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The role of Warsaw-Modlin Airport in the Polish air transport system Rola Portu Lotniczego Warszawa Modlin w systemie polskiego transportu powietrznego

*First Europe, and then the globe, will be linked by flight,
and nations so knit together that they will grow
to be next-door neighbours.
What railways have done for nations,
airways will do for the world.*

Claude Grahame-White²

Abstract: *The second half of the 20th century witnessed a dynamic growth of the global sector of air transport services. Nowadays, airports constitute an essential component of transport infrastructure and one of the symbols of modern economies. More and more often, airports are viewed from the perspective of economic growth, or as a source of employment. This study includes a genesis of Warsaw-Modlin Airport, demand for passengers' transport, and an outlook for development. The underlying objective was to present the role of Warszawa Modlin Airport in the Polish air transport system.*

Keywords: Airport, air transport, Warsaw-Modlin

Streszczenie: *W drugiej połowie XX wieku nastąpił dynamiczny rozwój światowego sektora usług transportu lotniczego. Obecnie porty lotnicze stanowią niezbędny element infrastruktury transportowej a także jeden z symboli nowoczesnej gospodarki. Coraz częściej porty lotnicze postrzegane są przez pryzmat wzrostu ekonomicznego czy też źródła nowych miejsc pracy. W niniejszym opracowaniu omówiona została geneza powstania Portu Lotniczego Warszawa-Modlin. Przedstawiono popyt na przewozy pasażerskie wraz z perspektywą ich rozwoju. Podstawowym celem opracowania było przedstawienie roli portu lotniczego Warszawa Modlin w systemie polskiego transportu powietrznego.*

Słowa kluczowe: Port lotniczy, transport powietrzny, Warszawa-Modlin

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² Claude Grahame-White (1959-1987) – a British pilot and engineer, an aviation pilot, the first to make a night flight.

Genesis of Warsaw-Modlin Airport

The history of Warsaw Modlin Airport goes back to the year 1937, when it was developed as a military airport for the purposes of the Second Polish Republic. Unused for many years, in the 40s it became a military base of the German Luftwaffe in the territory of occupied Poland. Between 1945 and 2000, it served Polish air forces as a training facility for helicopter and airplane pilots. The airport design from that period is presented in Fig. 1 below. In the year 2000, the Ministry of National Defence made over the airport to the Military Property Agency.

In 2003 in Poświętne, a Letter of Intent involving the location of an airport in the area of the former military airport in Modlin was signed by members of parliament and self-governments and by businessmen. In 2005 a draft investment plan was developed. In 2006 the President of the Civil Aviation Office issued an authorisation for the establishment of a civil airport.

Thanks to its close proximity to Warsaw, Warsaw-Modlin Airport is particularly attractive for low-cost air carriers organising Point-to-Point routes, for which Chopin airport is too expensive to maintain. The main task of Warsaw-Modlin Airport was to take over some of the aircraft Point-to-Point movements from the overloaded Chopin airport in Warsaw. In order to perform the said function of an operating civil airport, in 2008 the government authorised modernisation of the existing infrastructure and the construction of a passenger terminal. In September 2009 all tender procedures ended and in 2010 the Civil Aviation Office registered Warszawa-Modlin airport as a civil airport. First construction works started on 8 October 2010 and lasted till 2012³.

Airport geographic location and infrastructure

Warsaw-Modlin Airport is a new airport with the main task of servicing Warsaw and Mazovia. It is complementary to Warsaw Chopin airport. Warsaw-Modlin Airport is located about 40km north of Warsaw centre, and 6km north-west of Nowy Dwór Mazowiecki, at the Warsaw and Gdańsk exit road. The average elevation of the airport above sea level is 104m - Fig. 2.

Nearby the airport there is Modlin railway station, which services the no 9 railway line Warsaw - Gdańsk. There is a rail siding of a total length of 5.6km running from Modlin station to the airport border, which requires modernisation, if used for airport purposes. Passengers are carried from Modlin railway station to the airport by motor transport.

³ www.modlinairport.pl (of 21/08/2016).

