



Annual Report

2023



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Foreword



Ladies and Gentlemen,

We hereby present an annual report that summarises the operations and performance of the Polish Air Navigation Services Agency in 2023, and hope that it will become an important source of information about the activities carried out by the Agency last year and the important challenges it is facing.

The events of the last years, both political and economic, that have shaped the modern world have also affected the aviation industry, including air navigation service providers as PANSA. The dynamic changes in the economic and financial environment, and the growing pace of traffic recovery after the COVID-19 pandemic are not as much of a challenge as the impact of the war in Ukraine on the Polish airspace is today.

In 2023, the total number of operations at Polish aerodromes grew by 11% compared to 2022, but it is the geopolitical situation that continues to dictate the pace of recovery of air traffic in the airspace over Poland. The major changes in traffic across Europe which result from the sanctions and restrictions brought by the war in Ukraine have led to a decrease in overflights in FIR Warsaw. PANSA's readiness for air traffic to rebound after the hostilities end is extremely important and must be ensured.

As air traffic management in Europe is undergoing technological transformation towards digital sky, and the targets set by SESAR, the technological pillar of Single European Sky initiative and European strategies, as the European Green Deal, are becoming more ambitious, PANSA is faced with serious challenges in the nearest future. At the same time, the Agency is determined to meet all the defined strategic targets, which is facilitated by the internal restructuring of the management processes within PANSA aimed at improving the Agency's operational efficiency in key areas.

I invite you to read this report.

Magdalena Jaworska-Maćkowiak,
President of the Polish Air Navigation Services Agency

Key Results



Selected Performance Indicators	2020	2021	2022	2023
Number of en route flights in FIR Warsaw ('000)	377	473	627	697
Number of controlled IFR flight hours ('000)	221	272	361	391
Number of terminal operations ('000)	194	238	382	433
Average en-route ATFM delay (min/flight)	0.00	0.07	1.09	0.20
Total employment at year end (in persons)	1,912	1,879	1,839	1,939
Employment at year end – ATCO in OPS	597	591	590	593
Total sales revenues in PLN ('000)	771,342	1,196,051	1, 140,616	1,219,990
Revenue from en-route navigation services in PLN ('000)	625,257	963,586	878,529	950,274
Revenue from terminal navigation services in PLN ('000)	122,385	208,773	209,278	227,494
Profit / loss on sales in PLN ('000)	-114,272	572,701	147,538	29,661
Net profit / loss in PLN ('000)	-86,166	405,028	76,616	21,406

Key Events 2023



January

5 years of the Civilian-Military Aeronautical Rescue Coordination Centre (ARCC)

After five years of ARCC operations, the Aeronautical Search and Rescue service (ASAR) changed its operational subordination under the Cospas programme to the Bodø Operations Centre in Norway. At present, the ARCC coordination centre is located at PANSAs headquarters and serves as the command element, supported by military sub-centres in Warsaw and Gdynia.



March

SMR display functionality at TWR Warsaw is expanded by MLAT and ADS-B data

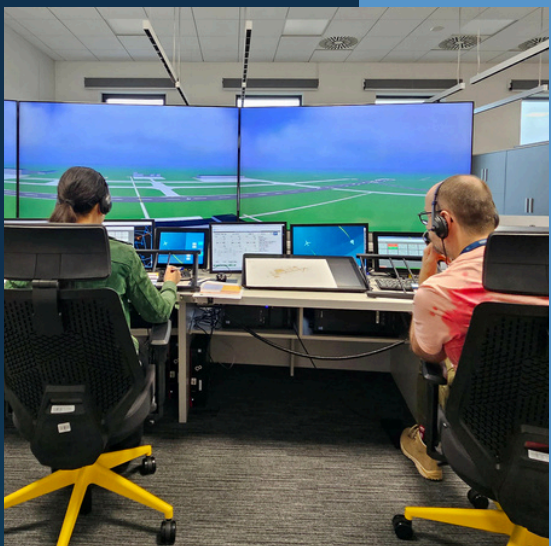
The implementation of the project enhanced the safety of air operations at Chopin Airport in Warsaw. The Surface Movement Radar (SMR) display shows real-time positions and identification of aircraft equipped with Mode-S and A/C transponders, as well as the positions and identification of vehicles moving across the aircraft surface traffic field at Chopin Airport in Warsaw. Aircraft positions are based on the data from the multilateral LAM system installed at the airport, whereas vehicle positions come from ADS-B transmitters fitted in the vehicles.



February

60th anniversary of Flight Inspection

PANSA's Flight Inspection has been in existence since 1963. Its tasks include inspection of air navigation facilities and instrument flight procedures. Dubbed for years as "parrots" for their striking colours, PANSA's Flight Inspection fleet now consists of one Beechcraft King Air 350i (SP-TPU).



April

Field unit of ATS Personnel Training Centre launched at ATC Centre Poznań

The Polish Civil Aviation Authority has approved the field unit of the ATS Personnel Training Centre in Poznań as an organisation meeting the Part ATCO.OR requirements laid down in Annex III to Commission Regulation (EU) 2015/340. Equipped with TWR and radar simulators, the field unit allows provision of ADI/APP/APS Rating training, refreshment training for TWR Air Traffic Controllers, and a number of other continuation training programmes.

Key Events 2023



May

Participation in RENEGADE/SAREX 23

The end of the exercises organised by the Armed Forces Operational Command for a number of participants, including PANSA. The purpose of the exercises was to check the capacity of the Polish Armed Forces and non-military actors, as elements of the State security system, to respond to crisis situations specific to the air defence system as well as air, sea and combat rescue.



July

Strengthening cooperation between PANSA and UkSATSE

The Polish Air Navigation Services Agency and the Ukrainian State Air Traffic Services Enterprise (UkSATSE) signed a Letter of Intent which provides for furthered cooperation in terms of training, infrastructure and operations, as well as support for harmonious development of air traffic in the Polish and Ukrainian airspace.



June

Cybersecurity agreement

Polish Air Navigation Services Agency, LOT Polish Airlines and Polish Airports S.A. signed an agreement of establishing the Aviation Sub-Sector Information Sharing and Analysis Centre "Aviation ISAC". The Centre's core activities will involve, among others, development of cybersecurity standards, prevention of cyber threats and conduct of coordinated actions to detect potential system security incidents in the area of air transport.



August

PANSA at Air Show 2023

PANSA played the role of a Supporting Partner at the International Air Show Radom 2023 which attracted nearly 200,000 visitors. By regular presentations of its activities at air shows and aviation fairs, as well as by reaching the public with information about the nature of the work of Air Traffic Controllers, ATC recruitment process and ATC preparatory course, PANSA is actively seeking new candidates for air traffic controllers.

Key Events 2023



September

Aviation Safety Promotion Month

As part of self-initiative, PANSA organised various training and lectures in aviation safety, including Just Culture as the foundation of safety in an aviation organisation, ATCO on-duty fitness, ATCO stress management, LPRI - problems with communicating in English, and RPAS - occurrences concerning remotely piloted aircraft.



November

International ATSEP Day

The ATSEP personnel represent an important link in the aviation safety chain. With their everyday commitment contribute to proper functioning of the communication, navigation, surveillance, air traffic control and airspace management systems. The highly qualified PANSA ATSEP personnel ensure 24/7 availability and uninterrupted operation of critical facilities and are the key factor in the safe and effective provision of air navigation services.



October

iTEC groups meet at PANSA

In October, when the International Air Traffic Controller Day is celebrated, PANSA played host to working groups iTEC Programme Review (PR), iTEC Strategy Management (SMG) and iTEC Operation Strategy Management (OSM) including representatives of NATS, ENAIRE, AVINOR, DFS and the technology partner – Indra Sistemas. The visit was also an opportunity for the OSM Group to learn about the possibilities of joining the functionalities of iTEC SkyNex and PEGASUS_21, the ATM system operated by our services.

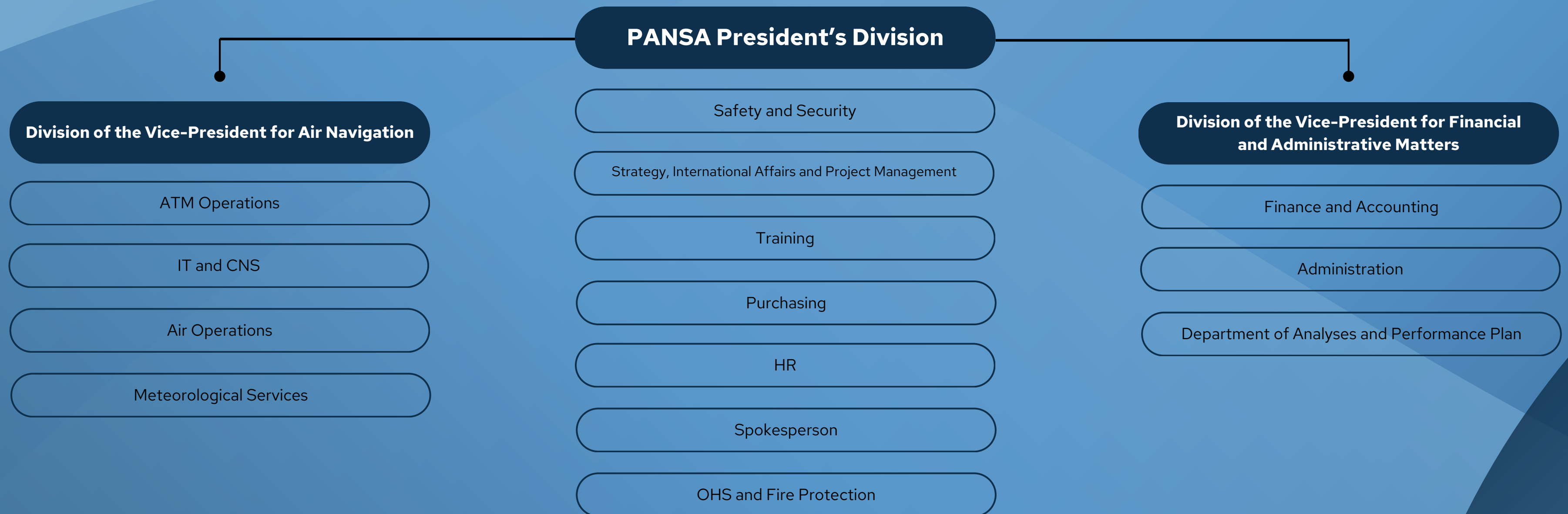


December

Cooperation with academic centres

PANSA and Silesian University of Technology signed an agreement on teaching students at the Civil Aviation Personnel Education Centre. The Agency expressed readiness to continue the training on operational positions for students who acquire their S-ATC Licences.

