi

ABSTRACT

Explanatory note to the diploma paper "Organization of freight transportation of the airline": 77 pages, 23 drawings, 14 tables, 21 used source.

AIR COMPANY, AIRLIGHT CARGO TRANSPORTATION, CARGO charter charter, EXPRESS SHIPPING.

The object of the study is the UIA Airlines.

The subject of the research is the process of organizing the airline freight transportation.

The purpose of the diploma work is to develop proposals for the organization of cargo transportation of the UIA airline on the route Kiev-Berlin-Kiev, which will be performed after the DHL and TNT companies have been transported for the purpose of transportation of term.

Methods of scientific research - economic activity analysis, marketing research, technical and economic calculations, estimation of economic efficiency.

It is established that the completion of the Kiev-Berlin-Kiev cargo flight will allow to increase the volume of cargo transportation and will be profitable for the UIA airline.

The diploma papers are recommended to be used in the practical activity of specialists of the organization of aviation transportation of UIA.

CONTENTS

NOTATION LIST

AL - airline;

AT - aviation transport;

$ - US dollars;

kg - kilograms;

km - kilometers;

km / h - kilometers per hour;

m - meters;

UIA – Ukrainian International Airlines;

VAT - value added tax;

DOC - direct operating costs;

AC - Aircraft;

AT - air transport;

UIS - Union of Independent States;

TSR - technical service and repair;

SPFU - State Property Fund of Ukraine;

CA - civil aviation;

TXL - Tegel Airport, IATA;

SXF - Schoenefeld Airport, IATA;

INTRODUCTION

Air Transportation Management Department				NAU 20. 02. 96. 000EN				
Done by	Pohorilyi F.			INTRODUCTION	Letter		Sheet	Sheets
Supervisor	Yun G.					D	8	4
St. Inspector	Shevchenko Yu.				FTML 6.070101 ATM-202Ma			
Head of the Dep.	Yun G.							

Transport is one of the major spheres of international cooperation. This is explained, firstly, by the need to provide for stronger external economic ties and, secondly, by the particularity of the technology of the transport process.

All types of transport activities involve many operations, which are regulated by a number of regulations. The complex of requirements that must be respected by the parties involved in the transport process constitutes a concept of the modes of transportation. This complex includes a system of legal, property, industrial relations. It extends to the carriage of goods by all means of transport in the part of the rights and duties of the parties in pursuit of their interests, preservation and timely delivery of goods. An agreement is concluded between the carrier and the cargo owner, which is an agreement whereby the first party undertakes to carry the cargo certified by him by his means from the place of departure to the place of destination within the set time, and the shipper shall be resigned.

Perspectives of the prospect of the international marrying international air transport and the portrayal of the international air transport and the portrayal of the international portra International freight is expected to grow faster than domestic freight. This is explained by the accelerating growth of foreign trade and relates to the trade-industrial goods and other products that can be transported by air transport. At the same time, the growth rate of freight transportation is ahead of the growth rate of foreign trade. Air transport freight turnover by 2019 will exceed 100 billion tkm, of which international freight tonne-kilometers will be 70 billion tkm in regular connections. The importance of air transport in transoceanic and transcontinental transport will increase especially.

Further progressive development of the aviation industry will allow to establish close social and economic relations not only with the countries of the European Union, but also around the world, and to declare Ukraine as a strong and prosperous one. The Ukrainian economy is rapidly developing and integrating into the international trading community, and UIA is proud to be a direct participant in this process.

In case of need of delivery of cargo to the destination airport, the UIA offers its customers quality service at individual rates. The cost of the service is formed based on the following parameters:

- points of departure and destination;
- the nature of the cargo;
- weight of the package and its size;
- number of places;
- conditions of delivery;
- Delivery time.

In order to establish the needs for air transportation, it is necessary to analyze the dynamics of freight traffic volumes in a stable clientele and to search for new freight forwarders. When forecasting cargo flows, the basic initial information is the reporting data on transportation and survey materials of enterprises (organizations) with the purpose of identifying cargoes and routes of their arrival.

Air freight is the most convenient and fastest way to transport cargo to any part of the world. With the help of the aircraft, it is possible to transport a wide range of cargoes - from term bundles with medicines to large and heavy loads.

Demand for air freight transport is growing steadily as route networks are developing, the number of air carriers is increasing, and airports are being erected in the farthest corners of the globe. In addition to the great geography mastered by airlines, the undeniable advantage of air travel can be called speed. There is no other kind of transport in competition with airplane speed, so delivery by air transport is more efficient in comparison with sea and car transport. The greatest demand for air transportation of goods exists during long distance transportation. Compared to terrestrial modes of transport, the legal side of the process is significantly challenged when performing international air transportation. In this case, when crossing the borders of foreign countries, there is no need to pass customs control, which takes a long time.

Aviation is the safest and most reliable way of transporting any cargo. There is virtually no loss in air freight delivery. And commodity insurance helps you avoid the risks, such as unforeseen events and inclement weather. Depending on the type of cargo to be delivered, air travel is used by both individuals and large companies that have a one-time, long-term contract.

The airline sales agency is the intermediary between the airline and the shipper. The air carrier must ensure that the cargo is transported from the moment of delay of the air transportation to the moment of delivery to the destination. The air carrier carries out the acceptance-transfer of cargo, if necessary, provides its storage in warehouses, develops the most acceptable transport-logistic schemes, controls the correctness of the container mounting and their loading / unloading at the airport.

Cargo insurance is a very important part of the relationship between the airline and the sender. Aircraft are a highly reliable means of transportation, but there are some risks involved in delivering cargo by air, such as hurricanes, adverse weather conditions, terrorist threats, and other unforeseen situations. In the case of air transportation, especially expensive cargoes of large consignments of goods, and also in the case of delayed departure, may result in greater financial losses, so it is advisable to arrange insurance. Air freight forwarding on the way also comes under the control of the agency.

The volume of airline transportation depends to a large extent on external factors, such as the overall economic situation, the dynamics of major macroeconomic indicators and the level of instability of the economy of the country and the world in general.

In this regard, it is relevant to conduct research in the field of development of international and national airlines, the development of theoretical, methodological and practical recommendations to increase the efficiency of their work in the changing timeframe.

Recent changes in the dynamics of economic development of regions and sectors of the economy require appropriate strategic steps to mitigate the negative

factors, identify and exploit reserves to improve the efficiency of enterprises. Therefore, in the minds of slowing the growth of all segments of the world and European aviation industry, attention is paid to the directions, methods and tools of strategic interaction and integration of enterprises, which serve different stages of life cycle. The development of effective and efficient mechanisms and strategies for the interaction of enterprises of different legal entities and different industries are also essential for domestic airlines.

1. THEORETICAL PART

Air Transportation Management Department				NAU 20. 02. 96. 100EN				
Done by	Pohorilyi F.			1. THEORETICAL PART	Letter		Sheet	Sheets
Supervisor	Yun G.					D	13	10
St. Inspector	Shevchenko Yu.				FTML 6.070101 ATM-202Ma			
Head of the Dep.	Yun G.							

1.1 General characteristics of UIA

The Ukraine International Airlines issued the first flight on the route Kyiv-London June 25, 1992. The 20th anniversary of its launch, the IAU was one of the first Ukrainian air carriers with the involvement of the foreign capital. From the backdrop of Ukraine, the State Union of Civil Aviation of Ukraine acted as the founder of the Civil Aviation Organization of Ukraine, with the other part being the Irish Leasing Cooperative GPA.

Exactly from the Ukraine were, as a rule, the right to operate 30 routes, this contribution was roughly 100 million dollars, and the GPA campaign made a contribution in the form of two aircraft. In the run-up to the campaign, 88% of the capital belonged to Ukraine and 12% to GPA. Shares of the GPA have been handed over to its successor, the AerCap B.V. In 1996, Austrian Airlines and Swissair averaged 8 million dollars of US dollars and became UIA actors. In 2000, the European Bank for Reconstruction and Development, provided investment in the amount of 5.4 million US dollars and adhered to the stockpile of air carriers. Following the merger of Austrian Airlines and the German Lufthansa, the owner of 22,50% of the shares was UIA Beteiligungsgesellschaft mbH *(Austria).*

In November 2010, the State Property Fund of Ukraine checked our intention to transfer our share of shares in the airline "UIA" at a rate of 61.58%, adding that the realization price of the state-owned shareholding of UIA should be at least UAH 250 million. The SPFU decided to go to UIA by the end of 2010.

1.2. The management of the UIA

The management of the UIA has given the decision of the State, seeing the new desire for a new round of co-operation in the development of Ukraine and the whole of Ukraine. The attraction of private investments will allow businesses to reach a higher level - there will be more opportunities for development,

enhancement of business competitiveness and efficiency, as well as for the leveling of the level of professionalism of the personal.

As a result, the newspaper, the new co-owner of the UIA, became Igor Kolomoisky, the partners of the airline, as well as sources in the UIA. "The deal was closed just in the summer, but before that, UIA and AeroSvit started to weaken mutual competition. Now UIA management says that the company has one host, Igor Kolomoisky," says one of the UIA partner partners.

It should be noted that Kolomoisky did not conceal the desire to take part in the privatization of UIA. The controlled business airline Dniproavia publicly stated that it is ready to pay twice as much of the minimum cost for the state-owned shares of the UIA.

At the same time, the co-owner of the UIA, Aron Mayberg, refutes the change in the structure of the owners: "No changes have occurred. Personally, I remained a co-owner of the company".

However, Kommersant sources say that representatives of Mr Kolomoisky at the UIA's shareholders meeting on December 31 insisted only that UIA should take its aircraft into leasing under the conditions imposed by the businessman himself. "Managers were given the opportunity to understand that Igor Kolomoisky is not as important as the future development of the UIA; it is important for him that he continues to make profit from the planes," says the interlocutor of the publication.

For today, aviacompany "Ukraine International Airlines" is one of the leaders of the Ukrainian aviation transport market. The main airports of the UIA are the international aeroport of Kyiv "Boryspil" (KBP), Lviv (LWO) and Odessa (ODS).

1.3. The purpose of the UIA

The purpose of the UIA was to argue for the competitiveness of the Ukrainian automobile industry, which in the future may become an important Ukrainian carrier on the international market. The original idea of the company

was to shut down only foreign flights. The following documents set out the following objectives for the automotive industry:

- Establishing an intercompany-wide automobile with high-quality standards;
- expansion of connections and integration of the Ukrainian air transport system into the world wide network;
- implementation of leading technologies and management methods;
- attraction of foreign investments and receipt of profits.

The main area of activity of "UIA" is the transportation of passengers, cargo and cargo. The main goal of "UIA" is to attract customers to convenient and reliable air transportation in return for the highest inter-industry standards of safety and service.

More than 44 representative offices of Ukraine and the rest of the world are accountable to the UIA every day; the corporate network covers 70 countries, the UIA website gives the passengers possibility to book their tickets online.

UIA launches a larger number of European destinations from Ukraine than any other air carrier, operates 300 regular flights a week to London, Paris, Amsterdam, Brussels, Berlin, Frankfurt, Vienna, Zurich, Rome, Milan, Madrid, Barcelona, Lysabon, Helsinki, Dubai, Abu Dhabi, Kuwait, Tbilisi.

Thanks to the network of partners, UIA employs more than 3,000 destinations with convenient interchanges on the same day for competitive prices and continues to expand the number of subscribers around the world on the basis of 126 interactive internet connections.

1.4. Fleet of UIA

Table 1.1

Dynamics of the fleet of aircraft of the «UIA»

for 2010-2017 and 1 st quarter of 2018

	2010	2011	2012	2013	2014	2015	2016	2017	2018 (1st q.)
Boeing -737-400	5	5	4	4	3	3			
Boeing -737-300	4	4	5	5	4	4	4	2	2
Boeing -737-500	6	6	6	7	5	3	1	1	1
Boeing -737-300SF	1	1	1	1	1	1	1	1	1
Boeing-737-800	3	3	3	5	12	16	19	26	26
Embraer 190				2	2	2	2	5	5
Boeing-737-900							4	4	4
Boeing-767-300ER						4	4	4	4
Boeing-777-200ER							2	2	2
Total	19	19	19	24	27	32	37	44	44

From Table 1.1. and Figure 1.1. In the first quarter of 2013, the airline increased its fleet by two Boeing 737-800 aircraft, with one Boeing 737-500 aircraft. In the process of introduction into the fleet of the UIA are two aircraft Embraer 190.

From the above data, we see that the fleet of aircraft of the UIA air carriers is constantly evolving. So, for the last ten years of its activity, the airline has increased its fleet by 3 times.

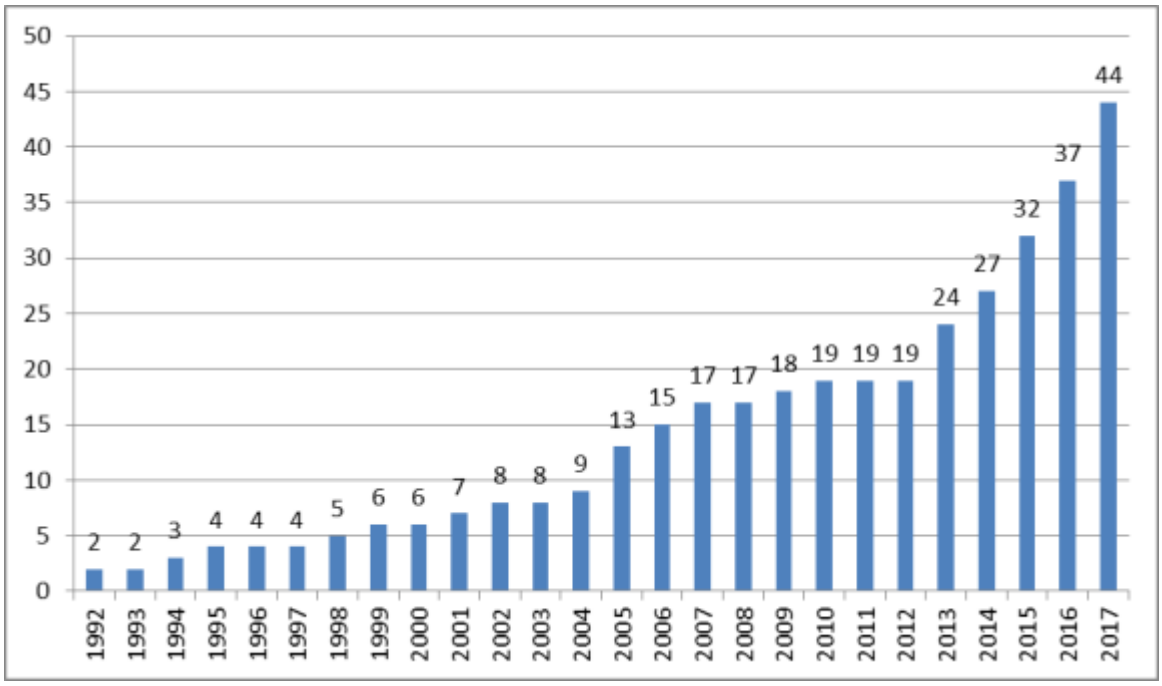

Fig. 1.1. Dynamics of the fleet of aircraft of the «UIA» airlines for 1992-2017.

So in June 2008, the UIA's airspace flew its own fleet with Boeing 737-300SF cargo aircraft. The availability of this item in the UIA's fleet has significantly increased the chances of transportation of caramel carriages. The cargo ship is equipped with Unit Load Device (ULD), which responds to all modern standards of intermodal cargo transportation and makes it possible to transport a large number of loads on specially equipped platforms. This made significant changes to the time and labor costs, as well as to optimize the tracking of freight. The total cargo capacity of the aircraft is 17 tons. Thanks to the introduction of pre-tech services, this airplane model has made it possible to relocate a wider range of goods than to mitigate flights that were used earlier. Airline carries out both regular shipping and courier services, as well as specialized cargo, in particular: products that quickly deteriorate and require transportation in a controlled temperature regime; valuable things, in security and confidentiality;

animals, which are transplanted for professional observation; Dimensional and overall dimensions; Cargo, which for the interim term is brought to the class of dangerous. The availability of this aircraft has allowed the UIA send to its trucking network a transit airport Liege, as well as a large number of offshore areas. According to Richard Kray, Vice-President of the UIA, the use of this aircraft has allowed the airline to intensify the litigation on the Ukrainian market, as well as to take on pre-existing positions in the supply of transport services, with the guarantee of the quality and the desirability of cargo delivery to most destinations in the shortest rows. With the aim of increasing the volumes of freight transportation, as well as the expansion of the service spectrum, the UIA Airlines signed a contract of partnership with other companies.

In addition to expanding the network of cargo transportation and dispatching services, UIA also provides reliable and up-to-date services for cargo delivery on all passenger flights. With the aim of rearranging the search engine for freight services, the airline plans to lease one more cargo aircraft to Boeing 737-300SF.

In the framework of the program for the installation and expansion of the fleet of aircraft, the UIA received the next passenger liner Boing-737. In November 2008, the new medium-sized airlift arrived at the international airport «Kyiv Boryspil», which is based on the UIA's airspace. The new aircraft was taken in operational leasing for 5 years. Irish company AerCap, which is one of the shareholders of the UIA, acted as a licensor.