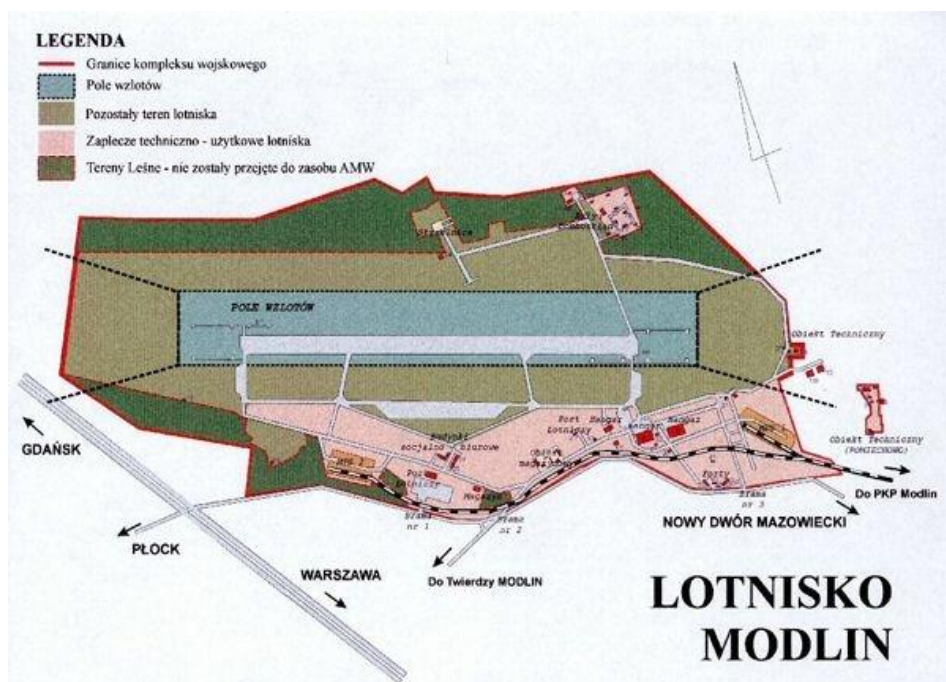


Fig. 1 Airport design before 2000
Source: www.investmap.pl (of 21/08/2016).



Fig. 2 Location of Warsaw-Modlin Airport
Source: Program rozwoju infrastruktury lotnictwa cywilnego w województwie mazowieckim (Civil aviation infrastructure development in the Mazowieckie Province), p. 61.

The basic infrastructure of the airport in question includes: an asphalt concrete runway 2500m in length and 45m in width, with concrete edges, and category II navigation lighting - an updated airport design is presented in Fig. 3. The Modlin infrastructure is mainly used by budget airlines and charter carriers. The airport services international short- and medium-distance flights and domestic flights, offering flights of both regular and low-cost airlines, such as Ryanair and Wizzair⁴.



Fig. 3 Up-to-date airport design
Source: www.modlin.warszawa.pl (21/08/2016).

Modlin Airport in comparison with other Polish airports – supply, demand

Warsaw-Modlin Airport serves as an airport complementing Chopin's (main airport's) services. In the light of statistical data regarding air traffic in 2012-2014, Warsaw-Modlin Airport needs to be considered an essential element fulfilling a highly important role in the Mazowieckie Province airport system, offering the best conditions for a wider range of low-cost and charter services. Typical of the low-cost traffic segment is for low-cost carriers to use supplementary airports of a relatively lower level service quality and lower airport fees, compared to major airports. Low-cost airline passengers are more flexible in comparison with traditional line customers, e.g. they accept inconvenience associated with reaching an airport in return for a lower ticket price.

Considering the competitive prices of tickets offered by Warsaw-Modlin Airport carriers, compared to comparable routes offered by Chopin Airport, Modlin Airport must be recognised as playing a major role in creating a new demand for air transport. Thus, it appears that the airport competes for carriers

⁴ www.modlin.warszawa.pl (21/08/2016).

and passengers with Chopin Airport only to a certain extent (traffic substitution). Partly, some of the traffic served there is the so-called “new traffic”, which consists of passenger groups for which Chopin Airport’s ticket prices were too high to afford a flight (in turn, they used other transportation means or did not travel at all).

Factors stimulating a sudden demand for air transport services were, amongst other things: market liberalization, liberalization of laws, Polish accession to the European Union, corporatization, commercialization and privatization of airports, and new types of carriers entering the market.