Organisational structure of the Polish Air Navigation Services Agency (as at the end of 2023)





Mission

- We provide safe and effective air navigation services for all users of the Polish airspace.
- We invest in people and innovation for sustainable air transport.
- We contribute to economic growth in Poland.

Vision

- We are a dynamic and efficient ANSP that is fit-for-purpose in Poland and within the European Sky.
- We embrace innovation and people as the determinants of our future.
- Leveraging our unique position in Europe, we develop and maintain critical national airspace infrastructure to ensure safe, sustainable and efficient air travel. We provide airspace solutions that cater to both civilian and military needs and promote a secure and well-coordinated environment.
- We are committed to further enhancing a strong Safety Culture and we prioritize our vigilance on cybersecurity.
- Respect, trust and collaboration are at the core of our interactions with clients and colleagues.

Core Activity

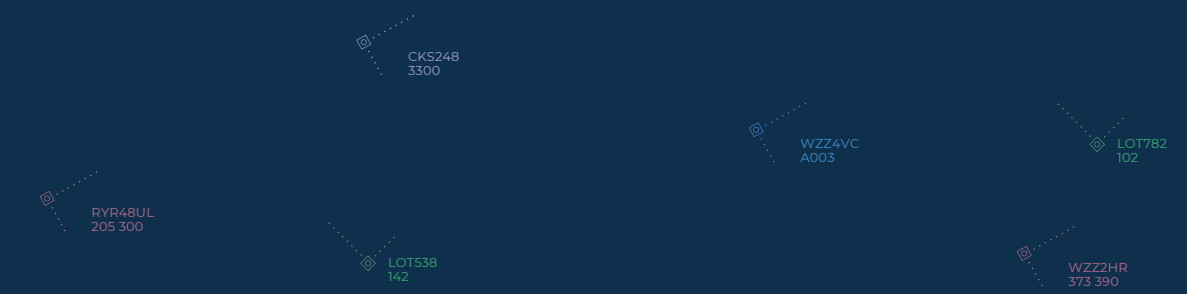
The Polish Air Navigation Services Agency is a state legal entity responsible for airspace management, air traffic flow management and the provision of air navigation services (ATM/ANS), to the following extent:

- Air Traffic Services (ATS) [including: Air Traffic Control services (ATC, i.e. ACC, APP, TWR) and Flight Information Services (FIS)],
- Communications Services (COM),
- Navigation Services (NAV),
- Surveillance Services (SUR),
- Aeronautical Information Services (AIS),
- Air Traffic Flow Management (ATFM),
- Airspace Management (ASM).

In addition, PANSA:

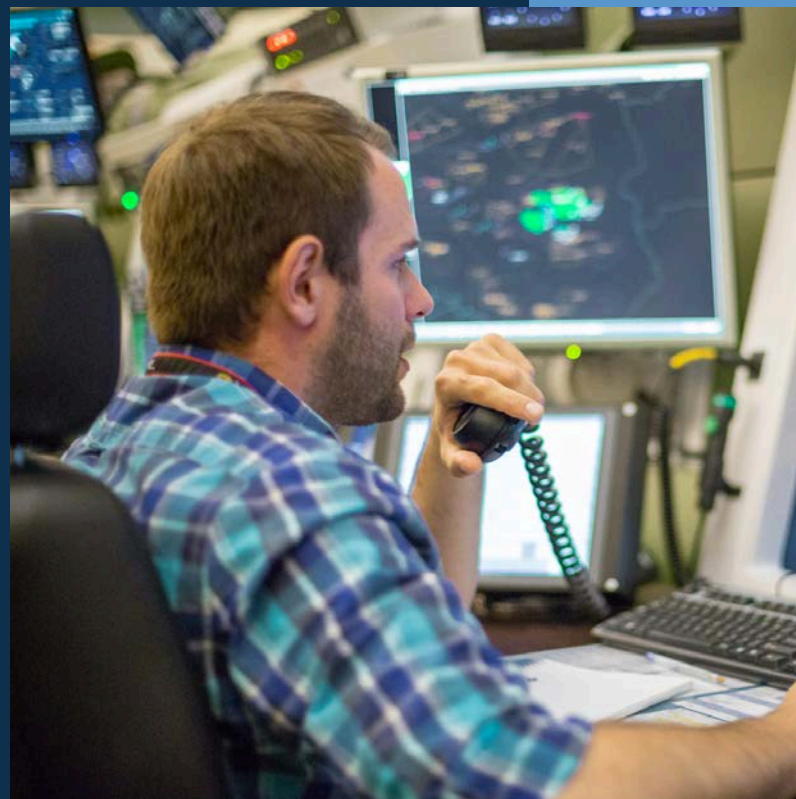
- provides airspace users with meteorological information produced by institutions certified in meteorological services;
- provides in-flight control of aerial communication, navigation and airspace surveillance equipment and systems;
- provides training and consultation on ANS;
- conducts research and development activities in the field of ANS;
- purchases, maintains and upgrades ATM/CNS infrastructure;
- ensures coordination of search and rescue operations;
- acts as flight schedule coordinator for Kraków-Balice airport and, under consent of the Minister in charge of transport, conducts other activities not related to the task described above.





Air traffic control is exercised at three control levels:

- **area control service** – established for the purpose of air traffic control with respect to controlled flights, it is performed by Area Control Centre (ACC) Warsaw using surveillance radars;
- **approach control service** – established for the purpose of air traffic control with respect to arrival and departure of controlled flights; in Poland, four radar approach control units have been established (APP Warsaw, APP Gdańsk, APP Kraków, APP Poznań) to provide services using surveillance equipment;
- **aerodrome control service** – established for the purpose of aerodrome air traffic control; fifteen aerodrome control units have been established, some of which (TWR EPBY, TWR EPLB, TWR EPLL, TWR EPRA, TWR EPSC, TWR EPSY, TWR EPRZ, TWR EPZG) also exercise procedural approach control.

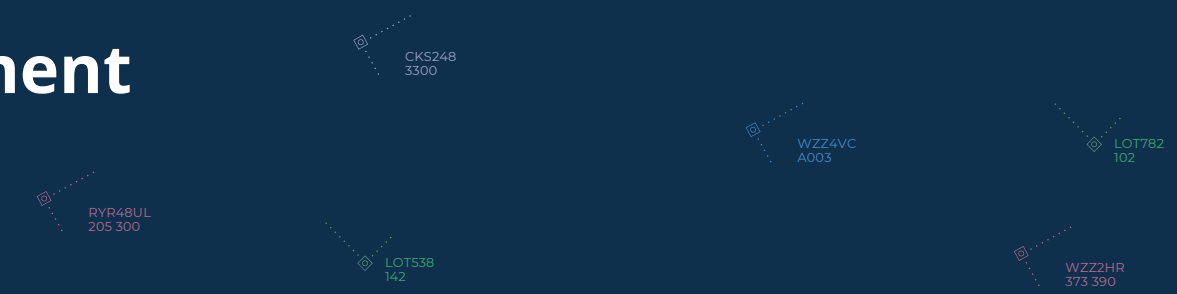


Core Activity

Flight Information Services

PANSA also provides Flight Information Services (FIS) in uncontrolled space. A flight information unit handles traffic in an area characterised by a considerable diversity of aircraft and airspace users with different levels of skill and experience. The Flight Information Service provides a viable buffer against violations of controlled space and also plays an important role in the formation and maintenance of good pilot habits. FIS cooperates with search and rescue (SAR) services within the scope of alerting services.