UIA «ocasted» the crisis by storing Boeing-737-800 from Seattle (the US state of Washington, where a part of the Boeing boat fleet is located). Two of them came in 2009, two arrived in February and April 2010. So far, UIA did not dump it for the long time; last time, the new aircraft was finally taken out in 1999. These aircraft have a raised capacity of up to 186 cubic meters, advanced distances and allow long distances to be transmitted not only to the current passenger load, but also to the tight volume of cargo, generating a tax-free charge and burning at that much less fuel. In the framework of the program for the installation and expansion

of the fleet in January 2012, the fleet of the Ukraine International Airlines boeing 737-300. This aircraft became the 19th airliner of Boeing's aircraft manufacturing in the UIA airfield.

Aviacompany not only fills the fleet with new airplanes, but also tries to increase the efficiency of the use of existing aircraft. So in March 2008, aviacompany began to install on the wings of its own special airliners – dingles, which made it possible to improve the aerodynamic airships of the airliner. The result of the exogenous fuel consumption is 5%. The use of vingles also makes it possible to reduce the costs associated with the technical maintenance of airplanes, and to reduce by 6.5% the noise level, which arises when the air vents are lifted and stuck on the pods.

The company has the only one in Ukraine its own technical and engineering services providing Boeing's automotive equipment, which allows services be provided not only by the airline's own airplanes, but also by providing services to other air carriers. The full cycle of technical support ensures the reliability and safety of the UIA's aircraft. Operation of aircraft of the same type allows the UIA to uncover and substantiate the costs of technical maintenance of servicing and servicing of crews.

Security is an absolute privilege for UIA. Ukraine International Airline is the first airline in the CIS, which was registered in the IOSA Registry, the only inter-agency certificate issued by the IATA Special Program. This confirms the high level of safety and security of the airframe. The Technical Department of the UIA will provide advanced technical services for flying flying types. In contrast to Boeing's statistics, UIA is the only automotive company in the CIS that promotes the advanced technical services of the self-service fleet. Also, the airline provides technical support services for a number of other air carriers in the region: Dniprovaia (Ukraine), Belavia (Belorus), etc.

The fleet is equipped with the most up-to-date access to the most stringent European routes of safety, operational safety and service provision. The «UIA» is

one of the most powerful aviacompanies in the world. The reliability of the technical operation of the airline's fleet as a result of 2009 was at the level of 99.7%, which is significantly higher than the aviation industry's norms.

Thus, on this day the UIA's fleet consists of 44 modern passenger boats «Boeing-737/300/500/800/900» in the business and economy class and one Boeing-737-300SF flying flight. According to UIA airline president Yuri Miroshnikov, in 2018 it is planned to bring the fleet to 48 planes. These will be Boeing 777-200ER and Embraer E195 aircraft. In the UIA park, all aircraft will switch under operational leasing.

1.5. Structure of UIA

Ukraine International Airlines is the first CIS airline to be registered in the IOSA registry - the only international quality certificate issued by the IATA Special Program. This confirms the high level of aviation safety and reliability of the airline's fleet.

The Airlines of Ukraine International Airlines has a well-qualified staff of highly qualified Ukrainian specialists, who have the most up-to-date knowledge of aviation management, airplane technical service.

The organizational structure of the Ukrainian Airlines airline is presented in Figure 1.2. From the figure it is evident that the organizational structure of the company consists of a large number of departments, has a branched appearance and is distinguished by a clear division of horizontal functional levels and clear levels of subordination.

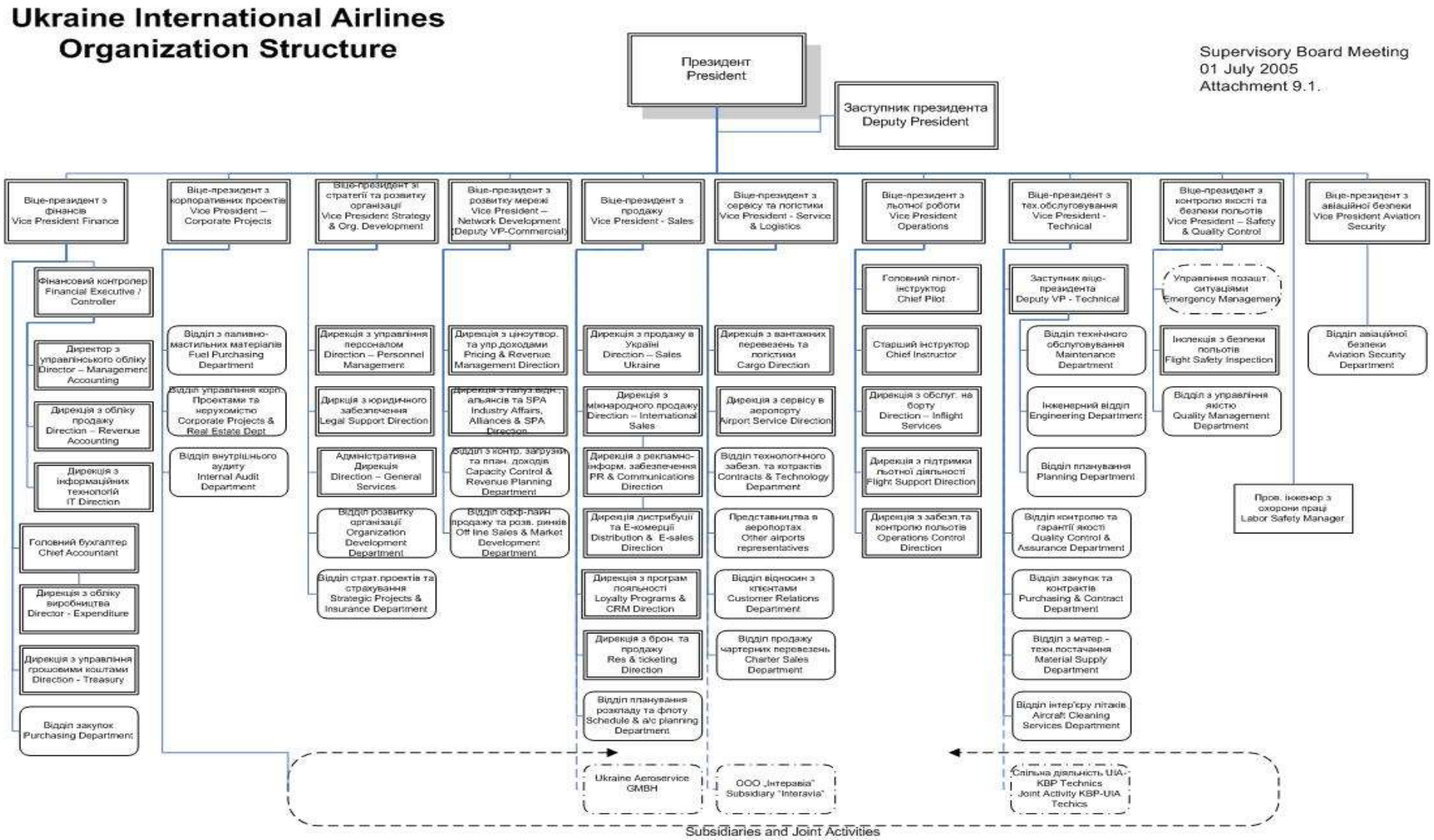

Fig.1.2. Organizational structure of UIA

2. ANALYTICAL PART

2.1. Analysis of the production activity of the airline "Ukraine International Airlines"

2.1.1. Analysis of airline performance indicators "Ukraine International Airlines"

The airline market in 2013 underwent significant changes: at the beginning of the year, AeroSvit and Donbassaero airlines, which were members of the Ukrainian Aviation Group alliance, stopped operating flights and ticket sales. There were 33 domestic airlines operating in the passenger transport market during the year, among which the airlines occupied a dominant position:

- Ukraine International Airlines (up 69.5% year-over-year);
- Wizz Air Ukraine (up 58.1%);
- Utair-Ukraine (2.3 times growth);
- Wind Rose (though there is a 15.6 percent reduction).

Figure 1.5 shows the volume of passengers transported by Ukrainian airlines in 2012-2013. On international regular flights, 4.4 million passengers were transported by domestic airlines in 2013, compared to 4.7 million passengers a year earlier.

The analysis of the activity of the Aviacompany «Ukraine International Airlines» is not a failure without the result of the activity of the air transport of Ukraine in general and without a comparison of the air carriers with the domestic carriers.

Commercial transportation of passengers, cargo and mail throughout the year carried out 23 domestic airlines.

Table 1.2 and Figure 1.3 show the dynamics of the passengers transported by the air transport of Ukraine for 2010-2017.

Table 1.2

Dynamics of passengers transported by air traffic in Ukraine for 2010-2017

	2010	2011	2012	2013	2014	2015	2016	2017
Passengers transported,thousand people.	6106,5	7504,8	8106,3	8110,4	6475,2	6304,3	8277,9	10555,6
Growth rate, %		122,9%	108,0%	100,5%	79,8%	97,3%	131,3%	127,5%

The number of passengers who used the services of Ukrainian air carriers during 2017 exceeded the eight million mark - 10 million people were transported (an increase of up to 2016 – almost 30 percent).

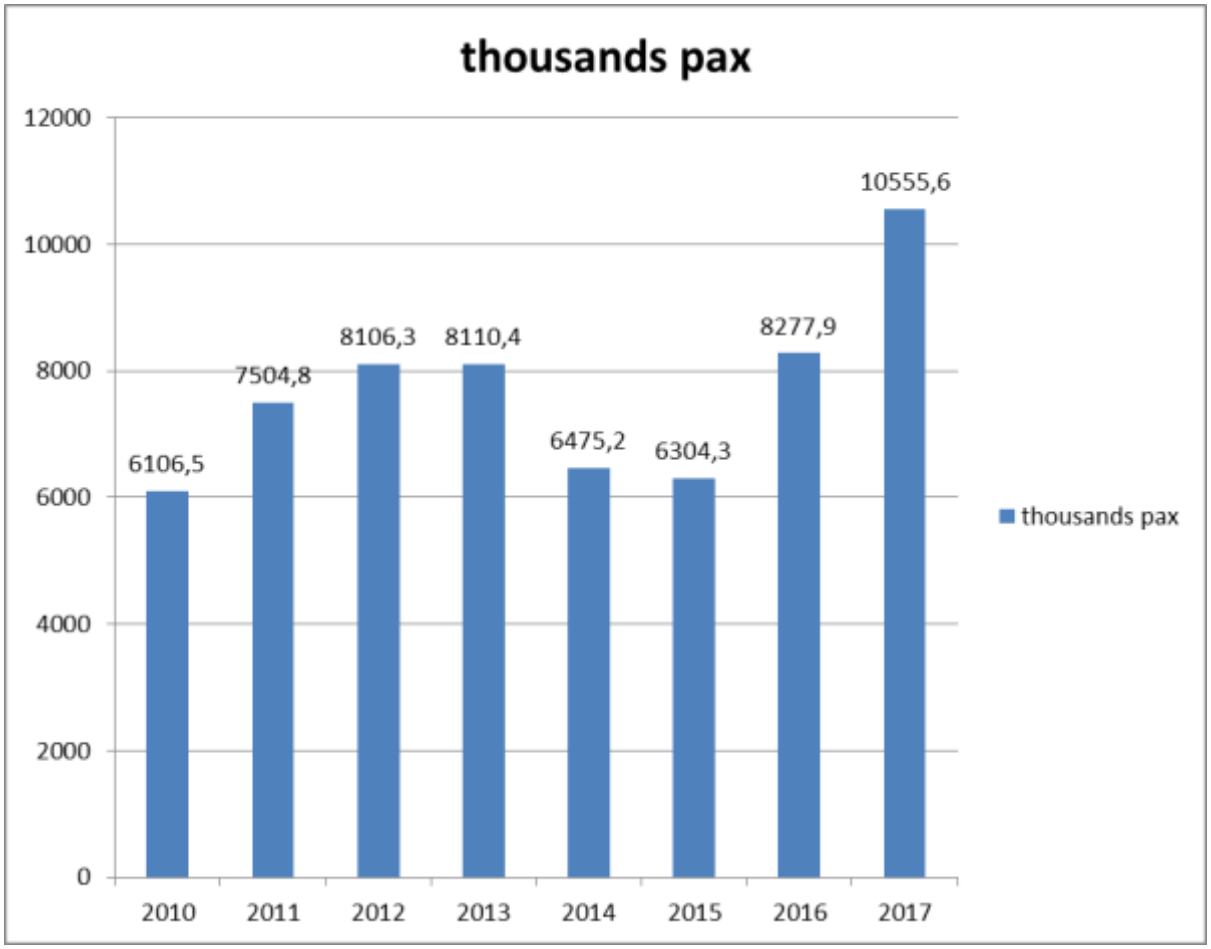

Fig. 1.3. Dynamics of passengers transported by air traffic in Ukraine for 2010-2017.

Table 1.3 and Figure 1.4. The indicated dynamics of the passengers transported by the air transport of Ukraine for 2010-2017 at the international and domestic airlines.

Table 1.3

Dynamics of passengers transported by air transport on international and domestic airlines of Ukraine for 2010-2017 years

	2010	2011	2012	2013	2014	2015	2016	2017
International, tho.	5144,3	6328,5	6820,9	6900,3	5828,6	5679,6	7475,4	9614,5
Domestic, tho.	962,2	1176,3	1285,4	1210,1	646,6	624,7	802,5	941,1

Attractive successes have been achieved in the international regular passenger transport sector, where the fastest crossings of all types of transports are maintained at a steady pace and high load on many flights.

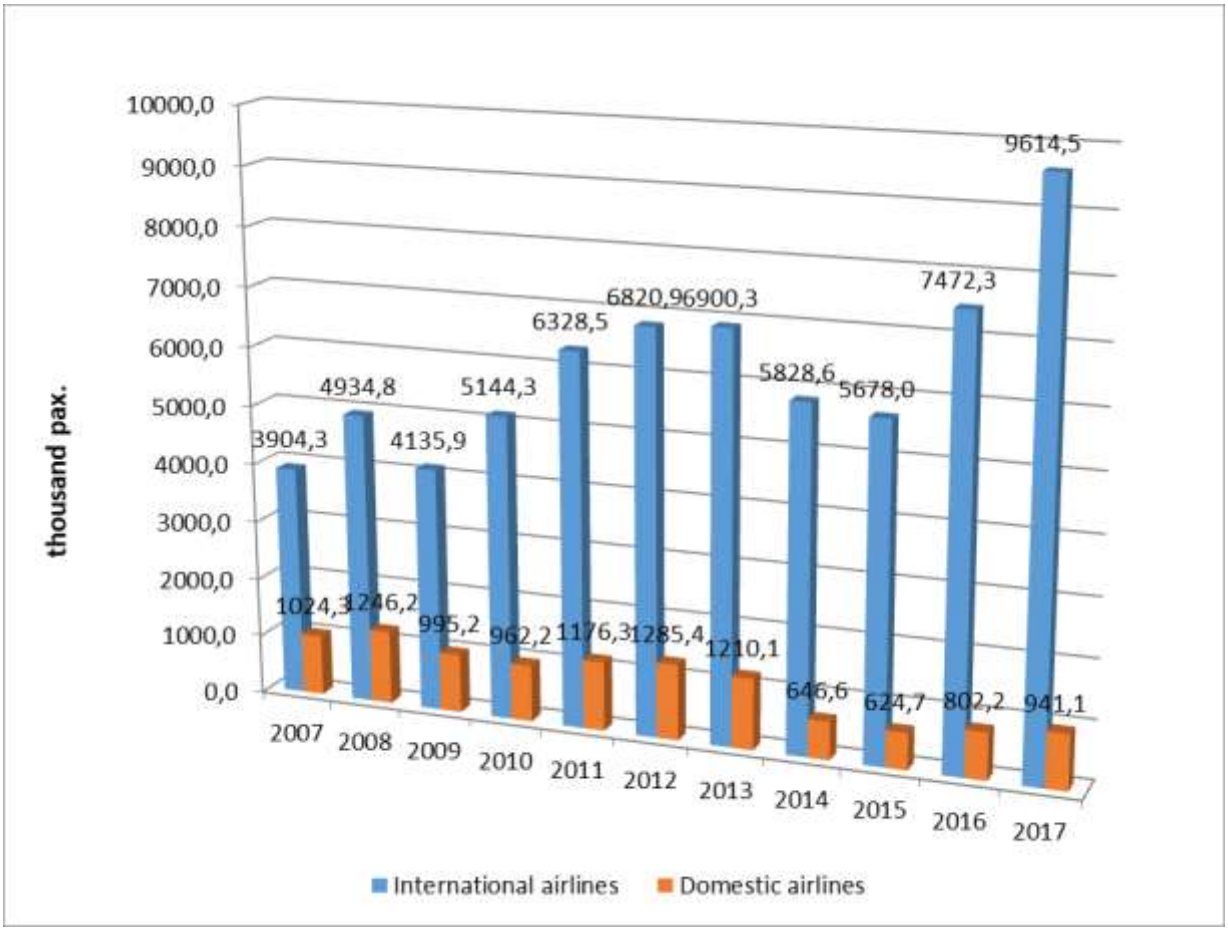

Fig.1.4. Dynamics gained passengers transported by air transport of Ukraine on internatioanl and domestic airlines for 2007-2017.

