

AIR FREIGHT TRANSPORT IN POLAND TOWAROWY TRANSPORT LOTNICZY W POLSCE

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Abstract: Air transport is currently one of the major branches of transport both in the national – and global – economies. It is one of the fastest, most expensive, but at the same time also most effective types of transportation. It plays a fundamental role in the global economy, particularly in the transcontinental carriage of goods and passengers. Its availability and quality constitute a powerful driving force for a country's development. Air freight transport, both in Poland and worldwide, is seen mostly from the angle of long-distance passenger flights. Given that, one often tends to forget the role of this transport branch in the case of freight transport. Air cargo transport is a booming branch with great development potential. The development of air freight is the key for gaining a competitive advantage by Polish enterprises. This, however, is related to considerable experience and knowledge on the part of both the carrier and the owner of goods with regards to the technical capacities of a given aircraft, maintenance costs, and rule awareness. The objective of the paper is to present the volumes of air cargo shipments in Poland and to identify the hazards and obstacles to its development. The study authors endeavour to analyse air freight transport in Poland. To this end, details will be presented regarding air cargo transport at Polish airports based on the Civil Aviation Authority (ULC) and Central Statistical Office (GUS) data and air market reports.

Keywords: freight, air transport, air cargo, freight transport

Streszczenie: Transport lotniczy stanowi obecnie jedną z najważniejszych gałęzi transportu w gospodarce kraju – świata. To jeden z najszybszych, najdroższych a zarazem najbardziej efektywnych rodzajów przewozów. Odgrywa bardzo ważną rolę w gospodarce globalnej zwłaszcza w przewozach międzykontynentalnych. Jego dostępność i jakość stanowią olbrzymią siłę napędową dla rozwoju kraju. Towarowy transport lotniczy zarówno w Polsce, jak i na świecie postrzegany jest przede wszystkim przez pryzmat lotów pasażerskich na duże odległości. Biorąc pod uwagę powyższy fakt dość często zapomina się o roli tej gałęzi transportu, w przypadku transportu towarów. Transport lotniczy cargo jest obecnie prężnie rozwijającą się branżą z ogromnymi możliwościami rozwoju w przyszłości. Rozwój frachtu lotniczego ma duże znaczenie dla budowy przewagi konkurencyjnej przedsiębiorstw z Polski. Wiąże się to jednak z ogromnym doświadczeniem i wiedzą zarówno ze strony przewoźnika jak i właściciela towaru w zakresie możliwości technicznych samolotu, kosztów eksploatacyjnych jak również znajomości przepisów. Celem artykułu jest przedstawienie wielkości lotniczych przewozów cargo w Polsce wraz z identyfikacją zagrożeń i barier rozwoju. Przedmiotem rozważań podjętych przez autorów jest analiza towarowego transportu lotniczego w Polsce. W artykule przedstawiono dane dotyczące przewozów lotniczych cargo w polskich portach lotniczych na podstawie danych ULC, GUS oraz raportów dotyczących rynku lotniczego.

Słowa kluczowe: towar, transport lotniczy, lotnicze cargo, przewozy towarowe

Introduction

Air transport is one of the key elements of a country's economic infrastructure, as it is the fastest, most expensive, and at the same time the most effective type of transportation. In the era of fast developing global economies, it is also of special importance for long-distance, or transcontinental, transport services. The availability, but also the quality of services provided by air carriers, constitutes a powerful driving force for a country's growth (Kuczek, 2015).

According to the International Air Transport Association (IATA), Polish air cargo accounts for a mere 1% of the European market, which is 35% of the world's trade in terms of value. The International Air Transport Association (IATA) highlights that countries which improve air cargo services by as little as 1% can count on a 6% – growth in international freight exchange. This opens an opportunity for Poland, which is worth seizing in order to improve its position on the global market (Derewienko, 2019).

Methodology

The subject of the research was air freight transport in Poland and transport service demand. The objective of the paper is to present the volumes of air cargo shipments in Poland and to identify the hazards and obstacles to its development. The study authors endeavour to analyse air freight transport in Poland.