In 2023 PANSAs:

- has continued the operational development of the PEGASUS_21 air traffic management system and has undertaken activities towards the targeted implementation of P_21/ iTEC in cooperation with leading European ANSPs;
- has developed and has used its in-house software solutions, i.e. the CAT system (through automation of ASM data exchange with iTEC), alignment of the system interfaces with the SWIM requirements, and development of network services based on Service Oriented Architecture (SOA);
- has continued efforts to develop the Baltic FAB Free Route Airspace (Baltic FAB) to enhance its functionality by, among other things, extending the vertical limits of the FRA and progressively updating the restrictions, thus enabling air operators to operate flights in a variant as close as possible to their preferred trajectory (shortest time, most economical and environmentally friendly);
- has continued the work on implementation of the cross-border FRA between Baltic FAB and FAB DK-SE, and with Czechia. New procedures and technologies were implemented under Advanced FUA (AFUA) which aims to improve comprehensive airspace management;
- has implemented the first phase of the division of ACC Warsaw sectors and has started analyses of the possible initiation of further stages of the three-layer division of airspace sectors in the area of the design of instrument flight procedures and working technologies and procedures of air traffic services;
- has continued the implementation of PBN flight procedures, and has maintained the working technology and procedures of air traffic control services to enable aircraft crews to apply Continuous Descent Operations (CDO) and Continuous Climb Operations (CCO) techniques.

Air Traffic in 2023

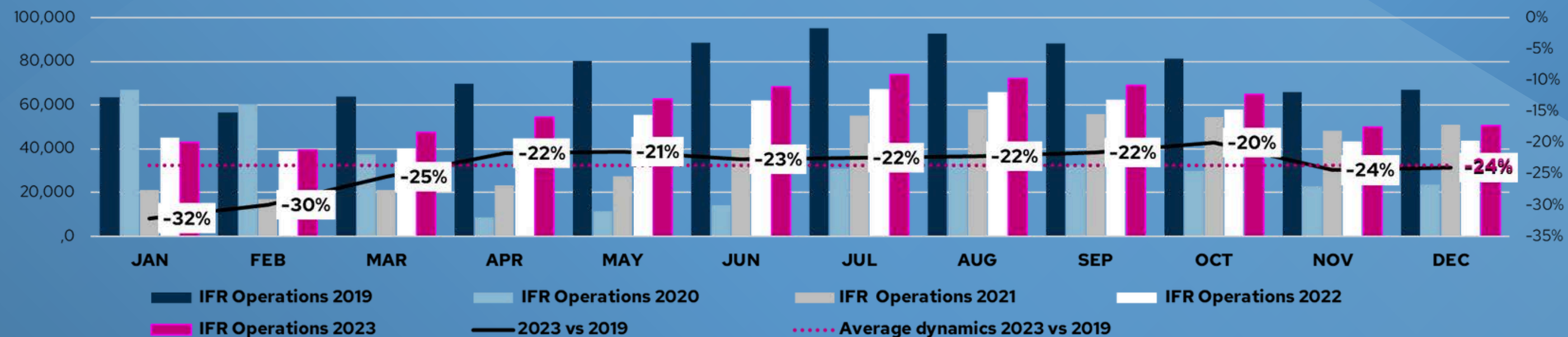
IFR operations handled by PANSa in 2023:

- en-route traffic – 697,190 MVS;
- terminal traffic – 432,535 MVS.

The en-route traffic in 2023 in terms of the total number of operations (MVS) was higher (by 11%) compared to the volumes in 2022. As regards terminal traffic, 13% more operations were handled than in the previous year.

The geopolitical situation, especially war in Ukraine, is the main determinant for the pace of traffic recovery in the Polish airspace. The imposed sanctions have brought significant changes in traffic flows across the European airspace and led to a major drop in overflights in FIR EPWW. In 2023, en-route flight operations in FIR EPWW accounted for 59% of the 2019 volume. The weather conditions had also significant impact on the number of operations.

Fig. 1 Air traffic dynamics in FIR Warsaw (IFR operations), 2023 vs 2019



Source: PANSa based on EUROCONTROL

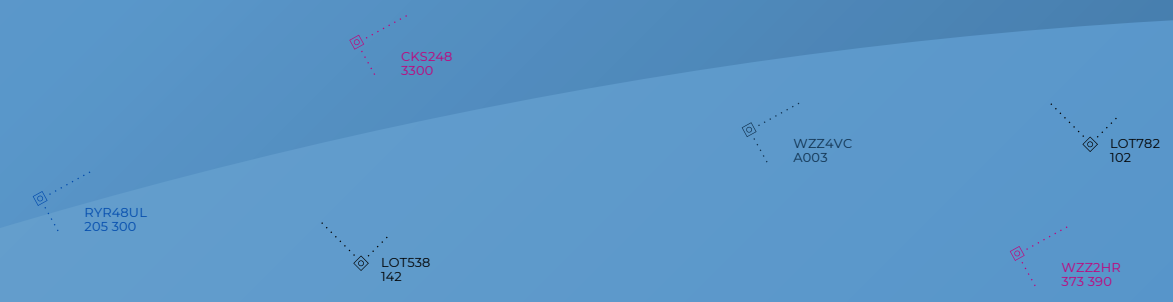
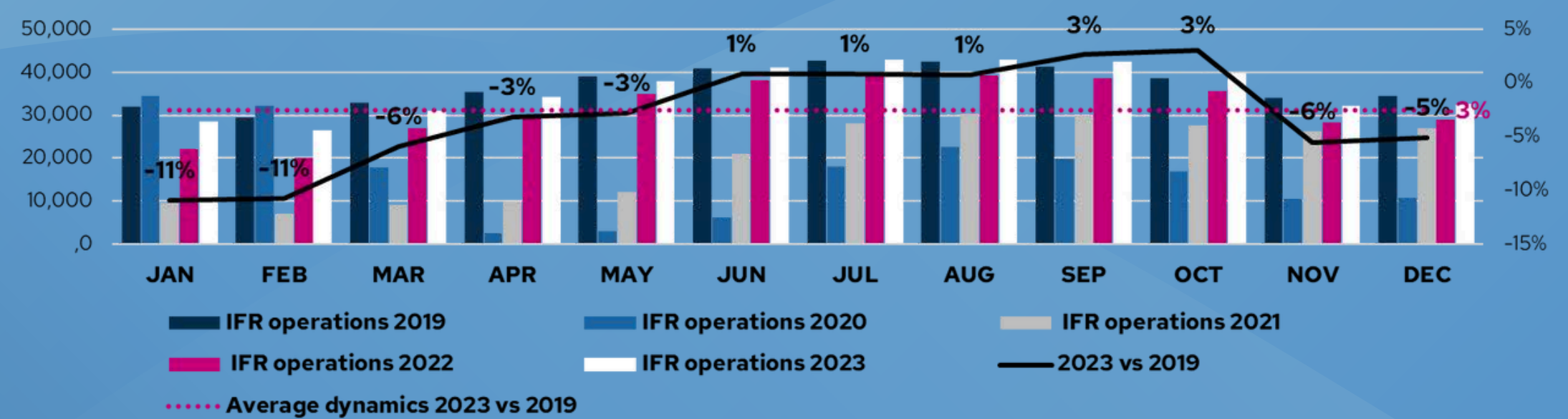
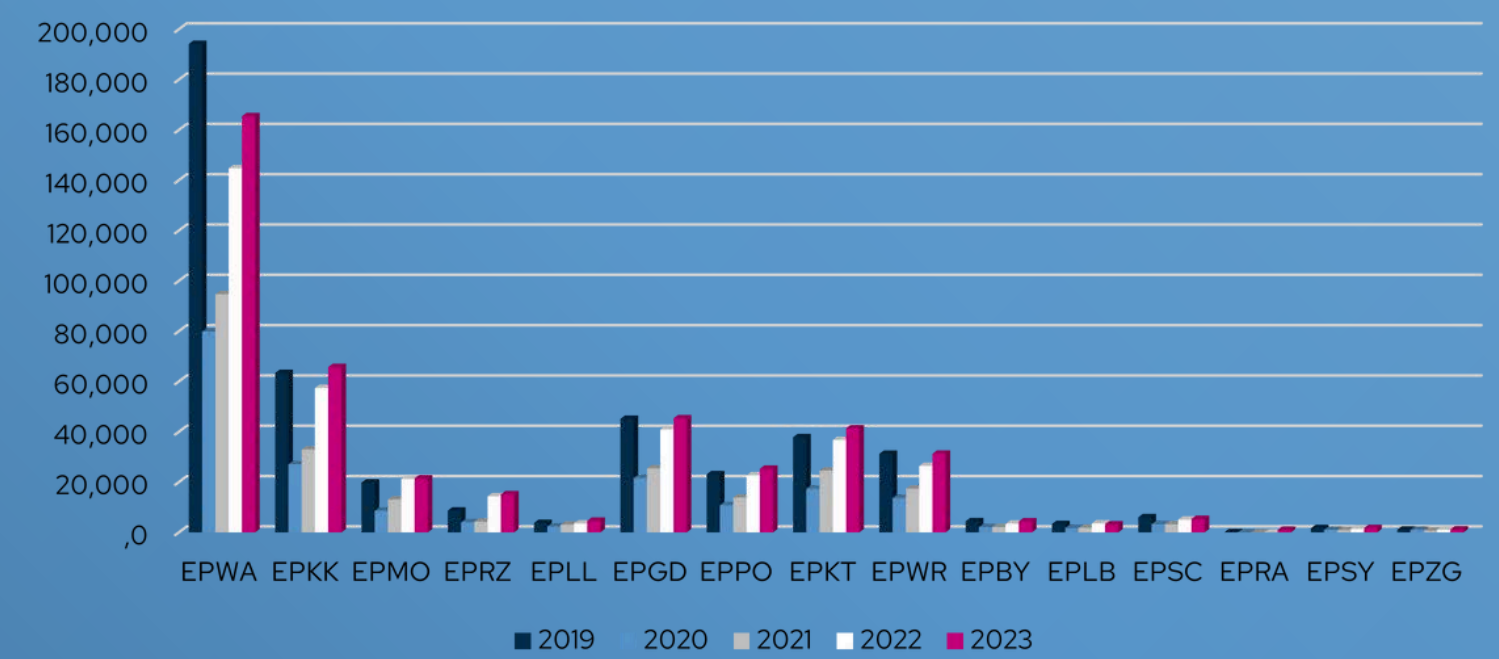