During the year 2017, 32 domestic airlines performed commercial transportation of passengers, cargo and mail, according to statistics, 93 thousand flights were performed, which provided growth by 17 percent compared to 2016. The average percentage of commercial loading of international regular flights has increased from 53.9 percent in 2016 to 62.4 percent in 2017, and domestic ones - from 52.7 percent to 56.1 percent, respectively.

Among the factors that allow the domestic air transport industry to be on the rise for many years and to occupy a significant place in the transport complex - taking additional measures to ensure flight safety, increase investment attractiveness, modernization of the fleet of aircraft and ground infrastructure, skillful combination of the network of domestic and international routes.

Commercial passenger transportation in 2017 was carried out by 32 Ukrainian airlines. The fate of the five largest passenger carriers, which today are "UIA", "Wizz Air Ukraine", "Azur Air Ukraine", "Wind Rose", "Atlas Ukraine" amounted to 93 percent by the end of the year.

In general, regular passenger transportation was carried out in 2017 by 11 Ukrainian airlines to 46 countries of the world, according to statistics, 4.7 million people were transported. (the growth rate was 8.5 percent). At the same time, 55 foreign airlines from 32 countries of the world performed regular flights to Ukraine.

Passenger traffic on a regular basis between 10 Ukrainian cities was carried out by 10 domestic airlines, the volume of transportation increased by 9.6 percent and amounted to 1.2 million people.

The share of Ukraine's passenger transportation market by airlines in 2017. shown in Figure 1.5.

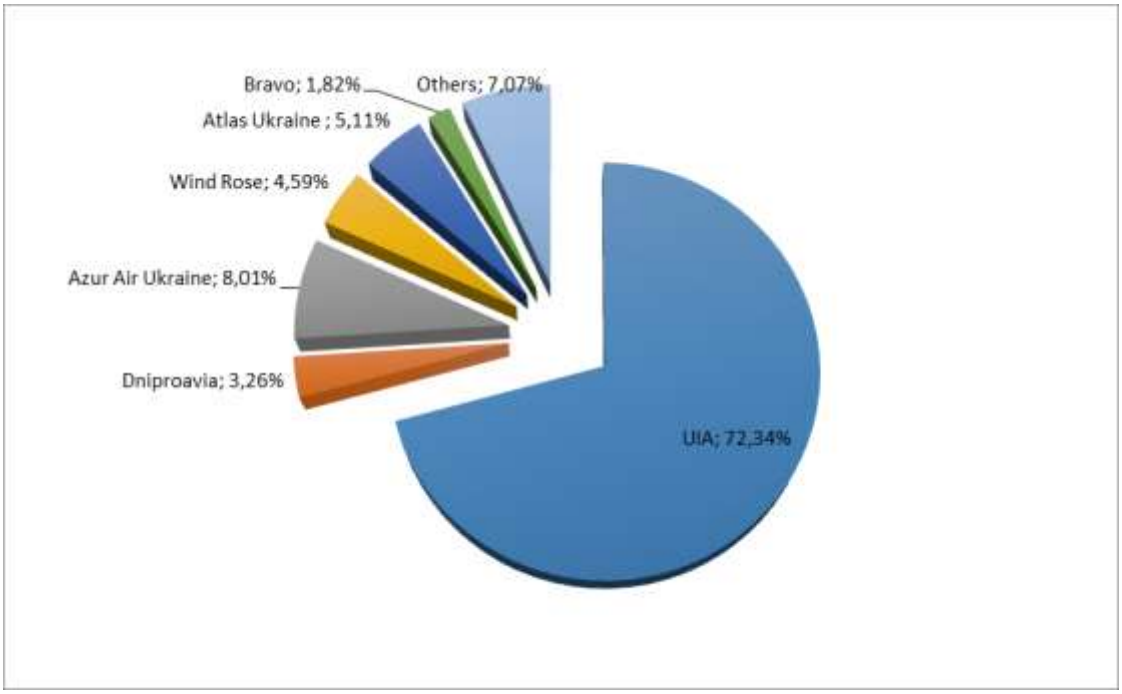

Fig. 1.5. The share of Ukraine's passenger transportation market by airlines in 2017

From Fig. 1.5. It is noticeable that the airline "UIA" is a leader on the Ukrainian market and transports almost 40% of all passenger traffic.

Commercial flights of domestic and foreign airlines served 26 domestic airports and airfields. According to the results of the year, passenger traffic grew by 13.2 percent compared to 2016 and reached 14.1 million people, postal traffic decreased by 4.7 percent and amounted to 45 thousand tons.

It should be noted that today 96 percent of total passenger traffic and 92 percent of postal traffic flows fall into 8 major airports: Boryspil, Dnipropetrovsk, Kyiv (Zhulyany), Lviv, Odessa, Kherson, Zaporizhya and Kharkiv.

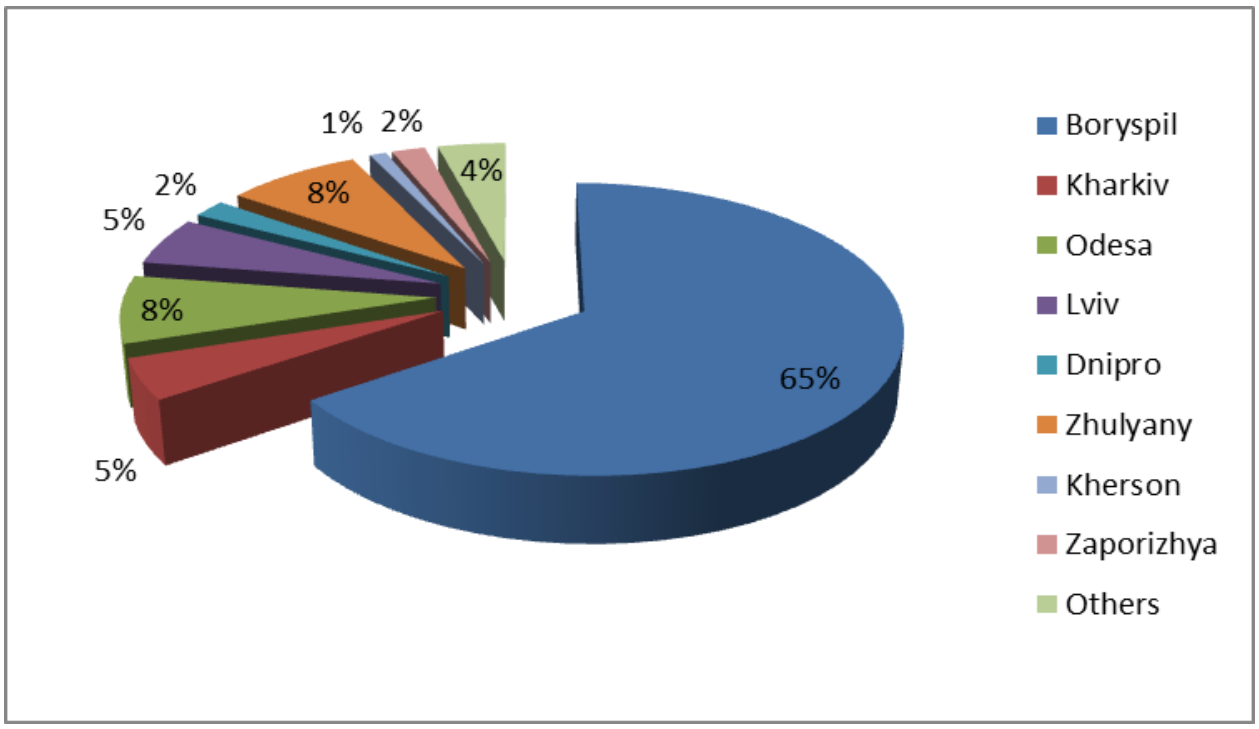

Fig. 1.6. Share of leading airports in general volumes of passenger transportations of Ukraine

According to statistics, in 2017, passenger flows at Boryspil airport grew by 5.5% compared to 2016, Dnipro - by 4.2%, Kyiv (Zhulyany) by 83.5%, Lviv by 94%, Odesa - by 10,1%, Kharkiv - by 62,5%.

UkSATSE for 2017 serviced 500,6 thousand flights (compared to 484,3 thousand for the previous year 2016). The number of serviced flights performed by aircraft and helicopters of airlines of Ukraine increased by 1.8%, foreign airlines - by 3.8%.

2.2. Analysis of the executive-economic activity of the UIA

2.2.1. An analysis of the dynamics of flights of UIA, carried out in 2010-2017

According to the State Administration of the Ministry of Infrastructure of Ukraine, the airline of UIA for the entire period of its existence has increased its productivity and steadily increased its share on the Ukrainian aviation market.

According to the statistical data of the IAU carriers during the entire period of activity, the number of scheduled flights is increasing constantly, which testifies to the development of automobile traffic development, as well as the strengthening of its traffic in the passenger transport market (Table 1.4 and Figure 1.7).

Table 1.4.

Number of flights operated by

"Ukraine International Airlines" for 2013-2017

	2013	2014	2015	2016	2017
Number of flights.	39443	36675	41003	49854	93004
Growth rate (%)		93%	111,8%	121,6%	138,6%

As can be seen from Table 1.4 and Figure 1.7, Aviacompany is on the rise as a result of abandoned flights. Such growth has been brought about by many factors, in particular, the fact that UIA regularly provides an analysis of air transport markets and systematically expands the geography of its services, thus increasing the number of flights. Also, a constant increase in the number of flights by the increased increase is frequent on already existing routes.

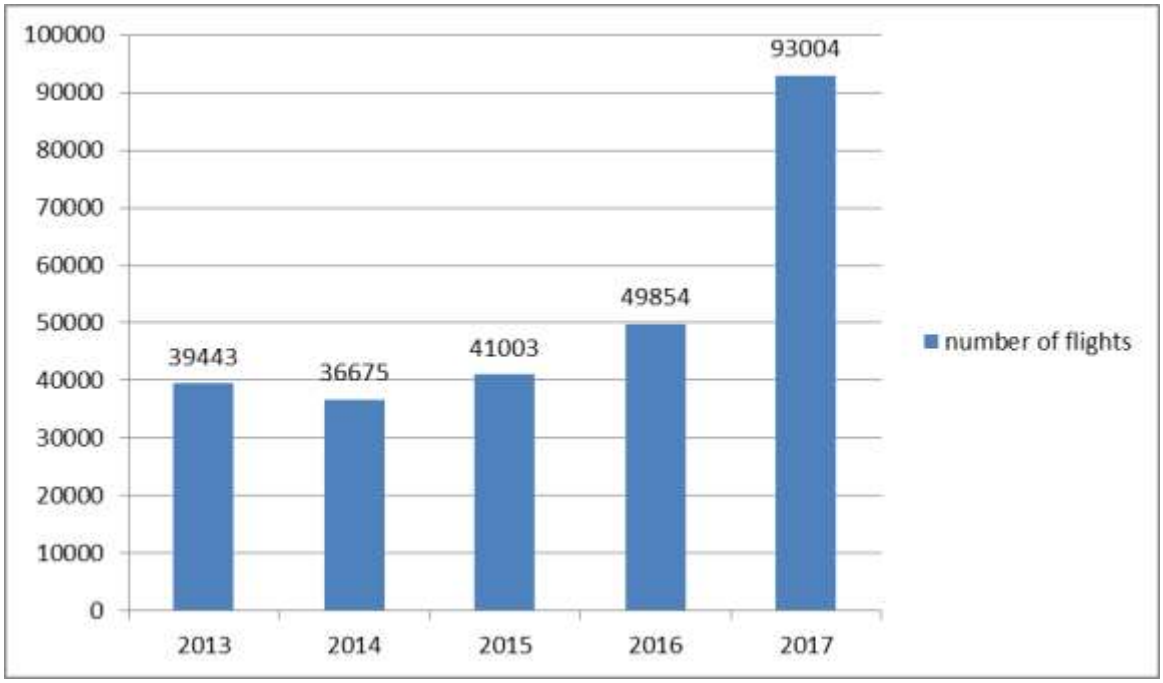

Fig.1.7. Number of flights operated by " Ukraine International Airlines" flights for 2013-2017.

In 2014, the total number of flights flown was 7% lower than in 2013. When booking for 2015, it should be noted that the airline flew by 18% more flights than in 2014. In 2016 UIA made 49854 flights (which is 10% more than in 2015). In 2017, the airline performed 93004 flights, increasing by 17 percent last year's figure.

Table 1.5.

Volumes of passenger carried by
"Ukraine International Airlines " for 2010-2017 years

	2010	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Number of passengers transported, tho. pax.	1682	2187	2843,9	4663,7	3792,5	4778,6	5858,6	6954,7
Growth rate (%)		17,0%	38,3%	13,5%	-7,6%	14,0%	30,0%	30,0%
The occupancy rate of passenger seats, %	60,0%	60,1%	72,2%	74,8%	63,2%	65,3%	71,4%	78,0%

Figure 1.8 shows the dynamics of passenger traffic volumes for 2010-2017 years.

According to the president of UIA, Yuri Miroshnikov, passenger traffic has been able to increase due to the fact that UIA has completed a large number of flights with a higher load. In addition, 2017 was the first for UIA when the transit model worked for a full year. The increase in transit is due to the fact that, having an extensive network of European markets, the UIA has received access to a significant number of new Eastern routes, transformed the schedule and transit worked. Foreign airlines are not engaged in transit through Ukraine

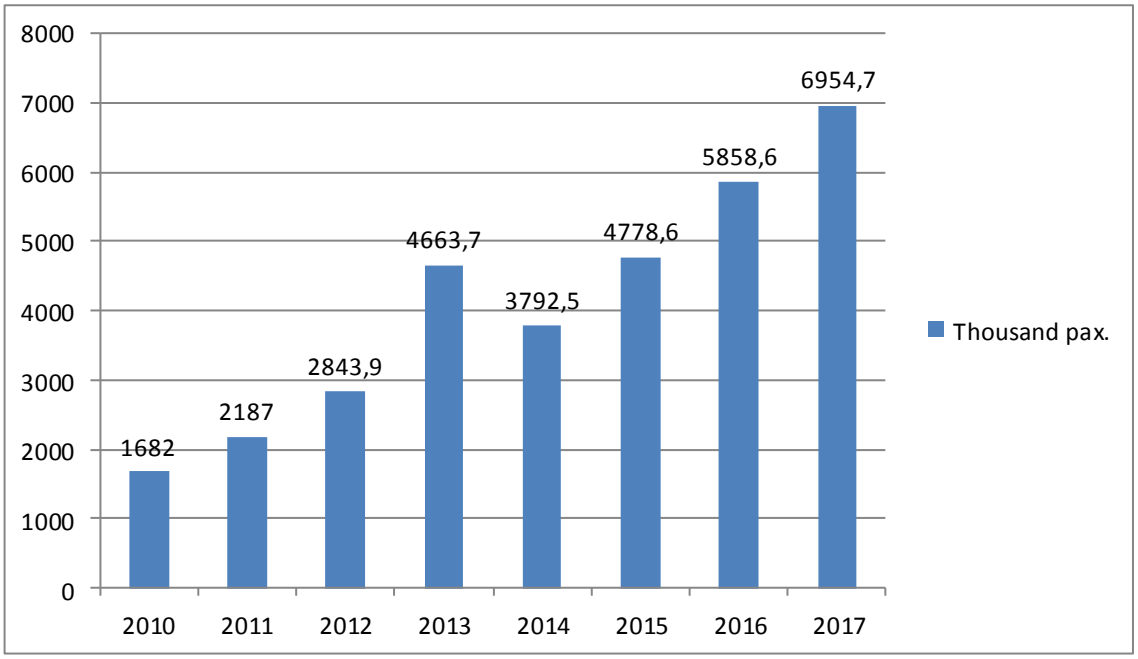

Fig.1.8. volumes of passenger transportation of the airline "Ukraine International Airlines" for 2010-2017.

In Figure 1.9. The structure of volumes of passenger traffic of UIA for 2007-2017 is shown.