To this end, details will be presented regarding air cargo transport at Polish airports based on the Civil Aviation Authority (ULC), Central Statistical Office (GUS) data and air market reports, books and online websites related to air freight transport.

Air cargo market in Poland

The air freight market in Poland is currently served by the three largest airlines: Polish Airlines Lot SA Cargo (18.3%), Lufthansa (17.6%), and Emirates (9.3%), which combined constitute 45% of the transportation market. Some time ago the above group was supported by the following: Qatar Airways with flights to Warsaw performed by wide-

bodied A330, and Turkish Airlines. The next market share is served by the remaining air carriers.

The Polish market of air freight forwarders comprises more than 120 companies. The biggest of them are: DHL Global Forwarding, with 16% of the transport market from Poland, CEVA Logistic – 7.6% and DB Schenker – 6.4%. (dlapilota.pl, 2016).

The air cargo market potential in Poland is hard to examine, for it is measured mainly by the quantity of goods leaving the territory of Poland by air. Today, only circa 30% of Polish goods takes off from Polish airports – the remaining share ends up at major airports which together cover 80% of the European volume. These airports are Frankfurt, Paris, London and Amsterdam, as indicated by Tomasz Pyka, the Sales Manager of the North-European Europe cluster with DB Schenker (Derewienko, 2019).

According to Eurostat, in the first quarter of 2018, the place of destination for over half of all goods (55%) shipped from the key Polish airports was either Leipzig/Halle or Cologne/Bonn. Solely 23% of the cargo went directly overseas, to Chicago, New York or Toronto (Figure 1).