After a one-month-operation, between 16 July 2012 and 15 August 2012, Warsaw-Modlin Airport served 161,119 passengers and performed 1,106 aircraft operations. One of the key carriers, Wizz Air, served 118,958 passengers and performed 702 aircraft operations. Another main carrier, Ryanair, served 41,800 passengers and performed 322 aircraft operations. A record-breaking number of checked passengers and flights was noted on 10 August 2012, with 6,407 served passengers. At that time, one could reach 21 European cities from Modlin Airport⁵.

Within less than six months the airport served 900,000 passengers. Owing to runway repair works, between 22 December and 3 July the airport was closed.

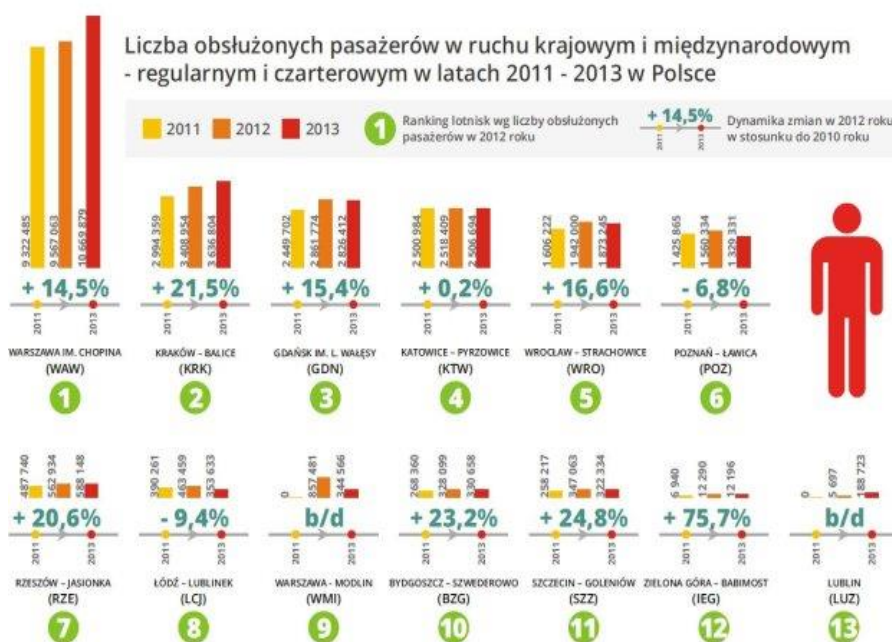


Fig. 4. Passenger volume on domestic and international flights, both regular and charter, between 2011 and 2013 in Poland
Source: lublin.wyborcza.pl (25/07/2016).

⁵ www.warszawa.naszemiasto.pl

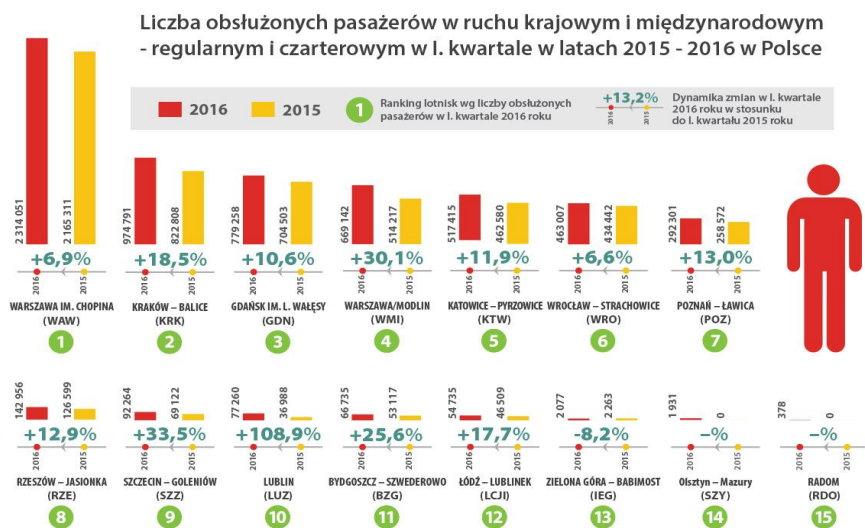


Fig. 5 Passenger volume on domestic and international flights, both regular and charter, between 2014 and 2015 in Poland
Source: www.dlapilota.pl (21/08/2016).