Fig. 2 Terminal traffic dynamics in FIR Warsaw (IFR operations), 2023 vs 2019



Source: PANSa based on EUROCONTROL

Fig. 3. Total terminal traffic volumes at individual airports (MVS) in 2019-2023



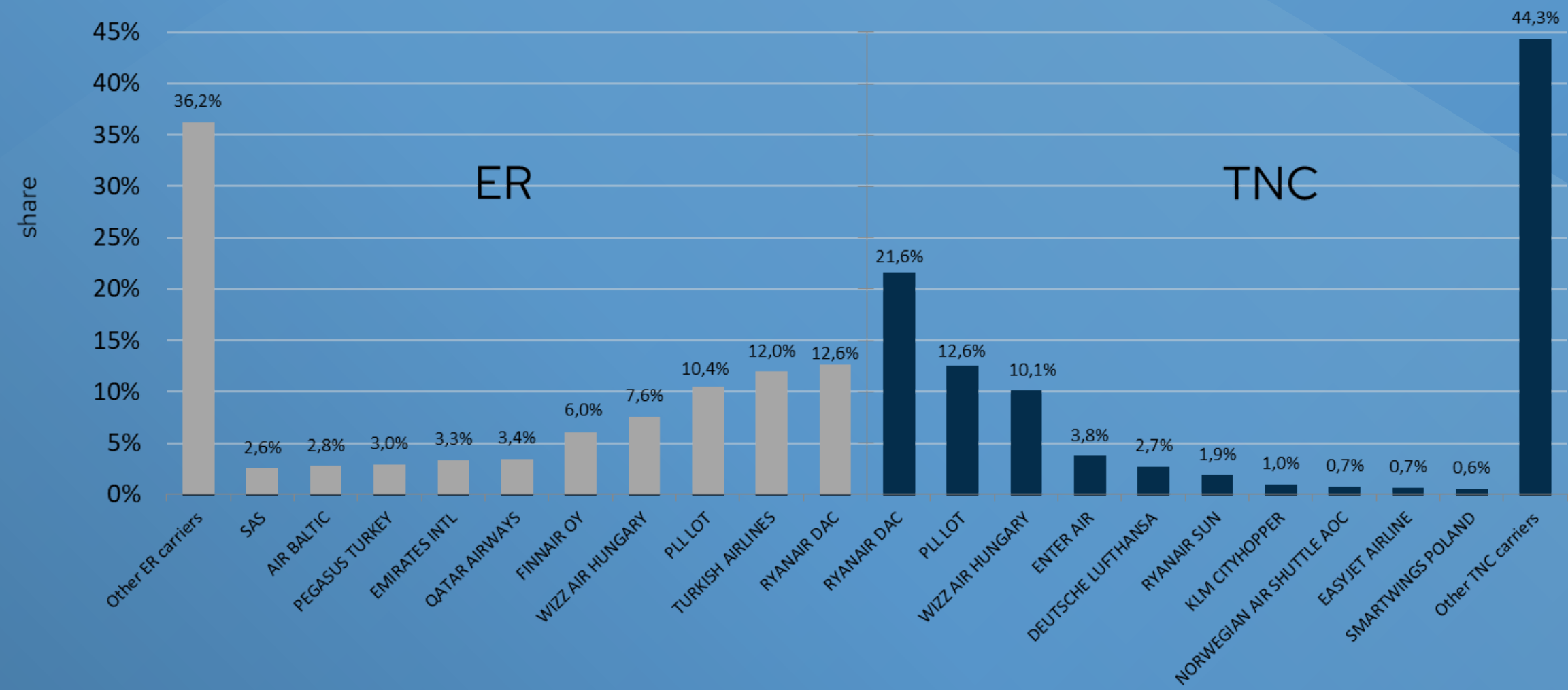
Source: PANSa based on EUROCONTROL

Polish airports were used by low-cost carriers (LCCs), network carriers and charter carriers.

According to the Polish CAA statistics, the share of LCC passengers served at Polish airports in scheduled traffic in 2023 was 65.99%.

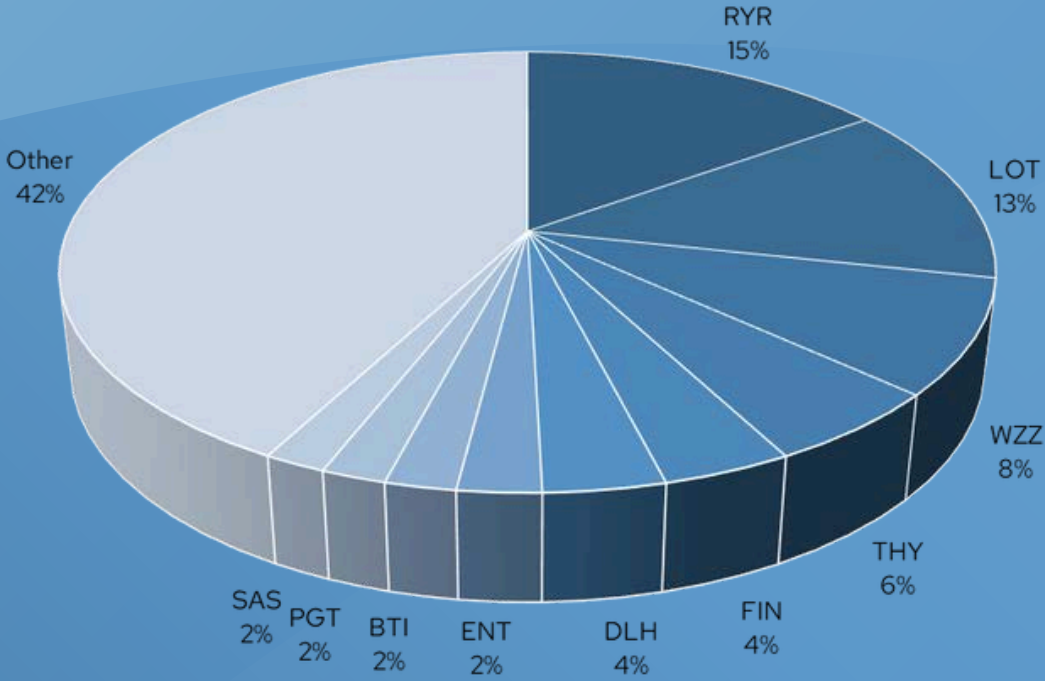
Among network carriers, the largest shares in the number of passengers carried were recorded by PLL LOT (17.61%), Lufthansa (4.40%) and KLM Royal Dutch Airlines (1.92%). The leading position in en-route revenue was taken by Ryanair DAC, Turkish Airlines and PLL LOT (35% in total). As regards terminal revenue, the largest share was held by three carriers: Ryanair DAC, PLL LOT and Wizzair (44.3% in total).

Fig. 4 Share of major users in PANSA's en-route revenue and terminal revenue in 2023



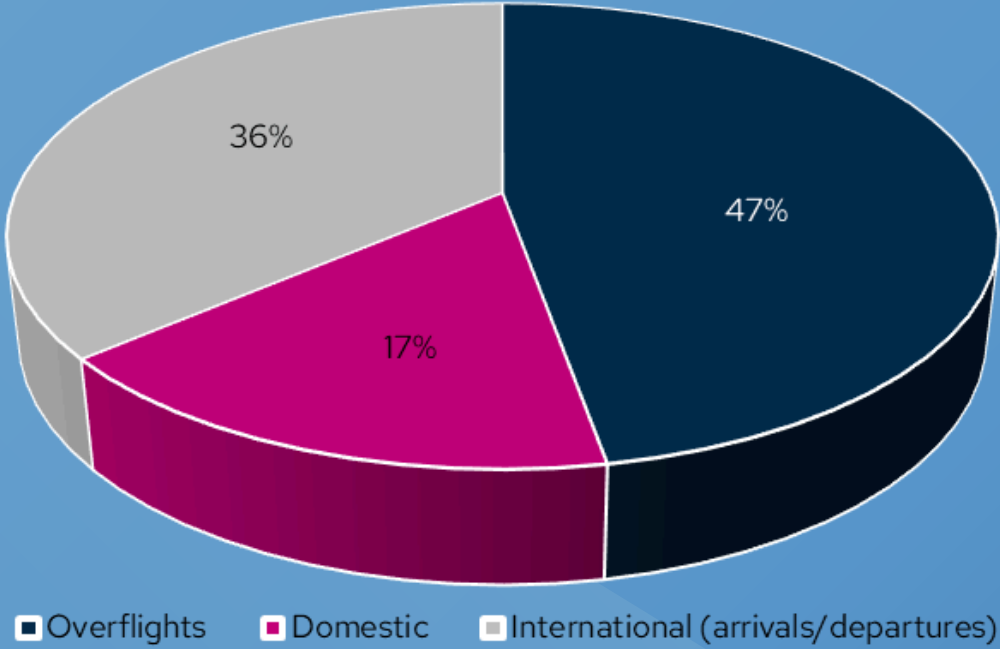
Source: PANSA based on EUROCONTROL

Fig. 5. Share of major carriers in the number of air operations in FIR Warsaw in 2023