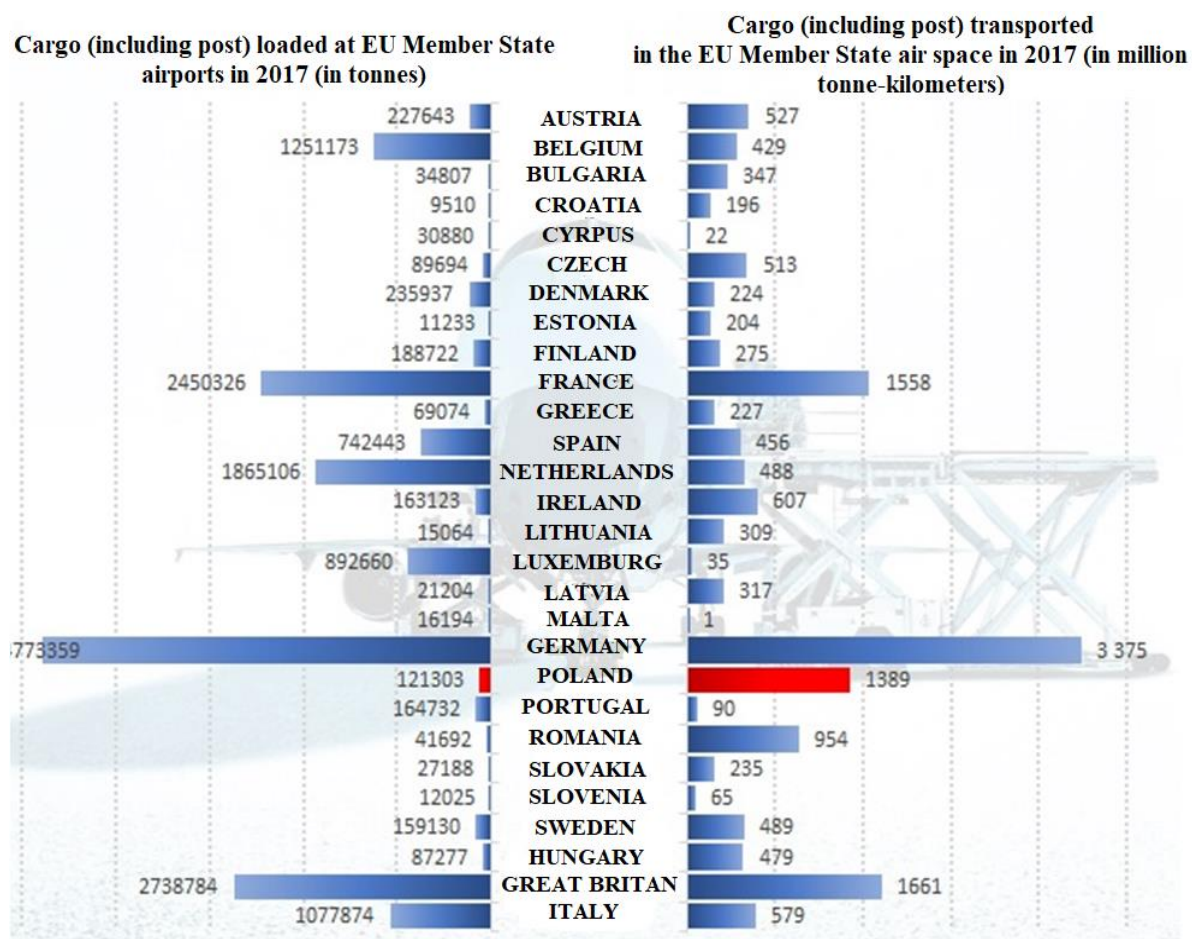


Figure 1. Transport of goods by air in the European Union
Source: Ofłakowski, 2019.

The total number of freights cleared at Polish airports comprises three cargo segments: “on board”, RFS (Road Feeder Service) and post (mail).

In 2015, Polish airports handled as little as 81.5 thousand tonnes of air freight, which accounts for 0.15% of the global transshipment. The highest proportion of air cargo output in Poland, i.e. 58.2 thousand tonnes, was recorded in Warsaw Chopin Airport (Table 1).

By comparison, it is worth noting that Hong-Kong airport, which is now the largest air transport hub in the world, only last year handled 4.4 million tonnes of freight; whereas, the biggest hub in Europe located in Frankfurt am Main – 2.1 million tonnes. The only consolation is that our airports feature high transshipment dynamics (11.8% in 2015 compared to 2.2% of global dynamics).

Table 1. Number of “on board” shipments handled at Polish airports in kgs between 2015-2019

Airports	2015	2016	2017	2018	2019
Warsaw Chopin	15 260 599	20 731 836	23 172 730	24 636 682	25 891 042
Katowice-Pyrzowice	3 579 901	3 965 463	4 233 240	4 146 088	4 484 775
Gdańsk Lech Wałęsa	1 198 100	1 186 685	1 393 263	1 369 534	1 601 826
Rzeszów-Jasionka	1 068 869	264 652	40 232	174 979	265 149
Poznań-Ławica	163 708	27 312	30 018	19 134	21 056
Wrocław-Starachowice	24 560	511 948	72 515	66 252	68 206
Szczecin-Goleniów	53 566	38 523	16 052	5 949	2 203
Bydgoszcz-Szwederowo	0	0	23 485	2 431	0
Port Lotniczy Lublin	421	264	9	21	0
Radom-Sadków	0	0	0	0	0
Warszawa-Modlin	0	0	0	0	0
Łódź-Lublinek	0	0	0	15 794	0
Kraków- Balice	0	0	108	0	0
Olsztyn-Mazury	0	0	0	0	0
Zielona Góra-Babimost	0	0	0	0	0
Total	21 349 724	26 726 683	28 981 652	30 436 864	32 334 257

Source: own study compiled based on : https://www.ulc.gov.pl/_download/regulacja_ryнку/statystyki/calý_rok_2015/wg_org_cargo-2015kw4_v4.pdf; https://www.ulc.gov.pl/_download/regulacja_ryнку/statystyki/IV_kw_2016/wg_org_cargo-2016kw4_v2.pdf; https://www.ulc.gov.pl/_download/statystyki/2017/wg_org_cargo_4kw2017.pdf; https://www.ulc.gov.pl/_download/regulacja_ryнку/statystyki/2018/4-kw-2018/wg_org_cargo_kw42018.pdf; https://www.ulc.gov.pl/_download/regulacja_ryнку/statystyki/2019/wg_org_cargo_kw32019.pdf.