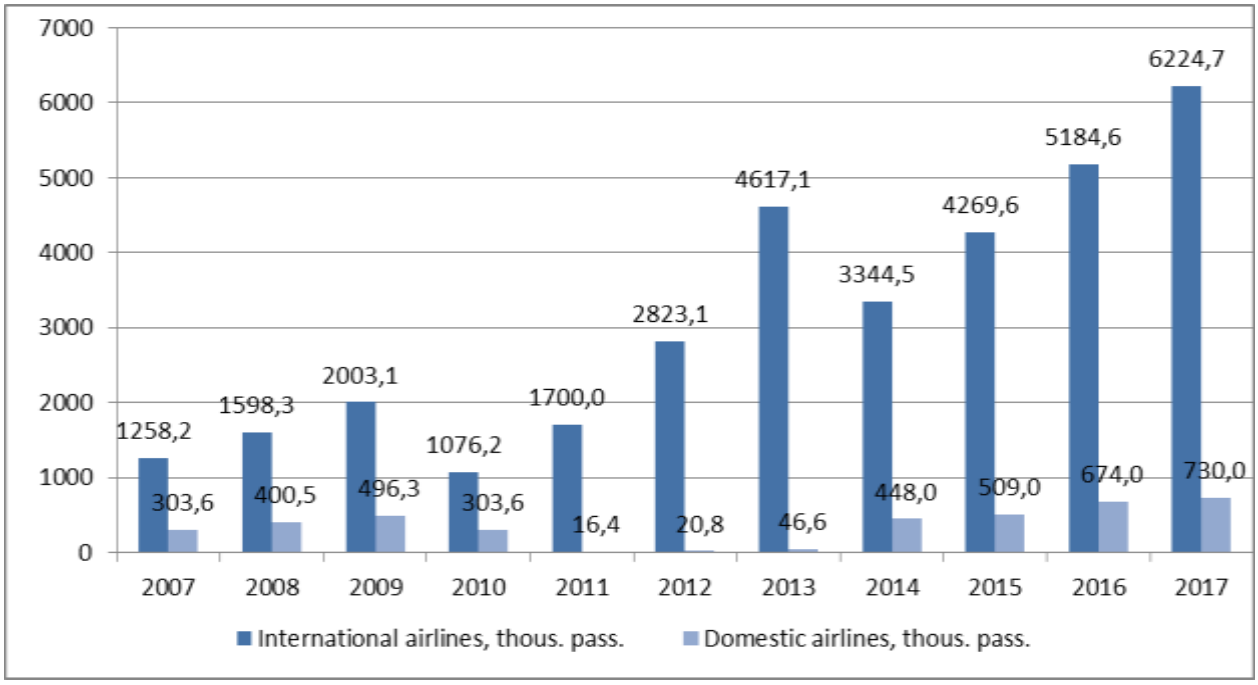

Fig.1.9. Structure of volumes of passenger carriages UIA for 2007-2017,thousands pax.

From Fig. 1.9. we see that the growth of volumes of transported passengers takes place both on domestic and international lines. At the same time, the volumes of transportations on internal lines make up insignificant part - up to 10% in the total volumes of transportations.

The number of passengers transported by the airline may take place both on the account of the number and number of existing routes, and on the account of the more efficient use of the available ones. This is a good way to determine the occupancy rate of the occupants (the ratio between the total number of passive passenger seats and the number of employees), the dynamics of what is shown in Fig. 1.10.

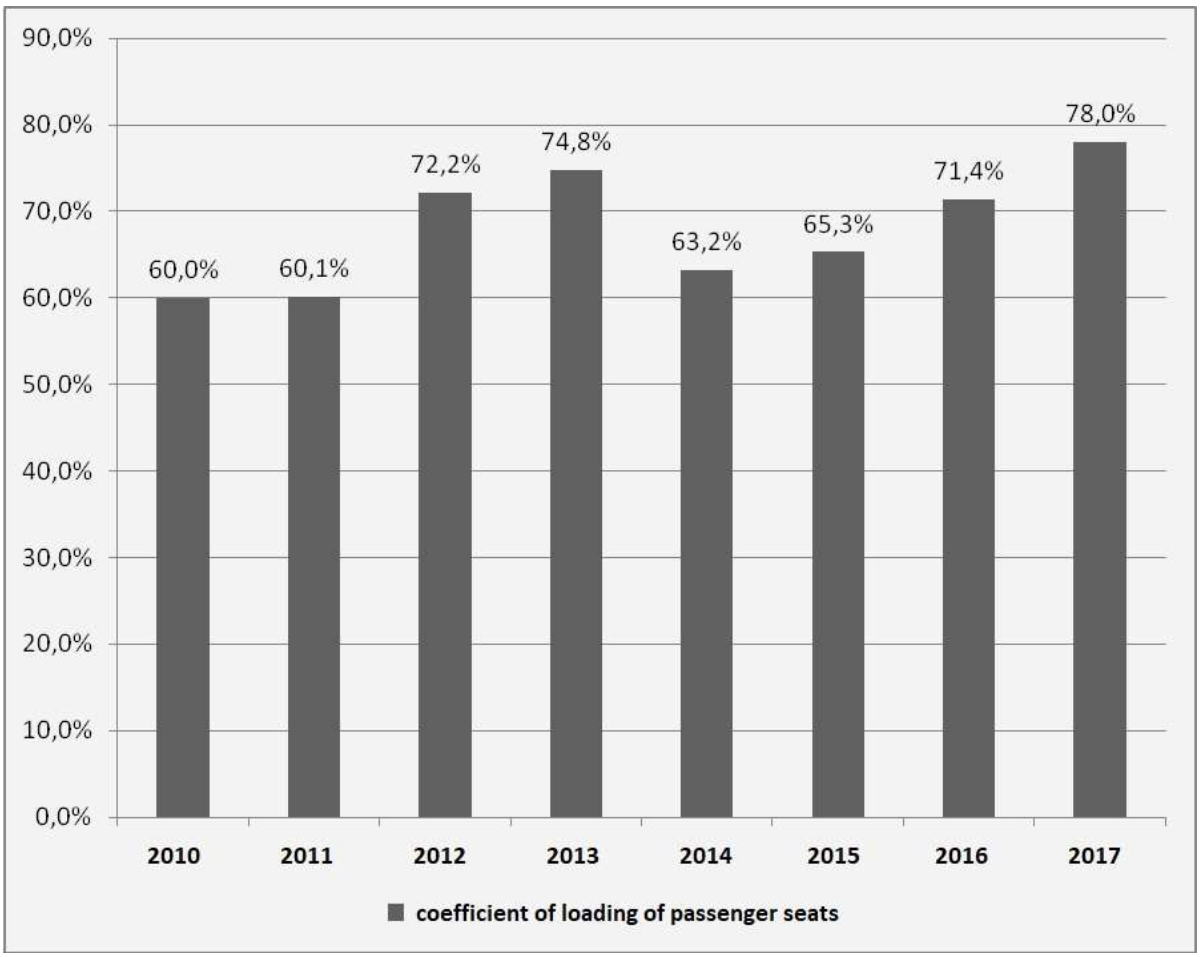

Fig.1.10. The dynamics of the occupancy rate of passenger seats of UIA in 2010-2017,%.

From Fig. 2.9. it can be seen that in the years 2014-2017, the number of passenger seats has risen since the beginning of the year. This testifies to an increase in the loading of flights by air passengers.

While this service is devoted to the activity of carriers as a passenger carriers, for the sake of a clear understanding of the activity of airlines, it is indispensable to carry out an analysis of its freight traffic.

The dynamics of the cargo and mail traffic of UIA for 2010-2017 is shown in Table 1.6.

Table 1.6

Volumes of freight transport by "Ukraine International Airlines" for 2010-2017

	2010	2011	2012	2013	2014	2015	2016	2017
Volume of cargo, tons.	3906,7	3649,5	3501,8	4605,7	7369,1	9058,1	10561,2	12593,7
Volume of post, tons.	851,3	831,1	754,4	732,3	735,2	1146,7	1230,7	1556,5
Total cargo transported, tons.	4758,0	4480,6	4256,2	5338,0	8104,3	10204,8	11791,9	14150,3
Growth rate (%)		-5,8%	-5,0%	25,4%	51,8%	25,9%	15,6%	20,0%

Ukraine International Airlines carries out cargo transportation on all regular flights on the network of routes and operates the service for cargo and trans port agents. UIA provides fast and safe delivery of any cargo: fast-moving, brittle, bulky, dangerous, as well as diplomatic bag and living animals.

Due to the extensive partnerships with other airlines, UIA has the ability to transport goods from Ukraine to any world airoport. For heavy and oversized cargo transportation, UIA operates regular cargo flights to Vienna, which are operated three times a week jointly with the Austrian Airlines.

The combination of cargo aircraft allows you to transfer up to 17 000 kg per flight, taking into account the separate place of the cargo weighing up to 5000 kg, as well as special equipment, trans-shipped cargo.

The dynamics of the total cargo turnover of the aviacompany "UIA" for 2010-2017, t is shown in Figure 1.11.

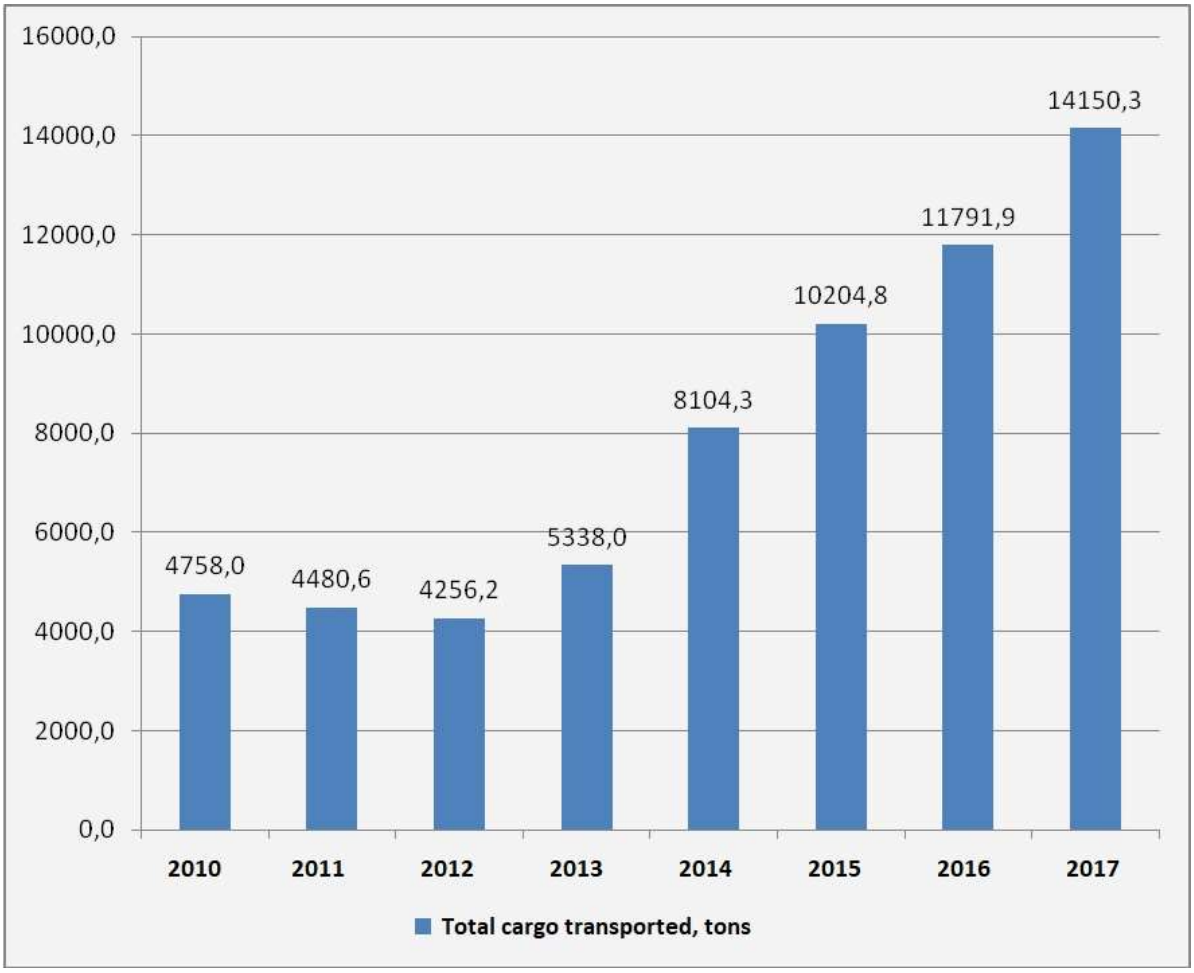

Fig. 1.11. The dynamics of the total volume of cargo transportation by the airline "UIA" for 2010-2017, tons.

Figure 1.11. shows that the highest rates of activity in the field of freight forwarding were initiated by the company in 2017 - the total number of such transportations amounted to 14,150.3 tons.

It is clear from the picture that in 2011, the total number of transported goods decreased by almost 6%, in fact, this is due to a decrease in the number of flights operated by airlines during this year's period.

In 2012, the volume of cargo and cargo shipments declined, and decreased by 5% comparing to the results of 2011. This tendency is due to an increase in the employment of passenger seats on airline flights, which has grown by 12.1% comparable to 2011. In 2013, there will be an increase in cargo turnover volumes:

the UIA carries 25.4% more cargo than in 2012. In 2013, total shipments increased by almost 52% in comparison with 2012. This was due to the opening of regular regular international cargo flights. From Figure 1.11. it is clear that in 2013-2017, we were able to increase the traffic flow of UIA.

Dynamics of volumes carriage of goods and vehicles of UIA for 2010-2017. shown in Figure 1.12.

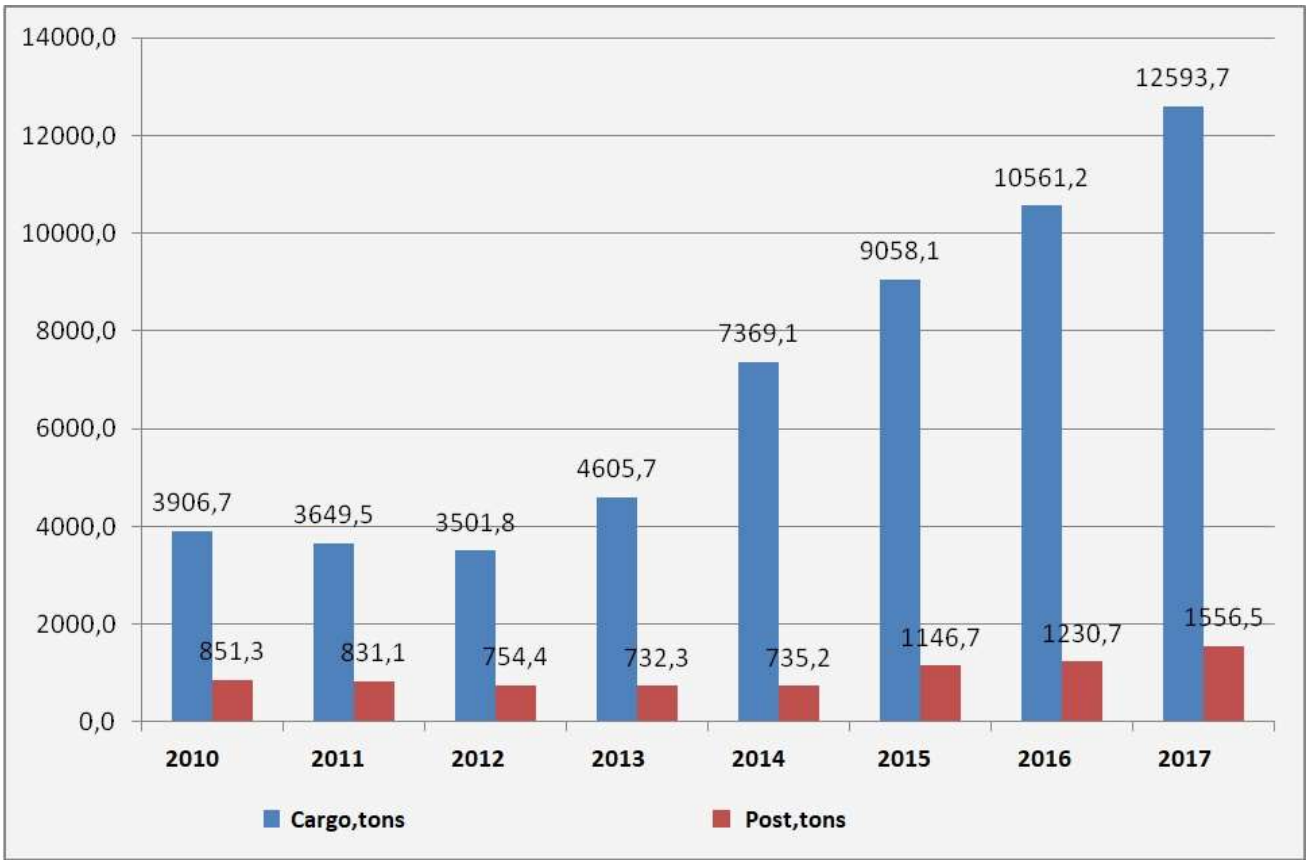

Fig. 1.12. The dynamics of transportation of cargo and mail "UIA" for 2010-2017, tons.

Figure 1.12. shows that the largest number of transportation in the period from 2010 to 2014. was implemented in 2010. In 2015-2017 observing the increase in the number of freight traffic. In the total number of shipments of cargo, the share of shipment is about 15-30%.

"Ukraine International Airlines" carries out transportation of goods and cargo both in international and in domestic traffic. Figure 1.13. The estimated

volume of cargo transportation by the "UIA" carriers by types of transportation for 2010-2017 years.

According to the given data we see that in the structures of freight transport predominantly interntational carriage, the share of which is more than 99%.

