



POLSKA AGENCJA ŻEGLUGI POWIETRZNEJ
POLISH AIR NAVIGATION SERVICES AGENCY
www.pansa.pl



2017

Annual Report



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Introduction



Ladies and Gentleman,

It is my pleasure to present PANS 2017 Annual Report, giving an insight into Agency results achieved during the 10th year of its operation.

It was exactly 10 years ago when PANS separated from „Polish Airports“ State Enterprise. A decade for each and every entity is a period when changes having an impact for the entire organization, both internal as well as external, are clearly visible.

In our work environment, the aviation business, changes happen much quicker, are more dynamic, having its specific expressiveness characteristic for an innovative sector. Polish Air Navigation Services Agency is a part of the aviation world and develops alongside with it. During the last ten years the actual number of IFR operations increased by 43% from 544 000 in 2007 to almost 780 000 in 2017. The air

traffic in the Polish airspace grows faster than the European and worldwide forecasts predict. Only between 2015 and 2017 the total number of operations increased by close to 100 000. Such high growth of traffic and the increase in the level of its complexity caused the necessity for PANS to increase the number of ATCO staff by 53% from 365 in 2007 to 557 in 2017. In the last decade, the common efforts of PANS employees allowed to achieve many strategic goals and successfully complete important projects, e.g. the change of operational system, which enabled the Agency to handle the increasing air traffic demand in this part of Europe.

The end of the first decade of Polish Air Navigation Services Agency activity is undoubtedly the appropriate time for a summary. However, contrary to the common patterns, I would like to summarize not only what has been done, what is already behind, but also point to the activities currently in progress that

are setting the development directions for PANSO for the incoming years that will guarantee us - the PANSO employees - the ability to undertake many interesting challenges which will contribute to the growth of PANSO international status.

Taking part in the iTEC consortium, working alongside other ANSPs on creation, development and implementation of the new operational system.

Continuous increase of number and quality of our operational team, investment into our employees and their competences are the most important part of modern ATC as well as every efficiently functioning organization.

Works on U-space implementation in Poland - because we are aware that the integration of manned and unmanned air traffic is an inevitable element of aviation business progress.

Increase in quantity and quality of investments because PANSO is aware that the continuous modernisation of aviation infrastructure allows to maintain the highest possible level of aviation

safety and to provide smooth and economic flow of air carriers in Polish airspace.

Increase of PANSO presence on the international arena by active participation in the works of global organizations and working groups. The Agency undertakes actions to increase competences in the ATFM area. Due to specific geographical location of Poland in Europe, PANSO in cooperation with domestic and European institutions will become a bridge between Eastern and Western Europe in the services provision.

I am convinced that the actions mentioned above will result in maintaining the high effectiveness of ATS, which will result in the operational indicators of the Agency.

Janusz Janiszewski

Acting President

Polish Air Navigation Services Agency



Polish Air Navigation Services Agency organisational structure (as of 31 December 2017)

President

- Strategy and International Cooperation Bureau
- Management and Organisation Bureau
- Legal Bureau
- Air Traffic Safety and Crisis Management Bureau
- ATS Personnel Training Centre
- Infrastructure Development Bureau

Vice President for Air Navigation Services

- Airspace Management and Operations Planning Bureau
- Air Traffic Services Bureau
- Technical Services Bureau

Vice President for Finance and Administration

- Financial Bureau
- Chief Accountant's Bureau
- Administrative Bureau

Mission

Ensuring safe and expeditious flow of air traffic through effective airspace management and provision of high quality air navigation services.

Vision

Polish Air Navigation Services Agency has the ambition to be an organisation with strong and well-established position on the European market of air navigation services providers. The Agency fulfills its vision through effective management of the human resources and innovative infrastructure. Due to specific geographical location of Poland in Europe, PANSO in cooperation with domestic and European institutions will become a bridge between Eastern and Western Europe in the services provision.





Purpose

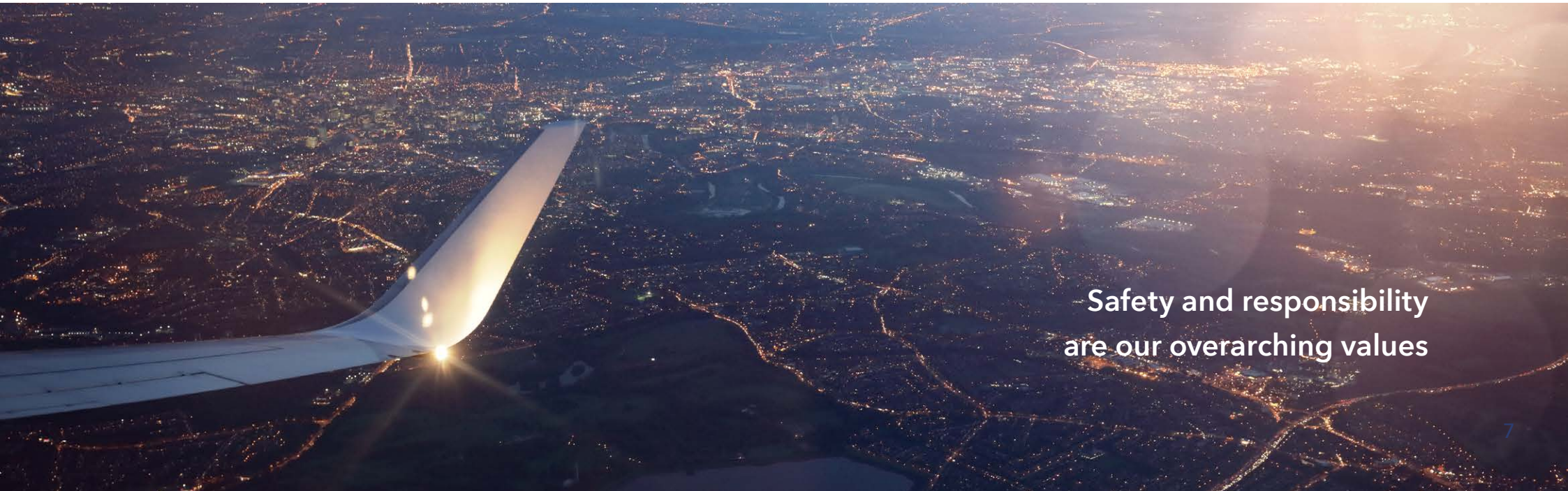
The Agency's purpose is to develop an efficient, effective and competitive entity, economically capable of providing safe services, aligned with domestic and international legal provisions.

Key strategic objectives

- maintain high level of air traffic safety
- ensure the required airspace capacity
- minimise the aviation's environmental footprint
- optimise cost-efficiency

Relations with partners

- Stakeholders – airspace users, aerodromes, airlines, military
- Partnerships – Baltic FAB, Gate One, A6, B4, CANSO, iTEC, other
- Institutional governance – Ministry of Infrastructure, Civil Aviation Authority, European Commission, Network Manager, EUROCONTROL, EASA, SESAR Joint Undertaking, SESAR Deployment Manager
- Business environment – technological and industrial partnerships, academic environment



**Safety and responsibility
are our overarching values**



10TH

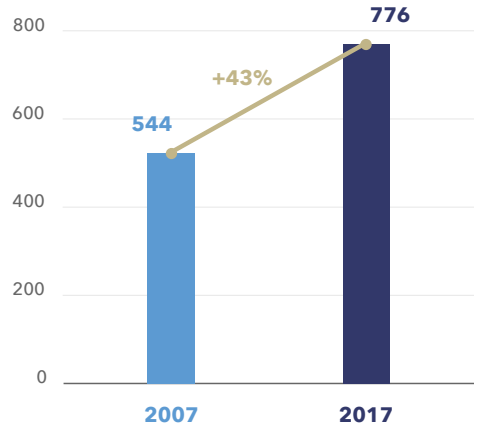
ANNIVERSARY POLISH AIR NAVIGATION SERVICES AGENCY

We are a part of the dynamically
developing aviation sector

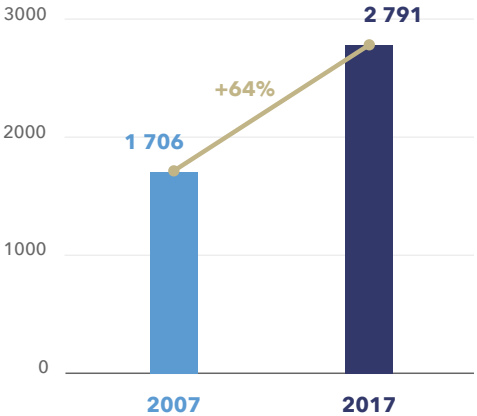
April 2017 marked the tenth anniversary of the establishment of Polish Air Navigation Services Agency as an independent entity separated from the structures of Polish Airports' State Enterprise.



Increase in air traffic
IFR MVS ('000)

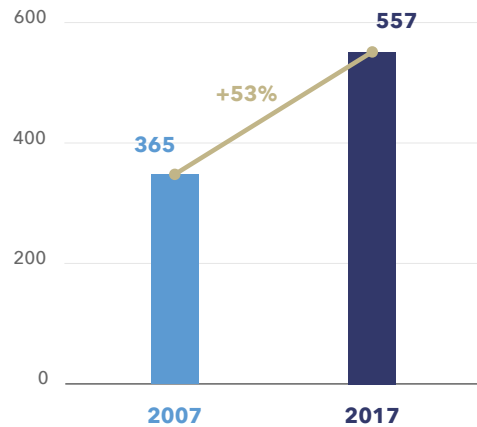


Peak days
IFR MVS





ATCO personnel (headcounts)

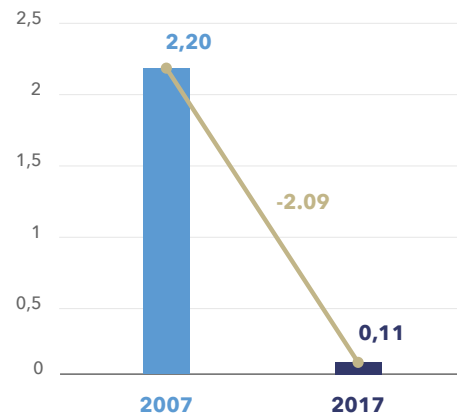


Air traffic management system

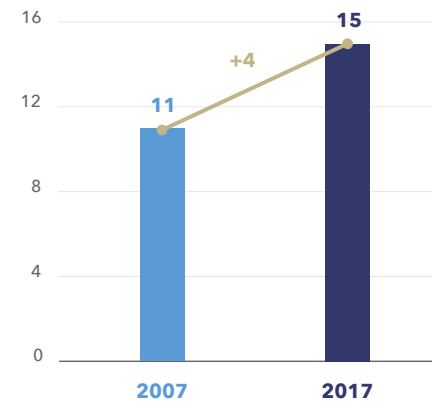
2007 AMS2000+

2017 PEGASUS_21

Delays (minute per flight)

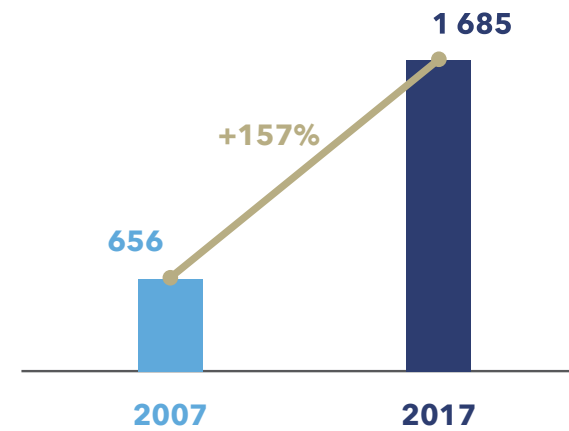


Number of controlled airports

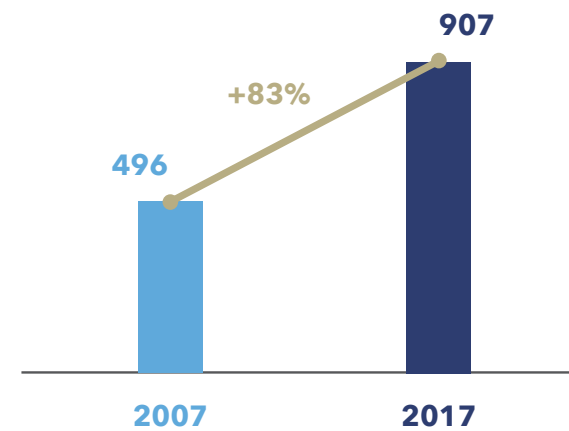




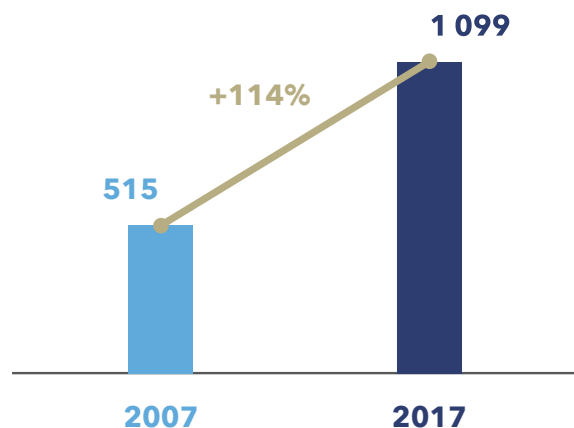
Balance sheet total PLN ('000 000)



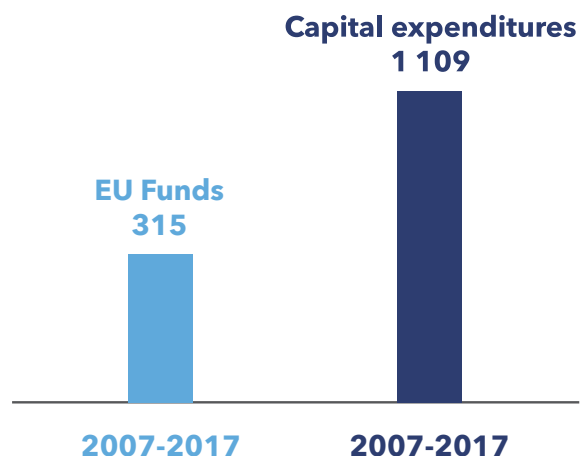
Equity PLN ('000 000)



Non-current assets PLN ('000 000)



UE Funds and Capital Expenditures 2007-2017 PLN ('000 000)



Over the course of **10 years**,
the Agency was granted
the EU funds worth
PLN 315 mln under:

- Operational Programme Infrastructure and Environment 2007-2013;
- Regional Operational Programme for Lubuskie Voivodeship 2007-2013;
- SESAR;
- The 7th Framework Programme;
- TEN-T.

In the same period, capital
expenditures totalling
PLN 1,1 billion were incurred.

Revision of the Baltic FAB Performance Plan for Air Navigation Services 2015-2019 (PP RP2)

In 2017, Poland successfully completed the revision of en-route cost efficiency target for Poland defined in the Baltic FAB Performance Plan for the Second reference Period (2015-2019). The process was officially initiated in 2016 due to changes in assumptions, on which the Performance Plan was based, impacting negatively PANSA's business continuity.

The reason to apply for the revision was a significant decrease of traffic (reflected in service units) in Polish airspace exceeding -10% as compared to the values adopted under PP RP2.

Decrease in the level of traffic stemmed from geopolitical situation, i.a. partial closure of the Ukrainian airspace due to which Poland lost a lot of overflying "heavy traffic" going from North/West to the South/East.

On 31 October 2017, after positive opinion of the Single Sky Committee, the European Commission issued Implementing Decision 2017/1985 allowing target in the area of en-route cost-efficiency for 2017-2019 to be revised.

Subsequently, on 15 December 2017 the European Commission issued Implementing Decision 2017/2376 on consistency of the revised targets with pan-European targets for RP2.

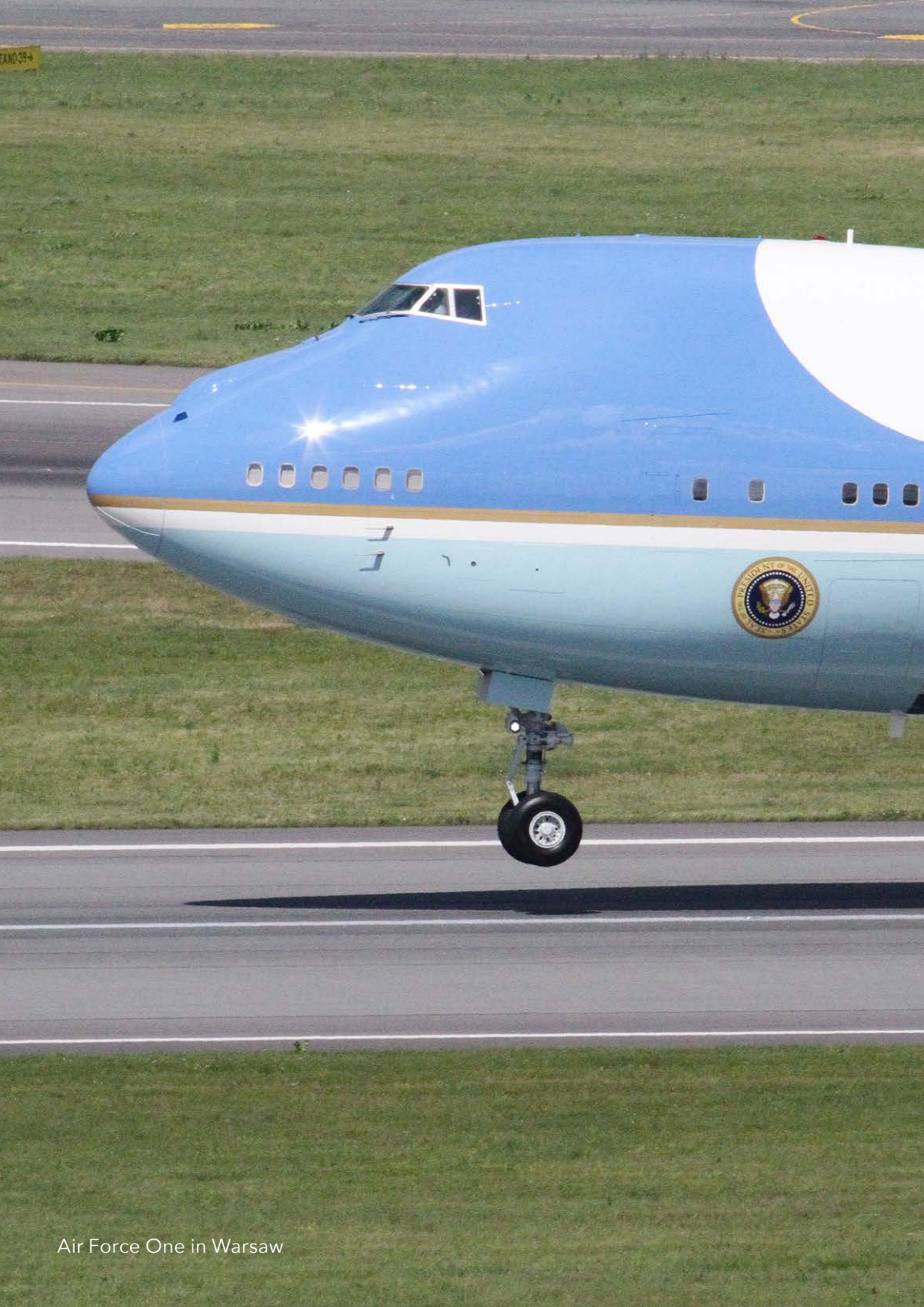
Thus, the process of formal approval of revised values for 2017-2019 was finalised. As a consequence, the en-route charge in Polish airspace increased from EUR 35 to EUR 43, while the average en-route charge in Europe was EUR 48.60.