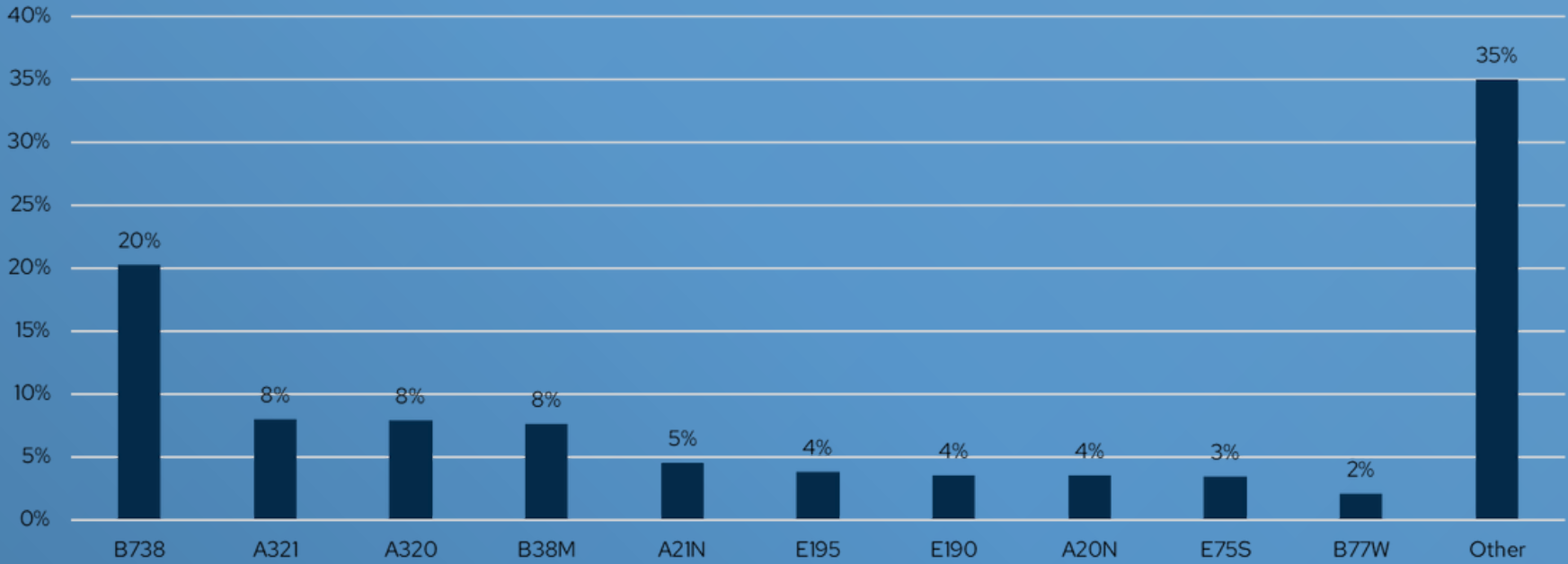
Source: PANSa

Fig. 7 Air traffic structure in 2023



Source: PANSa

Fig. 6 Share of main aircraft types in the total number of air operations in FIR Warsaw in 2023

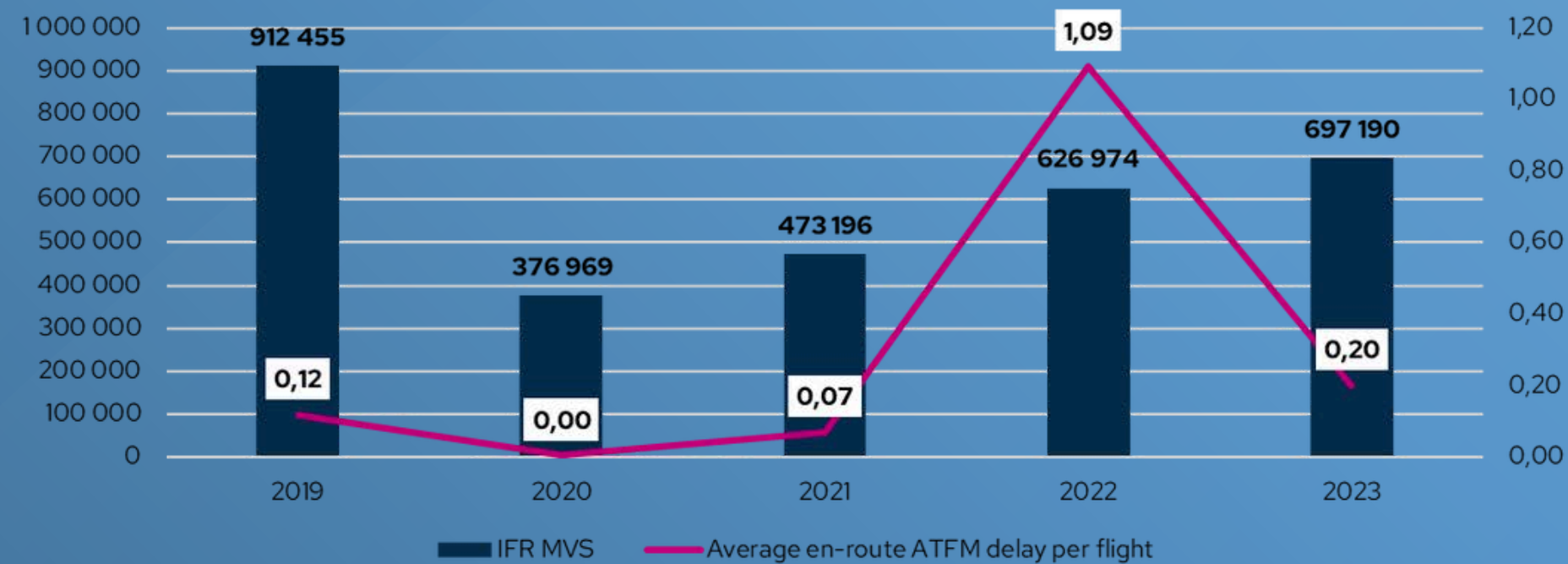


Source: PANSa

The volume and complexity of air traffic in Polish airspace significantly affect both en-route and terminal delay values.

The average en-route ATFM delay for flights handled by the Agency in 2023 reached 0.20 min/flight and was higher than the target set for the year 2023 in the current Performance Plan RP3 (0.12min/flight). It was based on the complex, volatile and often unpredictable situation due to the increased military activity, including a greater number of military zones and a more frequent use of the existing zones. The 2023 results were affected also by the airspace reorganisation (in particular in TMA Kraków) aimed at improving the efficiency of airspace and air traffic flow management, and by temporary deficits in the availability of operations personnel.

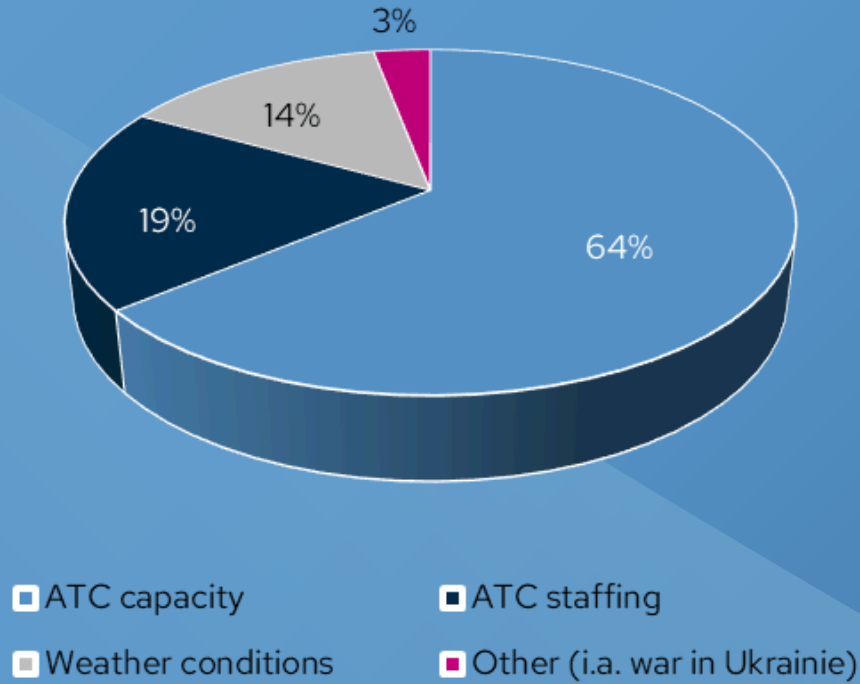
Fig. 8 The average en-route ATFM delay per flight in 2019 - 2023



Source: PANSA

The number of minutes of en-route delays in Polish airspace in 2023 (136,155 minutes) was determined mainly by ATC Capacity (64%) and ATC Staffing (19%), followed by weather-related delays (14%) and factors arising directly from the war in Ukraine and airport capacity (3%).

Fig. 9 Causes of en-route ATFM delays in 2023



Source: PANSA

The average terminal ATFM delay for airports at which PANSa provides aerodrome control services reached 0.19 min/arrival in 2023, with the annual target under PP RP3 set at 0.24 min/arrival, thus the target was met.