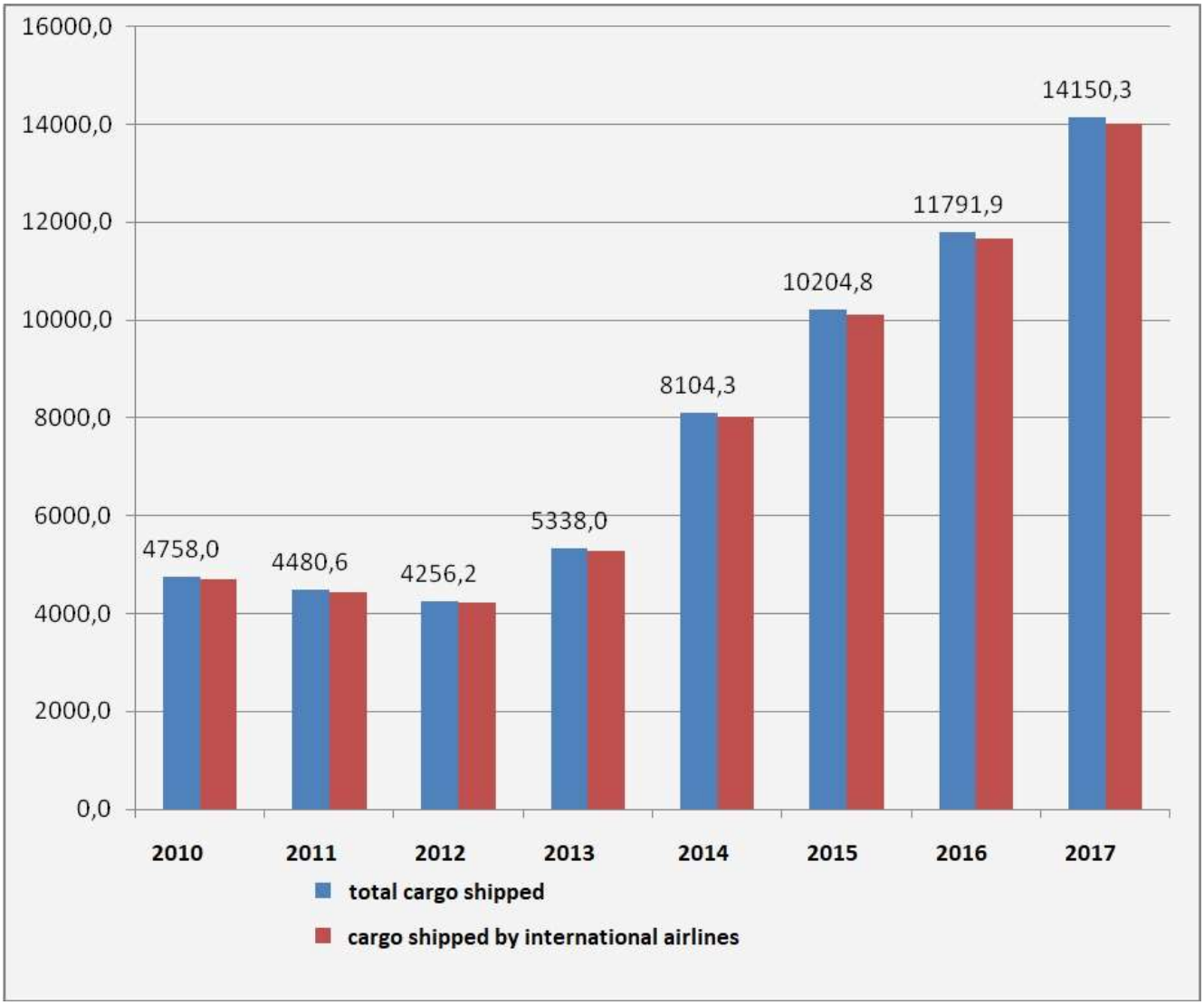

Fig. 1.13. The volume of cargo transportation by the airline "UIA" by types of transportations for 2010-2017, tones.

From Figure 1.13. We see that domestic freight transport accounts for a small share in the total traffic of goods in comparison with international traffic - less than 1%.

The tendency to increase the volume of international freight transportation in the "UIA" carriages is primarily due to the large number of international flights in

the company's operations. It should also be noted that such a tendency is a general tendency in the Ukrainian aviation transport market.

2.3. An analysis of the actual financial indicators of the activity of the UIA for 2012-2017.

Financial indicators of the airline "Ukraine International Airlines" are shown in Table 1.7. and in Figure 1.14.

Table 1.7.

Financial performance of the company "Ukraine International Airlines" in 2012-2017

	2012	2013	2014	2015	2016	2017
Incomes (million USD)	463,4	723,9	276,4	525,2	685,7	792,3
Rate of incomes growth,%	23,0%	56,2%	-61,8%	90,0%	30,6%	15,5%
Costs (million USD)	461,6	721,6	341,0	545,4	670,8	804,0
Rate of growth of costs,%	7,9%	56,3%	-52,7%	59,9%	23,0%	19,9%
Profit (million USD)	1,8	2,3	-64,6	-20,2	14,9	-11,7
Profitability, (%)	0,39%	0,32%	-18,94%	-3,70%	2,22%	-1,46%

From Table 1.7. and in Figure 1.14. It is clear that in the period from 2010 to 2017, the airlines' revenues grew. In 2011, compared with the previous year, revenues grew by 19%, in 2012 this growth amounted to 33%. According to the results of 2013, the increase has increased by 16%. In 2014, there were also 16% in comparison with 2013. In 2015 and 2016, they increased by 6% and 4% respectively. In 2017, we see a sharp increase in income by as much as 29%.

The figure 1.15 shows the dynamics of the relative value of the activity of the UIA for 2010-2017 in the percents

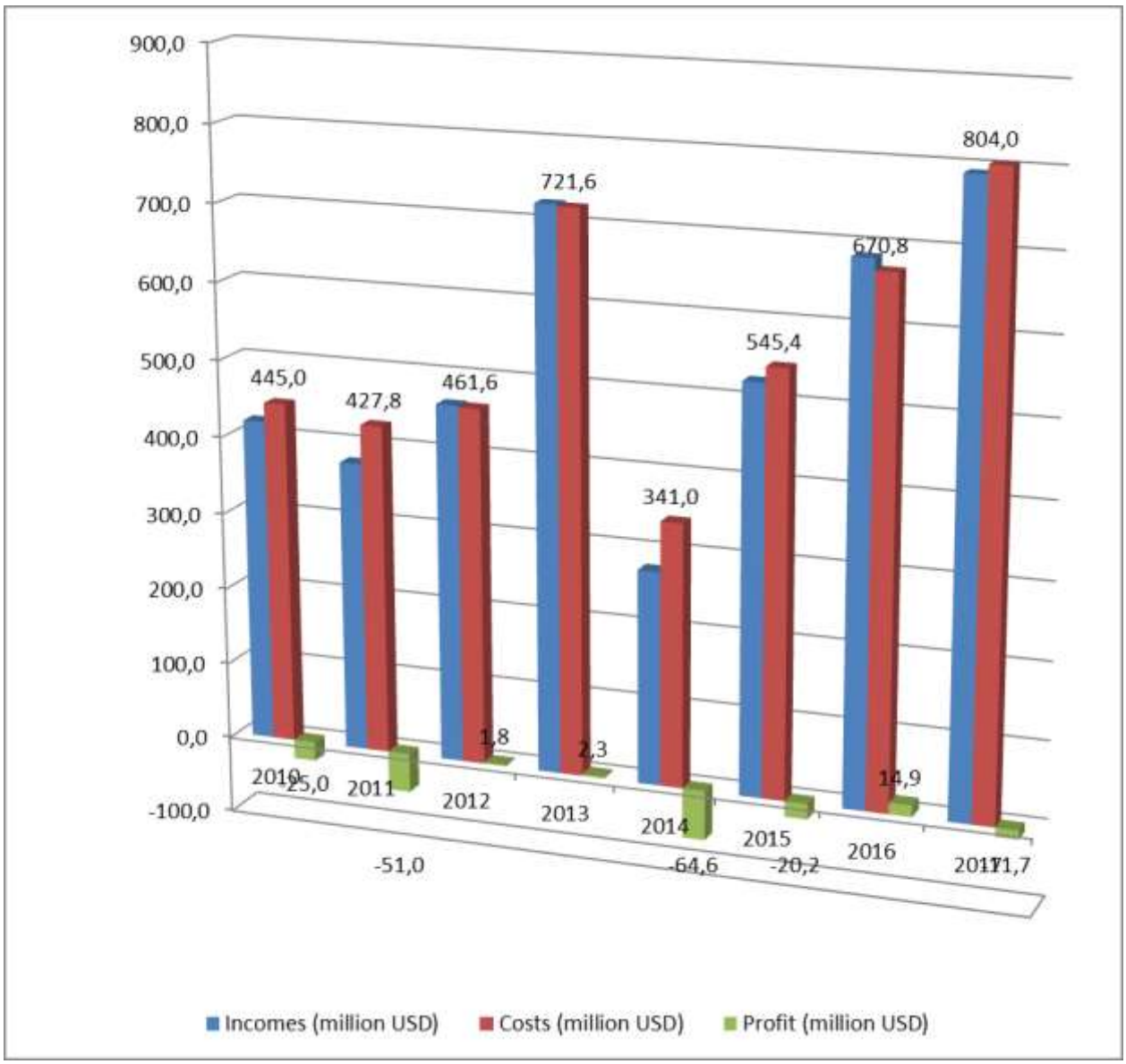

Fig. 1.15. Dynamics of financial factors of the "Ukraine International Airlines" for 2010-2017, million dollars

According to the company's annual report in the information disclosure system of the National Commission on Securities and Stock Market (NSCCB), its net income for the past year increased by 36% - to UAH 17.829 billion.

The share of transfer passengers on regular UIA flights reached 54.1%. At the same time, intra-Ukrainian transit increased by 16%, to 543,4 thousand passengers, and international - by 22%, to 2,68 million passengers. In 2017, UIA performed 56.4 thousand flights, which is 16.6% more than in 2016. The passenger seat occupancy factor was 80%.

Figure 1.16. the aggregate dynamics of the profitability indicator of the activity of the Ukraine International Airlines for 2010-2017,%.

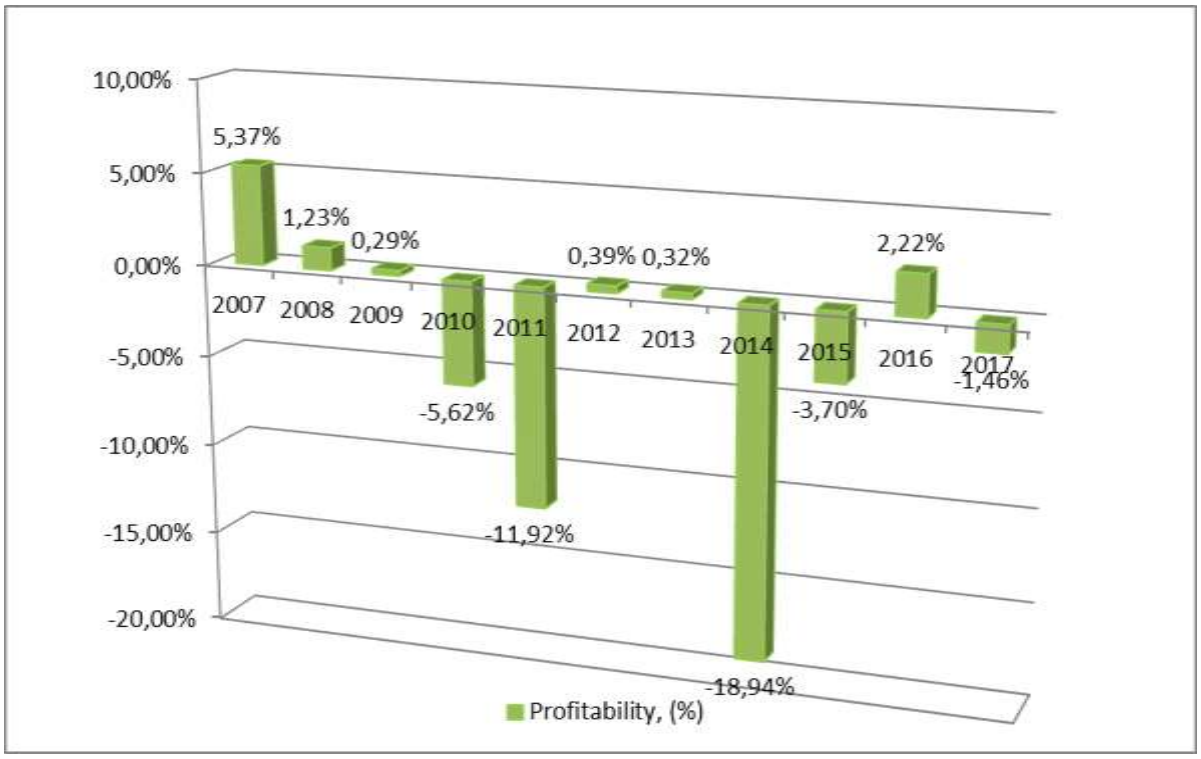

Fig. 1.16. Dynamics of the indicator of profitability of the activity of the company "Ukraine International Airlines" for 2010-2017,%

It is clear from the picture that the highest level of profitability of transportation was monitored in 2012. In 2013-2016 We see a drop in profitability, which is associated with significant costs incurred by airlines. From the above data it is clear that the expenses of the airline are constantly cumulative. The increase in the cost of the airline depends not only on the increase in passenger traffic and the number of flights, but also due to the opening of new routes and representative offices of the UIA abroad, the introduction and improvement of technology and modern technology for customer service, as well as with the regular support of the fleet of aircraft.

In the years 2015-2017, UIA invested heavily not only in the transformation of the model of the schedule, but also in those aspects that are associated with increased productivity, reduced specific costs, a revision to cheaper services, etc.

In 90% of the articles managed by UIA managed to reduce costs. If we are talking about risks, then there is a serious downturn in prices for aviation fuel on the territory of Ukraine, which reaffirms that the market of Ukraine is growing not by the orders that the entire world is accumulating. Since there are no plans in the world for the support of oil products, the UIA lays down its plans for lowering prices on fuel, based on the findings of the interagency experts and IATA. But, since there is a problem in Ukraine with the deficiency of aviation, in the automobile industry it is assumed that this will lead to a rise in the price of fuel in the territory of Ukraine. According to Y.Miroshnikov, almost 35% of the expenses of UIA are due to the payment of fuel. In essence, this item of expenditure is outside the control of the airline, although there is ongoing work to reduce unproductive fuel costs. First of all, in the fuel market should stop speculation, especially sharply manifested in the last decade. The slightest reason that suggests an increase in demand for oil or a decline in its production is transformed into a "game to increase" all oil traders present on the world market. Ukraine has limited competition in the fuel market, because there are no own sources of raw materials, there are few aviation fuel producers, many different import duties. In most airports, a limited choice of suppliers and refuelers of aviation fuel. This leads to the fact that the cost of fuel in Ukraine is on average 10-12% higher than at European airports. And although the volumes of UIA refueling in Ukraine are much higher than the disparate volumes at each specific airport in Europe, the price is lower there. And the logic of a market economy says that at the expense of large volumes the price should be lower than in those airports where the airline rarely runs. Also, outside of the control of the airline are the costs of airports (10%) and the cost of navigation (about 8%).

However, the fact that it is possible to cope with the risks of financial stability of Ukrainian automobile companies remains the same and the cost of grubs that are inappropriate for funding the traffic development program.

3. DESIGN PART

3.1. Investigation of cargo flows of UIA

Let's look at the total volume of freight flows by all modes of transport between Ukraine and Germany in 2016-2018 for imports and exports. The table shows the volumes of cargo for 2016-2018.

Table 2.1.

Volume of import and export of goods by all modes of transport between Ukraine and Germany for 2016-2018.

Indicators	2016	2017	2018
Imports, ths.	690,12	759,6	962,2
Export, thousand tons	1136,9	949,9	929,9
Total, thousand tons	1827,02	1709,5	1892,1

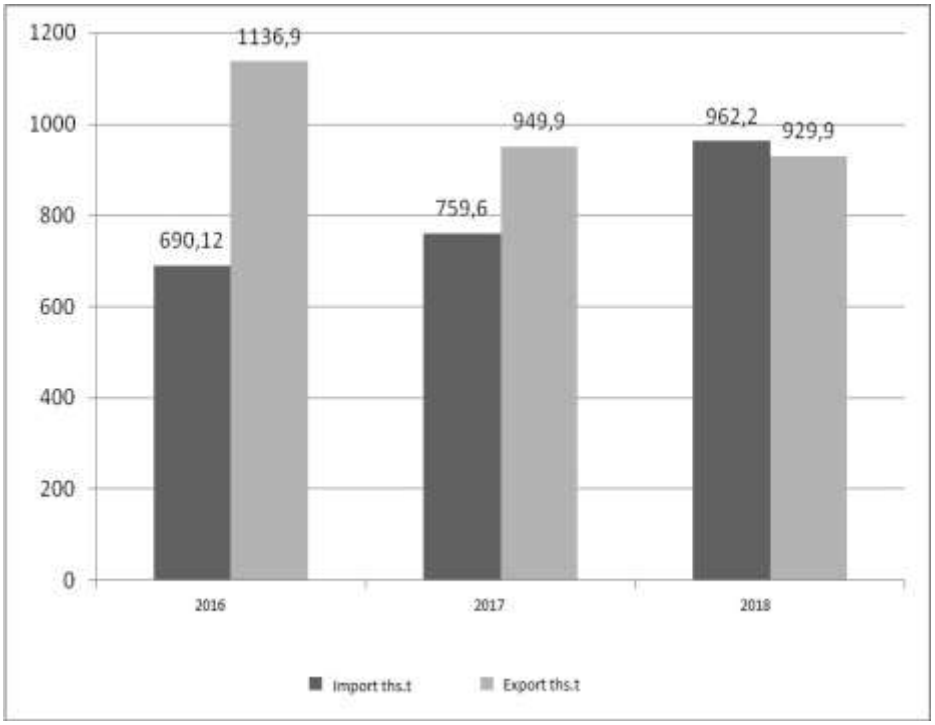

Fig. 2.1. Volume of import and export of cargoes of all kinds transport between Ukraine and Germany for 2016-2018

From Table 2.1. and Figure 2.1. we see a slight downward trend in exports in 2018 by 207 thousand tonnes compared to 2015. In terms of imports, on the contrary, we see an increase of 272.08 thousand tonnes in 2018. compared to 2015.