Key figures / Key performance indicators

Selected Performance Indicators	2016	2017
Number of En-route movements (000)	740	776
Number of controlled IFR flight hours (000)	426	443
Number of airport movements (000)	354	385
En-route ATFM delay (minutes/flight)	0,39	0,11
Employment (FTE)	1 835	1 896
Employment - ATCO in OPS (FTE)	524	548
Sales revenues (000) PLN	756 813*	934 105
Revenues from En-route navigation services (000) PLN	612 292*	784 237
Revenues from terminal navigation services (000) PLN	124 094*	128 244
Profit on sales (000) PLN	26 517*	110 977
Net profit (000) PLN	40 677*	101 626

* Restated data

As a result of changes introduced in 2017 (which had an impact on previous years), the Agency re-calculated adjustment mechanisms applicable to amounts due, which totalled PLN 76,826 thousand (adjusted data) in balance sheet terms at the end of 2016. In the financial statement for 2016, the calculation was recognised as contingent assets.



Air Force One in Warsaw

Events in 2017

February

PANSA participates in SESAR 2020 programme

The Polish Air Navigation Services Agency has participated in the next edition of the SESAR R&D programme being a technological component of SES Single European Sky initiative. Under SESAR 2020, the Agency represents B4 consortium composed of PANSA, Lithuanian ON, Czech ANS CR and Slovak LPS.

PANSA has been supported by academic centres of Warsaw University of Technology, Rzeszow University of Technology, University of Warsaw and industrial centres.

March

Closer cooperation between PANSA and UkSATSE

The Polish Air Navigation Services Agency and UkSATSE (Ukrainian State Air Traffic Service Enterprise) signed an agreement on the exchange of radar data between air traffic management systems of the two Agencies.



World ATM Congress in Madrid

During the World ATM Congress in Madrid in March 2018, the agreement between the iTEC Collaboration Founding Members and PANSA and Oro Navigacija was signed. At the same time PANSA and Oro Navigacija joined the iTEC DFS System Group. This agreement finalised the preparatory phase for joining the iTEC Alliance that aims at developing a new ATM system.

Implementation of the iTEC system by the Members of the iTEC Alliance will lead to a common, uniform air traffic management system in Europe, and reduced operating costs as a direct benefit for the Airspace Users. The incorporation of PANSA and Oro Navigacija will extend the benefits stemming from iTEC to a larger number of the European Airspace Users.

First multilateral surveillance system in Poland launched operationally

In March 2017, WAM (Wide Area Multilateration) system for TMA Gdańsk was deployed. This is the first surveillance system in Poland that uses multilateration technology to detect and position an aircraft.

April

PANSA among Europe's leaders with its new AMHS connection

The AMHS system (ATS Message Handling System) is a current standard in the international ground-based messaging system for air traffic services. It is used to distribute information related to air traffic, such as: flight plans, NOTAMs and weather information. As PENS network (Pan-European Network Service)

becomes increasingly widespread, it is being intensively implemented between European COM-Centres. The NewPENS network makes it possible to implement the system in European COM-Centres.

June

PANSA is to establish a new control tower at the Katowice airport

PANSA starts construction of a new aerodrome control tower (TWR). The new tower will be the highest building of this type in Poland - its height will total 46 metres.

July

Airspace safety provision during the visit of the US President Donald Trump and during the Three Seas Initiative Summit



PANSA's ATCOs provide extraordinary efforts to ensure safety of Polish airspace during the visit of the US President Donald Trump and the Three Seas Initiative Summit.

August

PANSA develops its radar network

PANSA starts construction of new MSSR radars with Mode S in 4 locations. The new equipment is to be commissioned for operational work in 4Q18. The value of the investment will exceed PLN 46 million.

September

„IFISA SEMINAR” in Warsaw



The largest global meeting of Flight Information Service Officers' representatives organised annually allows representatives of FIS and AFIS from all around the world to meet in order to exchange information

and experience and set new targets for subsequent IFISA organisation activities. The seminar promotes the idea of harmonising regulations in this field and supporting initiatives aimed to improve the functioning of FISO in different parts of the world. One of the most important topics discussed included the "Human Factor" and analysis of cooperation between flight crews and FISO that in some cases causes air traffic incidents.

October

Declaration on Just Culture

The Polish Air Navigation Services Agency signed a renewed Just Culture Declaration – the culture promoting fair treatment.

The Declaration prepared by the Civil Aviation Authority of Poland refers to the European Corporate Just Culture Declaration signed by the European Commissioner for Transport, Violeta Bulc, and the representatives of aviation environment on 1 October 2015.

November

High Level Conference: “Cybersecurity in civil aviation”



Conference organised by the Civil Aviation Authority, the Ministry of Infrastructure and European Aviation Safety Agency (EASA) focused on the cyber-attacks prevention and on activities to be undertaken in case of a cyber-threat in civil aviation. The number of attacks on data networks and systems increases every year, which makes it necessary to ensure maximum level of protection and to safeguard critical infrastructure against cyber-attacks.

Helsinki declaration signed – summary of the High Level Conference on Drones 2017

The third European conference on the unmanned aircrafts “High Level Conference on Drones 2017” was organised in Helsinki. Guests from all around the world gathered to attend a high-level meeting of representatives of the European institutions (EC, EASA EUROCONTROL, SESAR). Polish UTM/U-space solutions generated huge interest, which confirms that Poland is one of the world leaders in this field.



Specific Grant Agreement for co-financing of SESAR implementation projects

On behalf of PANSO SESAR Deployment Manager signed grant agreements with European Commission's Agency, Innovation and Networks Executive Agency (INEA) for co-financing of eight projects submitted by

the Agency on its own or together with other entities under 2016 CEF Call for Proposals. The amount of co-financing of PANSO's participation in projects totalled EUR 5 836 451.92.

December

Agreement between PANSO and the Government Centre for Security

The agreement obliges the parties to cooperate in the crisis management and critical infrastructure protection, i.a. by taking complementary activities to ensure the air navigation safety, by monitoring potential threats and by establishing an information policy to be used in crisis situations.



High Level Conference on Drones 2017, Helsinki





Core activity

Air Traffic Services

The Polish Air Navigation Services Agency, established on 1 April 2007, is a State-owned legal entity responsible for air traffic management in FIR Warsaw.

The Agency is the only institution providing air navigation services which offers air traffic control services in Warsaw FIR.

There are three levels of air traffic control:

- **area control service** - provides air traffic control service for controlled flights in control areas
- **approach control service** - provides air traffic control service for arriving or departing controlled flights. There are four approach control units established (APP Warsaw, APP Gdańsk, APP Kraków, APP Poznań) - these units are responsible for providing services using surveillance equipment
- **aerodrome control service** - provides air traffic control service for aerodrome traffic. There are fifteen aerodrome control units established, some of which also provide procedural approach control service

PANSA also provides flight information service for the uncontrolled airspace. The airspace under responsibility of Flight Information Centre is characterised by a significant variety of aircrafts performance as well as the level of experience and skills of users. The FIS responsibility covers counteracting to controlled airspace infringement. At the same time, it plays a main role in creating pilots proper habits. In the area of alerting service, FIS is closely supported by SAR services.

In the last few years, FISOs work environment has changed significantly. The air traffic in G-class airspace has grown from 100k operations in 2007, up to 400k presently.





Airspace management

Optimisation of the vertical division of GAT ACC sectors was continued in 2017 as a part of the “Polish airspace 2010+” programme. According to defined objectives, the airspace development is conducted in phases being in line with the long-term ATC licensed personnel employment plan, planned modernisation of the PEGASUS_21 ATM system and increase of technical ability of radio communication.

New sectors’ division of ACC and APP Warsaw was supported by changes of PEGASUS_21 and PANDORA systems functionalities. Changes in area control sectors included establishing a new sub-sector and relocating the boundaries of two upper sectors over lower sectors in order to reduce the number of necessary coordination between units during descent.

AMC
(TRA/TSA)

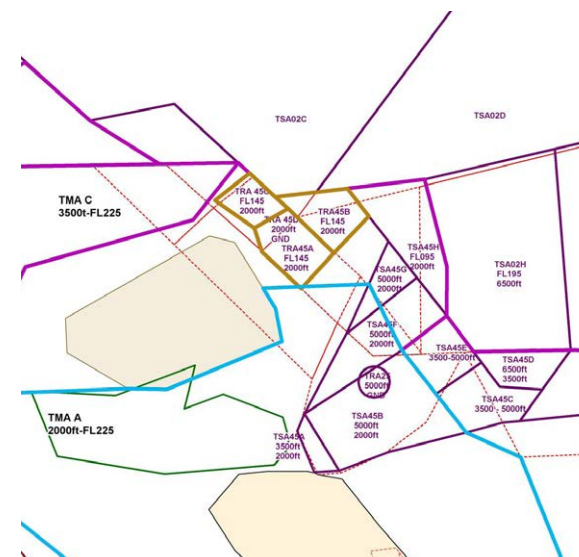
New tools supporting AFUA (Advanced Flexible Use of Airspace) have been developed. Within the CAT2.0 project following tasks were performed: coordination with EUROCONTROL necessary to connect B2B and the local ASM system (CAT) with the Network Manager system in order to automate the exchange of data with EUROCONTROL system.

Requirements for CAT modernisation were set-up in order to expand system's functions towards cooperation with ASM/ATFCM and compatibility with FRA.

New FUA (Flexible Use of Airspace) procedures were developed: the plan for implementation of the new AUP/UUP format, development of CDM between ASM, ATFCM and ATC at three levels of ASM, harmonisation of categorisation and tactical management of CDRs and streamlining procedures for dynamic exchange of data on active areas with the military (establishing CAT operational positions at military aerodromes).

The concept of FUA in Warsaw FIR has been fully implemented. Rules of cooperation regarding airspace management on pre-tactical and tactical level were specified in detail based on the Airspace Management Letter of Agreement (LoA) between Polish and Lithuanian AMCs. The parties are engaged in the on-going exchange of information on activities of AMCs' manageable areas. The areas are displayed in ASM and ATC systems. This allows ATCOs to use the most optimal GAT traffic trajectories.

For general air traffic, the main advantage stemming from LoA is the ability to use the most optimal trajectories provided by air traffic control based on knowledge about activities of FUA-type airspace structures on both sides of the border. Due to the lack of Cross Border Areas (CBA) which could be used jointly between Poland and Lithuania, military users carry out their operations in line with previously applicable conditions (the military party did not report the need to establish such areas).



The FUA rules apply not only to Lithuania, but also to the other countries neighbouring Warsaw FIR. The FUA is applied flexibly and dynamically. Airspace limitations are introduced only for the time necessary to carry out operations in order to minimise their negative impact on capacity and GAT flow, in accordance with the needs of the military party.



ATFCM - Air traffic flow and capacity management

ATFCM is one of the services provided by PANSO under the air traffic management system via local ATFCM unit and in cooperation with the Network Manager responsible for providing ATFCM function at the European ATM Network (EATMN) level. This is a consequence of ICAO and EU regulations according to which air traffic flow and capacity management in the region (under the EATMN) is centralised, with the participation of designated units appointed at each ANSP. However, in recent years it has been observed that changes in traffic flow and technological progress have led to an evolution in the level of demand for ATFCM services and to an increase in significance of local ATFCM units, which are capable of responding to fluctuations in the level of traffic more effectively, and thus ensure better management of the air traffic flow.

In 2017, the Agency participated in Network management processes in cooperation with the Network Manager, the Network Management Board and the European Commission. Agency representatives participated in the work of the NETOPS group, which consists of operating directors of individual ANSPs, and spoke on behalf of the Baltic FAB during meetings with the representatives of the Network Management Board.

Safety and Security





TWR Poznan

Ensuring safety and security

The overarching operational objective of the Agency is to mitigate impact of its services on risk of aviation incident occurrence to the lowest possible level.

In light of technology advancements and the aviation sector development constant increase of safety in the air traffic is PANSA's priority.

In 2017, activities carried out in the safety area aimed at increasing the level of Safety Culture and thus the effectiveness of the air traffic safety management system (SMS). In addition, activities to mitigate the risks related to potential disruptions of operational work were continued.

The Agency signed the renewed Just Culture Declaration initiated by the Civil Aviation Authority of Poland.

Furthermore, safety-related projects were carried out, in particular the Programme for ensuring air traffic services business continuity based on infrastructural solutions.



**In 2017, relevant measures were taken
in the field of crisis management**

The Agency participated in crisis management exercises, developed and implemented a notification system for reporting crisis situations via the MultiInfo platform (system notifying management and experts of the Agency, as well as external entities cooperating with PANSA and supervising its activities).



Civil-Military Cooperation

PANSA has continued the process of harmonising GAT and OAT traffic. Activities implementing EUROAT in Warsaw FIR were carried out in cooperation with the Civil Aviation Authority and the military party in line with requirements established under "EUROCONTROL Specifications for harmonized Rules for Operational Air Traffic (OAT) under Instrument Flight Rules (IFR) inside controlled Airspace of the ECAC Area (EUROAT)".

As part of national defence system:

A military communication and information system MIL-NET Z was installed in AMC Poland. The system enables and improves the exchange of "Restricted" information concerning airspace

management, enabling PANSA to receive data from military radiolocation stations. Relevant initiatives were carried out in the following fields: defence training, operational planning,

participation in military and crisis management exercises and trainings (NATO/EU, Libero, Zima).





Aeronautical Rescue Coordination Centre (ARCC)

In 2017, Civil-Military Aeronautical Rescue Coordination Centre (ARCC) situated in PANSa started to operate. ARCC Warsaw is responsible for planning, coordination and supervision of search and rescue operations carried out by ASAR services over the entire Warsaw FIR.

Civil coordinators selected from among experienced air traffic services personnel, coordinators from the Ministry of National Defence, as well as specialists delegated by the Operational Command of the Types of Armed Forces work at the ARCC Warsaw.



These unit cooperates with the Police, Polish Medical Services, Fire Brigades and the Border Guard as well as with services responsible for carrying out search and rescue operations in the neighbouring countries and other RCCs all over the world. The centre carries out its operational activities 24 hours per day, 7 days a week.

Situating the ARCC in the operation room of the Air Traffic Management Centre in PANSA, where all threads of Air Traffic Flow Management in Poland come together, is meant to streamline circulation of information on aviation occurrences, and as a result - reduce the time necessary to initiate rescue operations.

Measures taken by the ARCC so far improved the process of SMS crisis reporting in PANSA, which led to significant shortening of the cycle of circulating information on aviation occurrences and tightened cooperation with air traffic services, including SUP ATM in the field of preventing crisis situations.



Communication, Navigation and Surveillance

Polish Air Navigation Services Agency is the entity responsible for providing i.a. Communication, Navigation and Surveillance services within the Warsaw FIR. Ground infrastructure is handled by the qualified technical personnel and is in line with international standards defined in the civil aviation. It is being modernised in order to maintain the appropriate level of reliability.

In the COM domain, the extension of the network of radio communications centres continued, as it constitutes a technical resource necessary for flexible management of airspace sector configuration and for introduction of the subsequent third layer of airspace sectors.



Modernisation of the radio communication infrastructure was completed for the introduction of interchannel separation at 8.33 kHz below FL195. For the CPDLC functionality above FL285, the necessary external data transmission services were launched and the DLS service became operational in Warsaw FIR in the first quarter of 2018.

In 2017, PANSO actively participated in the selection of the NewPENS services supplier under EUROCONTROL Task Force. Nearly 30 ANSPs and EUROCONTROL signed an agreement with the NewPENS supplier, thus securing itself access to new pan-European network services platform.

Investments in the NAV domain were mostly aiming at maintaining the NAV ground infrastructure (ILS/DME systems, DVOR/DME and DME radio beacons) service level. Due to an increased use of satellite technologies in modern air navigation, many airports have implemented flight procedures based on the use of GNSS sensor, and a project has been launched to implement the first GBAS system

in Poland, which would be installed at Kraków International Airport. Activities related to the optimisation of the ground-based navigation infrastructure were also carried out as focused on the gradual phasing out of non-directional radio beacons.

Projects in the SUR domain were aiming both at maintaining the appropriate level of the SUR infrastructure and deploying new technologies.

The first steps of the technological changes consisted of MLAT systems. In 2017, the construction of 4 new radiolocation centres project was pursued. In addition, in the first quarter of 2017, the first multilateration (MLAT) system in Poland, which covered the TMA of Gdańsk, was operationally implemented. Steps were also taken to implement hyperbolic systems for airport control, as well as to extend the range of the MLAT system to cover the entire FIR EPWW, and to prepare the infrastructure for the future implementation of ADS-B.





Capex projects 2017

Top five capex projects in year 2017

CAPEX PROJECT NAME	DOMAIN	CAPEX 2017 (PLN)	CAPEX 2015-2019 (PLN)
Pegasus ATM system and supporting systems	ATM	73 935 481	134 413 925
Towers	BUILDINGS	46 554 397	157 817 291
ATC Training and contingency infrastructure	ATM	38 904 355	311 276 287
Ground stations	COM	16 815 081	58 987 106
Radio location system	SUR	6 408 961	125 791 749

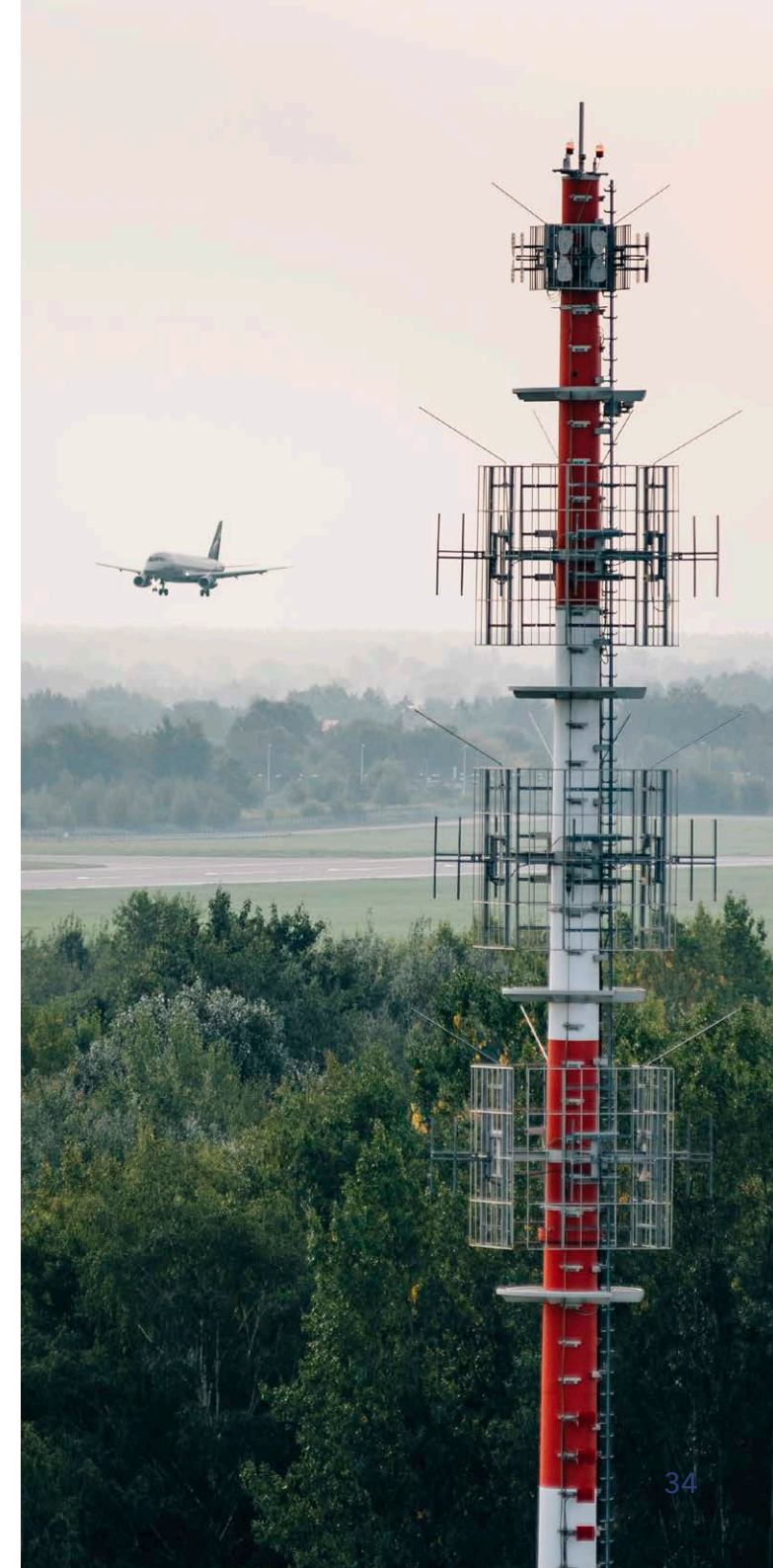
Reducing the negative impact of ATM on the environment

In 2017, activities to replace conventional navigation with performance-based navigation (PBN) in arrivals, departures and approaches were continued. Implementation of this will allow flight crews to use techniques which generate less noise and require lower fuel consumption.