Given the foregoing, it is worth to remind one of the words of the Director of Warsaw Chopin Airport, Mariusz Szpikowski, who depicted the situation on the market of cargo operations in 2015 as follows: “Year 2015 was a strong year in terms of cargo operations. Chopin Airport has been the Polish leader in the movement of goods for many years now. Forecasts indicate that this year the demand for goods carried by air to and from our part of Europe will continue to rise. We are negotiating with new cargo carriers. We are on a growth and development path in this category of air services” (Bożyk, 2016).

A special type of air cargo transport is RFS, also referred to as cargo “on wheels”, which signifies that freight transport is performed on the ground by road transport with trucks carrying loads to airports outside Poland - to Amsterdam, Frankfurt, Paris,

Vienna or London, where top air cargo carriers operate. RFS is a very popular solution among Polish air cargo carriers (Fechner, Szyszka, 2018).

In 2014, 36734 tons of cargo were cleared as RFS, which constituted a 35% growth with respect to the year 2013 (Table 2). In addition, Polish airports offer post delivery, which in the year 2014 accounted for approximately 15% of the total volume (Table 3).

In the year 2015, a slight drop was observed in post transport compared to its transport the year before, which was about -7.4%. Chopin Airport handled more than 14 thousand tonnes of post. Domestic services decreased by 48%, similarly to the previous year. However, the mass of post transported on international and national routes increased by 2.2% (Table 4).

Table 2. RFS cargo in Poland in 2014

Airports	2014 in tons
Warsaw Chopin	18 497
Katowice-Pyrzowice	2 062
Gdańsk Lech Wałęsa	665
Rzeszów-Jasionka	0
Poznań-Ławica	2 291
Wrocław-Starachowice	5 353
Szczecin-Goleniów	0
Bydgoszcz-Szwederowo	1
Port Lotniczy Lublin	0
Radom-Sadków	0
Warszawa-Modlin	0
Łódź-Lublinek	0
Kraków- Balice	2 189
Olsztyn-Mazury	0
Zielona Góra-Babimost	0
Total	36 734

Source: Wyszyński, 2015.

Table 3. Post (mail) transported at Polish airports in 2014

Airports	2014 in %
Warsaw Chopin	17
Katowice-Pyrzowice	1
Gdańsk Lech Wałęsa	12
Rzeszów-Jasionka	32
Poznań-Ławica	17
Wrocław-Starachowice	6
Szczecin-Goleniów	96
Bydgoszcz-Szwederowo	93
Port Lotniczy Lublin	0
Radom-Sadków	0
Warszawa-Modlin	0
Łódź-Lublinek	0
Kraków- Balice	29
Olsztyn-Mazury	0
Zielona Góra-Babimost	0

Source: Wyszyński, 2015.

Table 4. Tonnage of transported post in 2015

	Departing	Arriving	Total	Change 2015/2014
Post [kg]				
Total	8,181,244	5,889,230	14,070,474	- 7.41%
International flights	7,447,195	5,096,387	12,543,582	2.21%
Domestic flights	734,049	792,843	1,526,892	-47.79%

Source: own study compiled based on: Rekord odprawionego cargo na lotnisku w Warszawie. Retrieved from <https://dlapilota.pl/wiadomosci/lotnisko-chopina/rekord-odprawionego-cargo-na-lotnisku-w-warszawie>, 2017.

Most post from Warsaw Airport is delivered to Frankfurt, London, Paris, Amsterdam and Copenhagen. In 2015 the largest increase was recorded by Paris (39.5%), and a drop by London (by 12.1%), (Table 5).