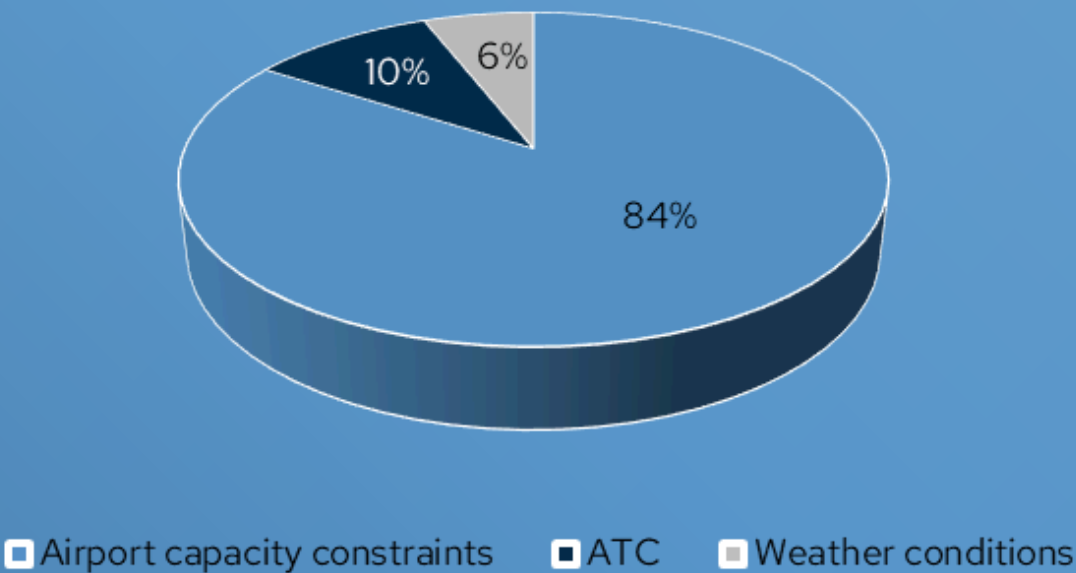
The recovery of the arrival traffic at Polish aerodromes was much more dynamic than in the case of overflights. In 2023, the IFR arrival traffic stood at 97% of the 2019 value, up by 13% compared to 2022. Most Polish airports exceeded the 2019 level in terms of air operations handled.

In 2023, the terminal delay indicator was affected by:

- delays related to airport capacity limitations (accounting for 84% of the total number of terminal delays),
- delays generated by ATC (accounting for 10%),
- delays related to weather conditions (accounting for 6%).

Terminal delays were generated for EPGD, EPKK, EPKT, EPPO, EPRZ, EPWA and EPWR.

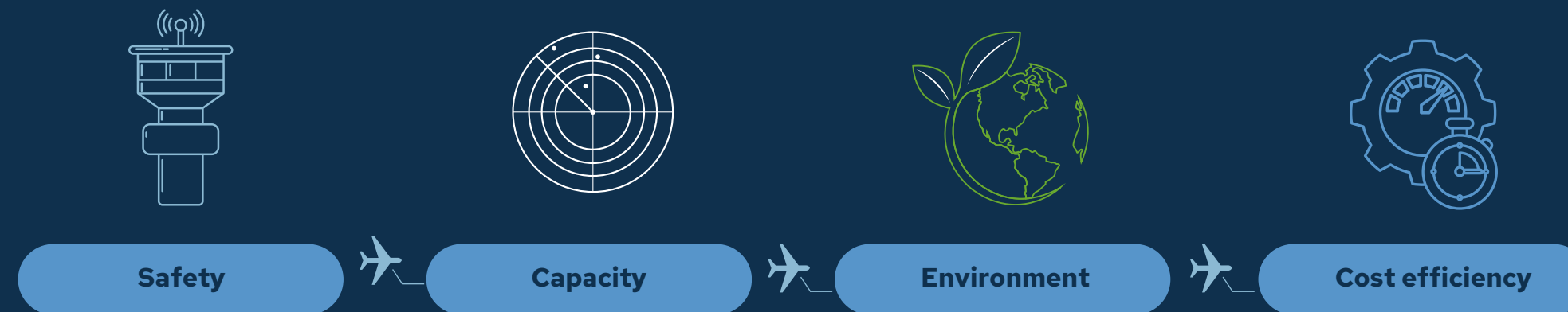
Fig. 10 Causes of terminal delays in 2023



Source: PANSa

Implementation of the Performance Plan

The year 2023 was the fourth year of the third reference period under the European Union's air navigation services performance scheme covering the years 2020-2024, with PANSO pursuing targets in the following four key performance areas:



In 2023, the dominant effect on the performance targets was exerted by adverse outcomes of the war in Ukraine, which had been unknown at the stage of development of the PP RP3.





In accordance with Commission Implementing Regulation (EU) 2019/317, key safety performance indicators is the minimum level of the effectiveness of safety management to be achieved by air navigation service providers certified to provide air traffic services (ATS). The Safety KPI is measured in the following areas:

- safety policy and objectives;
- safety risk management;
- safety assurance;
- safety promotion;
- safety culture.

The Agency declared to have achieved the safety targets set in the PP RP3 for the year 2023 at level C in all five areas.

The actions taken in 2023 in the area of safety involved, in particular:

- Continuation of the tasks planned in the previous years.
- Assessment of the safety culture at PANSA by a third-party entity.
- Promotion of safety by means of, among others, organisation of workshops for LSEs and inspectors, and the Safety Day for the ATS personnel.
- Basic refreshment training in the Safety Management System for PANSA and third-party personnel in the form of classroom and e-learning courses.
- Maintenance of the functionality of IT tools that enable SMS processes, such as the Safety Recommendations Register and the Safety Requirements Register.
- Reviews and exercises concerning contingency plans.
- Cooperation in sharing the best practices, and working meetings of SMS groups.

As regards the key safety indicator, in 2023 PANSA carried out self-evaluation and monitoring of the performance of its SMS with the use of the EASA EoSM (Effectiveness of Safety Management) and the CANSO SoE (Standard of Excellence) tools.



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En-route air traffic

The number of en-route operations performed in Polish airspace was lower by 23.6% compared to 2019. The volume of en-route traffic in 2023 in terms of the total number of operations (MVS) was 11% higher compared to the volume in 2022.

Tab. 1 Total en-route traffic in 2019-2023

Category	Total	
	MVS	SU
2019	912,455	4,971,806
2020	376,969	2,145,811
2021	473,196	2,585,928
2022	626,974	3,128,964
2023	697,190	3,536,911
Change 2023/2019 (%)	-23,6%	-28,9%
Change 2023/2022 (%)	11,2%	13,0%

Source: PANSA

Tab. 2 En-route delays in 2019-2023

En-route delays	2019	2020	2021	2022	2023
Performance for the year (min/flight)	0.12	0.00	0.07	1.09	0.20
Target for a given year (min/flight)	0.23	0.30	0.07	0.12	0.12

Source: PANSA

The geopolitical situation is the main external determinant of the value of the average en-route delay in air traffic. Complex, changing and often unpredictable circumstances driven by the increased military activity, including NATO operations, have a significant effect on the structure of air traffic and organisation of airspace. Internally, there are continued efforts relating to reorganisation of the airspace aimed at improving the airspace and traffic flow management, which also leads to temporary capacity inefficiencies. Additional factors that generate delays include weather conditions and temporary limitations in the availability of personnel in OPs. The indicator for delays, established at 0.12 min/flight, was set in a period of relatively stable geopolitical situation for circumstances that included predictable traffic flows.



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Terminal air traffic

Tab. 3 Total terminal traffic in 2019-2023 (MVS, SU-L)

Category	Total	
	MVS	SU-L
2019	443,679	246,373
2020	194,403	105,905
2021	238,124	132,008
2022	382,479	224,142
2023	432,535	261,117
Change 2023/2019 (%)	-2,5%	6,0%
Change 2023/2022 (%)	13,1%	16,5%

Source: PANSO

Tab. 4. Terminal delays for EPWA and other airports

Terminal delays in a given year (min/arrival)	2019	2020	2021	2022	2023
Poland	0,39	0,02	0	0,04	0,19
EPWA	0,86	0,04	0	0,02	0,36
Other airports	0,02	0,01	0	0,06	0,08
Target for a given year, Poland	0,04	0,45	0,02	0,21	0,24

Source: PANSO

In 2023, terminal traffic reached 432,535 in terms of movements (MVS) and was lower by 2.5% than in 2019. Compared to 2022, the volume of terminal traffic in 2023 was higher by 13.1%. The number of service units performed in 2023 was 261,117 SU-L, up by 16.5% compared to 2022. The highest number of terminal movements (MVS) in 2023 was recorded at Warsaw Chopin Airport (165,434 MVS).

Implementation of the Performance Plan

Environment



The environmental impact of air transport is monitored within the performance scheme by the average horizontal en-route flight efficiency indicator for actual trajectory on annual basis (KEA). KEA uses radar generated trajectories and compares their lengths with the actual trajectory.