Another PANSO project having a positive impact on the environment is the Free Route Airspace implementation in Warsaw FIR in the 1st quarter of 2019. In this regard, implementation of changes to PEGASUS_21 system has started already in 2017. Also, the second stage of adjusting the TRAFFIC system to the requirements of Free Route Airspace project was conducted.

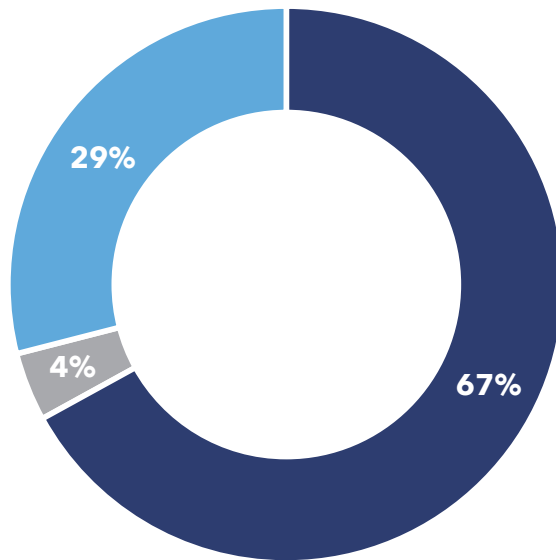
In numbers, PANSO activities in 2017 contributed to the following savings in fuel consumption and CO₂ emissions reduction:

- shortening the distance of EPWA arrivals in TMA in relation to planned STAR procedures led to reduction of CO₂ emissions by ca. 22,429 tonnes and to lowering fuel consumption by 6,181 tonnes in 2017,
 - shortening the distance of departures from EPWA to TMA border in relation to planned SID procedures led to reduction of CO₂ emissions by ca. 33,106 tonnes and to lowering fuel consumption by 10,511 tonnes in 2017,
 - in 2017, 54,428 operations were carried out with the help of CDA/CDO technique (63.75% of all landings). Due to such a high number of CDO operations, the air operators were able to save (based on EUROCONTROL indicators) between 2,712 and 8,164 tonnes of fuel, while the CO₂ emissions decreased between 8,572 tonnes and 25,717 tonnes.
- Every operation carried out with the help of CDO technique reduces noise emission by ca. 1-5 dB (based on EUROCONTROL's estimates),
- DCT operations led to the reduction of CO₂ emissions by about 9,009 tonnes and to lowering the fuel consumption by 2,866 tonnes.



Human resources

Educational attainment structure
in 2017



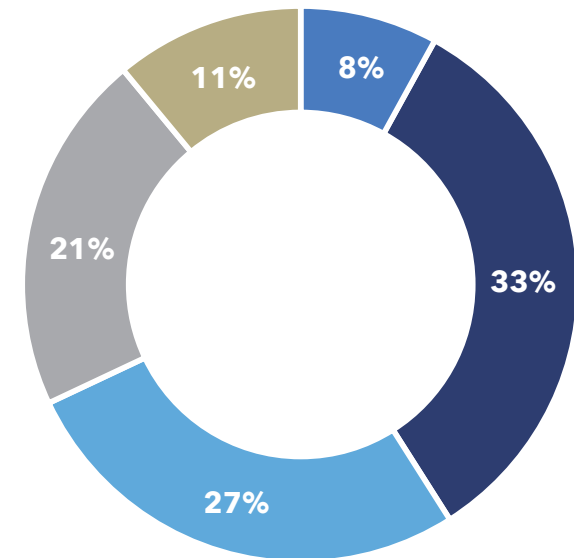
■ higher education
■ secondary education
■ post-secondary non-tertiary and other education

Average age
(31.12.2017)

in PANSA
it amounts to
43.7 years

average age
of an ATCO is
39.5 years

Age structure 2017



■ >29
■ 30-39
■ 40-49
■ 50-59
■ 60+



PRU CATEGORY		FTE STAFF		DIFFERENCE	NUMBER OF PERSONS		DIFFERENCE
		31.12.2016	31.12.2017		31.12.2016	31.12.2017	
		1	2		4	5	
1	ATCOs in OPS	524,47	547,71	23,24	534	557	23
2	ATCOs on other duties	28	35,63	7,63	28	36	8
3	Ab-initio trainees	26	49	23	26	49	23
4	On-the-job trainees	66,50	35,50	-31	69	36	-33
5	ATC Assistance	75,50	60,75	-14,75	76	61	-15
6	OPS support (non-ATCOs)	295,05	313,68	18,63	296	315	19
7A	Technical support Staff for operational maintenance, monitoring and control	335	343	8	335	343	8
7B	Technical support Staff for planning and development	42,83	48,83	6	45	51	6
8	Administration	342,50	363,93	21,43	345	368	23
9	Staff for ancillary services (e.g. MET, AIS, SAR)	99,25	98	-1,25	100	99	-1
TOTAL		1 835,09	1 896,01	60,92	1 854	1 915	61,00



ATS Personnel Training Centre

The main task of the PANSA's ATS Personnel Training Centre "OSPA" is to carry out training for candidates for air traffic controllers and flight information service officers. Aside from training carried out for the purpose of issuing new licences, OSPA also organises refresher training courses for licensed personnel.

Additionally, courses on legal provisions, new rules concerning work organisation in ATM, as well as courses for instructors and assessors are provided by OSPA. OSPA also provides and supervises linguistic training in the field of Aviation English for ATS personnel.

In 2017, ATS Personnel Training Centre organised 2 ab-initio courses necessary to obtain air traffic controller licence. 34 people received air traffic controller licences, while 3 air traffic controllers obtained new ratings to already held licences. Moreover, OSPA provides training for air traffic controllers to enable them to acquire new endorsements, e.g. GMS, RAD.

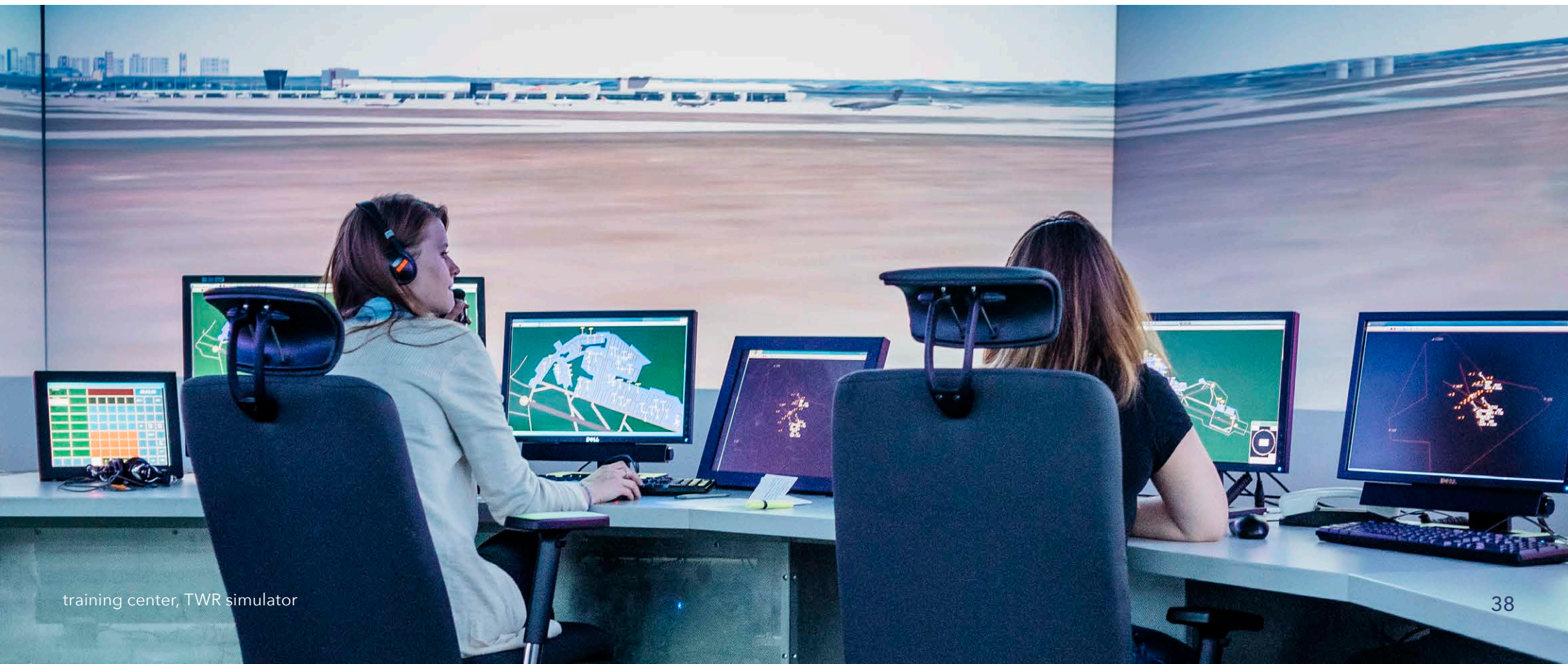


Since 2017, a new building, ensuring comfortable education environment for trainees, air traffic controllers and FIS officers has been constructed. Measures are also taken to modernise educational tools and to introduce multimedia training devices.

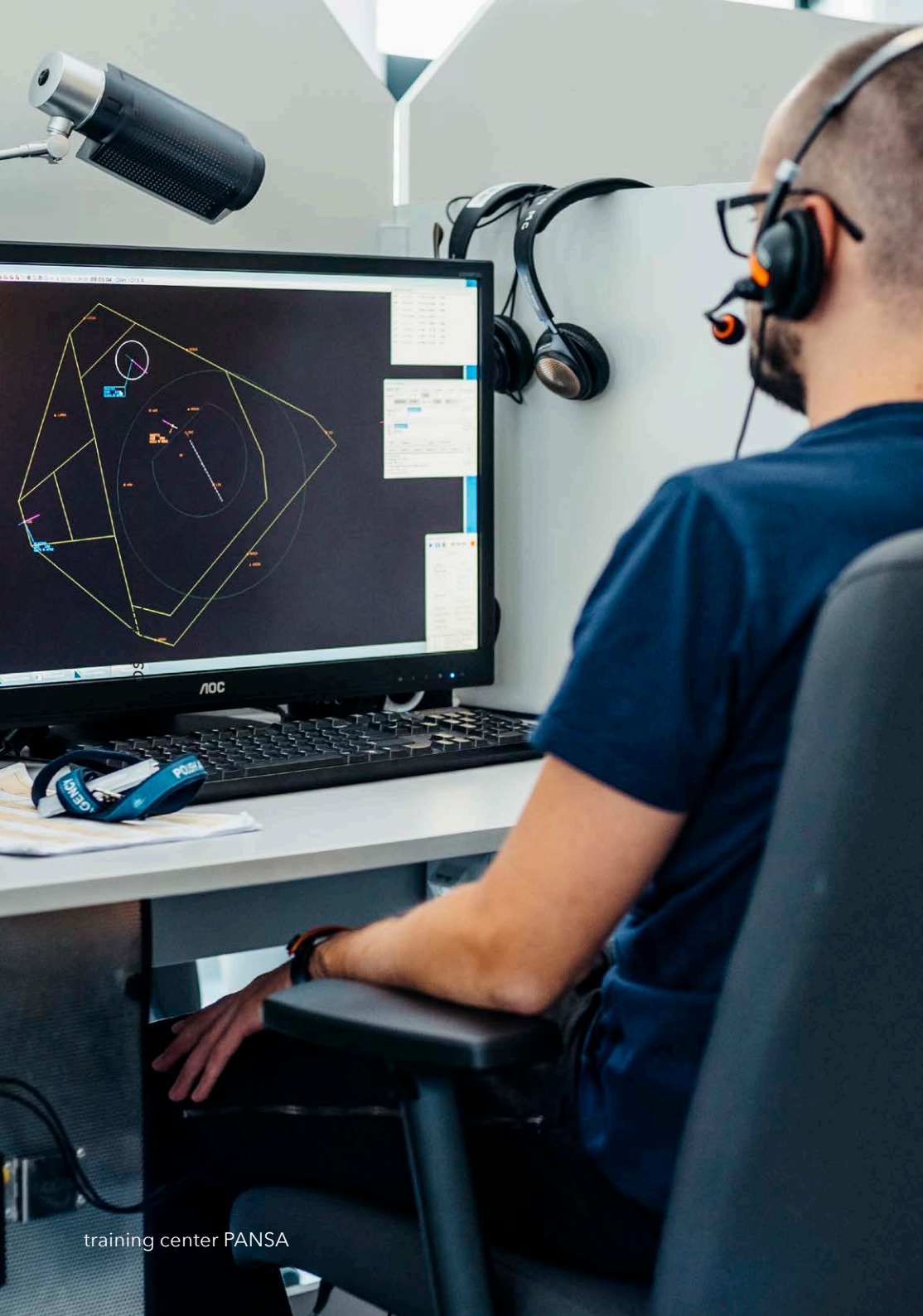
Simulators at the disposal of OSPA make it possible to conduct practical trainings which

exactly reflect the operational environment, devices and ATM Pegasus_21 system. The centre has also a modern simulator consisting of one aerodrome control tower (TWR) with 360 degrees omnidirectional imaging and four aerodrome control towers with 120 degrees imaging. The process of training ATS personnel in OSPA was developed in a way to ensure the highest

quality and the appropriate level of training provided to ATS staff. Introduction of any - even the slightest - change is preceded by analysis and development of mitigating measures. Continuous monitoring and on-going analysis of the training process constitutes the basis for upskilling activities carried out by OSPA.



training center, TWR simulator



Continuous monitoring and on-going analysis of the training process

At the end of the year, 557 people were employed as air traffic controllers. High level of commitment and excellent cooperation made it possible to achieve very good results in terms of efficiency. Polish air traffic controllers are among the most productive - compared to ATCOs of Central Europe countries - their productivity indicator is above the average for the Member States of EUROCONTROL.

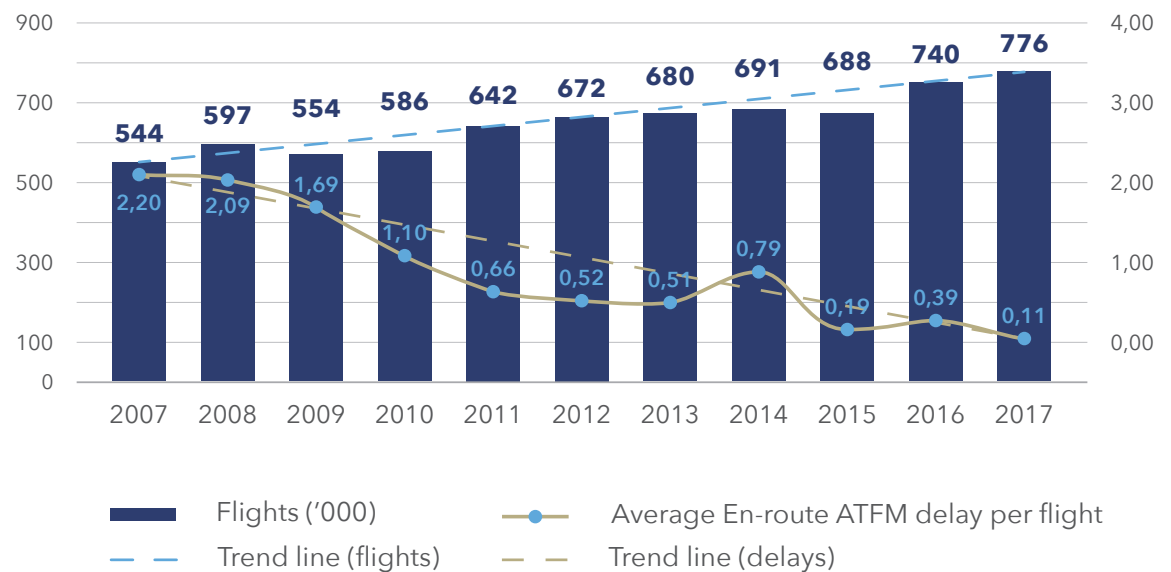


Traffic and delays in 2017

In 2017, air traffic within Polish controlled airspace was higher than in 2016 by 5% in terms of total number of operations. 776 000 operations were carried out as compared to 740 000 in 2016.

The average increase in air traffic during 2017 summer season amounted to 4.3%, whereas STATFOR HIGH forecasts on the basis of which operational resources were planned estimated 7.6% (in its forecast dated September 2016) and 6.7% (in its forecast dated February 2017). The fact that the volume of traffic was lower than anticipated made it easier to achieve the required value of en-route ATFM delays.

Number of flights and en-route ATFM delays 2007-2017



In 2017, the en-route ATFM delays indicator amounted to 0.11 minutes per flight, compared to the required value - 0.23 minutes per flight

Achievement of such a good level of this indicator was possible due to many factors: reorganisation of the airspace enabling increase of capacity and reduction of workload, verification of sector capacities and occupancy reference values, utilisation of the increased number of sectors (11) during peak hours and introduction of optimised sector configurations based on 2016 experiences, as well as introduction of efficient air traffic controllers' staffing, modification of schedules and change of training plans by planning them outside of the peak of the season.

In 2017, the following main factors had an impact on the en-route ATFM delays indicator: Staffing - lack of operational ATC staff (43%), Capacity - structure and intensity of air traffic flows (42%) and Weather - atmospheric conditions (14%).