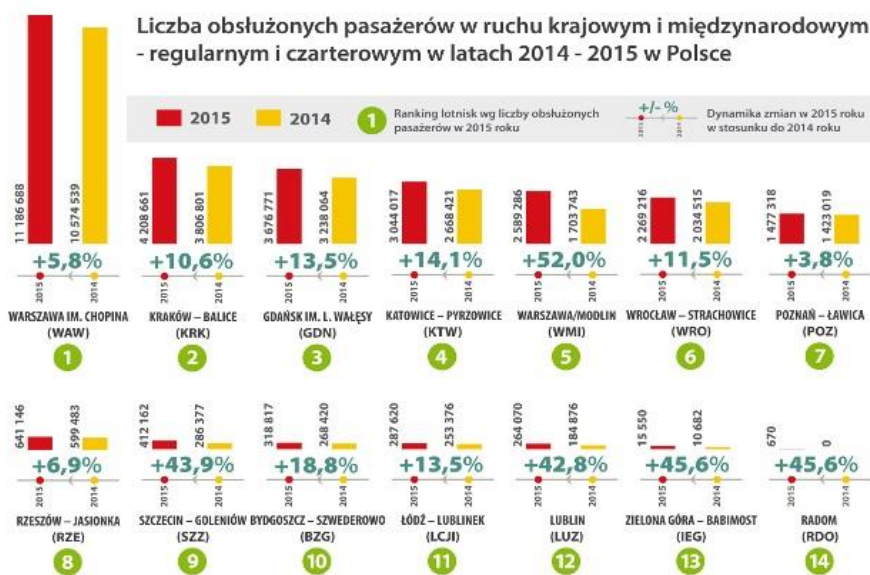


Fig. 6 Passenger volume on domestic and international flights, both regular and charter, between 2015 and 2016 in Poland
Source: www.ulc.gov (of 21/08/2016).

It has been four years since the opening of Warsaw-Modlin Airport, now the fifth largest airport in Poland. According to the airport's data, as many as seven million passengers had availed of the airport's services before 9 July this year. The airport has served 1.5 million passengers since the start of the year.

It has observed a regular growth in passenger volume, with every new season introducing new routes and an increase in regular flight frequency. In July this year, for the third time, the Airline Network News and Analysis presented Modlin with an award for the strongest passenger year-to-year growth amongst European airlines (Table 1).

Tab. 1. Passenger traffic in Warsaw-Modlin Airport between 2012-2016

Date	Aircraft carriers					
	Numbers					
	Arrivals		Departures		Total	
	Operations	Pax	Operations	Pax	Operations	Pax
2012	3190	428850	3190	428623	6380	857473
2013	1211	178414	1211	165241	2422	343655
2014	5569	852162	5566	851057	11135	1703219
2015	8141	1295963	8141	1292208	16282	2588175
2016	5232	845708	5231	848703	10463	1694411
						TOTAL 7,186,933

Source: Data released by Warsaw Modlin Airport.

In 2012, the airport was recognized for the largest number of new routes in Europe, and a year later - for the strongest passenger growth in Europe in the below 1 million passenger airport category⁶.

Since 2015, the airport has maintained the position of the fifth largest airport in the country in terms of the number of check-ins (following Chopin Airport in Warsaw, Cracow, Gdańsk, and Katowice). According to the current outlook on air traffic, in the year 2016 ca. 2.8 million passengers will use the airport. Modlin Airport in comparison with other Polish airports

In view of the above data, Warsaw-Modlin Airport can easily be seen as the only new airport in Poland with such great passenger success (Fig. 7). According to Piotr Okieniczyc, Vice-President of the near-Warsaw airport, it was possible because: "...We move forward every day. Every day we do everything we can to attract more passengers and to offer them more and more. Recipe for success: listen to your customers, both airlines and passengers, and respond to their evolving needs, as no airport could exist without them..."⁷.

According to Adrian Furgalski, Vice-President of the "TOR" Economic Advice Team, it was possible because: "... *The Warsaw market is a huge generator of air traffic and a second airport in our capital city had long been needed...*"⁸.