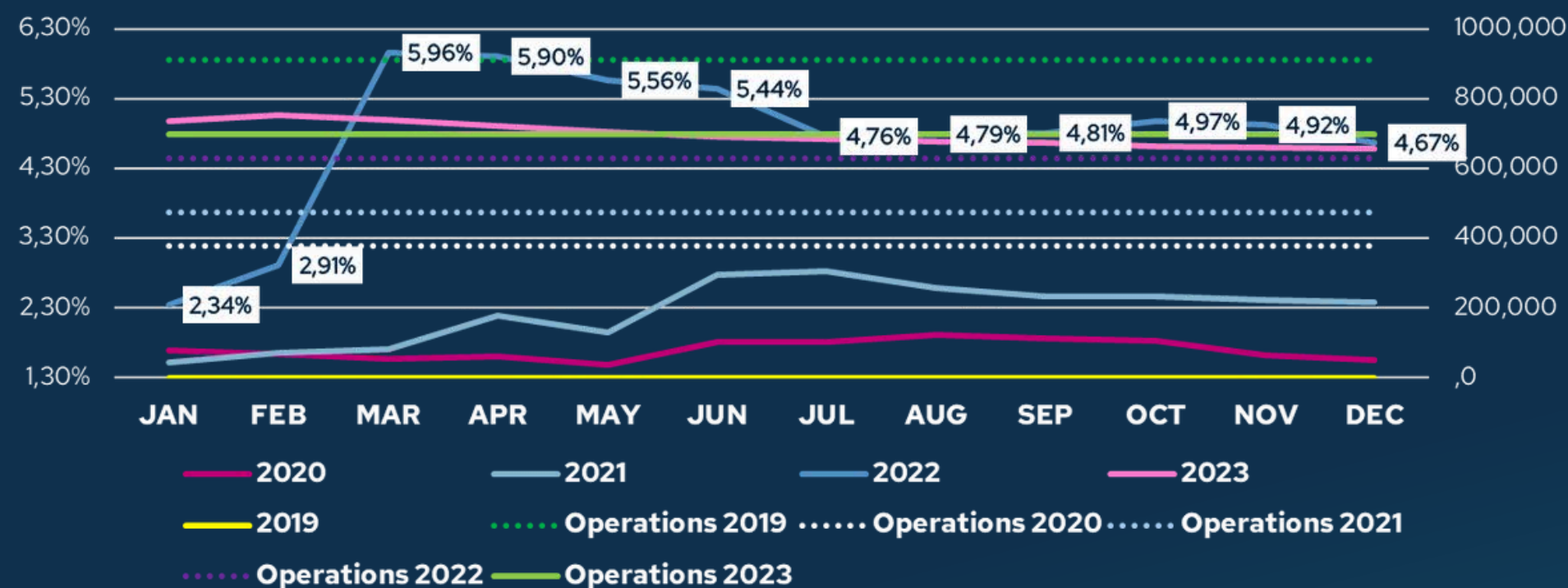
According to PP RP3, Poland's 2023 target for KEA was 1.65%, while the actual performance was higher and reached 4.58%.

Impact on the achievement of performance indicators

The value of KEA was negatively affected by the closure of Ukrainian airspace to air traffic and the imposition of sanctions that restricted flight operations in Russian and Belarusian airspace. It showcases that the ANSP's impact on environment indicator is marginal – KEA is determined by factors independent from ANSPs.

Figure 10 below shows KEA value changes since the war in Ukraine outbreak (February/March 2022) in comparison to the en-route horizontal flight efficiency indicator for the actual trajectory on a monthly basis (HFE), which is closely correlated with KEA.

Fig. 11 HFE indicator (Poland) in 2019-2023



Source: PANSa based on EUROCONTROL/AIU

As part of its efforts to minimise the negative impact of aviation on the environment, the Agency carried out actions in 2023 that included, but were not limited to, in particular:

- development of the Baltic FRA, including the work on the cross-border FRA between the Baltic FAB and FAB DK-SE, and with Czechia, adjusted to the needs of airspace users and the nature of Polish airspace, in order to increase the en-route flight efficiency and thus reduce fuel consumption and CO₂/NO_x emissions;
- development of procedures for cooperation between AMC Poland and FMP Warsaw to support flexible use of airspace;
- development of tools for automated exchange of information on activities within military zones and ASM support systems in order to optimise the process of releasing military zones to civilian traffic;
- maintenance of the working technology and procedures of ATC services to enable aircraft crews to apply CCO/CDO take-off/landing techniques;
- application the A-CDM implemented locally at Warsaw Chopin Airport to reduce noise, CO₂ emissions and fuel consumption through limiting aircraft engine running time and reducing the operation time;
- cooperation with airport managers and carriers to reduce the burden of air transport on local communities.



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The actual unit cost in 2023 relative to the value from the PP RP3 was affected by deviations in the following elements:

- costs in nominal terms,
- the cumulative inflation index, with 2017 as the base throughout RP3,
- the number of service units.

With regard to costs expressed in real terms, the higher actual level of inflation in 2021-2023 than assumed in PP RP3, resulting in a higher actual inflation index level, leads to a lower value of costs in real terms.

Tab. 5 Execution of cost-efficiency targets in 2023

KPA	Indicator		Target 2023	Actual 2023
Cost efficiency	The Determined Unit Cost (DUC) for en-route air navigation services – in the part concerning PANSА (in PLN)		151,73	191,93
	The Determined Unit Cost (DUC) for terminal air navigation services – in the part concerning PANSА (in PLN)	Warsaw	431,68	440,28
		Other airports	801,13	794,31

Source: PANSА



To continuously improve the Safety Management System (SMS), PANSA performs periodic tests of the system maturity (based on EASA, CANSO and EUROCONTROL guidelines). The results of the tests allow identification of improvement areas. Such an approach is key to developing and implementing new methods, tools and ways of information flow.

PANSA will continue to take actions that arise from the conclusions of the aforementioned maturity tests, external analyses and management assessments in order to ensure proper functioning of the safety management system and appropriate level of performance in the area of management, and to enable the achievement of targets set in the Performance Plan (PP).

Our approach to safety management includes, among others:

- promoting comprehensive understanding of all aspects of safety,
- learning from occurrences and incidents that affect safety,
- promoting the Just Culture principle (looking for causes rather than blaming parties for causing the occurrences);
- sharing data and best practices concerning SMS for the benefit of airspace users and the whole aviation community.

Occurrences in 2023:

- there were no aviation accidents with human fatalities where the main cause would be ATM/ANS involvement,
- a 12.75% decrease in the number of reported occurrences compared to 2022 was recorded, with a 10.55% increase in the number of air operations in FIR Warsaw,
- 2,375 occurrence reports were recorded in the TOKAI system.

Based on the findings of investigations into the occurrences reported in 2023*:

- 2 aviation occurrences were categorised in severity class "A" – a serious incident,
- 17 aviation occurrences were categorised in severity class "B" – a major incident,
- 30 aviation occurrences were categorised in severity class "C" – a significant incident.

In 2023, the highest risk severity occurrences monitored by PANSA involved such key areas as:

- human factor,
- airspace infringement,
- inadequate separation,
- aircraft deviation from ATC clearance,
- taxiway incursion.

In 2023, 422 reports concerning technical occurrences were also recorded.

Working with our partners within the framework of CANSO and EUROCONTROL industry organisations, PANSA provides expertise and experience to help implement a uniform European safety framework. In this way PANSA contributes to the safer evolution of the European sky.

The Polish Air Navigation Services Agency complies with international, EU and national laws on civil aviation security. The Agency carries out all tasks prescribed by law in the areas of site security, site defence and crisis management. Awareness campaigns are being conducted among PANSA personnel to raise the level of knowledge of cyber-security threats and to apply effective methods of protection against these threats.



Aeronautical Rescue Coordination Centre (ARCC)



The Civil-Military Aeronautical Rescue Coordination Centre (ARCC) at PANSA has carried out tasks aimed at providing Aeronautical Search And Rescue (ASAR) services by coordinating search and rescue operations in FIR Warsaw. The ARCC plays the role of a search & rescue point of contact (SPOC) as an element of the Cospas-Sarsat international satellite system.

Actions undertaken in 2023 included, among others:

- execution of tasks relating to ensuring organisation and coordination of search and rescue operations in FIR Warsaw;
- preparation for participation in the SAREX air rescue exercise;
- participation in the work of the Cospas-Sarsat committee;
- development and training of the ARCC operations personnel;
- provision of ASAR training;
- participation in communication and exchange of information during search and rescue operations;
- coordination of RCC actions with air traffic services and aviation organisations, including the Polish Civil Aviation Authority, the Ministry of National Defence, the Polish Medical Air Rescue, the Water Volunteer Search and Rescue (WOPR), the Tatra Volunteer Search and Rescue (TOPR), military units, the Police, the Border Guard, and the Maritime Rescue Coordination Centre.



Investments

The Polish Air Navigation Services Agency has been investing in state-of-the-art technological solutions to maintain the highest level of safety in air traffic. Expenditure on the upgrade and construction of a new CNS/ATM and facility infrastructure and on the development of ATM systems incurred by PANSA in 2023 amounted to PLN 171.5 million.

Tab. 6 Main major investment projects under way in 2023

Project name	Expenditure incurred (mPLN)
iTEC system	21,5
Communication systems	15,4
Upgrade of the ATM system	8
Server and business infrastructure	5,8
MLAT system for FIR Warsaw	4,3

Source: PANSA



The Agency pursues its strategic objectives in the areas of safety, capacity, environment and cost-efficiency, safeguarding its operational needs, including in terms of ensured continuity of air navigation services and the implementation of activities arising from European air transport development programmes and strategies, i.e. ATM Master Plan and SESAR, for which the development of state-of-the-art infrastructure is essential.