Let's look at the structure of freight flows performed by UIA in 2018. Table 2.2. and Figure 2.2 shows the structure of major cargo flows performed by UIA in 2018 worldwide.

Table 2.2.

Structure of cargo flows executed

UIA airline in 2018 worldwide

Country	Cargo volume, thousand tons	Specific gravity in total,%
Ireland	260,96	3,22%
UAE	264,20	3,26%
France	298,24	3,68%
Ukraine	301,48	3,72%
Netherlands	487,88	6,02%
Others	1068,96	13,19%
Spain	736,68	9,09%
England	836,36	10,32%
Switzerland	1474,17	18,19%
Georgia	1740,80	21,48%
Germany	634,57	7,83%
All in all	8104,30	3,22%

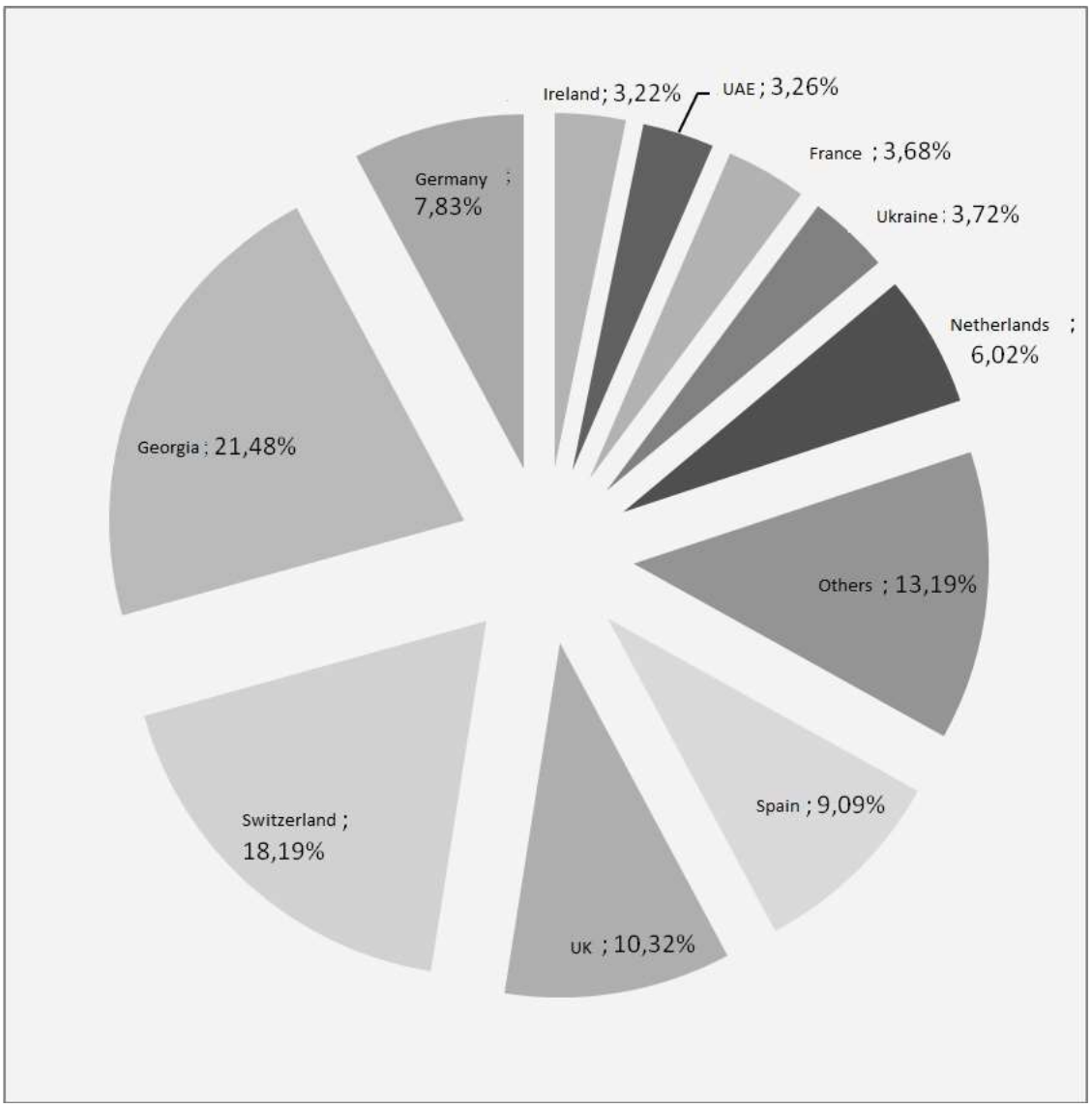

Fig. 2.2. Structure of freight flows performed by the airline

UIA 2018 by countries of the world

From Fig. 2.2. Apparently, the major destinations in which the airline operates are countries such as Georgia, Switzerland, England, Spain, Germany and the Netherlands. The largest share of flights is operated in Europe. Also, the figure shows that the largest volume of cargo will be transported in the direction of Ukraine-Georgia, namely 21.48%.

Table 2.3.

Freight structure of the UIA Airlines

at your final destination for 2018.

City	Cargo volume, thousand tons	Specific gravity in total,%
Tbilisi	1717,30	21,19%
Zurich	1474,17	18,19%
London	824,21	10,17%
Barcelona	564,87	6,97%
Amsterdam	481,40	5,94%
Frankfurt	430,34	5,31%
Paris	294,19	3,63%
Dubai	260,96	3,22%
Shannon	256,91	3,17%
Berlin	175,86	2,17%
Malaga	162,09	2,00%
Lviv	158,03	1,95%
Simferopol	139,39	1,72%
Helsinki	98,87	1,22%
Vienna	84,28	1,04%
Brussels	82,66	1,02%
Rome	76,18	0,94%
Madrid	71,32	0,88%
Milan	36,47	0,45%
Others	714,80	8,82%
All in all	8104,30	100,00%

Considering the positive trends in the total volume of freight flows by all types of transport between Ukraine and Germany, it is advisable to advise airlines in the further development of freight transportation in this direction.

The structure of cargo flows at the final destination is presented in Table 2.3. and in Fig. 2.3.

More than 100 cities around the globe are the final destinations for cargo transportation by UIA.

The reach of such a large network of cities is achieved through successful partnerships with other airlines.

From Figure 2.3 and Table 2.3. we see that during the aforementioned period, the largest number of cargoes was transported to the destinations of Tbilisi, the volumes of transport to Zurich and London were significant.

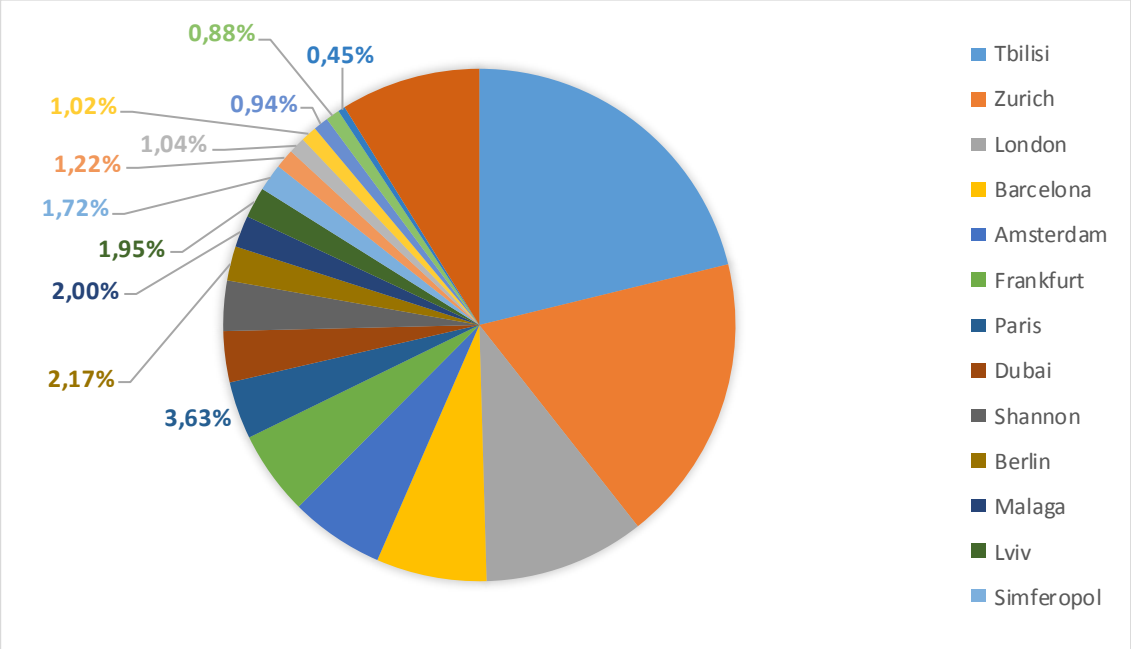

Fig. 2.3. UIA cargo structure by destination for 2018

Also, it should be noted that a large number of cargoes were transported to Amsterdam, Frankfurt, Paris and Barcelona..

3.2. Prospects for the development of cargo flows of UIA for Germany

3.2.1. New Berlin-Brandenburg Airport prepares to become eastbound gate

Today, Berlin's operating airports are: TXL - Tegel, SXF - Schoenefeld. In Fig. 2.4. shows the location of Berlin airports with a link to the city map.

Fig. 2.4. Location of Berlin airports with a link to the city map

Berlin-Schönefeld Airport (German FlughafenBerlin-Schönefeld) is one of two operating airports serving Berlin residents. The airport is operated by Flughafen Berlin-Schönefeld Gmbh (FBS), with participants such as Berlin, Brandenburg and the Federal Republic of Germany. In 2008, the airport served 6.6 million passengers. At this time, Schönefeld Airport is being rebuilt into the new Berlin-Brandenburg Airport. The Berlin-Schoenefeld Airport is located in Brandenburg, in the Dami-Dame-Spreewald district, 22 km southeast of the city center. The airport is located at 48 m above sea level, covers an area of 620 hectares and is thus the largest airport in the region in terms of size. Nearby is the Berlin-Schoenefeld railway station, where the Regionalbahn and S-Bahn (S-Bahn5) trains stop. Twice an hour, the so-called "airport express" of lines RE7 and RB14 departs to Berlin central station with stops at Ostbahnhof and

Friedrichstrasse. You can also get to the airport by bus. Federal Highway 113. The taxiway is located at the entrance to Terminal A.

Tempelhof International Airport (German FlughafenBerlin-Tempelhof, IATA: THF, ICAO: EDDI) is the oldest and smallest of Berlin's three airports. As of October 30, 2008, Tempelhof Airport is closed.bvOtto Lilienthal International Airport (German FlughafenBerlin-Tegel) is one of Berlin's two operating airports near Schoenefeld Airport. The main destination of flights from Tegel is the connecting airport Frankfurt am Main. In addition to Tegel, there are direct flights to Europe, such as London, Paris, Vienna, Madrid, Milan and Oslo. In addition to flights to Turkey and North Africa, Tegel Airport is connected to the New York Airport by Tegel. John Kennedy, Newark, Bangkok, Tel Aviv, Doha, Varadero (Cuba), Punta Cana in the Dominican Republic, Ulaanbaatar, Beijing.

The new Berlin-Brandenburg Airport is set to become the eastbound gate. The new Berlin-Brandenburg International Airport (BBI) will be operational shortly: from 1 November 2014, all air services to the German capital will be completely via Berlin-Schönefeld.

The ceremony of laying the first stone in the construction of this large-scale project of nearly 1,500 hectares, located south of the present Schönefeld Airport, took place in September 2006. The peculiarity of the airport is that the new terminal will be located between two parallel runways, that is, "on the midline".

In the 6-storey building between the north and south runways, not only check-in and check-in of passengers and luggage will take place. Also, about 150 trade and catering businesses will be located here. The amount of investments is 2.5 billion euros. A consortium of seven German banks and a European Investment Bank (EIB) provides credit for the project. The German and German federal governments of Berlin and Brandenburg provide 100% loan guarantee. This will also add to the cost of a shopping and office complex in the immediate vicinity of BBI Airport City and BBI Business Park in the northeast direction of the airport.

When planning the airport, the views were also turned to the East. According to the Logistiknetz Berlin-Brandenburg e.V. Logistics Network, a passenger flight from Berlin to Moscow is now offered every two hours, which also concerns freight transportation, but in this area there is still potential. Partial cargo from Berlin is transported by car to Frankfurt am Main airport. With more direct flights from Berlin to the future, this could be avoided. the territory of the new airport to the logistic center at the intersection of the transport routes between the East and the West. One of the benefits of BBI's new airport is that planes from Eastern Europe arrive in Berlin an hour earlier than Frankfurt or Munich, thanks to the distribution of goods across Central Europe. In addition, the cargo complex, which is still at Tegel Airport, will fit perfectly into the southeastern part of the capital. There are great opportunities for cargo transshipment due to the availability of the freight centers of Berlin-East and Berlin-South and access to the motorways. Therefore, the new Berlin Airport (BBI) can serve as an excellent transfer point for shipping from Asia to the Scandinavian countries, the Baltic States and Eastern Europe. Berlin has clear geographical advantages for these regions.

According to Logistiknetz Berlin-Brandenburg e.V. past years have been marked by increased growth in freight transportation on long-haul passenger flights, ie when passenger planes are loaded on intercontinental flights with additional commercial goods: Siemens sends to Bayer Consumer goods and spare parts for cars go to the main rank in Ukraine. In 2018, the lion's share of the total volume of cargo airlifting through Berlin - 41% - accounted for the loading of passenger planes with commercial goods. Even though the total volume of cargo air transport decreased by approximately 18% as a result of the global economic crisis, the volume of passenger flights loaded with commercial goods remained virtually unchanged. The decisive factor is the speed at which aircraft can be loaded and unloaded. For example, low cost airplanes are only 20-30 minutes away from the airport, except that there is sufficient space for intermediate storage. Therefore, for the purpose of fast transshipment of cargoes at the BBI airport, a

cargo terminal is also planned between the two runways, which can carry up to 60,000 tonnes of cargo per year. The direct benefit of the new cargo terminal will also be for freight transport, which is the third most important segment in the air cargo chain. The distance from the A113 motorway is only about 2 km. In this case, Berlin-based express cargo delivery companies (TNT, Fedex, UPS), as well as freight charter airlines, will be served separately - at the northern freight hub of the current Schofen Airport. Of particular interest in the field of logistics is BBI Business Park, which will become the largest area of Berlin's business park. It is located in the northeast part of the new airport and covers an area of approximately 109 hectares. Of these, 40 hectares were acquired by SEGRO, an investment and real estate investment firm. The highlight for investors is an area of 8 hectares adjacent to Federal Road 96a at the entrance to the business park. Offices, hotels and enterprises of the sphere of services are located here.

UIA must take into account promising destinations for the establishment of a cargo transshipment point in Berlin for cargo flows from Asia to the Scandinavian countries, the Baltic States and Eastern Europe.

3.2.2. Rationale for the opening of a charter cargo flight of UIA Airlines Kiev-Berlin-Kiev

In order to substantiate the opening of a cargo charter flight Kiev-Berlin-Kiev, it is necessary to conduct an investigation of the existing cargo routes and passengers of the UIA airline in this direction. Cargo transportation in this direction is carried out by way of loading of passenger flights Kiev-Berlin-Kiev, which UIA operates five times a week: on Mondays, Tuesdays, Thursdays, Fridays and Sundays.

Let us analyze the commercial loading of passenger flights of UIA for 2017-2018. The analysis will be carried out with regard to passenger transportation, the number of pre-loaded cargo and the level of commercial loading of the flight (Table 2.4.).

Table 2.4.

Commercial download of airline passenger flights UIA for 2017-2018

Months a year	2017			2018		
	Number passengers, pass.	Reload loads, t	Commercial downloads,%	Number passengers, pass.	Reload loads, t	Commercial downloads,%
January	1670	2,15	61,95	1569	6,45	59,70
February	1835	0,36	67,4	1706	4,6	64,09
March	2175	0,8	80,02	2044	6,22	77,80
April	2569	0,87	94,49	2489	7,4	93,73
May	2688	0,4	98,7	2600	6,63	97,50
June	2975	2,39	100	2749	6,83	100,00
July	3574	2,15	100	3202	3,44	100,00
August	3502	0,73	100	3246	2,17	100,00
September	3301	1,77	100	3050	2,83	100,00
October	3141	1,17	100	2821	1,86	100,00
November	2504	0,84	92,1	2494	3,35	92,60
December	2417	1,34	89,07	2372	3,15	88,02
All in one year	32351	14,97		30342	54,93	

From Table 2.4. we see that in 2017, the commercial UIA flights downloaded in the range of 62% in January to 100% in June-October. The peak period of the highest commercial download (from 90%) is from April to December.