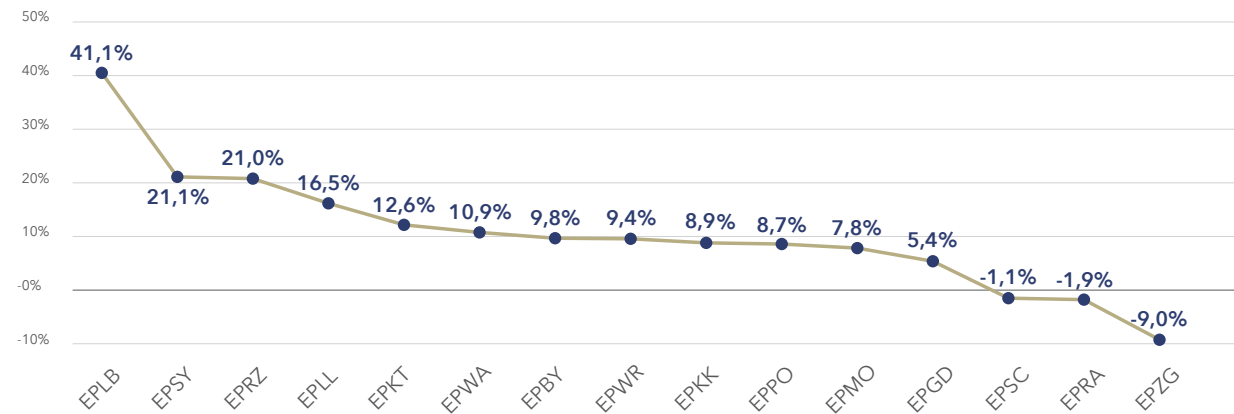
The national target for terminal delays 0.04 minutes per flight was not achieved for reasons beyond PANSO's control.

Average value of the delays indicator was 0.14 minutes per flight, which is a better result than in 2016 (0.21 minutes per flight). This situation was mainly caused by delays on the Warsaw Chopin Airport, including those resulting from adverse weather conditions.

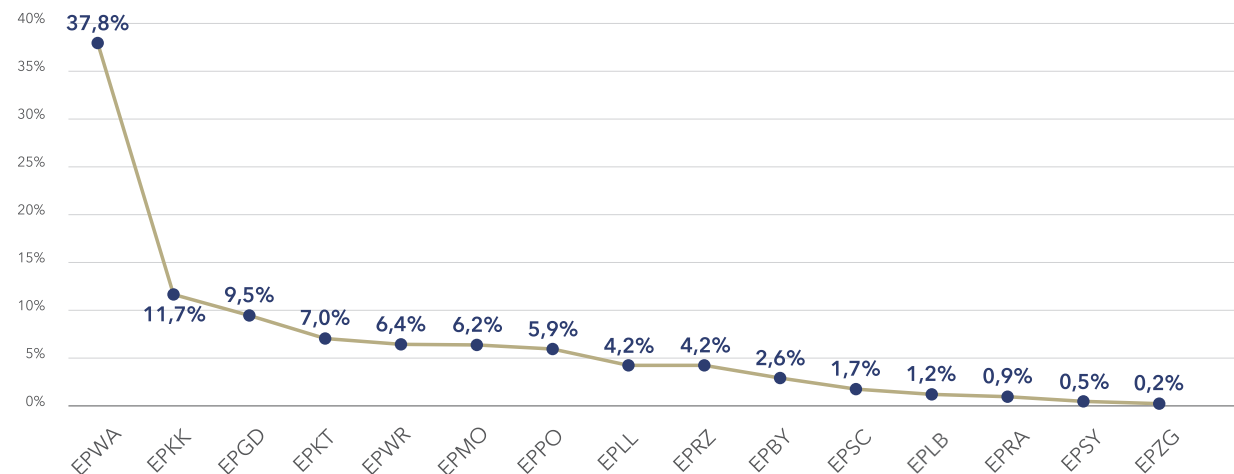
The delays exceeding the target at the Warsaw Chopin Airport were beyond PANSO's control (weather and conditions related to the airport's capacity).

At the same time, no ATC-related delays were observed on any other aerodrome on which PANSO provides services.

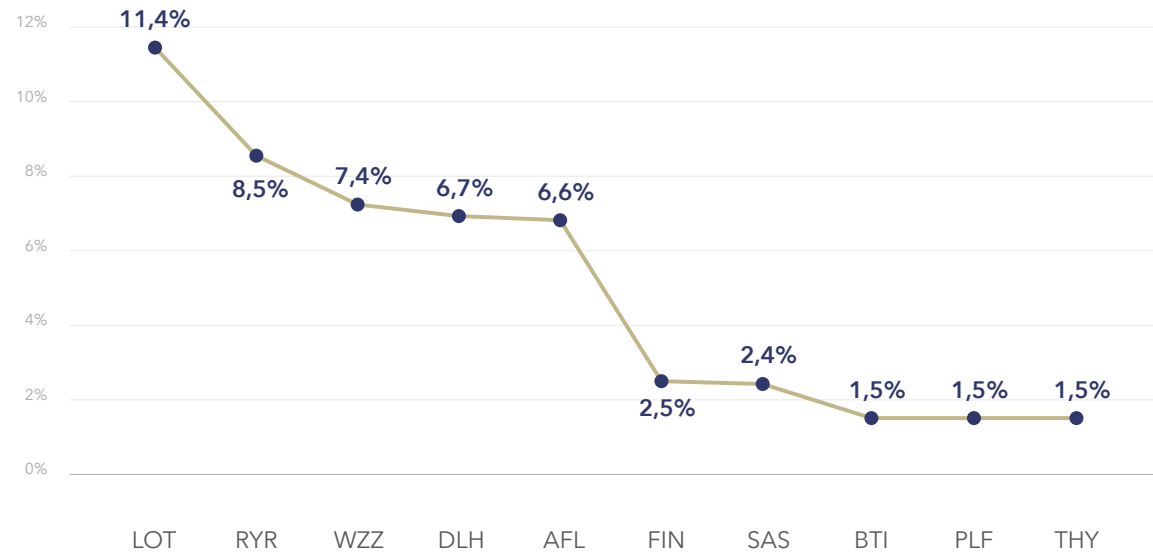
Dynamics of the number of flights at airports 2017/2016



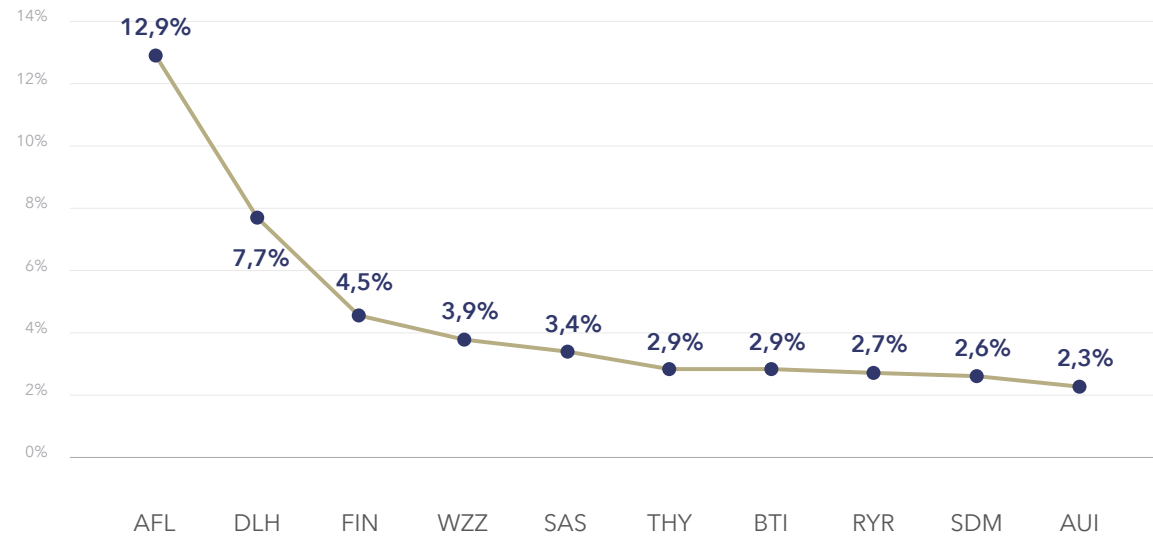
Share of airports in total number of flights in 2017



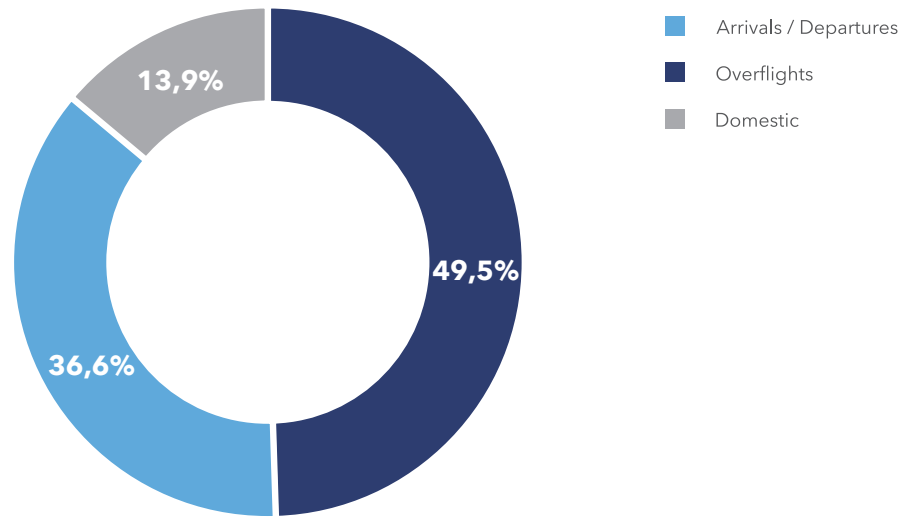
Share of airlines in total number of flights in 2017 (Top 10)



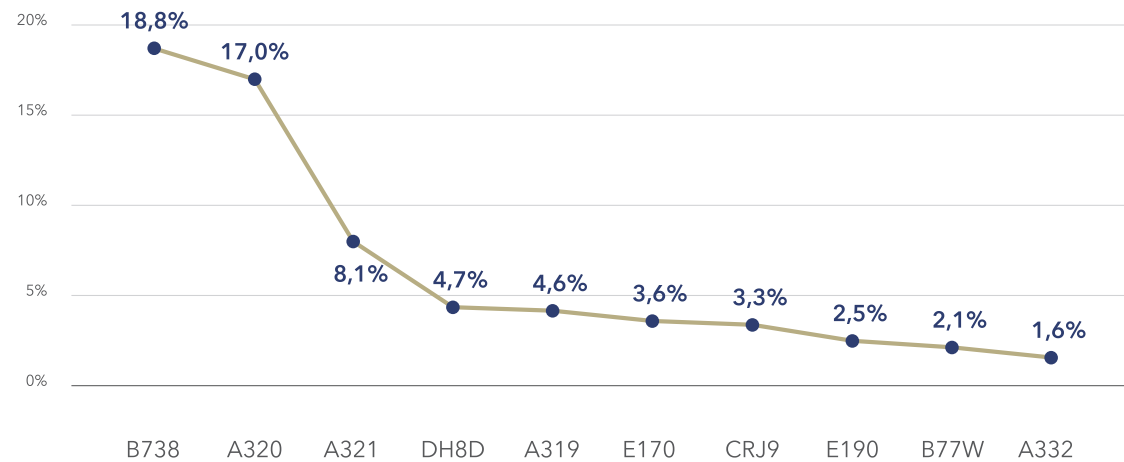
Share of airlines in overflights in 2017 (Top 10)



Share of traffic categories in total number of flights 2017

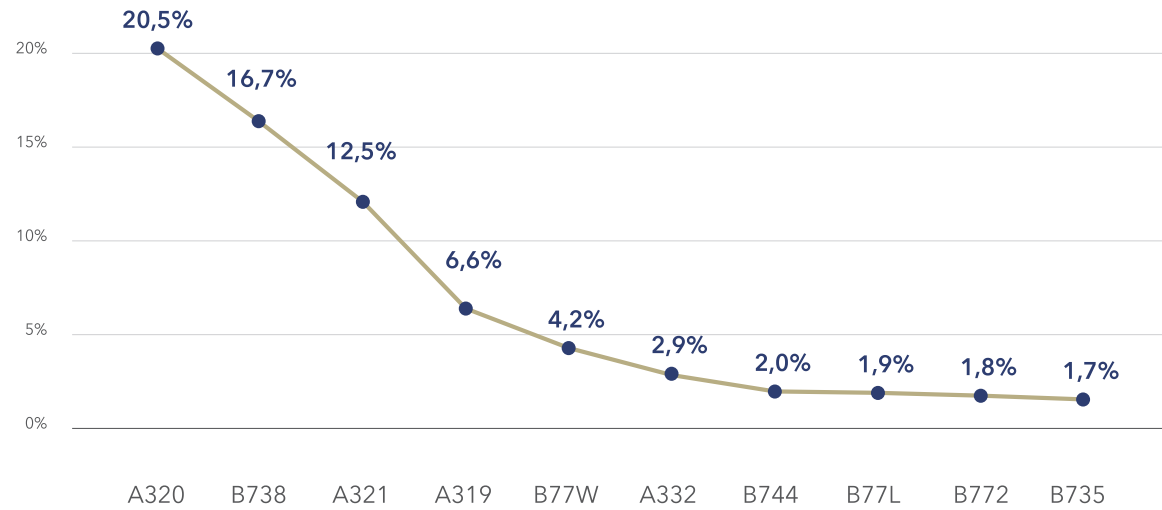


Share of aircraft types in total number of flights in 2017 (Top 10)





Share of aircraft types in overflights in 2017 (Top 10)





International cooperation

In terms of international relations, the main aim of the Agency is to translate its long term business strategy and objectives into the effective works on different international fora and to keep consistency between them. PANSÁ performs its activities via international organisations and institutions influencing ATM industry, i.e. ICAO, European Commission, EASA, EUROCONTROL, CANSO, Network Manager, SESAR Deployment Manager, SESAR Joint Undertaking, as well as alliances or bottom-up initiatives of the Air Navigation Services Providers, e.g. A6, GATE ONE, B4 and bilateral contacts.

In 2017, PANSÁ main focus was put on the elaboration of the Performance and Charging Commission Implementing Regulations for the Third Reference Period (RP3; 2020-2024), analysis of the Air Traffic Management Network Functions and modernisation of the ATM systems.

Regarding the first aspect, PANSA was contributing to the positions of CANSO and GATE ONE on the legislative proposals for the RP3.

Another relevant Implementing Regulation, that has been reviewed in 2017 was the Network Functions Implementing Regulation. PANSA was presenting its position underlying significance of local ATFM units during meetings with EUROCONTROL, European Commission and other institutions.

Fulfilling the third of the above mentioned tasks, on 8 March 2017, PANSA and the Lithuanian Oro Navigacija officially joined the European iTEC Alliance. The agreement was signed at the World ATM Congress in Madrid. Now the two organisations are working on the new iTEC ATM system.

In 2017, PANSA continued to work within the A6 Alliance, bringing together the largest European air navigation service providers (ANSPs). For SESAR JU (SESAR 2020 programme) purposes, in 2017 PANSA represented B4 Consortium in the A6 Alliance. Apart from the SESAR JU activities, the

A6 Alliance coordinates ANSPs' activities regarding the SESAR Deployment Manager as well as other strategic actions. In the latter two fields, PANSA acts within the A6 Alliance as an independent ANSP.

A unique partnership of its kind is Baltic FAB – Functional Airspace Block consisting of Poland and Lithuania. Baltic FAB's Development Strategy, approved in November 2016, defines areas of ANS development between the two countries. One of the main tasks envisaged in the Strategy is to become a solid partner for the ANSPs and countries outside of the EU. The Memorandum on Cooperation signed in 2017 with the Ukrainian State Air Traffic Service Enterprise – UkSATSE – is an example of such cooperation. PANSA – acting as FAB member – continued cooperation at the inter-FAB level with neighbouring ANSPs in the operational, technical and communication area.

Another form of international cooperation mentioned above is carried out via bilateral channels. PANSA focused on consolidating relations with ANSPs from non-EU countries. In 2017, PANSA and Russian Federal State Unitary Enterprise „State ATM Corporation“

had initiated preparations for the FIFA World Cup 2018 that was held in Russia. In September 2017, PANSA and Kazaeronavigatsia – an ANSP from Kazakhstan – signed a letter of intent on cooperation regarding, i.a. the management of unmanned aircraft traffic¹.

¹ The A6 Group includes: German DFS, British NATS, French DSNA, Spanish ENAIRE and Italian ENAV, Scandinavian group NORACON, Scandinavian-Austrian group COOPANS - since 2015, PANSA and the Polish-Lithuanian-Czech-Slovak B4 Consortium, represented by PANSA. The group was established to coordinate R&D and investment activities of the main air navigation service providers under the SESAR Programme.

SESAR

R&D



The Agency participated in the work carried out under the SESAR programme both in its research and development part, as well as in its implementation-related part.

As part of the research and development layer of SESAR programme, the following tasks started to be carried out under SESAR 2020 projects (PJ), to which PANSA acceded based on Grant Agreements as the so-called Active contributor:

1. PJ.02 EARTH "Increased Runway and Airport Throughput";
2. PJ.03b SAFE "Airport Safety Nets";
3. PJ.04 TAM "Total Airport Management";
4. PJ.06 ToBeFree "Trajectory Based Free Routing";
5. PJ.08 AAM "Advanced Airspace Management";
6. PJ.10 PROSA "Controller Tools and Team Organisation for the Provision of Separation in Air Traffic Management";
7. PJ.18 4DTM "4D Trajectory Management".

Simultaneously to the work on developing the PMP (Project Management Plan) for the above-mentioned projects, the Agency started to define in detail its own tasks and the tasks of its national partners and to establish the division of labour between PANSA and these entities. Identical activities were carried out in parallel in cooperation with other members of project consortia (beneficiaries of grant agreements) with whom PANSA entered into partnership. Immediately after finalising PMP for SESAR projects, activities aiming at launching internal research and development projects were taken i.a. specification of the resources and competences necessary to ensure successful implementation of these projects.

At the same time, PANSA started to carry out tasks in projects at the level of SJU programme and to fulfil its project-related roles, including i.a. the role of SESAR Solution leader under PJ.02 and PJ.06 projects.

As the founder and leader of the B4 Consortium, the Agency coordinated current

B4 activities and acted as the consortium's representative in the context of work carried out by authorities responsible for managing SESAR Joint Undertaking, as well as in the context of work related to implementation of SESAR 2020 programme carried out under A6 Alliance.

In line with provisions of the B4 Consortium Agreement, the B4 Contribution Manager role, as well as representation of the Consortium in the SJU governance have been assigned to the Agency representative. The implementation of tasks set out in the Agreement which encompassed coordination of the overall technical-operational aspects of B4 participation in SESAR 2020 projects included developing a consolidated B4 Consortium Work Plan for the SESAR 2020 programme (B4 Work Plan) which covered i.a. registry of implementation-related risks for project actions identified by the B4 Consortium members, accompanied by a roadmap of mitigating actions, and reporting rules for issues and new risks.