Annual dynamics of changes in air cargo traffic in Poland in the years 2013-2014, 2015-2014 and 2016/2015 are presented in the table below (Table 6). In 2014, there was a fast growth of air freight transport in Poland. Relying on data from the Civil Aviation Office, more than 72 thousand tonnes of goods were carried at the time, which was an increase of 17% when compared to the amount of goods transported the previous year. Most goods from Warsaw Airport were transported as part of international traffic and only 688 tonnes were

transported within the country. Import was approximately 29 thousand tonnes, whereas export - 23 thousand tonnes. In addition, 15 thousand tonnes of post flew from there.

The second place in air cargo transport at the time was Katowice-Pyrzowice Airport - with more than 14 thousand tonnes. Every year, more and more goods are being transhipped at the airport.

In 2015, there were almost 104 thousand tonnes of goods carried on board aircrafts, i.e. 12% more than in the previous year. Citing Marta Chylińska, the spokesperson of the CAO, the reason behind it was: "...economic growth, infrastructure development, and an increasing presence of wide-body aircrafts on our market".

Table 5. Cities to which most post was delivered in 2015

City	2015	2014	Change 2015/2014
Frankfurt	1583.3	1663.3	-4.8%
London	1486.4	1691.8	-12.1%
Paris	1160.8	832.1	39.5%
Amsterdam	888.4	781.9	13.6%
Copenhagen	660.3	581.1	12.1%

Source: Wyszyński, 2015.

Table 6. Air transport in Poland - number of shipments handled in national and international traffic

Airports	2013 (in thous. kgs)	2014 (in thous. kgs)	2015 (in thous. kgs)	2016 (in thous. kgs)	Dynamics 2014/2013 in %	Dynamics 2015/2014 in %	Dynamics 2016/2015 in %
Warsaw Chopin	48219	53475	58284	72186	10.90	EU/MS	23.85
Katowice-Pyrzowice	8599	14198	14523	15586	65.10	2	7.32
Gdańsk Lech Wałęsa	4 326	4138	4452	4186	-4.3	7	-6
Rzeszów-Jasionka	187	805	3863	731	331.10	380	-18.9
Poznań-Ławica	168	146	261	212	-13.2	70	-1,2
Wrocław-Starachowice	93	116	89	2318	24.60	-23	260
Szczecin-Goleniów	42	21	54	278	-48.8	150	5,15
Bydgoszcz-Szwederowo	2	2	7583	0	-22.1	b/d	0
Port Lotniczy Lublin		1	14968	1	-94.5	2182	0
Radom-Sadków	0	0	0		b/d	b/d	b/d
Warszawa-Modlin	0	0	0		b/d	b/d	b/d
Łódź-Lublinek	0	0	0		b/d	b/d	b/d
Kraków- Balice	466	0	0	3	-100	b/d	b/d
Olsztyn-Mazury	0	0	0		b/d	b/d	b/d
Zielona Góra-Babimost	0	0	0		b/d	b/d	b/d
Total	62114	72901	104077	95501	17.40		

Source: Fechner, Szyszka 2016, p. 94; Fechner, Szyszka 2018, p. 93.

Directions of transport

The volume of export and import of goods by air in Poland continues to be small. Amongst the most frequented transportation routes are: Europe - 44% and the United States - 24%. Only 4% to 5% of goods are delivered to the Far East, Africa, South America, Australia, and Asia. The following airports prevail in the field of cargo transport in Europe: Frankfurt, Amsterdam, Paris, London and Leipzig.

Amongst the airports offering cargo services, the Polish Warsaw Chopin Airport is placed 176th, with an annual transshipment of more than 60 thousand tonnes. Relying on data from 2015, the above airport handled 58.284 thousand tonnes of freight, in which import accounted for 32.2 thousand tonnes and export - 25.5 thousand tonnes - see the Table below.

Table 7. Freight handled in 2015

		Departing	Arriving	Total	Change 2015/2014
Cargo [kg]	Total	25,844,334	32,439,708	58,284,042	8.99%
	International flights	25,491,947	32,243,640	57,735,587	9.38%
	Domestic flights	352,387	196,068	548,455	-20.29%

Source: Wyszyński, 2015.