Comparing the results of flight 2018 to 2017, we see a decrease in passenger traffic on the flight from an average of 6 to 10 percent. Therefore, in 2018, the UIA airline had the possibility of a greater reloading of passenger flights by cargo, leaving commercial loading of the flight at the level of 2017 and even more. This is illustrated in Figure 2.5. and 2.6.

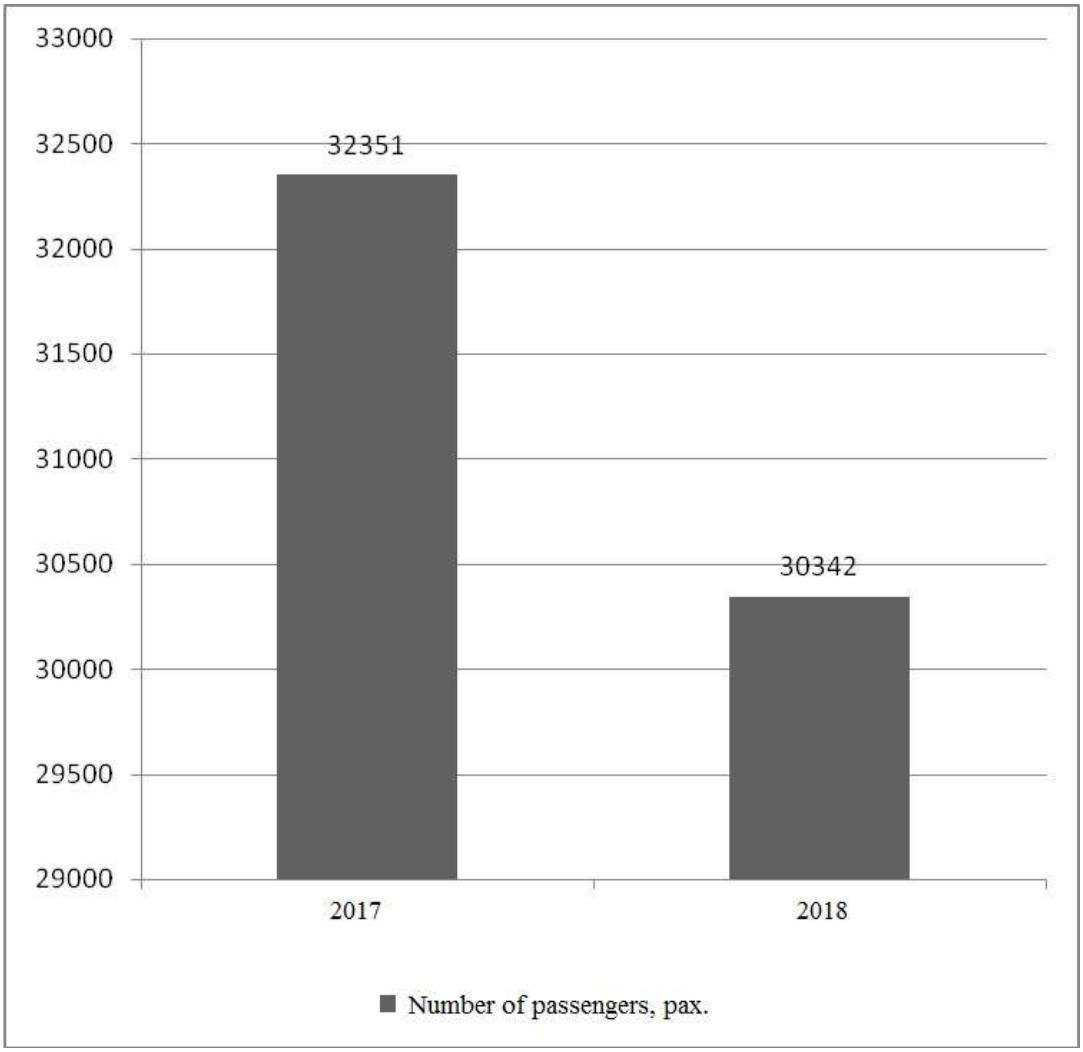

Fig. 2.5. Number of passengers on flights Kiev-Berlin-Kiev
UIA airlines for 2017-2018

The drop in passenger traffic in 2018 was due to an increase in the number of flights operated by Kiev-Berlin-Kiev by Lufthansa airline, as well as by the political and economic crisis that occurred in Ukraine in the fourth quarter. Despite the decrease in passenger traffic in the Kiev-Berlin-Kiev route, UIA utilized the possibility of restarting passenger flights, which increased its freight traffic in this

direction by 39.96 tonnes in 2018. This is evidenced by the existing demand for freight in the Kiev-Berlin-Kiev direction.

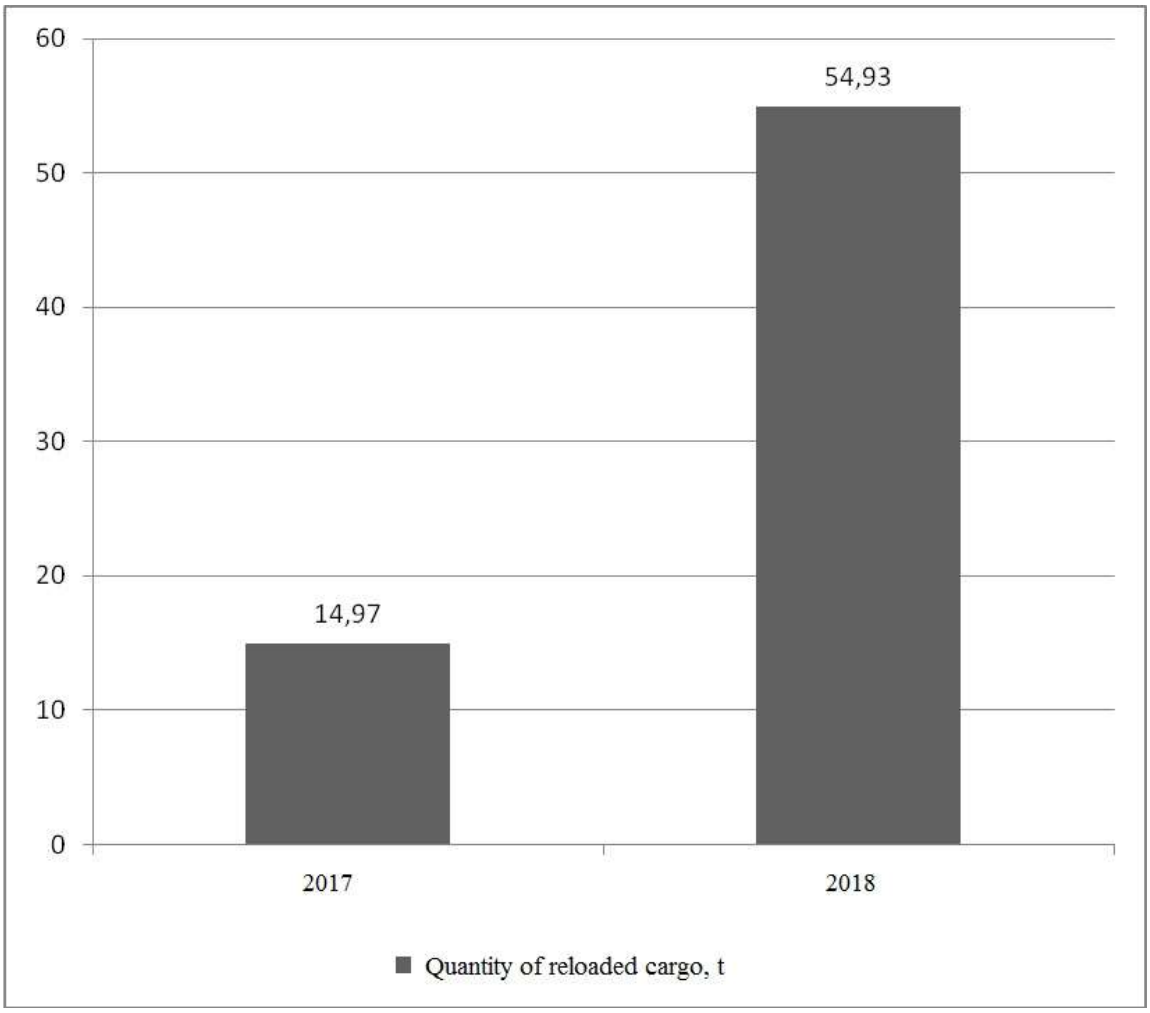

Fig. 2.6. Quantity of reloaded cargo on flights
Kyiv-Berlin-Kiev of UIA Airlines for 2017-2018

Important direction is cargo charter transportation - it is an individual route, reduced departure time and delivery of goods, the possibility of transportation of specific cargoes: perishable goods; animals; non-standard cargo; dangerous goods; first necessities and similar goods. Therefore, UIA considers it advisable to organize a charter cargo flight Kiev-Berlin-Kiev.

3.3. Calculation of financial and economic indicators of charter flight Kiev - Berlin - Kiev aircraft type B-737-300SF

This diploma thesis proposes the introduction of a charter flight on the route Kiev-Berlin-Kiev, which will be performed after the DHL and TNT companies have been ordered for the purpose of transporting freight forwarding.

The airline operates charter flights around the world and in the shortest possible time. Urgency, security, time savings, the ability to deliver cargo to airports that are not scheduled in scheduled flights are major advantages of a charter charter. UIA is working closely with world leaders in express delivery such as TNT and DHL:

• DHL is the world leader in express delivery, as well as transportation by land and air. DHL maintains leadership in the field of heavy shipping and contract logistics. The company offers its customers a full range of innovative and tailor-made solutions, from express delivery of documents to supply chain management.

• TNT Express is a leader in the international industry of express delivery of documents, parcels and corporate cargo. On Sunday, the company delivers 4.1 million packages, documents and parcels in more than 200 countries, utilizing its network of more than 1,200 warehouses, nodes and sorting centers.

The airline is planning to operate a Kiev-Berlin-Kiev charter flight with its own B-737-300SF aircraft, which has the following weight and volume limitations:

- cargo and mail capacity: 16'000 kg;
- volume (main and lower decks): 127 cub.m

Here is a calculation of flight performance indicators for cargo aircraft B-737-300SF. For this purpose we use the following initial data collected in table. 2.5.

Table 2.5

Baseline data for calculating flight rates

Indicator	B-737-300SF
Crew	2
Takeoff mass, vol	63,3
Max. commercial download, t	16,0
Cruising speed, km / h	900
Practical flight range at maximum commercial load, km	4600
Hourly fuel consumption in cruise mode qgkr, t / h	2,4
Dialing time - decrease in height	0,4
Cost of Air Force Vpps, mln.	55
Annual raid, yr.	1000
Depreciation rate,%	4%
Insurance,%	3%
The average salary of a crew member, $ / month	1000

- Using the B-737-300SF will allow airlines to carry both regular and express mail and special cargo, including:
- • products that are perishable and require transportation in a controlled temperature regime;
- • valuables, in a mind of security and privacy;
- • animals transported under professional supervision;
- • bulk and overall cargo;
- • cargoes classified as dangerous under international terminology.

Calculates $C_{лг}^{ACMI}$ - the cost of flying hours by ACMI, the calculation of which consists of the following four steps:

1) A-aircraft, that is, the calculation of depreciation for aircraft for the rebuilding of gliders and engines.

This indicator can be determined by the actual charge per hour ($T_Г$) and the depreciation rate calculated from the aircraft resource. This figure is accepted for the B-737-300SF based on 25 years of operation or 4% of depreciation from the initial cost of the aircraft. According to practical data, the use of cargo aircraft by the CIS countries is an annual raid $T_Г$=1000 hours

$A = 0{,}04\ B_{пс} / T_{Г,}$ $/hrs.

2) C-crew, that is, the need for personnel and the level of expenses for the salary of the flight and engineering-technical composition:

Business trip payments per hour of annual flight:

n ×365 days × 25 $/1000

where n – the number of crew members;

365 – the estimated number of days in the year in which payments will be made on business trips;

25 $ – rate of business trip per person.

FOP (payroll fund) for the flight crew and engineering staff involved in the service of the given PS will be calculated on the average per year based on the average salary of the crew member per year for $ 1000 without breakdown.

3) M-maintenance, that is, the necessary costs associated with the technical servicing of the aircraft, which accounts for 1 hour of flying time. To determine this indicator, it is necessary to calculate the complexity of the process of technical maintenance, based on the minds of the design resource for the glider and the engines.

Since it is difficult to collect such information, it is necessary to refer to the existing practice of operating the aircraft, according to which M is one third of A:

M = A/3, $/hrs.

4) I - insurance, that is, the sum of all types of insurances (third party insurance, Hull insurance, crew insurance), which will account for one flight hour. The amount of insurance payments will take 3% of the original cost of the aircraft:

$I = 0{,}03\ B_{пс} / T_{Г,}$ $/hrs.

In this way, ACMI is: $C_{лг}^{ACMI} = A+C+M+I$, $/hrs.

The calculation of the composition of the cost of the summer hour by the method of ACMI shown in table 2.6.

Table 2.6

The calculation of the cost of flight hours per ASMI methodology, USD / hrs

Indicator	Total, $/hrs
Depreciation on the rebuilding of airframe and engines A - aircraft, $. / Year.	2200
Costs of salaries of the flight crew and engineering staff of C-crew, $. / Year.	42
Costs associated with the technical servicing of the PS	734
M-maintenance, $ / year	1650
A+C+M+I ($C_{лг}^{ACMI}$)	4626

The total cost of the flight is determined by the formula:

$$C = C_{ACMI}\ t_р\ + Q_{рв}\ Ц_п + C_{ап} + C_{ан}\,, \qquad (2.1)$$

$C_{ап}$ - airport charges (except passenger and cargo handling charges, air navigation), USD / flight;

$C_{ан}$ - air navigation fees, USD;

$Ц_п$ - fuel price, USD / t;

$t_р$ - duration of flight time of flight, hrs.

The duration of the flight time of the flight is determined by the formula:

$$t_р\ = L_{пл} / V_р\ \ , \qquad (2.2)$$

where $L_{пл}$ - length of the air line;

$V_р$ - flight speed, km / h;

A distance along the route Kiev - Berlin – 1345 км.

Flight speed V_p is calculated by the formula:

$$V_p = L_{пл}/(L_{пл}/V_{кр}+\Delta t_{нзв}\, n_{пос}) \quad (2.3)$$

where $V_{кр}$ - cruising speed of the flight;

$n_{пос}$ - the number of plantings, in our case $n_{пос}=1$.

Let us calculate the flight speed of flight according to the formula 2.3.:

$$V_p = 1345/(1345/900+0,4)=711,64 \text{ km/hr.}$$

Let us calculate the flight time of flight according to the formula 2.2.:

$$t_p =1345/ 711,64 = 1,89 \text{ hr.}$$

Travel expenses for fuel

$$Q_{рв} = 0,3q^{г}_{кр}\, \Delta t_{нзв}\, n_{пос} + q^{г}_{кр}\, t_p \text{ , (т)} \quad (2.4)$$

$Q_{рв}$ - voyage of fuel, t;

$q^{г}_{кр}$ - hourly fuel consumption in cruise mode, t / h;

$0,3q^{г}_{кр}\, \Delta t_{нзв}$ - additional fuel consumption on the set section - decrease in altitude in comparison with the flow rate during the landing of this section in cruising mode

0.3 - fuel consumption growth factor at altitude compared to nominal cruise mode;

$n_{пос}$ - number of plantings.

Let us calculate the cost of fuel on the formula 2.4.:

$$Q_{рв} = 0,3\times2,4\times0,4+2,4\times1,89 = 4,824\text{t}$$

We will take the price of fuel at $ 1460 (without VAT) - the price at which Ukrtatnafta JSC supplies aircraft fuel to air carriers of airlines for international flights at Boryspil airport as of 19.11.2015. Travel costs C_p transportation are determined without any charges at airports by formula

$$C_p = C_{лг}^{ACMI} t_p + Q_{рв} Ц_п , \qquad (2.5)$$

where $C_{лг}^{ACMI}$ - the average cost of a summer hour is calculated according to the method of ACMI (without aviaPMM), USD / year;

$Ц_п$ - fuel price, USD / t;

t_p - duration of flight time of flight, hrs.

$$C_p = 4626 \times 1,89 + 4,824 \times 1460 = 15786,18 \$$$

The next step will be the calculation of air navigation and airport charges.

At the execution of international flights, airport charges are calculated based on the system of fees at this airport.

Aeronautical charges for a flight on a route shall be calculated on the basis of the tariffs of that country, the air space intersected by this PS. The charge for air navigation services on the route is calculated depending on the maximum take-off mass of the aircraft for each 100 km of orthogonal distance. Therefore, we use the average rates of fees that exist in Europe.