SESAR Deployment

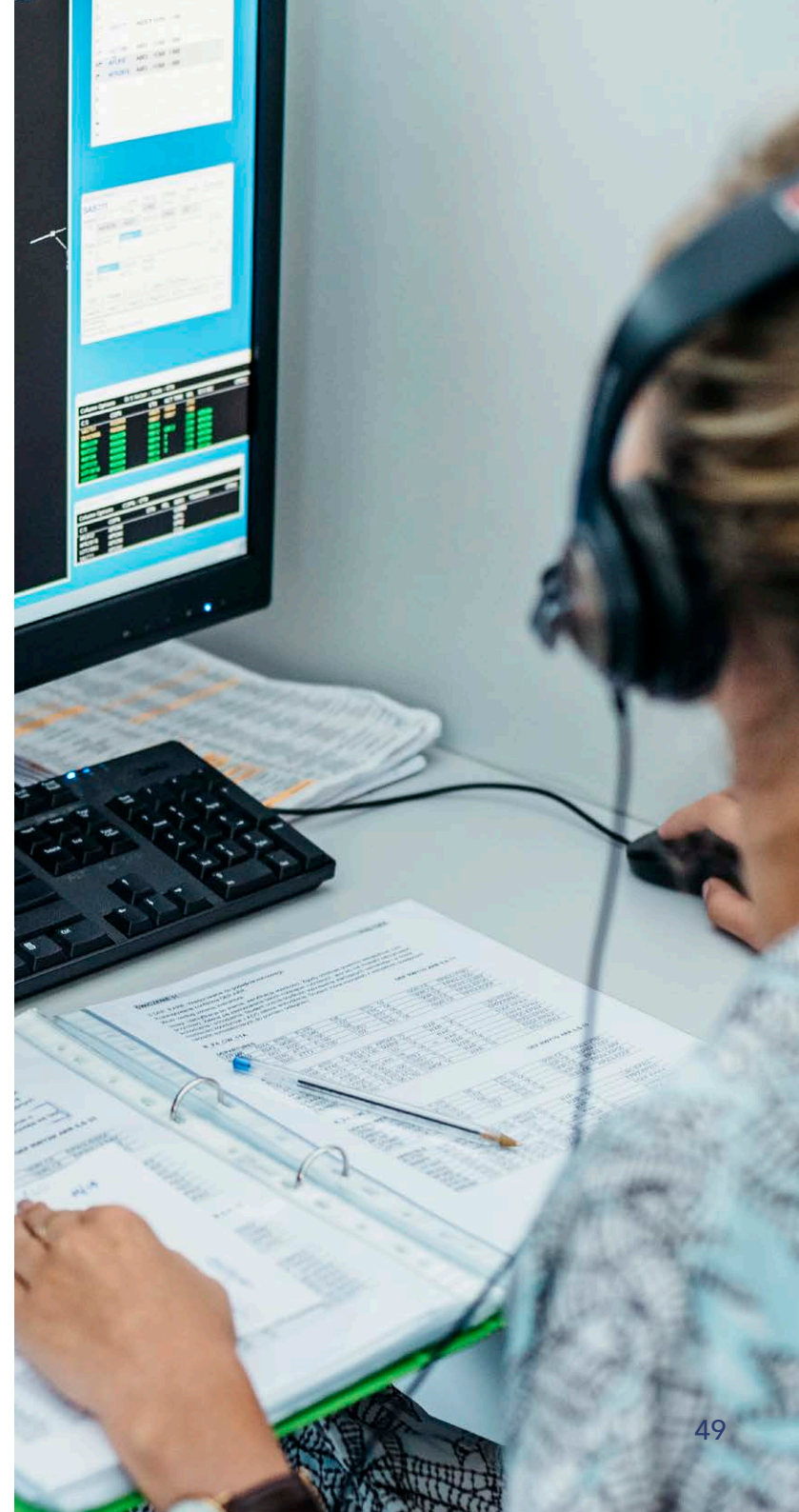


As one of the founding members of SESAR Deployment Alliance who has been given the mandate to fulfil the role the SESAR Deployment Manager (SDM) by the European Commission, PANSA had been actively participating in SDM's on-going activities. In 2017, the PANSA participated in work on Deployment Programme 2017 (DP2017) consultations. The Agency has been a member of the so-called Stakeholders' Consultation Platform (SCP), both as part of the Steering Group and the Thematic Sub-group on monitoring, planning and risks management.

PANSA also took part in the consultation process for drafting the revision of the Commission Implementing Regulation (EU) 716/2014 on the PCP.

In 2017, PANSA representatives also took part in the meetings of the SDM Supervisory Board, which allowed them to monitor the on-going functioning of SDM

and to participate in the SDM's Strategic decisions, including implemented tasks, costs and SDM's transformation process from a consortium into an institution with a legal personality (as of January 2018). In the second part of 2017 PANSA along with the British NATS and German DFS was guiding the Hungarian HungaroControl and Romanian ROMATSA in preparation for joining the SESAR Deployment Manager in 2018.



EU Projects



CEF Projects Connecting Europe Facility

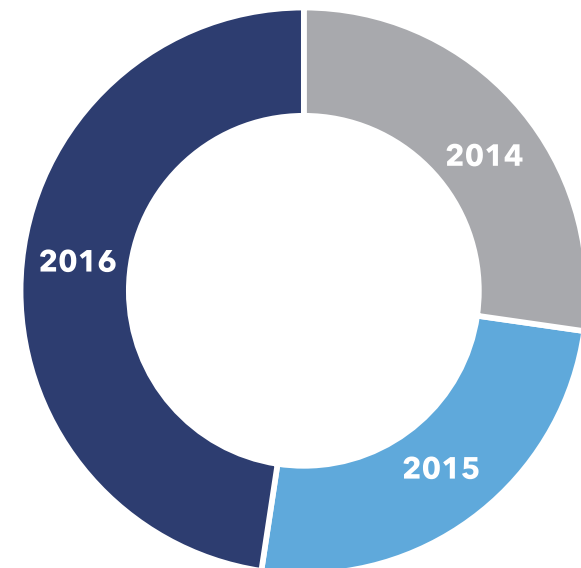
CONNECTING EUROPE

PANSA participates in CEF funds for technical and operational projects related to the implementation of the SESAR Program, as part of the CEF Transport Calls for Proposals - hereinafter referred to as CEF Call (s) - managed by the European Commission Agency - The Innovation and Networks Executive Agency (INEA). In this regard, PANSA cooperates closely with the SESAR Deployment Manager - the institution that coordinates implementation projects submitted for EU co-funding.

Projects co-financed from the CEF instrument are implementation projects that meet the objectives of the SESAR Deployment Program and consist among others the modernization of the Air Traffic Management system allowing synchronization of systems in the Single European Sky, ensuring safety, reducing delays, costs and emissions to the environment.

Last year, in the framework of CEF Call 2016, PANSA was granted an amount of nearly EUR 5,8 million for the deployment of SESAR-related projects. In previous years, PANSA applied for EU funding for projects as part of CEF Call 2014 and CEF Call 2015. CEF grants received over the last three years amount to EUR 12 million. In the ongoing CEF Call 2017, the Agency submitted new proposals for EU co-funding.

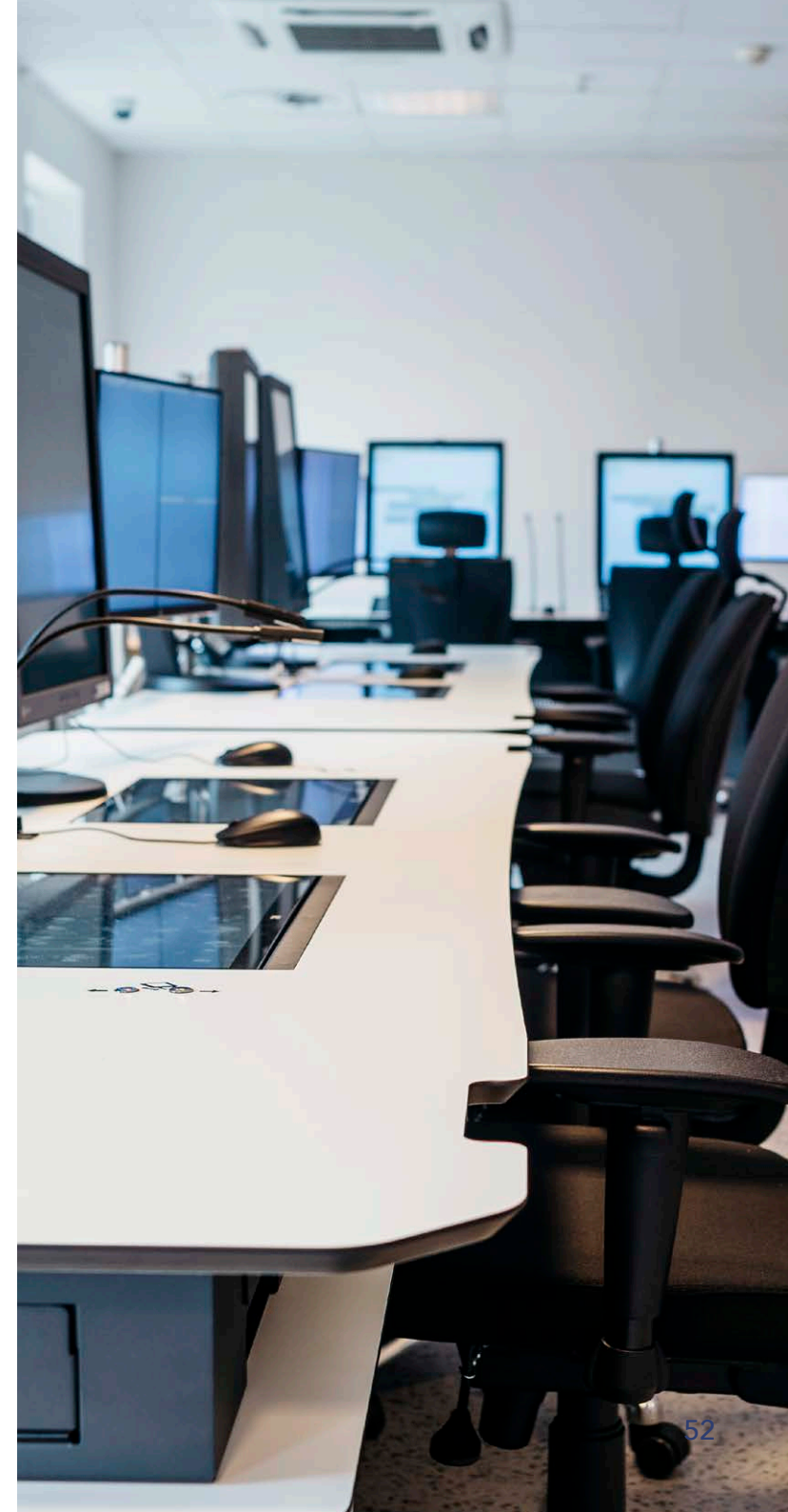
CEF CO-FINANCING
12 100 759 EUR



■ Call 2014 - 3 300 000 euro
■ Call 2015 - 3 040 450 euro
■ Call 2016 - 5 760 309 euro



PROJECT	TOTAL CAPEX (EURO)	CO-FINANCING (EURO)
CEF Call 2016		
ATM system upgrade towards Free Route Airspace	5 880 000	2 528 400
ITEC Tests, Validation and Planning (ITEC-TVP)	1 716 360	738 034
Implementation of Data-link services for the ATM in FIR Warsaw	5 247 102	2 256 253
DLS Implementation Project - Path 1 "Ground" Stakeholders	142 501	61 275
DLS Implementation Project - Path 2	148 805	63 986
European Deployment Roadmap for Flight Object Interoperability	25 000	10 750
Deploy SWIM Governance	90 400	38 872
NewPENS Stakeholders Contribution for the procurement and deployment of NewPENS	145 900	62 737
CEF Call 2015		
LAN Network Upgrade	2 009 500	1 708 075
The ECG Communication System Upgrade	1 567 500	1 332 375
CEF Call 2014		
1st Part of the Upgrade of the P_21 PEGASUS System to SESAR Functionalities - Test and Validation Platform	6 600 000	3 300 000





Operational Programme: Infrastructure and Environment for 2014-2020

In 2017, the Agency signed an Agreement on co-financing the „Development of Infrastructure of the National Air Traffic Management Provider - stage II” project, implemented in the framework of Operational Programme: Infrastructure and Environment for 2014-2020 (Priority III: Developing the TEN-T road network and multimodal transport). This project is the next step in investments in communication (radio communications centres), navigation (DME/OR, DVOR/DME, ILS/DME), surveillance (radiolocation system and radars) infrastructure and aerodrome facilities infrastructure (air traffic control tower). Total project implementation cost amounts to 201,307,818 PLN. Eligible expenditure amounts to 165,057,355 PLN. The maximum value of co-financing for the project implementation shall not exceed 114,750,000 PLN. ¹

¹ Radio communications centres, OR-Ground Stations: (OR Kluczbork, OR Rzeszów II, OR Radom, OR Leszno, OR Brzesko, OR Gąbin, OR Sieradz II, OR Chojnice, OR Piła, OR Połczyn Zdrój, OR Lidzbark, OR Wysokie Mazowieckie, OR Działoszyce, OR Wyszów, OR Biała Piska, OR Wągrowiec, OR Kraśnik, OR Wrocław, transmitter-receiver sets <FL195.

Business development

Common Airspace Tool (CAT),
a system created and developed
by PANSA



It provides the ATC operating system with information on current and planned use of airspace. It is used by airspace management units and air traffic services, as well as by the Polish Air Force.

In 2017 PANSA experts were dedicated to work on the new version of the system. Its highlight is the ability to ensure direct data exchange with the NMOC system. Project implementation includes activities related to technical, operational, organisational and IT security aspects. The system is expected to be operationally implemented in Autumn 2018.

U-space in Poland

PANSA is working on implementation of the EU U-space concept for unmanned aerial vehicles operations (UAVs). U-space as a concept was announced in 2016 at High Level Safety Conference on Drones in Warsaw. The so-called Warsaw Declaration, which was issued as the outcome of the conference has urged the State and all aviation stakeholders to set up this new environment. U-space is a set of new services, appropriate technological infrastructure and specific procedures designed to support safe and efficient access to airspace for large numbers of UAVs. These services will rely on a high level of digitalisation and automation of UAVs' on-board functions/systems and the ground-based supporting infrastructure.

The Unmanned Traffic Management, as a source of information about operators, airspace availability and the ability to conduct flights in the given volume of airspace, will be the foundation and core of the U-space. One of its features will be data processing on i.a. planned flights and capacity. It will be designed not only for use by Polish Air Navigation Services Agency but also by airspace users. Central UTM system

will be managed by PANSA, which is the only air navigation service provider in Poland.

In most cases, U-space will cover airspace up to 150 m AGL, where most services-oriented operations take place. It would be available for every UAV operator, without any negative impact on the current air traffic, in accordance with citizen safety and protection rules. Ultimately, U-space is expected to enable a safe integration of unmanned aviation with manned aviation. U-space will cover all UAV flights, regardless of the aircraft size and weight, taking place both in urban environment and beyond it, in different types of airspace, for commercial and recreational purposes.

One element of the work on implementation of the U-space concept in Poland is PANSA's cooperation in testing of the UTM/DTM system in the air traffic service environment.

The theoretical and practical knowledge acquired by PANSA as a result of ongoing and future activities as well as experience in the real demand of air traffic services and aspects related to

airspace management in the context of safe air traffic organization will allow the Agency to refine the detailed technical requirements of the future UTM/DTM system and the architecture of the U-space environment.

At the same time, PANSA is an active participant of international working groups (i.a. under CANSO, A6 Alliance and as part of SESAR) dedicated to development of a common strategy and vision to improve drone market as well as the system architecture and legislative assumptions in the area of UTM/U-space, which are necessary for the safe development of U-space, without prejudice to the existing air traffic management system and future integration with manned aviation.





flight inspection

Flight inspection services

Two PANSA-owned aircrafts – Beechcraft King Air 350 and L-410 UVP-E 15 “Turbolet” – are used to monitor the proper operation of ground-based navigation aids from the air in accordance with ICAO guidelines and regulations issued by the Polish authorities (appropriate Ministry and Polish Civil Aviation Authority) and to validate both conventional and satellite based flight procedures.

Due to the bright colours aimed at making the aircraft visible – which was particularly important in the case of flights in the vicinity of aerodromes – they became known as “PARROTS”.

The main task of both “PARROTS” is to perform periodic aerial inspections of CNS infrastructure, including DVOR/ DME and ILS devices. The scope of work also includes flights carried out in relation to the implementation of new navigation aids and radars, validation of newly developed navigation procedures and commercial flights performed for airports for the purpose of aerial inspection of approach lights. Due to the development of CNS infrastructure in FIR Warsaw and the implementation of new procedures, the number of control and measurement flights is gradually increasing. For example, in 2017, 239 measurement flights were carried out in a total time of approx. 600 hours.

A-CDM Airport Collaborative Decision Making

The A-CDM system decides when an aircraft is allowed to request permission for engine start-up. For this purpose, the most crucial time – so-called TSAT (Target Startup Approval Time) – calculated by TSAT Generator “Terminus” – the very heart of the A-CDM system – is displayed on screens installed at the aircraft stands. TSAT informs pilots of the time when they can ask the aerodrome control tower for permission to start the engines.

The A-CDM project required the agreement of all the units and services responsible for aerodrome traffic. A steering group, managers and working groups were set up to implement it. In the course of several years of cooperation, education and learning the world’s solutions for A-CDM, they have developed their own solutions which are compliant with EUROCONTROL’s recommendations and forming the A-CDM platform.

The TSAT generator has been programmed in PANSO and installed on PANDORA system platform.

Aeronautical publications

Under the Aeronautical Information Services provided by PANSO, the Agency is obliged to gather and disseminate aeronautical information essential for the safety, regularity and efficiency of air navigation. Apart from standard publications included in the Integrated Aeronautical Information Package, PANSO offers a wide range of products based on aeronautical information: AIP, maps, databases, which in the era of transition from aeronautical information service (AIS) to air information management (AIM) will be gradually gaining importance.





PANDORA - a system created and developed by PANSA



In the world of air traffic management, saving time is a critical requirement. Immediate and effective access to information improves safety and smoothness of air traffic flow. In order to combine these two key functionalities, a modern, intuitive and user-friendly tool for integrated access to data was developed in PANSA.

Currently, PANDORA system is in the operational use, allowing ATCOs to report modifications on the regular basis. The unquestionable advantage of developing original software in-house is the fast reaction to any "annoying" software behaviour which is removed much sooner than in the case of systems delivered by external companies. The ability to improve the tool and provide feedback on the results of the proposed adjustments by its future users increases their trust in the application and promises comfort of its use.

Financial results



General information

Basis for the financial statement

Pursuant to the Act of 8 December 2006 on the Polish Air Navigation Services Agency (Journal of Laws of 2015, item 1641), the Agency prepares a financial statement for statutory purposes in accordance with IFRS in the form approved by the EU.

Measurement currency and the currency of the financial statement

The measurement and reporting currency of the Agency is Polish zloty (PLN), and all values are presented in thousands of Polish zloty (PLN '000), unless stated otherwise.

Principles of financial management

In accordance with the Act on PANSA, the Agency manages its finances independently, taking into account the EU law, international agreements and EUROCONTROL regulations concerning the air navigation charges system,

including the principles of establishing and collecting charges and issuing invoices by CRCO.

The Agency's net loss for the financial year is covered from the reserve fund. If the net loss exceeds the amount of the reserve fund, the part of the loss not covered by supplementary fund is covered by the statutory fund. The Agency's net profit for the financial year, on the other hand, is allocated to the supplementary fund or other funds established on the basis of specific provisions.

Operating costs are covered by the generated revenues. Sources of revenues are as follows: revenues from fees for services provided, interest on bank deposits, targeted grant from the state budget, other revenues, including funds obtained as a non-repayable aid.

The main source of generated sales revenues is the revenue from navigation activities, including fees charged for the provision of air navigation services (Commission Implementing Regulation (EU) No 391/2013 of 3 May 2013 laying down a common charging scheme for air navigation services). The revenue from the provision of

navigation services (en route and terminal) depends on the level of annually set unit rates for the charges for the provision of navigation services.