The most popular directions for cargo transport to and from Warsaw were: Leipzig (8.2 thous. tonnes), Cologne (8.0 thous. tonnes), Dubai (6.1 thous. tonnes), New York/ Newark (5.8 thous. tonnes) and Chicago (5.1 thous. tonnes). Directions of air freight transport from and to Poland quite often overlap with passenger plane routes because most goods are transported in the hatches of liners departing from and arriving at Warsaw. Yearly, 76,200 tonnes are transported by air in Poland, which constitutes 1% of the total air freight in Europe. The most frequently transported

goods include: parts and maintenance materials for heavy industry, medicines, books, and newspapers.

Every day 140 thousand tonnes of cargo is transported by air. In 2018, the value of the air cargo market was USD 6.2 billion. Air transport includes the most expensive goods: advanced technologies, luxury goods, pharmaceuticals, machine parts, and short life articles such as flowers (Oflakowski, 2019).

Amongst the air freight growth factors we can distinguish the following: an increase in the competitiveness of the Polish export and in air

transportation capacity. In order to maintain the available capacity in the period of decreased demand for passenger flights, in winter Lot Cargo offers additional Boeing 767-300 “all cargo” flights across the Atlantic. The present macroeconomic situation resulting from significant appreciation of the American dollar and continuing export to the USA may augment transport to America and Canada (Kuczek, 2015).

Investments in Polish airports and their development

Despite numerous actions, Polish air cargo transport growth prognostics remain uncertain. This can be ascribed to the following:

- limited demand for air cargo transport from Poland since as much as 80% of transported goods go to the EU by cheaper means (cars, rail, ships);
- cargo Road Feeder Service (RFS); frequent pooling of goods in German air hubs

(transatlantic shipments) where goods are delivered within 24 hours with the use of cheaper road transport;

- low level of domestic air services.

Major transport development opportunities can stem from new investment activities of Warsaw, Rzeszów and Katowice airports (Stefaniak, 2015, p. 57).

Recently, Polish airports have been focusing not only on passenger but also cargo infrastructure development. Nevertheless, these activities lack a common, nation-wide concept. With a view to the above, the following should be implemented:

- an overall approach to the Polish air market as part of a national strategy for the aviation sector;
- following the actual needs of the market of sustainable investments in cargo infrastructure;

The most important investments in cargo infrastructure across Polish airports are presented in the Table below (Table 8).

Table 8. Investments in Polish airports

No.	Name of Airport	Planned investment
1.	Pyrzowice	- May 2016 - launch of most innovative cargo terminal in Poland - 2017 - plans for new cargo airfield development; - target - cargo city development.
2.	Rzeszów	- development of terminal base on the basis of cooperation with private investor; - conclusion of numerous contracts with “Aviation Valley” companies; - launch of cargo flights from Rzeszów to Miami.
3.	Warsaw	- construction of international air courier terminal at Warsaw Chopin Airport. Transshipping area and target efficiency of sorting devices will be twice that of the second largest DHL Express unit in Central Europe. Total cost of planned investment is 65 million PLN.
4.	Gdańsk	- early 2018 - commission for new cargo terminal (total construction cost estimated at 17.4 million PLN)

Source: Syryjczyk, 2016.

Nowadays, on top of airport infrastructure, LOT Cargo is increasing its share in goods and post transport on the domestic market. Relying on data from 2016, LOT Cargo handled 20% of freight, competing for position on the Polish market against e.g. Lufthansa, which in 2011 took over 40% of the market. In addition, air cargo transport services capacity increased significantly with Boeing 787 Dreamliners. Dreamliners departing from Warsaw offer more than 50 tonnes every day during the summer season. This capacity is used particularly on flights to the USA, Canada and China.

In the next two years LOT Cargo is going to buy two more Dreamliners to increase its freight capacity. The current transport market situation gives a competitive edge to customers from Poland and Central Europe who use direct air transport

from Warsaw. However, despite the fact that the air cargo potential in Poland is estimated at 150-180 thousand tonnes, Poland continues to be treated by other airports as an area of cargo supply rather than an area of freight business development.