⁶ www.warszawa.wyborcza.pl

⁷ www.wiadomości.onet.pl

⁸ K. Majszyk, *Szymany nabierają wysokości, Radom zaczyna kołować*, „Dziennik Gazeta Prawna”, no 159 (4306), 2016, p. A5.



Fig. 7 Modlin Airport in comparison with other Polish airports

Source: www.forsal.pl of 20/08/201.

Investment plans and outlook for airport development

The underlying investment actions in the near-Warsaw airport finished as soon as the airport opened in 2012. The most important investment in 2013 was runway renovation due to the bad condition of the runway edges. In December 2012, the Provincial Authority for Construction Oversight issued a negative decision on the use of the runway before its technical condition was restored. Renovation works on the runway lasted till July 2013.

Another key investment, this time managed by the Polish Air Navigation Services Agency (PAŻP), was the construction of ILS, the instrument landing system. In February 2013 all consultations with PAŻP regarding the shifting of CTR/ATZ Warszawa-Modlin borders and inclusion of an additional TMA Warszawa segment were concluded. The implemented changes enabled runway approach procedures with lower visibility thanks to cat. I ILS RWY 08 EPMO implementation. ILS cat. I for RWY 08 was initiated in September 2013. Since 1 May 2014, the airport has been able to secure aircraft operations in the ILS Cat. II for RWY 08⁹.

To improve access to the airport, a rail link is planned to be constructed from the Modlin railway station to the airport. At the end of 2012 the Regional Directorate for Environment Protection issued a decision on environmental conditions for the designed rail link with an underground station by Modlin Airport. However, the decision was soon appealed against, which may have an unfavourable effect on the future location decision.

⁹ Polish Air Navigation Services Agency (PAŻP), the final version of the project introducing the change of CTR/ATZ Warszawa-Modlin borders and inclusion of an additional TMA Warszawa segment (Feb 2013). CTR Warszawa-Modlin stands for a controlled airport area in Warsaw and Modlin; ATZ Warszawa-Modlin stands for an airport traffic area in Warsaw and Modlin; TMA Warszawa stands for a Chopin airport-controlled region.

There is another investment closely related to the above. In 2011, the Koleje Mazowieckie company (KM Sp. z o.o.) purchased 16 four-car electric multiple units for passenger transport between Chopin airport and Warszawa-Modlin airport to be used in the corridor of the modernised E-65 line and for the purposes of city transport. PLN 183 million of the above investment was funded by POIiŚ.

Even though Adam Struzik, Marshal of the Mazowieckie Province, claimed that the direct railway line reaching the airport would be ready by Euro 2012, this was not the case. Based on information submitted this August, it appears that the new railway line is to be funded by the European Union. In addition, it is said that there are other ideas, such as a replacement of the initially planned expensive underground station estimated at PLN 250 million with a regular ground station (for half of the price of the former). The only drawback of the new project version will be the location of the end platform ca. 200 m away from the terminal, nearby the roundabout leading to the airport.

The party responsible for developing plans for the new section of the rail line is to be the PKP Polskie Linie Kolejowe Company. Apart from platform construction, the existing siding also needs thorough renovation and electrification. There are also plans for a construction of an overpass for road no 62 from Płock to Wyszaków. As of today, there is no exact date of the line's commissioning, the rough date is 2020. The ride from Modlin to Warsaw is to take about 40-45 minutes¹⁰.

Another investment associated with airport expansion is subject to passenger traffic development over time, and this is growing in Modlin twice as fast as in the EU (by 8.7% last year compared to 4.4% in the EU). In view of growing demand, airport investments focus on increasing traffic capacity.

Within the next five years, the terminal is to be expanded by an addition of new arrival and departure sections. As a consequence, the airport will offer twice as many check-in areas as today (8 instead of 4), which will increase the airport's traffic capacity from 3 to 5 million passengers. The number of security check-points will rise from 5 to 10 and the waiting room for passengers and the commercial space will also expand. The probable date of completion of the above investment is the end of 2018/the beginning of 2019. This will coincide with a development of a hotel nearby the airport entry. Negotiations with hotel chains regarding construction of a building on the area leased from the airport have already been launched. At the end of 2017 and the beginning of 2018 a new air traffic control is to be erected.