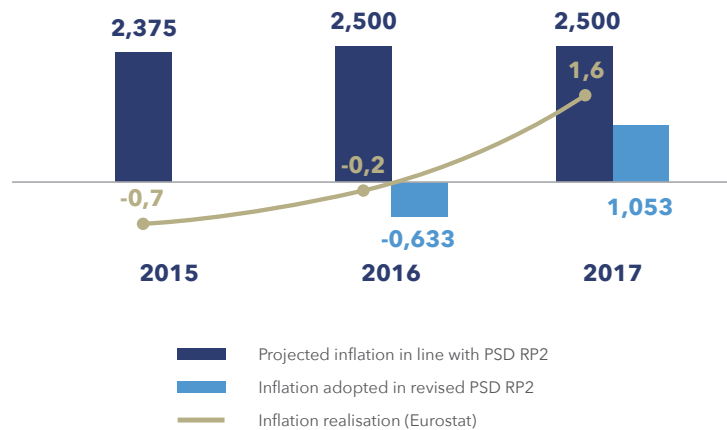
A calculation of the revenues from the sales of navigation services provided by the Agency is based on the following basic figures:

- the number of en route operations, the weight of aircraft and the length of the route travelled over the territory of Poland as the basic indicators of the number of service units (SU) accrued in transit traffic navigation and take-off and landing navigation;
- number and weight of aircraft landing at Polish controlled aerodromes as the basic figures for the number of service units (SU-L) in terminal services;
- further allocation of navigation revenues is determined by the type of fee charged depending on the type of navigation service provided.

Inflation

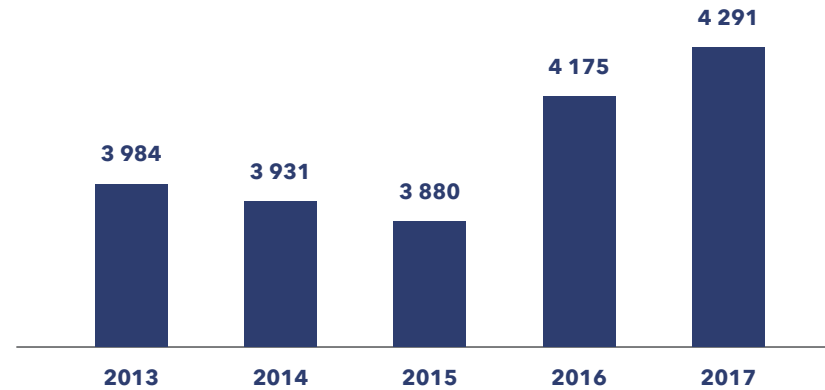
In 2017, according to the April 2018 Eurostat data, the inflation amounted to 1.6% (in 2016, deflation of 0.2% was recorded). Higher food and transport prices had the greatest impact on the consumer price index.

Planned vs realised inflation indicator (%)

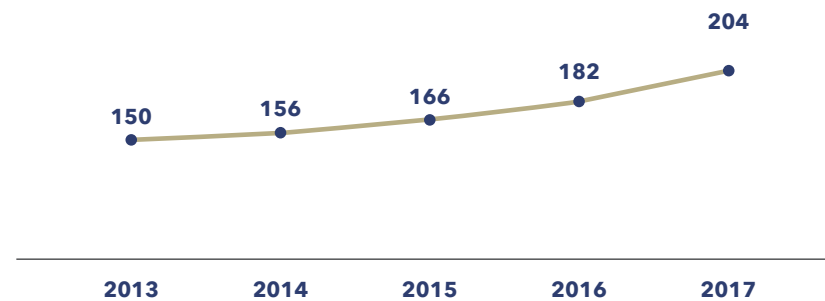


Traffic by services

En route traffic SU ('000)



Terminal traffic SU-L ('000)

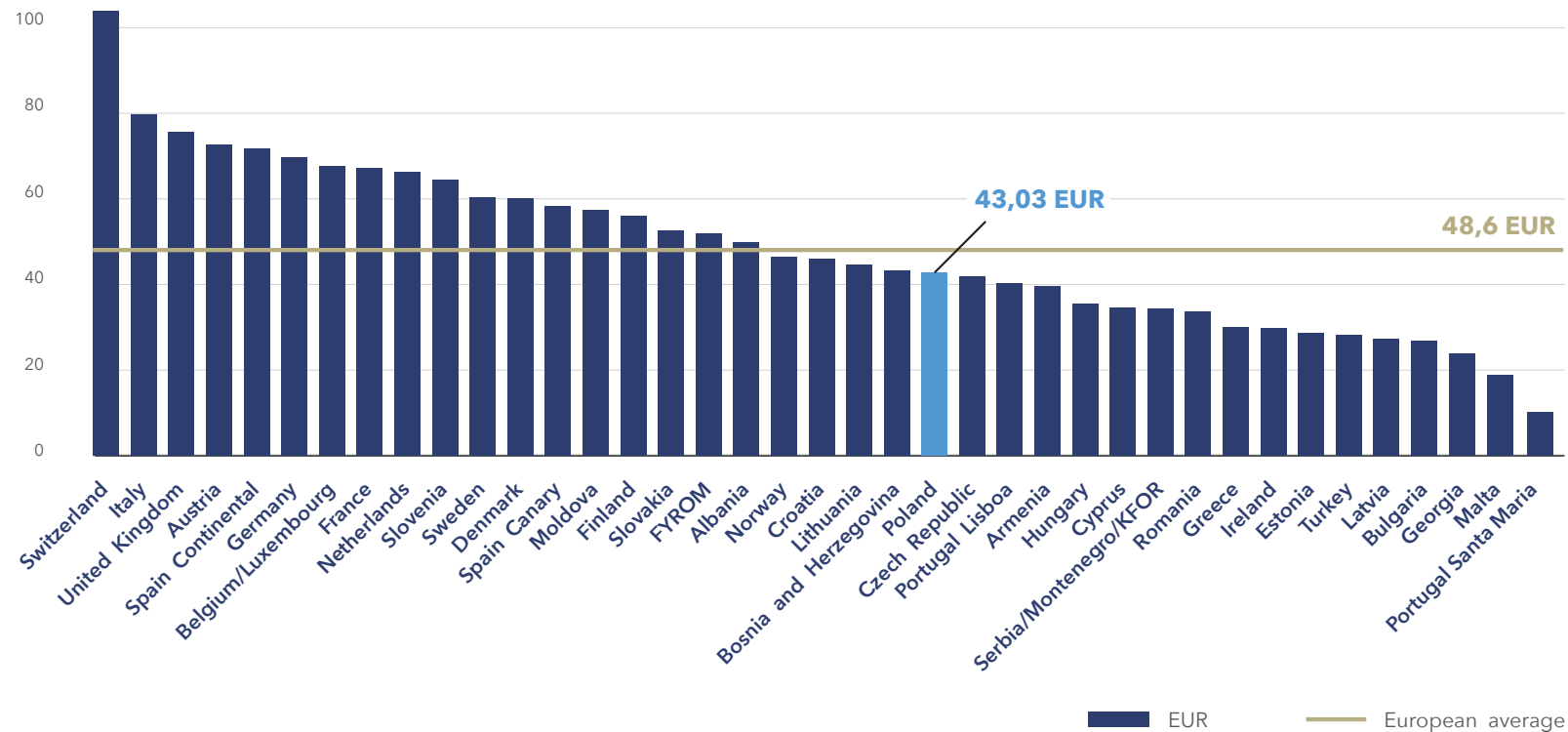


Air navigation charges

In 2017, the average amount of en route charge in selected EUROCONTROL member states was EUR 48.60.

The Polish unit rate for en route navigation services was 11% lower than the European average and it was EUR 43.03.

En route navigation services unit rate in selected EUROCONTROL member states*



* administrative rate included¹

Source: PANSO's own analysis based on: EUROCONTROL Route Charges System.

¹ Administrative rate added to the national rate by the Central Route Charges Office EUROCONTROL (CRCO) due to the operation of the multilateral en route charge system

For benchmarking purposes, PRB divided European ANSPs into groups. PANSa was assigned to "Central Europe", a group of countries operating in similar economic conditions and operational environment. The group comprises of Croatia, Czech Republic, Slovakia, Slovenia, Hungary and Poland. In 2017, en route air navigation charge was 50% lower than the maximum and 9% lower than the average in the "Central Europe" group.

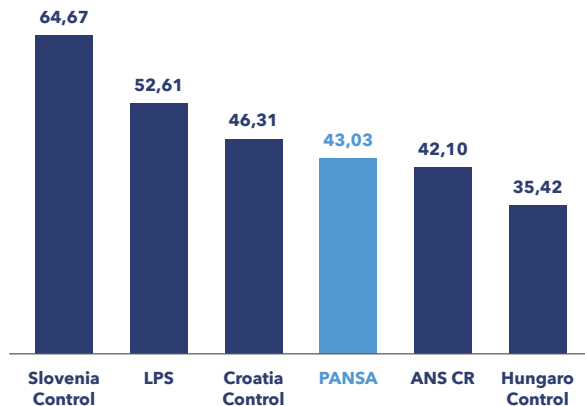
The en route services charge is used to calculate revenue from transit flights and revenue from take-off and landing (arrival) navigation. The product of its unit value and the size of forecast service units for the area is the value of revenues from en route services in the controlled airspace. En route charge unit rate was approved at PLN 185.47 (EUR 42.96) and was in force from 1 January to 31 December 2017. En route charge unit rate is increased by the CRCO administrative fee which amounted to PLN 0.3 (EUR 0.07) in 2017.

The rate for terminal services is used to calculate terminal navigation revenues. The product of its unit value and the size of forecast service units for the area is the value of revenues from terminal services.

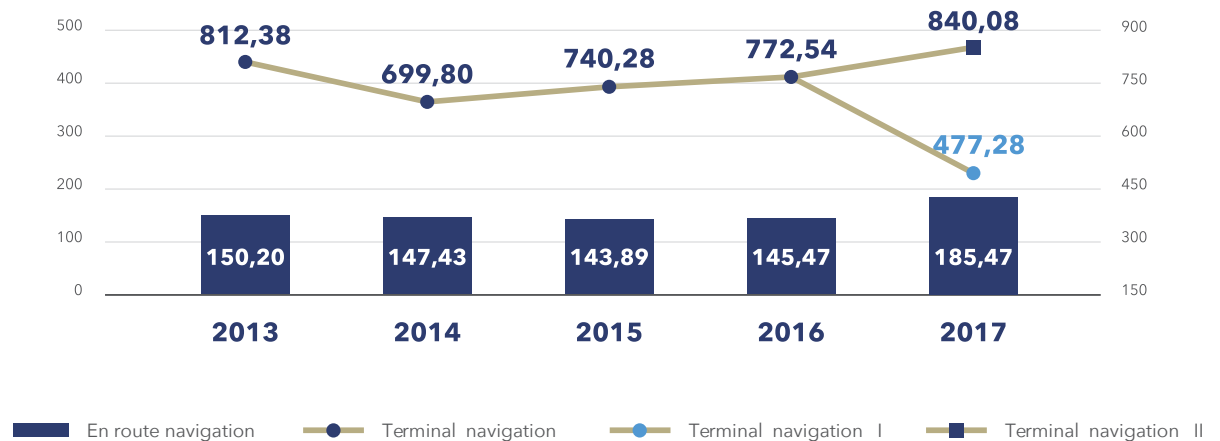
In 2017, there were two terminal navigation service zones in place:

- zone I - Warsaw (PLN 477.28),
- zone II - the remaining 14 airports (PLN 840.08).

2017 en route navigation services unit rate (EUR)



Navigation unit rates (PLN)



Report on PANSA's financial activities

Statement of comprehensive income

As a result of changes introduced in 2017 (which had an impact on previous years), the Agency re-calculated adjustment mechanisms applicable to amounts due, which totalled PLN 76,826 thousand (adjusted data) in balance sheet terms at the end of 2016. In the financial statement for 2016, the calculation was recognised as contingent assets.

STATEMENT OF COMPREHENSIVE INCOME	FOR THE YEAR ENDED 31/12/2017	RESTATED DATA AS AT 31/12/2016
Sales revenues	934 105	756 813
Operating expenses	823 127	730 295
Profit on sales	110 977	26 517
Other operating revenues	29 953	26 255
<i>including: EU and MI grants</i>	25 885	20 563
Other operating expenses	12 518	8 816
Operating profit	128 412	43 956
Financial revenues	5 321	8 794
Financial expenses	5 632	207
Gross profit	128 102	52 543
Income tax expense	26 476	11 865
Net profit	101 626	40 677
Items of other comprehensive income	0	0
Total comprehensive income for the period	101 626	40 677



Sales revenues

Revenues from the en route charges for flights carried out in Polish airspace are calculated, invoiced and collected in euro on behalf of PANSO by CRCO, organisational unit of EUROCONTROL. Terminal navigation service fee is charged in PLN and collected by PANSO.

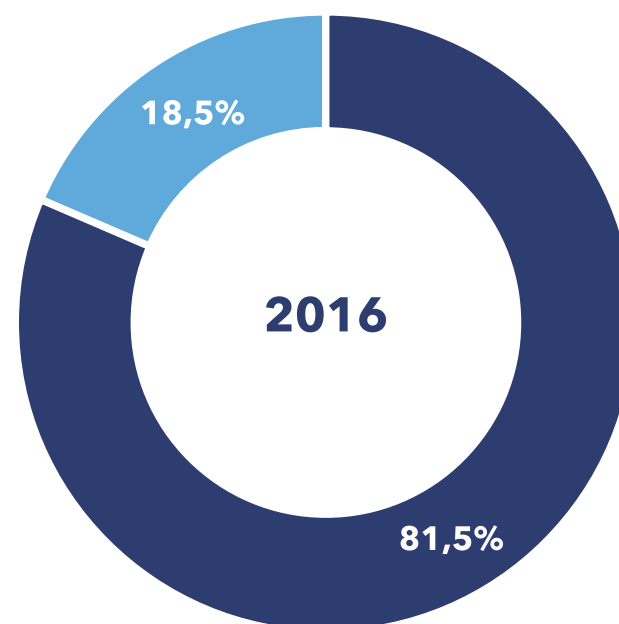
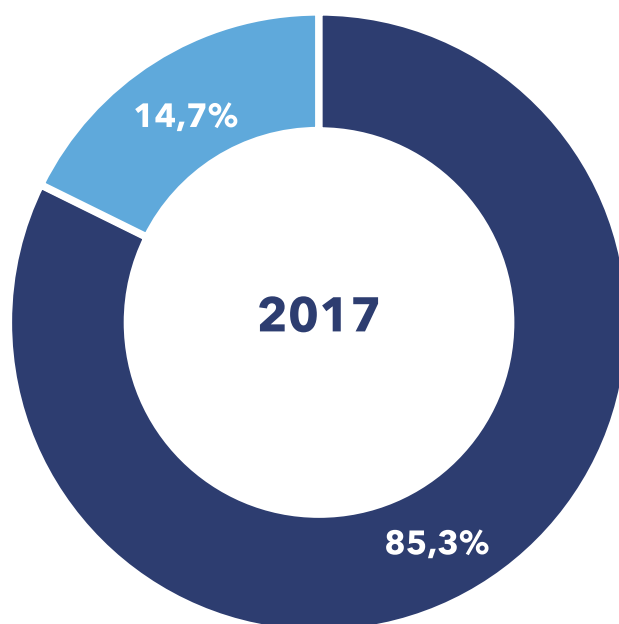
SALES REVENUES	FOR THE YEAR ENDED 31/12/2017	RESTATED DATA AS AT 31/12/2016
Navigation services, including:	925 465	747 054
En-route navigation, including:	784 237	612 292
Balance of carry-overs	-2 371	5 595
Terminal navigation, including:	128 244	124 094
Balance of carry-overs	-7 400	-13 940
Grant for free of charge flights	12 985	10 668
Non-navigation services, including i.a.:	8 603	9 730
Meteorological parameters measurements	3 576	4 191
Radar data	2 132	2 134
Sales of materials	36	29
TOTAL	934 105	756 813

Invoiced sales by services

The structure analysis of the revenues from PANSO's activity indicates that the dominant share in total revenues was Sales revenues which totalled PLN 934,105 thousand for twelve months

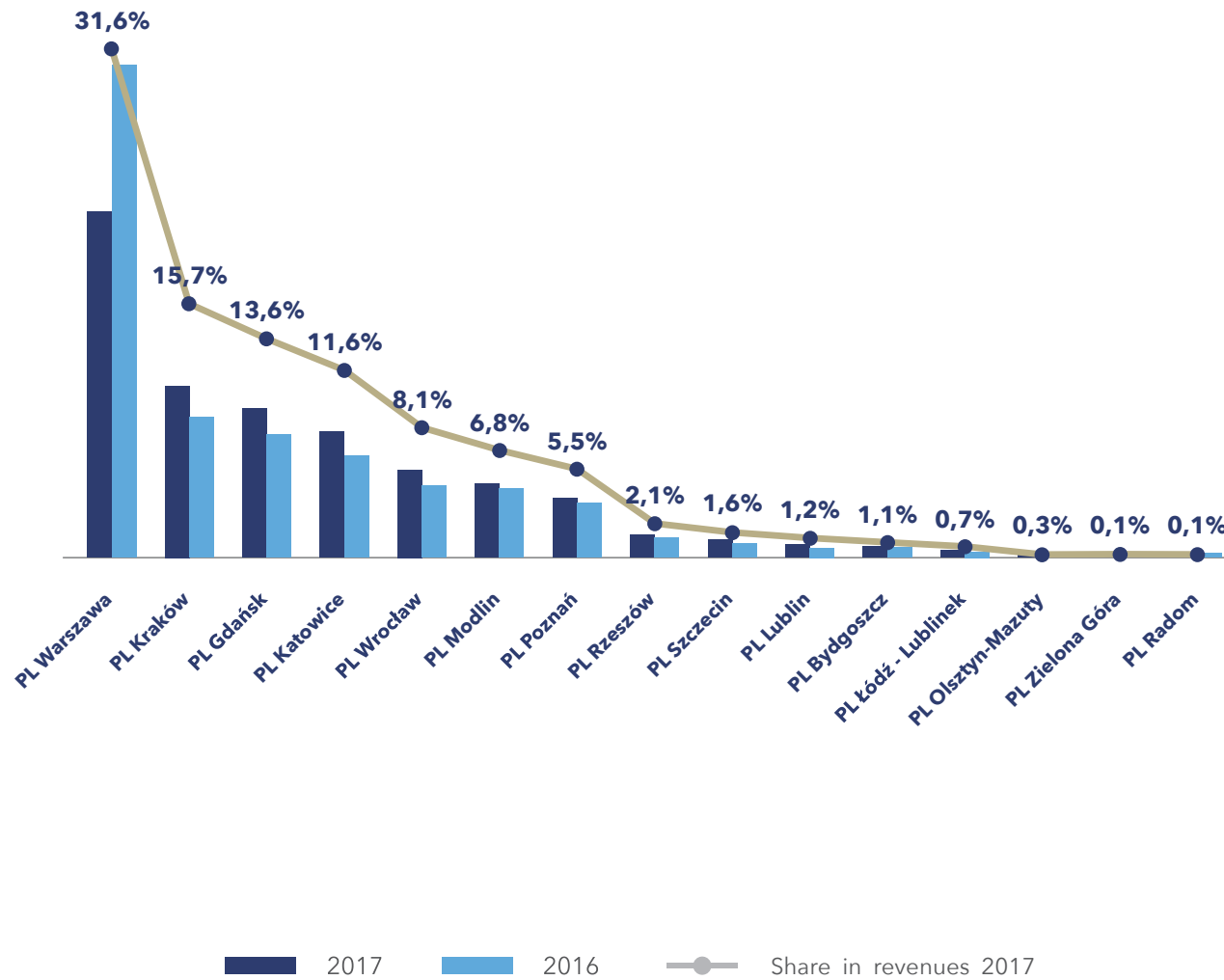
of 2017. This revenue level was generated mainly by navigation services provided by the Agency, including en route and terminal navigation services. In 2017, revenues from the sale of

navigation services accounted for 95% of total revenues generated by the Agency.