On the issue of developmental perspectives for air cargo transport, I will now quote the words of the former director of the PLL LOT Cargo and Post Office: “Generally, perspectives for air cargo transport development for the next 20 years as presented by aircraft manufacturers’ or IATA’ analyses are good. Still, the year 2015 saw a 2.2% drop in cargo business worldwide. Air transport services business is related to the global economic situation. Every economic situation fluctuation is preceded by a change in the transport volume. Additionally, we should bear in mind the scale of

business in Poland. Warsaw is 181st on the list of the largest airports in the world, whereas Katowice is nearly 300th. Consequently, global trends have a smaller influence on cargo business development in Poland than long-term, targeted actions providing a competitive advantage to companies operating on the Polish market. Accordingly, even the slightest, limited growth will mean more than global trends" (Urbaniak, 2016).

Given the data of the Ministry for Infrastructure and Development, Figure 2 shows the prospective development of cargo transport at Polish airports.

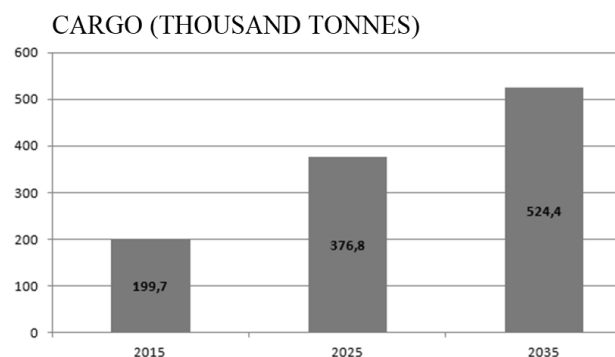


Figure 2. Prognosis of air transport market development in Poland over the period 2015-2035

Source: Ministry of Infrastructure, 2019.

In view of the above data, we should also mention barriers to cargo market development in Polish airports. The largest barriers are:

- lack of suitable load handling infrastructure;
- high service cost of handling companies due to a lack of competition and low market potential;
- high prices of space and storage area rental, disproportionate to quality;
- competitiveness in terms of other transport branches;
- inability to deliver parcels "door-to-door" (log24.pl, 2017).

On the other hand, air transport growth factors in Poland include:

- country's economic development;
- wealthier societies;
- demographic changes;
- transport infrastructure development (airports, possible construction of a central airport - CA);
- supplementary transport branches development, particularly high speed rail - HSR);
- domestic airlines and airports development, particularly PLL LOT and construction of the central airport or further development of the carrier along Warsaw airport development;
- air space structure development and air traffic management elements development;
- financial support for the domestic carrier thanks to strategic investors;

- domestic market structure modification - a regional hub;
- low-cost air carriers expansion growth;
- new actions in the field of transport development with regards to the state and European Union policies, particularly Trans-European Transport Network (TEN-T) development (Fechner, Szyszka, 2016, pp. 95-96).

Conclusions

In view of the data from other European Union member states, it is safe to say that the Polish air transport market developed rapidly over the past decade. The characteristic features of the Polish market are great social potential, somewhat different from EU standards, GDP growth, and Poland's economic location. Year by year, we are witnessing a growing influence of air transport on the economy associated with an increasingly evident relation between regional development and airport development. A number of various actions have been undertaken with the intention of adapting air transport services to the expectations of all market segments.

The Polish segment of air freight transport is definitely evolving. But despite considerable potential, our country is only a "small spot" on the map of the European cargo transport market, lagging behind Western EU countries. Lately, we have been observing growth in the volume of transported goods and reinforcement of regional airports positions. At the same time, we need to point out that air cargo transport is, so to speak, one of the priorities of the transport policy of the country. The research conducted reveals that more effective air carriers operations are a result of efficient services in the freight transport segment and interest on the part of foreign investors, for instance in the e-commerce sector (Amazon, Zalando). With a view to the above, we can say that the role of air cargo transport will continue to grow along with the economic development of the country (Stajniak, 2012).

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