Yet another investment project aimed at rapid airport development is a construction of an express cargo offering express air courier services, and of a "little cargo". The company has already developed plans for airport adjustment to such a service type. Further investment in the field would include, amongst other things, airside adjustments (runway extension to 2800m, taxiway broadening, and apron development). Airport authorities are also planning aircraft maintenance facilities development and a construction of an additional hangar for Boeing 737 airliners¹¹.

Table 2 presents key Warsaw-Modlin Airport investment projects, both completed and taken into consideration. And how they are viewed by the President of the Airport, Piotr Okienycz?

¹⁰ www.warszawa.wyborcza.pl (21/08/2016).

¹¹ www.mazovia.pl (15/08/2016).

“One million passengers served within four months is more than satisfying. [...] Such a great number of passengers served in Modlin necessitates urgent plans of infrastructure development and terminal expansion. However, we should not act too hastily and instead we will withhold any final decisions regarding development until the department of infrastructure presents the principles of an air transport development strategy in Poland. Thanks to knowledge of the role of our airport in the whole transport system, we will be able to suit our “airport product” to real needs and plan our investment expenditure in a rational way”¹².

Tab. 2. Key investment projects of Warsaw-Modlin Airport

Project	Date of implementation	Financing source
Introduction of cat. I ILS	2013	PAŻP
Renovation of runway	2013	Erbud
Construction of a railway line linking the Modlin train station and Warsaw-Modlin Airport (Mazowiecki Port Lotniczy, MPL) and construction of a Warsaw-Modlin Mazowiecki Port Lotniczy (MPL) railway station	2013-2015	Mazowieckie Marshall Office (POLiŚ; app. PLN 380 million) or PKP PLK
Expansion of Passenger terminal, Stage I	2014-2015	MPLWM
Expansion of Passenger terminal, Stage II	2019-2020	MPLWM
Construction of Cargo terminal	subject to finding investors	MPLWM + investor
Airside adaptation to all cargo-type aircrafts	subject to finding cargo operators	MPLWM

Source: R. Gurbiel, *Program Rozwoju Infrastruktury Lotnictwa Cywilnego w Województwie Mazowieckim*, Mazowieckie Biuro Planowania Regionalnego w Warszawie, Warszawa 2014, p. 29.

Upon investment completion, major Polish airports will have a total check-in capacity of 41 million passengers (MliR data) with the estimated real traffic at the level of 28.5 - 29.7 million. Year by year, airports will be filled to the brim with passengers. Thus, at a 5% growth rate of demand per annum, simple extrapolation tells us that in 2022 airports will probably serve 40 million passengers, which will reach the check-in comfort limit. These swarms of passengers in the airports will require further airport expansions.

It is essential then to ponder how will the growing demand be distributed and which airports will be filled quicker than others. There is no one good answer to this question, as on the one hand, passengers have an unrestricted, free choice of airports; and on the other hand, there is competition between airport management authorities and carriers¹³.

¹² www.sky-watcher.pl (13/05/2016).

¹³ P. Stefaniak, *Za dużo czy za mało*, Miesięcznik gospodarczy Nowy Przemysł, Polskie Towarzystwo Wspierania Przedsiębiorczości SA, Katowice 2016, p.35.

The airport in Modlin is the most dynamically growing regional airport in Poland. It lowered the prices of flights and generated interest in flying in first-time flyers. Month by month, the number of passengers served at airports increases, which makes both the airport authorities and the provincial authorities think about further development.

Table 3 presents an evaluation of Warsaw-Modlin Airport's capacity for growth.

Tab. 3. Synthetic evaluation of Warsaw-Modlin Airport's capacity for growth

Growth stimulants	<ul style="list-style-type: none"> - great capacity for low-cost air travel movement in the region, - good communications, - proximity of settlements, - Ryanair's (biggest European low-cost carrier) interest in operations, - expected railway link (modernisation of the existing railway line, the current siding, and a construction of a railway station next to the airport), - traffic capacity reserves, - availability of land for further investment, - introduction of cat. II ILS for RWY 08 and consequential improvement of aviation operational safety under foul weather conditions, - no limitations regarding operations conducted at night.
Factors restraining development	<ul style="list-style-type: none"> - not taking the airport into account in TEN-T, - heavy traffic on E77/57 Warszawa - Gdańsk road during peak hours which significantly prolongs duration of the transit, - focusing on low-cost carriers due to ongoing pressure on lowering air fees requires from the management a close monitoring of own expenditure in order to maintain profitability, - competing for low-cost carriers with Chopin Airport, - reduced operation/day capacity (ca. 66 operations) resulting from environmental restrictions, - adverse weather conditions (e.g. fogs).