■ En route navigation
■ Terminal navigation

Invoiced terminal revenues by airports

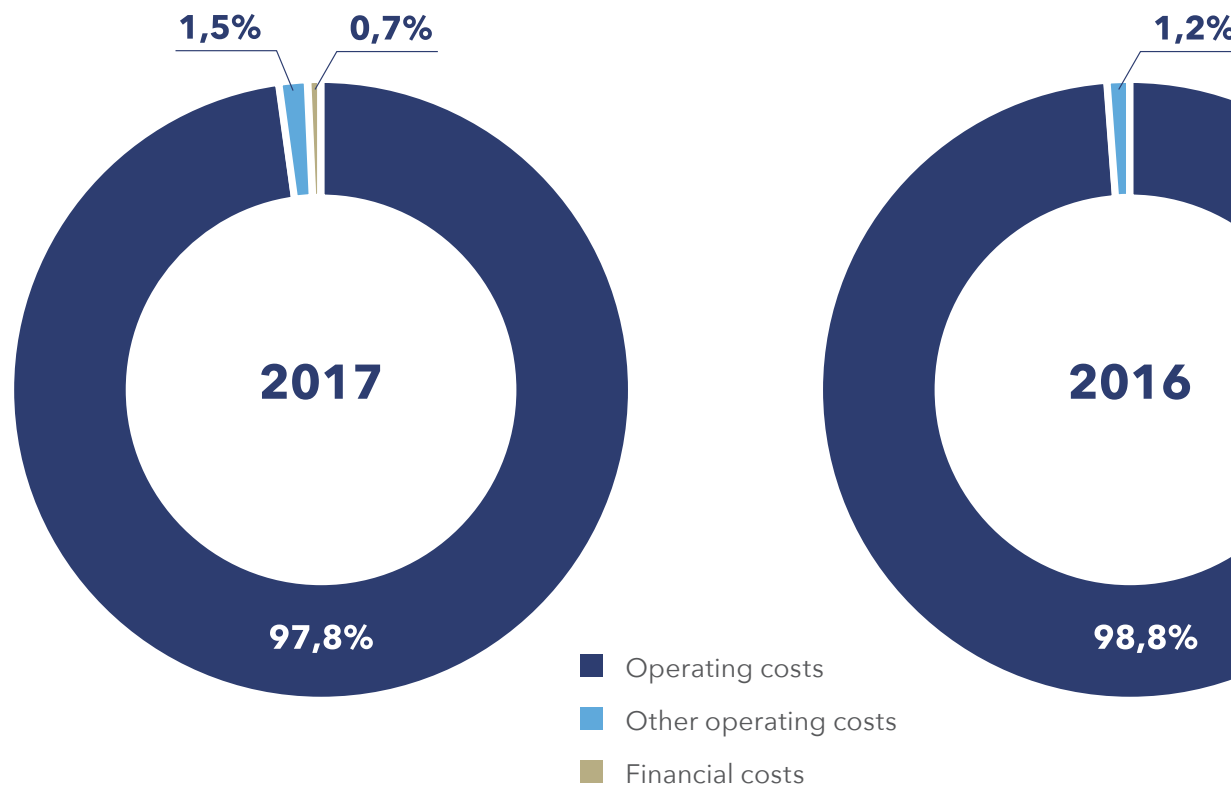


Total costs

Total costs incurred by PANSa in the period of twelve months of 2017 amounted to PLN 841,277 thousand. In 2017, operating costs increased by PLN 92,832 thousand as compared to the previous year. The largest increases were reported in Staff costs (an increase of PLN 82,043 thousand due to PANSa's

involvement in strategic tasks in 2017) and Amortization and Depreciation (an increase of PLN 10,377 thousand due to the continued growing trend in investment implementation and the high level of fixed assets transferred for use).

The analysis of the of PANSa activity costs structure indicates that the dominant share in total costs was the Operating costs which totalled PLN 823,127 thousand for twelve months of 2017.

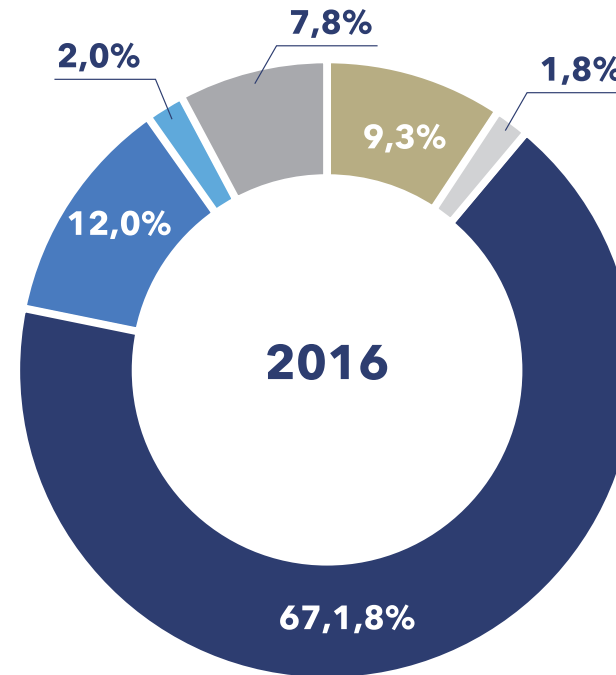
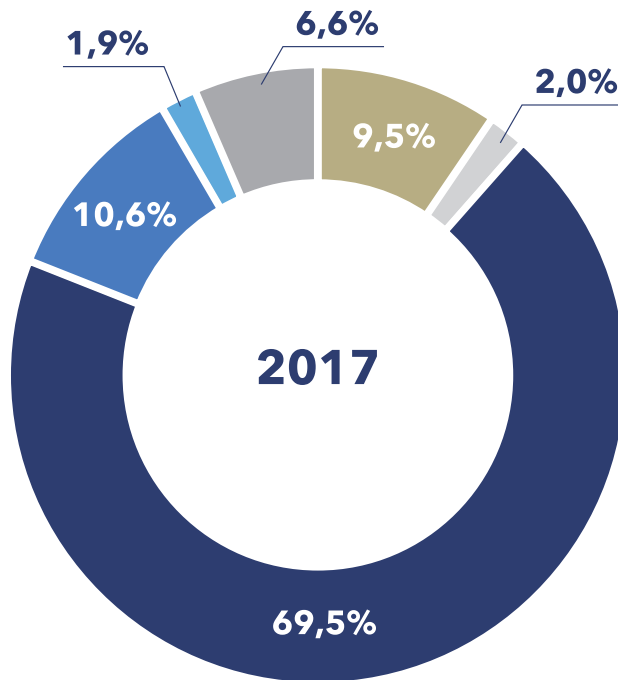


Operating expenses by kind

PANSA's involvement in the implementation of strategic tasks in 2017 made it necessary to ensure proper organisation of human resources and therefore, it required appropriate financial

involvement. In 2017, the costs of salaries and benefits for employees were determined on the basis of mechanisms regulating them set out in the Remuneration Regulations for Employees

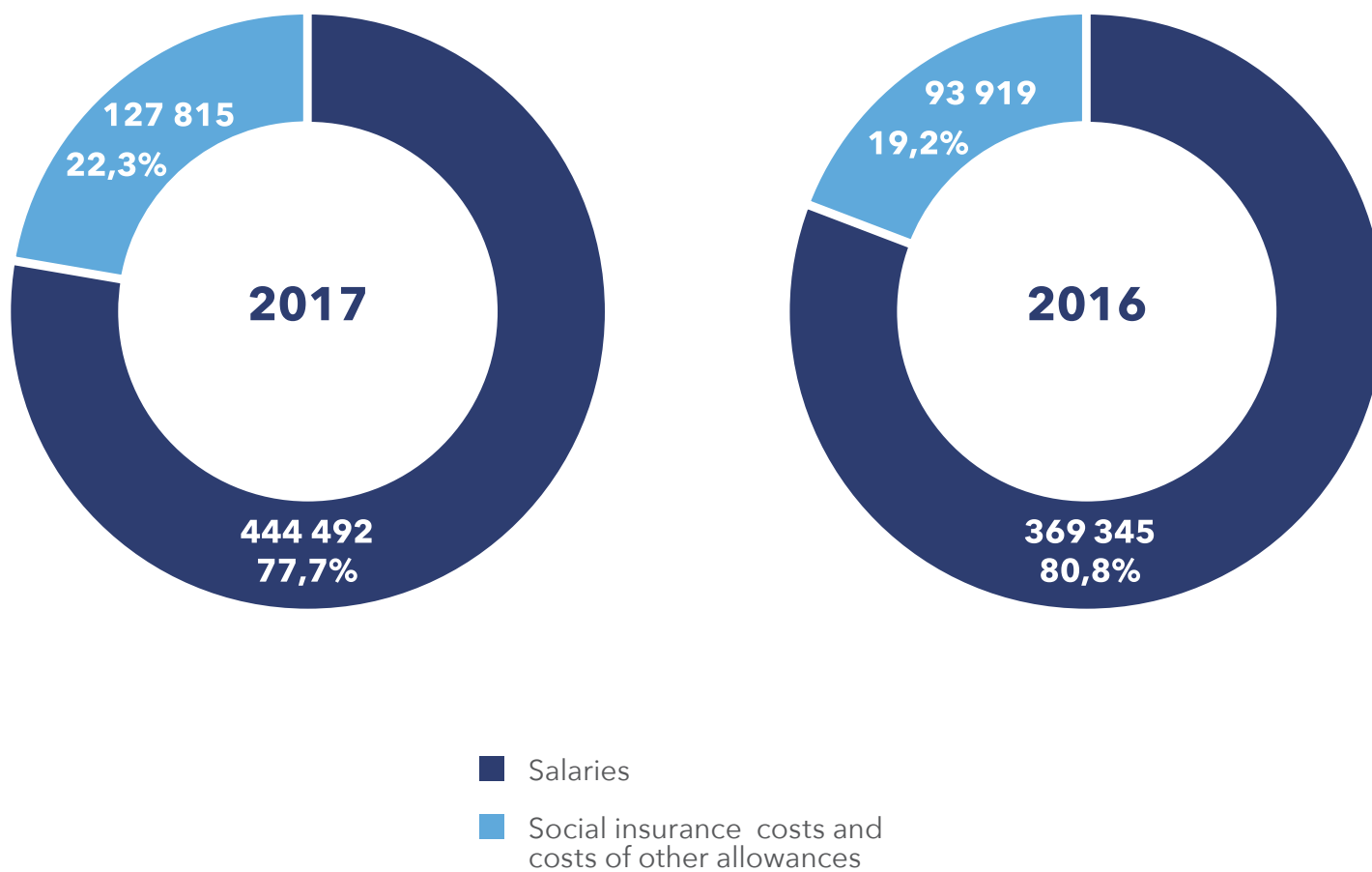
of the Polish Air Navigation Services Agency of 17.02.2010, as amended.



Staff costs
 External services
 Taxes and charges
 Other operating expenses
 Amortization and depreciation
 Materials and energy



Staff costs



Operating costs by services

Pursuant to Commission Implementing Regulation (EU) No 391/2013 of 3 May 2013 laying down a common charging scheme for air navigation services, the costs of providing air navigation services are broken down into staff costs, other operating costs, depreciation costs, cost of capital (non-balance sheet record) and exceptional items.

Remuneration costs (excluding training costs) are included in staff costs. Other operating costs include the following categories of costs by type: materials and energy, external services, taxes and fees, other costs by type and training in remuneration costs.

LISTING PURSUANT TO THE "REGULATION"	ITEM	EN ROUTE NAVIGATION	TERMINAL NAVIGATION
Staff	Total, including:	485 284	75 197
	Operating costs	483 403	74 907
	Other operating expenses	1 881	291
Other operating costs	Total, including:	84 567	12 600
	Operating costs	79 365	13 193
	Other operating costs and financial costs	10 178	2 077
	Adjustment for net revenues from other services	-2 931	-459
	Other operating revenues and financial revenues	-2 045	-2 210
Depreciation	Operating costs	67 704	9 741
Capital cost		76 476	7 523
Exceptional costs		0	0
Total costs		714 030	105 062

Statement of Financial position

Balance sheet of PANSa was PLN 1,684,657 thousand as at 31.12.2017.

STATEMENT OF FINANCIAL POSITION	31/12/2017	RESTATED DATA AS AT 31/12/2016
Non-current assets	1 099 222	968 708
Intangible assets	165 041	71 933
Property, plant and equipment	869 204	812 936
Long-term receivables	991	62
Deferred tax assets	53 992	51 440
Long-term assets due to adjustments for carry-overs	8 580	31 075
Other long-term prepayments	1 416	1 264
Current assets	585 435	526 698
Inventories	256	258
Trade and other receivables	177 467	136 095
Income tax receivables	5 547	5 116
Short-term assets due to adjustments for carry-overs	32 767	45 752
Short-term prepayments	2 884	1 856
Cash and cash equivalents	359 496	332 966
Assets held for sale	7 018	4 656
Total assets	1 684 657	1 495 406

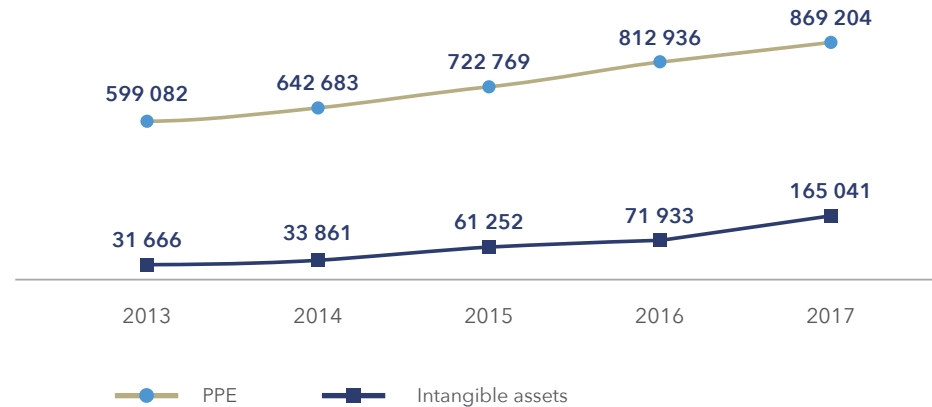
STATEMENT OF FINANCIAL POSITION	31/12/2017	RESTATED DATA AS AT 31/12/2016
Equity, including:	906 560	804 935
Statutory fund	475 022	475 022
Reserve fund	267 683	226 178
Retained earnings	62 229	63 057
Profit for the financial year	101 626	40 677
Long-term liabilities	476 166	498 719
Long-term provisions	245 511	236 188
Long-term liabilities due to adjustments for carry-overs	25 703	59 060
Long-term accruals	204 094	202 015
Other long-term liabilities	858	1 455
Short-term liabilities	301 931	191 753
Short-term provisions	14 144	11 812
Trade and other liabilities	170 918	82 116
Short-term liabilities due to adjustments for carry-overs	62 276	53 963
Other short-term accruals	54 592	43 861
Total Equity and Liabilities	1 684 657	1 495 406

Fixed assets

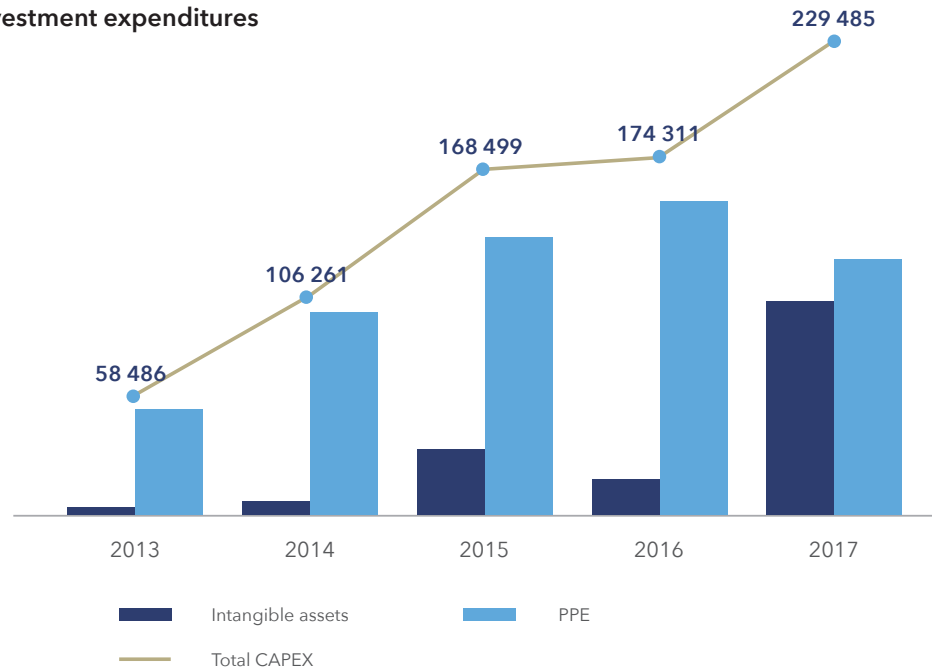
As at 31.12.2017, fixed assets accounted for 65% of the balance sheet total, while current assets accounted for the remaining 35%. The analysis of the structure of assets held by the Polish Air Navigation Services Agency in 2017 shows that the Agency had a total of PLN 869,204 thousand of tangible assets at its disposal, and they mainly consisted of technical equipment and machines, buildings and constructions, land (including right of perpetual usufruct) and tangible assets under construction. The growing value of these components stems from the intensification of investment tasks implementation in 2017.

In 2017, investment capital reached a record value of PLN 229,485 thousand. The most significant expenditure in 2017 has been incurred under the realisation of S2 objective – Capacity, while PLN 57,341 thousand has been allocated to the “ATM System Modernization” task.

PPE & Intangible assets



Investment expenditures





Due to the long time frame of executed investment tasks, a significant increase in fixed assets under construction can be observed - at the end of 2017 it reached a total of PLN 178,770 thousand, out of which PLN 131,460 thousand was allocated to tangible assets and PLN 47,310 thousand to intangible assets.

PPE	NET VALUE AS AT 31/12/2017	NET VALUE AS AT 31/12/2016
Land & the right of perpetual usufruct of land	156 781	157 761
Buildings and constructions	214 909	188 745
Machinery and equipment	320 855	326 694
Construction in progress	131 460	96 365
Vehicles & Other	45 198	43 371
Total	869 204	812 936

Current assets

In 2017, the most significant item of current assets was cash. As at 31.12.2017, Cash and cash equivalents amounted to PLN 359,496 thousand (out of which cash in hand and in bank amounted to PLN 37,897 thousand and PLN 321,598 thousand were other funds in the form of deposits).

The Agency makes a write-off for uncollectible receivables past the due date in accordance with the principle that uncollectible receivables require a 100% write-off. A 50% write-off is made for receivables overdue by 91-180 days and a 100% one is made for receivables overdue by over 181 days.