In Europe, the cost base of airport charges includes the following components:

- landing fee (takeoff landing fee) without air traffic service;

- Fee for technical maintenance of aircraft;

- charge for commercial cargo services;

- Fee for the provision of PS over-parking;

- Aviation security fee.

Aeronautical fees include:

- air traffic charges in the area of the airfield;

- charge for air navigation services on the route.

Landing duty (takeoff - landing fee) without air traffic services (ATS), associated with runway services, taxiways, lanes, parking places, lighting and other services, , aviation security services. Collection fees for European countries average $ 10.5 per tonne maximum takeoff weight.

The charge for the aviation security of cargo aircraft will be $ 3.80 per tonne of MZM for international communications.

Airport maintenance and other airport costs are $ 330. per flight.

So $C_{ап}$ =(10,5+3,8) × 63,3+ 330 $ =1235,19 $

In the case of international flights, the air navigation charges are calculated on the basis of the tariffs of that country, the air space intersected by the given air line.

Aeronautical fees shall be determined in accordance with the order of the Ministry of Transport of July 24, 2008 No. 926, at which rates of fees for air navigation services in the airspace of Ukraine shall be:

1. The amount of the fee (hereinafter - R) for air navigation services in the airspace of Ukraine, connected with the provision of ODA (air traffic organization) on the route, is determined depending on the maximum allowed MT, Operator's Certificate, Orthodromic Distance and Single Payment Rate (T) by Formula:

$$R = T \frac{D}{100\sqrt{\frac{W}{50}}} \qquad (2.6)$$

where T is the single rate of payment for ODA services on a route with a take-off mass of 50 metric tons and an orthogonal distance of 100 km;

D - orthodromic flight distance in kilometers, reduced by 20 km with each landing and / or landing in the territory of Ukraine;

W - MTOW PS in metric tonnes. As long as it is unknown when calculating the size of the MTOW board of this PS, it is determined by the weight of the most severe PS of the same type.

The unit rate (T) of the ODA service charges on the route for the aircraft is calculated at an aircraft takeoff mass of 50 tonnes and an orthodromic distance of 100 km and is set at EUR 37.26 (1EUR = $ 1.21).

Let's count R on the Kiev-Berlin route.

Air navigation for ODA services on a route over the territory of Ukraine is equal (according to formula 2.6):

$$R=37{,}26\frac{620}{100\sqrt{\frac{63{,}3}{50}}}=205{,}31 \text{ EUR}=248{,}43 \$$$

2) The amount of fee (r) for air navigation services in the airspace of Ukraine, connected with the provision of ODA at the approach and in the airfield area, is determined depending on the MTOW of the aircraft specified in the certificate by the formula: $r = t \times W$ (2.7)

where t is the unit rate of payment for ODA services at the approach and in the aerodrome area;

The unit rate (t) for ODA services at the approach and in the aerodrome area is set at EUR 5.88.

Let's count r.

We got:

$r = 5{,}88 \times 63{,}3 = 372{,}2$ EUR$= 450{,}37$ $

Aerial navigation for ODA services on a route over other countries on the Kiev-Berlin route is $ 625.97. So the total amount of air navigation on the Kiev-Berlin route is equal $C_{ан} = 1324{,}77$ $.

Let us calculate the cost of the Kiev - Berlin flight (single flight) according to the formula 2.4, not including the airport charge for commercial cargo services, since this charge is a substitute for the charter flight depending on the loading:

$C = 15786{,}18 + 1235{,}19 + 1324{,}77 = 18346{,}14$ $

The cost of a Kiev-Berlin-Kiev steam flight is $ 36,692.28.

3.3.1. Effectiveness of project proposals for the implementation of the Kiev-Berlin-Kiev charter flight

To determine the final cost of a charter flight, the airline will assign a 25% return on the flight.

Then the total amount that the charterer will have to pay to the airline will be $ 45,865.35. The airline's revenue from a single flight will be $ 9173.07.

The charter flight on the Kiev-Berlin-Kiev route will be operated by DHL and TNT for the purpose of transporting urgent goods once a week.

In order to open a charter, it is not enough to calculate the cost of a flight, one of the main points is the conclusion of a charter transportation agreement, which stipulates:

- points between which they are performed;
- carriers which are approved for these transportations;
- the distribution between these carriers of the number of flights, the maximum number of flights, the minimum fares.

The results of the charter flight Kiev-Berlin-Kiev on the results of the year are shown in table 2.7.

Table 2.7

The results of the charter flight

Kiev-Berlin-Kiev

Indicators	Value
Flight cost, $	36692,28
Price of charter flight, $	45865,35
Flight revenue, $	9173,07
Number of flights per year, od.	24
Annual revenue from the operation of the flight, thousand $	1100,76
Annual cost of operating the flight, thousand $	880,61
Annual revenue, thousand $	220,15

The financial performance of the charter flight Kiev-Berlin-Kiev according to the results of the year is shown in fig. 2.7.

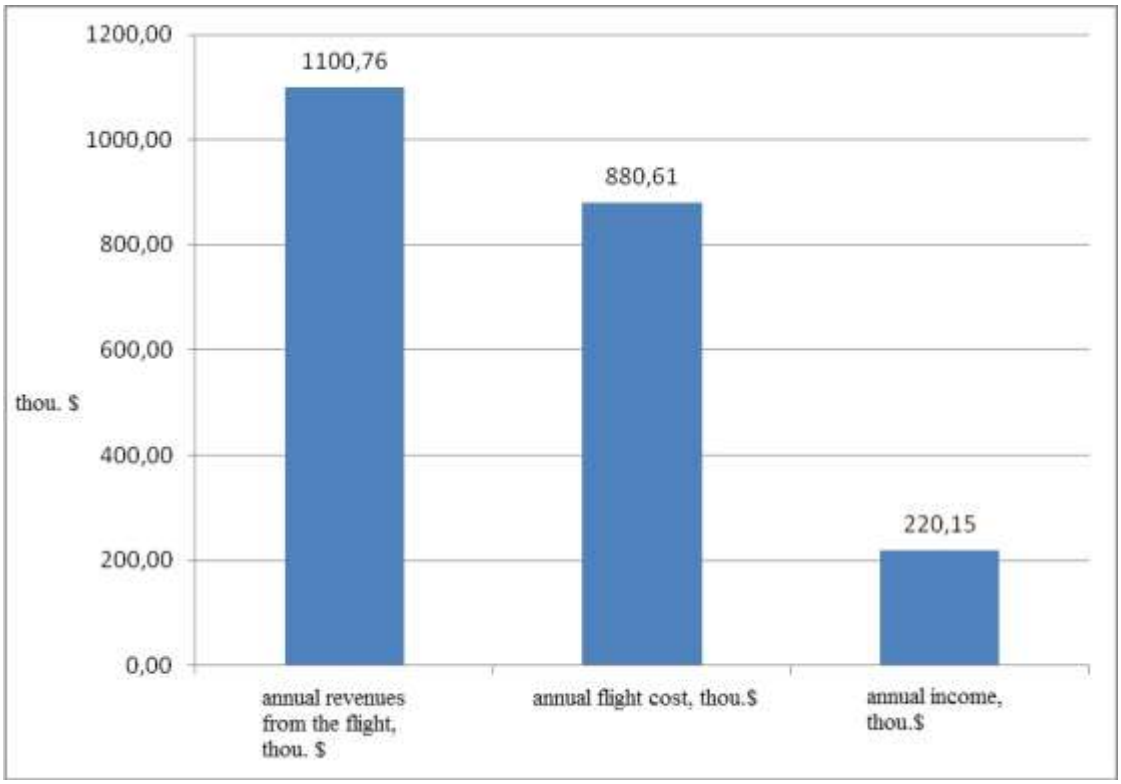

Fig. 2.7. Financial performance of charter flights Kyiv-Berlin-Kiev by the end of the year

The following types of charters are distinguished:

- voyage charter
- time charter

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The time charter is based on a contract for a certain period of time. Here, the element of renting is more clearly identified.

One-way charters provide for round-trip transportation with the possibility of long-term docking or passenger transportation only in one direction, if the customer needs to carry passengers on routes that can take a long time (to use the routes).

The notion of charter units arises in the event that not all commercial aircraft capacity is rented (the unit on the flight). Tariffs are agreed between the carrier and the party requesting the block.

Split charters assume the availability of a flight for several substitutes and each of them pays the cost of their part.

Charter transportation provides lower quality of service. A special feature is the application of lower tariffs and picking at the expense of higher commercial downloads.

The subject of a charter agreement is to consider the capacity of the aircraft, other than the commercial capacity provided to the charterer for charter transportation. Charter agreements specify the use of aircraft (type of ship), the purpose of the lease, the conditions of transportation.

During the time charter, the duration of the lease, the conditions are determined: with or without crew, flight geography, type of commercial loading, number of hours. In addition, each charter agreement contains:

- total validity;
- procedure for making changes and additions;
- additional minds;
- legal addresses and bank details;
- protocol-plea;
- possible annexes (schedule of transportation, given forms of acts).

A rather difficult issue for charter transportation is to determine the carrier's responsibility. Normal rules are the rules of responsibility within the Warsaw Convention, but there may be other rules when charter transportations use the territory of those countries where responsibility is greater than the national ones according to national regulations. In 1961. the Guadalajara Convention was signed, which called for the unification of certain rules for international air services on charter flights. The rich international agreement included the following concepts: a contracting carrier and an actual carrier.

3.4. Cargo flow management software

DHL is the only international express carrier to have its Russian and Ukrainian servers on the Internet. On it you can find detailed information about the operation of the company and the services it provides in the Russian and Ukrainian markets, as well as ordering the transportation of goods on-line and track the way of departure.

The joint project means that now UIA freight clients will also be able to take full advantage of the Russian and Ukrainian DHL servers.

Let's take a closer look at these benefits.

DHL Software Products

DHL has a reputation for being a trusted company with highly professional employees. DHL has developed and implemented a number of software applications that meet the individual needs of even the most demanding customers.

As a leader in the field of express delivery and logistics, DHL utilizes the entire arsenal of knowledge to create software products. The programs offered help you make the processes of managing freight flows more efficient. DHL applications help to significantly reduce time costs, and are also an integral part of efficient cargo transportation and worldwide correspondence.

At this time, DHL offers its customers two software add-ons:

DHL Connect - For customers who have a DHL account. This program is intended for work on the Internet.

Using this program, you can:

 to prepare and print invoices on A4 sheets using a laser printer;

Ви Operate the courier promptly and exchange e-mail messages with DHL4 employees

- maintain a database of recipient addresses;

On have on-line access to the status information of the shipment all the way through the DHL network from the moment of the courier's call to delivery to the addressee on the date of the invoice number;

Сп automatically notify the addressee of the departure and its invoice number by e-mail;

- keep archive of shipments; create standard reports based on archive data;

Вати Control the amount of cargo shipped and correspondence on the DHL network, which saves time and money.

EasyShip - Designed for regular DHL clients with daily DHL shipments of fifty and above.

Using this program, you can:

- quickly, beautifully and without errors, print invoices on A4 size sheets with the help of a laser inkjet printer or standard multilayer (matrix printer required) DHL forms;
- to receive information on-line in the on-line mode via the DHL network from the moment of the courier call to delivery to the addressee;
- maintain the archive of shipments and the address book of recipients, create reports on the archive of shipments in the required format;

Control the amount of cargo shipped and correspondence on the DHL network, which saves time and money.

DHL is a leader in the international aviation express delivery industry, utilizing the latest advanced technologies to enable customers to easily obtain ordering and shipment tracking information. Investments in information technology allow DHL to utilize all the cutting edge advancements in the express delivery industry, which in turn ensures the competitiveness of freight customers

DHLNET (TM)

DHLNET is a high-speed TCP / IP information network that allows customers to receive shipment status information and calculate shipping rates and shipping costs to any country in the world. DHLNET uses X.25 and Frame Relay technologies. DHLNET also provides up-to-date information on the entire route of departure, allowing efficient worldwide transportation.

Automatic sorting

DHLNET ensures that information is sent on departure before their actual arrival, allowing them to be transmitted faster through the sorting centers. The configuration of the sorting system allows one to read the information from each departure (from the barcode) as they arrive and distribute them to the nearest flights. It also provides storage and duplication of information when sending shipments through sorting nodes.

Customs handling of goods

DHLNET also permits the transmission of relevant documentation to the customs office of the country of destination, which gives the opportunity to "clear" the goods before they arrive where permitted by customs legislation.

Electronic Data Interchange (EDI)

EDI allows DHL clients to communicate directly with DHL via electronic communications channels. The use of EDI accelerates and facilitates the appearance of shipments and expenses.

Automatic voice mode

In some countries, a dispatch tracking system is installed that works in telephone conversations with the client.

DHL's additional service to its customers is an electronic tip for completing an air waybill.

When arranging correspondence or cargo for DHL shipment, it is necessary to complete the standard DHL air waybill, with all shipping information included. Customers who frequently use the services of the company free of charge receive pre-printed air waybills indicating the company name and address.

The air waybill is issued for all types of DHL shipments and is the only document to be filled in when sending correspondence, papers and items that do not require customs declarations. It is filled with Latin letters.

The air waybill contains information about the item of departure and has a unique number that is entered into the computer network and allows you to control the entire route of cargo up to the time of delivery to the recipient. Knowing your air waybill number, you can get location information and departure status using the Tracking menu option.

With the help of the DHL Tracking feature, you can find out your location and departure status at any time, day or night. The following tracking methods are available:

WAP - Track

http: //wap.dhl.com - via WAP (Wireless Application Protocol) function on mobile phone at the specified address, it is necessary to send air waybill numbers that are of interest to the customer - delivery details will be received.

SMS – Track

+ 44 7720 33 44 55 - via this number via SMS (Short Message Service) from your mobile phone it is possible to send air waybills to which you need to receive the information, and it will arrive within one minute.

E-track (Tracking with the help of e-mail)

Track@dhl.com - If you are able to work with e-mail, you can send up to 10 air waybill numbers to the specified address and within a minute will receive delivery details for each number.

Therefore, we can conclude that all of the new innovations offered will contribute to the development of both UIA and its business partners. With the growth of world trade, customer needs are increasing. UIA also strives to expand its network to fully meet the needs of its customers and help it remain a world leader in aviation freight and logistics.

CONCLUSIONS

Air Transportation Management Department				NAU 20. 02. 96. 300EN				
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Supervisor	Yun G..					D	71	2
St. Inspector	Shevchenko Yu.				FTML 6.070101 ATM-202Ma			
Head of the Dep.	Yun G.							

The diploma thesis is devoted to the organization of international cargo transportation in order to increase the efficiency of the UIA airline. Today UIA is a leading international air carrier with an extensive route network. UIA connects Ukraine with more than 40 capitals and key cities in Europe, Asia and the CIS, also providing connections with routes of its international partners to more than 3000 other cities in the world. UIA currently operates more than 700 international and domestic flights per week.

Today (as of November 1, 2019) the UIA airline fleet has 42 aircraft. Preferably, these are the modern passenger planes of the Boeing 737 line in the configuration of the economy class, and one Boeing-737-300SF cargo plane. The UIA fleet also includes five new Embraer ERJ-190s that have been in operation for less than 1 year.

During the completion of this diploma work, the dynamics of volumes of passengers transported by airline companies of Ukraine in 2017-2018 was analyzed. The termination of operations of such powerful carriers as AeroSvit and Donbassaero led to a redistribution of the transportation market between the operating airlines: in 2018, the airline company «UIA» leads the market by 60%.

In the analytical part, an analysis of the production and economic activity of the UIA was also carried out. According to the results of 2018, UIA carried 4.6 million passengers, increasing its passenger traffic by 64% compared to 2017, when 2.8 million passengers were transported. For UIA, 2018 was the second successive year when a transit model started operating for a full year. The growth of transit is explained by the fact that having a branched network of European markets, the UIA Acompany gained access to the true number of new eastern routes, routes Foreign airlines are not engaged in transit through Ukraine. This growth was previously provided mainly by AeroSvit, and since 2011 - by UIA.

In the analytical part, an analysis of the mail and cargo transportation was also made. The Airlines of Ukraine International Airlines carries cargo and mail both

internationally and domestically. According to the data obtained, we can see that in the structure of freight traffic, international transport, with a share of more than 99%, prevails. Domestic freight transport accounts for a small share in the total volume of freight traffic in comparison with international freight

This diploma thesis proposes the introduction of a charter flight on the route Kiev-Berlin-Kiev, which will be operated by its own aircraft type B-737-300SF with the replacement of DHL and TNT companies for the purpose of transportation of term cargoes.

To substantiate the opening of the Kyiv-Berlin-Kiev charter flight, an investigation of the existing passengers of the UIA airline in this direction was conducted, and it was found that the transportation of cargo in this direction was carried out by the loading of the Kyiv-Airlines flights. once a week.

In the project part, the cost of the flight was made, which is $ 36692,28. To determine the final cost of a charter flight, the airline established a 25% return on flight. Then the total amount that the charter party has to pay to the airline will be $ 45,865.35. The airline's revenue from a single flight will be $ 9173.07. Annual revenue from 104 flights a year will be $ 220.15 thousand.

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