Source: R. Gurbiel, *Program Rozwoju Infrastruktury Lotnictwa Cywilnego w Województwie Mazowieckim*, Mazowieckie Biuro Planowania Regionalnego w Warszawie, Warszawa 2014, p. 30.

In view of the above data and experience of other European airports, we may easily start thinking about the future of the near-Warsaw airport, as stressed by Adam Struzik, Marshall of the Mazowieckie Province:

The airports' activities have shown that it was essentially a chosen location. It is used by both Warsaw and the whole (north in particular) Mazovia region population, and by other Provinces, too. The airport is planning development. However, we must look ahead. This is an excellent chance of economic revival in this part of the region¹⁴.

Moreover, authorities of the Mazowieckie Province plan to activate the areas surrounding the airport as a crucial developmental impulse to this part of the province. Therefore, in its new developmental plan the provincial self-government included the following area: "functional areas surrounding the Warszawa-Modlin MPL". Additionally, it set forth the basic rules for its spatial development and its use in the international EU-funded airLED (Local economic development In air port catchment areas) project.

¹⁴ www.mazovia.pl (20/08/2016).

In the area immediately adjacent to the airport a Special Economic Zone is to be developed as a sub-zone of the Warmińsko-Mazurska Special Economic Zone, and a Technology and Industry Park is to be constructed. Areas surrounding the airport are also great opportunities for logistics and storage industry to conduct activities, as they offer the following business incentives: preferential treatment for businessmen, e.g. tax reliefs, specially developed, fully fitted land, or investment process support. It is also a chance for attracting new investment and improving the employment situation in the region.

The provincial government plans are of interest not only to local self-governments, but also to institutions, companies, and NGOs.

Therefore, a regional expert group composed of 24 entities has already been established and produced project drafts¹⁵.

Summary

Poland's accession to the European Union was followed by a rapid growth of the air transport market, both in quantity and in quality, associated with the adjustment of Polish standards to EU and world requirements. Today, Polish air transport meets all global-level legal, organisational, and technological requirements and constitutes an element of the integrated European system of transport.

The crucial role of Modlin Airport is reflected very well by the following facts and comments:

Over the course of four years the airport served more than 7 million passengers; in 2016 the number exceeded 1.5 million. Nowadays, travellers may fly to 43 cities across Europe. Modlin is the fifth largest airport in terms of air traffic in the country.

Jacek Kowalski, Mayor of Nowy Dwór Mazowiecki:

The theoretical intentions of the originators of Modlin airport opening became facts. Modlin Airport is a key hub in Poland and its dynamic growth results in economic and social revival of this part of Mazovia. The international Modlin Airport stimulates the job market by offering employment and improving conditions of life for thousands of people”.

Adam Struzik, Marshall of the Mazowieckie Province:

Modlin is an example of an authentic success. Numbers speak for themselves.

Mariusz Szpikowski, CEO of Chopin Airport:

We congratulate Modlin on the number of served passengers. Modlin's services based on low-cost carriers compliment Chopin's offer. However, they also face Modlin with numerous challenges, the most important of which is increasing the number of carriers. The key to success and further development is, undoubtedly, significant improvement of communication to the airport.

¹⁵ Ibid.

Mateusz Mroz, acting for the Military Property Agency (AMW):
Seven million passengers within the four years of airport operations is a very good outcome. We believe in Modlin's potential and we believe that the airport will continue to develop and that it will grow in significance year by year.

Piotr Okienzczyk, President of the company managing Modlin Airport:
For four years now we have been bringing Europe and the rest of the world closer to millions of people travelling from all over Poland and from abroad. The airport's operational statistics and growth dynamics harbour no illusions about the airport: Modlin is important for Mazovia and a large part of the country¹⁶.

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¹⁶ www.pasazer.com