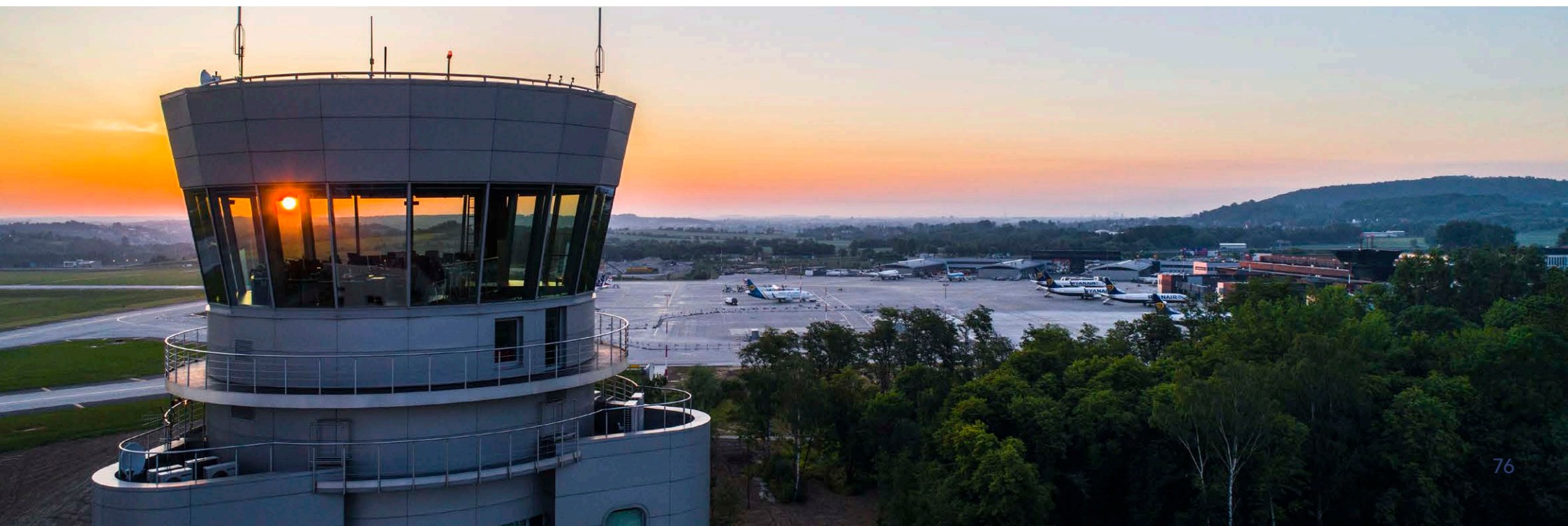
TRADE AND OTHER RECEIVABLES	31/12/2017	31/12/2016
Trade receivables (gross)	182 395	150 948
Receivables impairment allowances	-29 983	-30 420
Trade receivables (net), including:	152 411	120 528
<i>due within 12 months</i>	<i>152 411</i>	<i>120 528</i>
Other taxation, grants, duty, social security and other benefits receivables	21 095	11 384
Other receivables	3 387	3 666
Receivables from Social Security Benefit Fund	574	517
Other receivables	25 056	15 567
Trade and other receivables	177 467	136 095



Equity and liabilities

The analysis of the sources of financing assets indicates that the Agency's equity of PLN 906,560 thousand account for 54% of total equity and liabilities, while the remaining 46% are long-term liabilities and short-term liabilities – PLN 778,097 thousand total.

STATEMENT OF CHANGES IN EQUITY	STATUTORY FUND	RESERVE FUND	RETAINED EARNINGS	PROFIT FOR THE FINANCIAL YEAR	TOTAL
As at 31 December 2016	475 022	226 178	63 057	40 677	804 935
Distribution of prior year profit		41 505		-41 505	0
Profit adjustment for 2016			-828	828	0
Retained earnings					0
Profit for the financial year				101 626	101 626
As at 31 December 2017	475 022	267 683	62 229	101 626	906 560



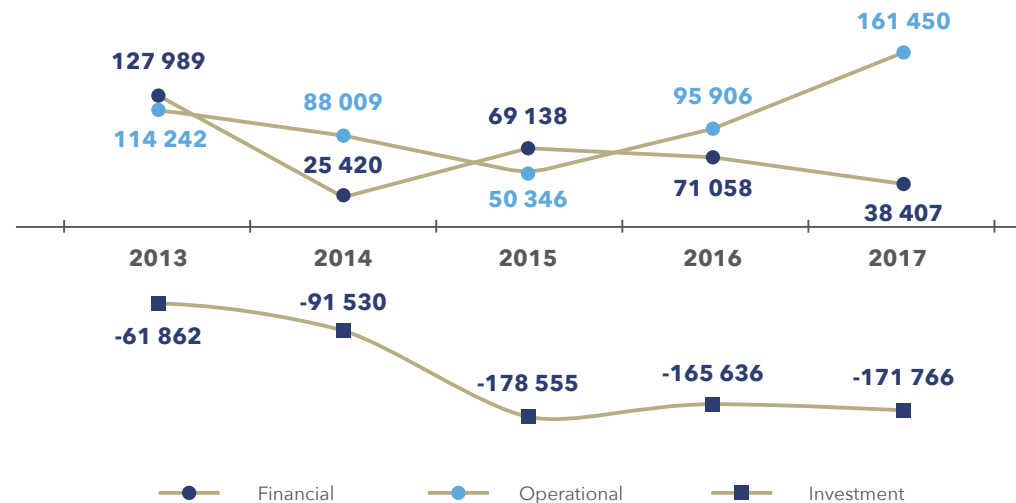
Report on cash flows

2017 cash flows from PANSA's operating activities stood at PLN 161,450 thousand. Cash flows from operating activities mean cash flows from basic statutory activities of PANSA and are directly related to the services PANSA provides. These cash flows include cash receipts from sales, expenses for the purchase of consumables and raw materials, wages, rents, etc. The positive cash flow balance in the area of operating activities indicates the Agency's ability to generate cash by means of its core operating activities.

Cash flows from operating activities provide cash necessary to implement investments. In 2017, as a result of the investment processes carried out, the expenditure on acquisition of intangible and tangible assets amounted to PLN 172,199 thousand. Such a high level of negative flows in this area proves that in 2017, PANSA undertook significant investment activities aimed at increasing the value of fixed assets.

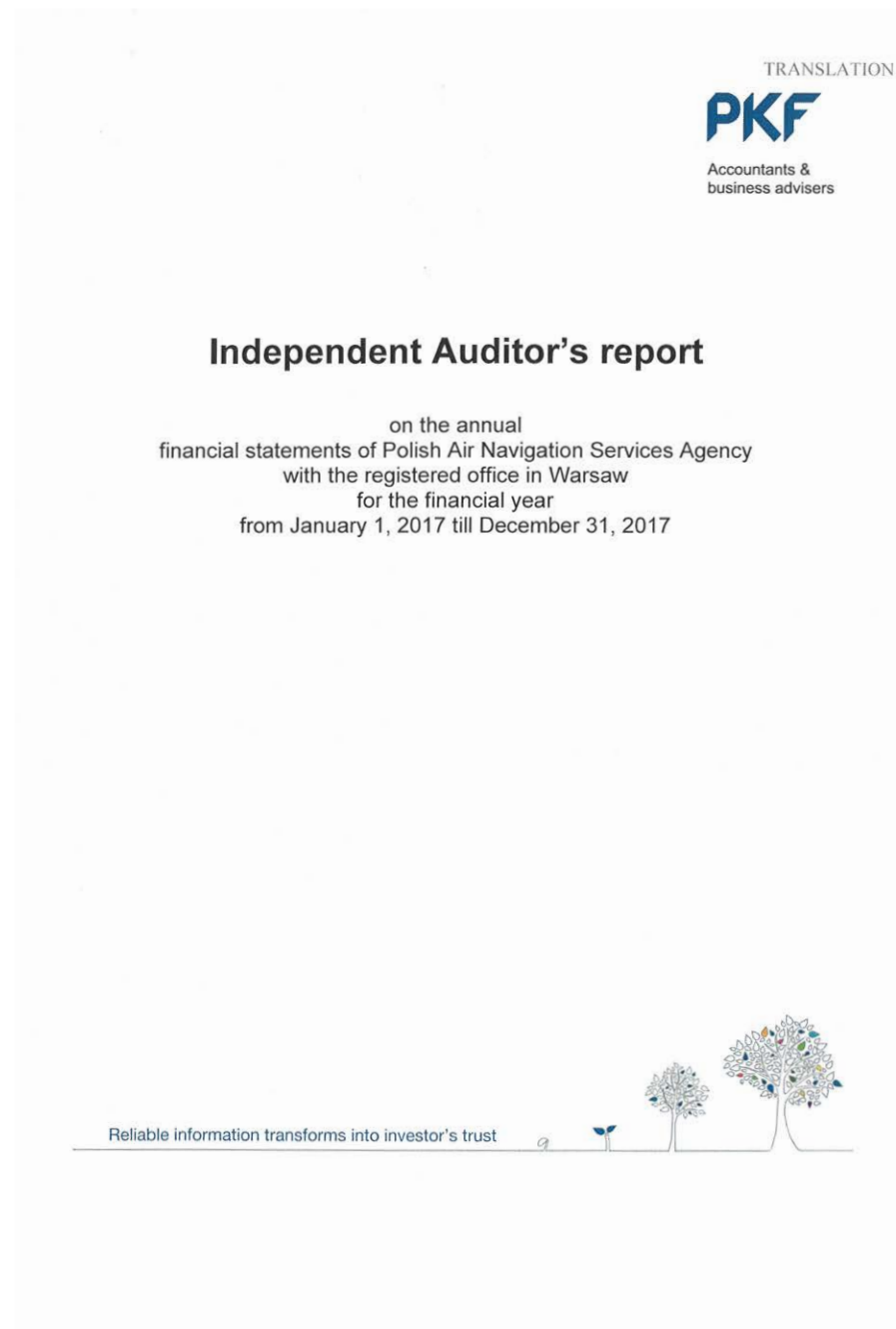
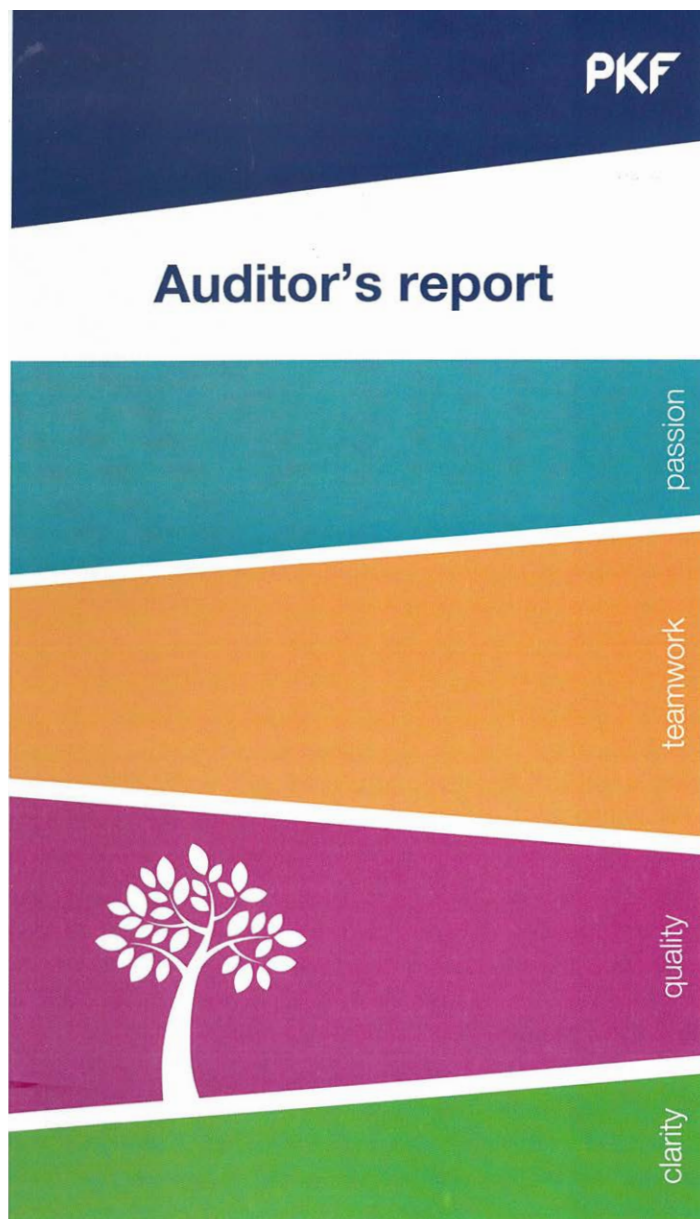
Net cash flows from financing activities in the period under consideration were positive and amounted to PLN 38,407 thousand, which mainly results from subsidy income (PLN 14,461 thousand under Operational Programme Infrastructure and Environment 2007-2013; PLN 18,585 from SESAR).

Cash flows





STATEMENT OF CASH FLOWS	FOR THE YEAR ENDED 31/12/2017	RESTATED DATA AS AT 31/12/2016
Cash flow from operating activities		
Profit before tax	128 102	52 543
Total adjustments	33 349	43 364
Depreciation and amortisation	78 015	67 637
Foreign exchange profit (loss)	1 561	-1 037
Interest, net	-5 314	-4 249
Loss on investing activities	-299	-1 023
Change in provisions	11 655	-3 306
Change in inventories	3	101
Change in receivables	-42 733	-2 637
Change in liabilities	30 918	8 571
Change in accruals	4 421	-103 007
Change in adjustments for carry-overs	10 436	36 197
Income tax (paid)	-29 028	-10 053
Other adjustments	-26 285	56 169
Net cash flows from operating activities	161 450	95 906
Disposal of tangible and intangible assets	433	1 796
Acquisition of PPE and intangible assets	-172 199	-167 432
Net cash flows from investing activities	-171 766	-165 636
Cash flows from financing activities		
Interest received	5 321	4 456
Interest paid	-7	-207
Other financial proceeds (donations)	33 093	66 810
Net cash flows from financing activities	38 407	71 058
Net increase in cash and cash equivalents	28 091	1 328
Effect of exchange rates changes	-1 561	1 037
Balance sheet change in cash and cash equivalents	26 530	2 365
Cash and cash equivalents, at the beginning of the period	332 966	330 601
Cash and cash equivalents, at the end of the period, including:	359 496	332 966
restricted cash	5 946	5 102





TRANSLATION

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This document is a free translation of the report issued in Polish. Terminology current in Anglo-Saxon countries has been used where practicable for the purposes of this translation to enhance understanding. The binding Polish original should be referred to in matters of interpretation.

INDEPENDENT AUDITORS' REPORT

For the Minister of Infrastructure

Report on financial statements

Introduction

We have audited the accompanying annual financial statements of Polish Air Navigation Services Agency, with its registered office in Warsaw, Wieszowa 8, hereinafter referred to as a Agency, for the financial year from January 1, 2017 till December 31, 2017, which comprise the statement of comprehensive income, the statement of financial position as at 31 December 2017, the statement of cash flows and the statement of changes in the Agency's funds, the related notes comprising of significant accounting policies and other explanatory information for the financial year ended 31 December 2017.

The annual financial statements have been prepared in accordance with International Accounting Standards, International Financial Reporting Standards and related interpretations published as a Commission Regulation, hereinafter referred to as IFRS EU.

Responsibility of the President of the Agency

The President of the Agency is responsible for the preparation of the annual financial statements that give true and fair view in accordance with IFRS EU, their compliance with applicable laws and regulations and the Agency's memorandum of association, as well as keeping the accounting records in accordance with the Act dated September 29, 1994 on accounting (Journal of Laws from 2017, item 2342 with amendments), hereinafter referred to as the Accounting Act. The President of the Agency is also responsible for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

Under the Accounting Act the President of the Agency is required to ensure that the financial statements are prepared in accordance with IFRS EU.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with National Standards on Auditing, being International Standards on Auditing as adopted in Poland (resolution No 2783/52/2015 dated February 10, 2015 of the National Board of Certified Auditors with amendments in connection with resolution No 2041/37a/2018 dated March 5, 2018 on the national standards of the profession), the Act dated May 11, 2017 on statutory auditors, audit firms and the public oversight (Journal of Law from 2017, item 1089), hereinafter referred to as the Act on statutory auditors. Those standards and regulations require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

The purpose of an audit is to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error and to issue an auditor's report that includes the auditor's opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with those standards will

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always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements. The risk of not detecting a material misstatement resulting from fraud is higher than the risk of not detecting one resulting from error as fraud may involve collusion, forgery, deliberate failure to record transactions, intentional misrepresentations or override of controls and may involve any area of law and regulation not just those directly affecting the financial statements.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation of financial statements that give a true and fair view in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

Our audit does not involve any assurance on the future viability of the Agency nor the efficiency nor effectiveness with which the President of the Agency has conducted and will conduct the affairs of the Agency.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Under the Act on statutory auditors we are also required to express an opinion on whether financial statements comply, as to the form and content, with applicable laws as well as the Agency's articles of associations and have been prepared based on the properly kept accounting records. We report on these matters based on the work undertaken in the course of the audit.

Opinion on financial statements

In our opinion, the annual financial statements of Polish Air Navigation Services Agency:

- give true and fair view of the financial position of Polish Air Navigation Services Agency as of December 31, 2017, its financial performance and cash flows for the year then ended in accordance with IFRS EU and applied accounting policies,
- comply, in all material respects, as to the form and content with IFRS EU and with the provisions of the Agency's articles of association that apply to the financial statements
- have been prepared, in all material respects, based on the properly kept accounting records in accordance with the Chapter 2 of the Accounting Act.

Report on Other Legal and Regulatory Requirements

Other information in the annual report

Other information include financial and non-financial information other than the financial statements and our report. Our opinion on financial statements does not cover the other information and, except to the extent otherwise explicitly stated in Report on Other Legal and Regulatory Requirements below, we do not express any form of assurance conclusion thereon. Furthermore, scope of our work related to the other information conducted in the course of our audit and related assurance conclusion is only as we describe below.

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**Report on activities**

President of the Agency is responsible for preparation of report on activities. The President of the Agency is required to ensure that the report on activities comply with the Accounting Act.

Under the Act on statutory auditors we are required to express an opinion on whether the report on activities has been prepared in accordance with legal regulations and whether it is consistent with the audited financial statements. Furthermore, we are also required to state, whether, in the light of the knowledge and understanding of the Agency and its environment obtained during the course of the audit, we have not identified material misstatements in the report on the activities, and report on these misstatements if noted.

We have read the report on the activities. We considered whether it discloses the information required by these laws and whether the information is consistent with the audited financial statements. Reading the report on activities we also considered whether, in the light of the knowledge and understanding of the Agency and its environment obtained during the course of the audit, it does not include material misstatements.

Opinion on report on activities

In our opinion, based on the work undertaken in the course of the audit, the accompanying report on the activities of Polish Air Navigation Services Agency for the financial year ended on December 31, 2017 discloses, in all material respects, the information required by the Accounting Act and the information is consistent with information in the audited annual financial statements.

In the light of the knowledge and understanding of the Agency and its environment obtained during the course of the audit we have not identified material misstatements in the report on the activities.

Signed on the Polish original

Beata Biolik-Przybyłowska
Statutory Auditor No. 11858

Key Statutory Auditor
on behalf of PKF Consult Spółka z ograniczoną odpowiedzialnością Sp. k.
the audit firm number 477

Orzycka 6 lok. 1B
02 - 695 Warsaw

Warsaw, May 17, 2018



POLSKA AGENCJA ŻEGLUGI POWIETRZNEJ
POLISH AIR NAVIGATION SERVICES AGENCY
www.pansa.pl

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02-147 Warszawa
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Photo:

Katarzyna Kaczmarczyk (cover),
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Klaudiusz Dybowski PAŻP, Andrzej Karwowski PAŻP.