PANSA “Green” Activities

For years, the Polish Air Navigation Services Agency has been involved in various solutions aimed at environmental protection. The Agency ensures that, while maintaining the highest level of air traffic safety, the negative impact of aviation on the environment can be also reduced. PANSA makes efforts to enable, among others, the reduction of aircraft fuel consumption and carbon dioxide emissions. PANSA carries out such activities in line with the five pillars for the Green Single European Sky announced by EASA and EUROCONTROL. The pillars set out how air traffic control services may help meet the EU environmental targets for transport and significantly reduce greenhouse gas emissions by 2050.

The main “green” activities and tools used by PANSA in the operational field include:

- Free Route Airspace (FRA);
- Continuous Descent Approach (CDA) – “green approach”.

Free Route Airspace (FRA) is a specified airspace within which users may freely plan a route between a defined entry point and a defined exit point, with the possibility to route via intermediate significant points, without reference to the ATS route network, subject to airspace availability. Within this airspace, flights remain subject to air traffic control. In short, the use of FRA provides the opportunity to plan to fly through a given airspace via the shortest routes, bypassing the airway network.

FRA is therefore a way of overcoming the aviation sector's efficiency, capacity and environmental problems by helping to reduce fuel consumption and emissions, while improving flight efficiency. At the same time, it paves the way for further enhanced airspace design and ATM operational concepts.

Tab. 7 Pro-ecological gains from the application of the CDA in 2023

2023	EPWA	EPKK	EPGD	EPKT	EPWR	EPPO	EPRZ	EPSC	EPLB	Total
CDA indicator	44%	45%	65%	38%	70%	35%	33%	55%	40%	47%
Fuel saved (tonnes)	1,660	674	674	354	502	192	116	64	29	4,265
Reduction of CO2 emissions (tonnes)	5,227.4	2,122.8	2,122.8	1,116.4	1,580.5	604,2	363,8	200,4	91,1	13,429

Source: PANSA based on EUROCONTROL/AIU

Another solution that PANSA has introduced is the so-called “green approach”, i.e. the **CDA technique (Continuous Descent Approach)**, which enables aircraft to descend in a smooth and uninterrupted manner, preferably straight away from its cruise altitude. Wherever possible, controllers shall also allow pilots to self-select the optimum rate of descent with minimum engine thrust. The technique allows significant reductions in emissions and aircraft noise.

It is estimated that the use of CDA reduces fuel consumption by up to 46 kg per flight, thus reducing carbon dioxide emissions by 145 kg, while flight noise during descent is reduced by 1-5 dB, depending on circumstances and type of aircraft. PANSA has contributed to increasing the use of CDA at the largest airports in Poland. It is worth noting that we are among the leaders in Europe when it comes to the use of CDA. The share of CDA operations, i.e. the ratio of “green approaches” to the total number of landings, ranged at Polish airports from 33.42% in Rzeszów to as much as 70.19% in Wrocław, with the total figure reaching 53%. The average landing ratio at selected airports reached 47.28% and was higher than in 2022, when it reached ca. 41%.

In 2023, the use of the CDA technique at nine main airports in Poland allowed reducing potential carbon dioxide emissions to air by a total of 13,429 tonnes, leading to fuel savings of 4,265 tonnes of aviation fuel.

PANSA ATS Training Center

The Polish Air Navigation Services Agency is the only institution in Poland that:

- trains air traffic controllers (ATCOs), personnel and candidates for work in air traffic services (ATS),
- trains aviation sector personnel.

The primary task of the ATS Personnel Training Centre of the Polish Air Navigation Services Agency is to conduct:

- professional training for candidates for air traffic controllers and flight information officers, assigned to work in air traffic services,
- continuation and competence retention training for both the aforementioned professional groups.

PANSA ATS Training Center simulators allow practical training that accurately reflects the operational environment, equipment and the Pegasus_21 ATM system. The Centre also has a state-of-the-art aerodrome control tower (TWR) simulator with 360-degree imaging, and four airport control towers with 120-degree imaging.

In 2023, two basic courses were launched for air traffic controller candidates.

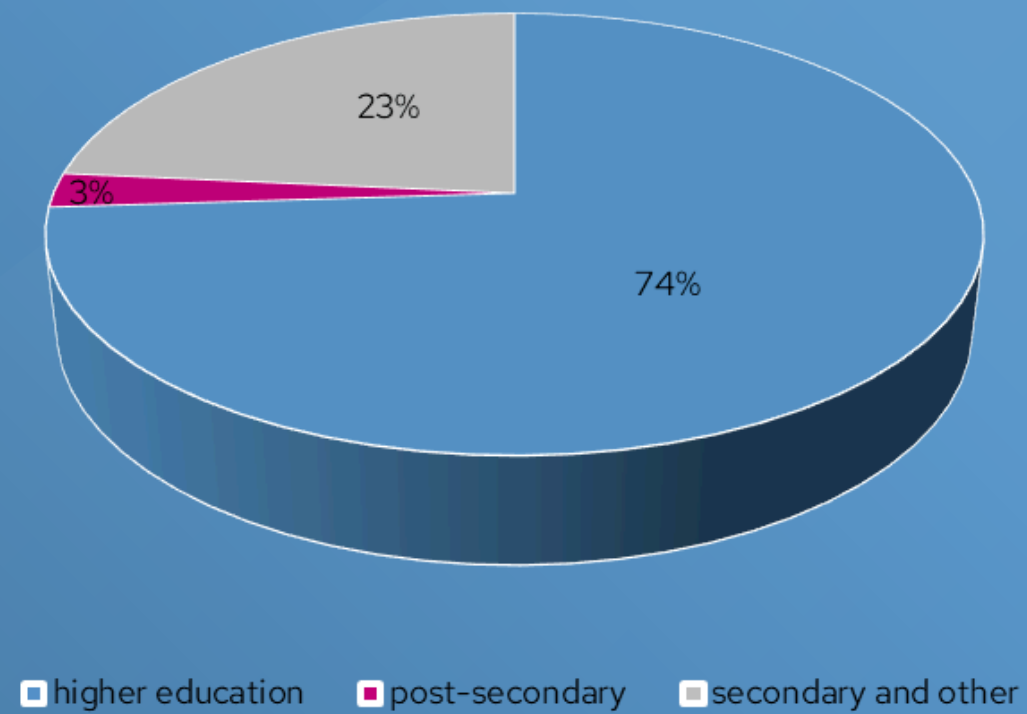


Human Resources

As of 31 December 2023, the Agency employed **1,939 people**.

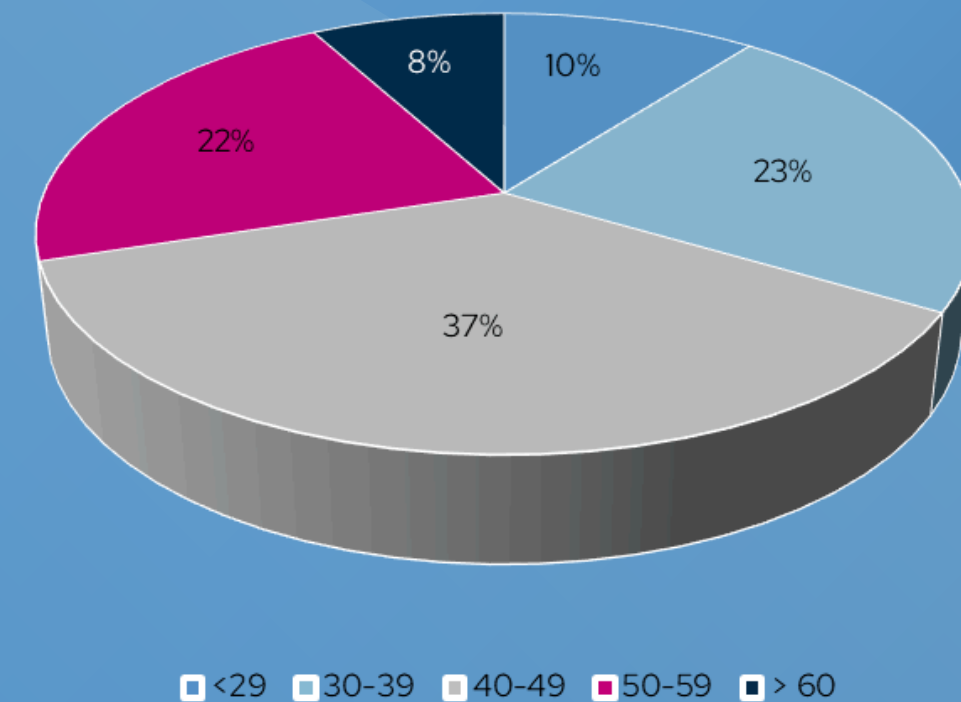
Average age of PANSA employee – **43.98 years**
Average age of ATCO – **43.16 years**

Fig. 12 Educational structure of PANSA personnel (as of 31 December 2023)



Source: PANSA

Fig. 13 Age structure of PANSA personnel (as of 31 December 2023)



Source: PANSA

Tab. 8 Employment by FTEs and persons as of 31 December 2023 compared to employment as of 31 December 2022

PRU Category		Headcount in FTEs		Difference	Headcount in persons		Difference
		31.12.2022	31.12.2023		31.12.2022	31.12.2023	
1	ATCO in OPC	580,71	576,65	-4,06	590	587,1	-2,9
2	ATCO on other duties	16	23,65	7,65	16	23,9	7,9
3	Ab Initio Trainee Controller	39	68,75	29,75	39	69	30
4	On-the-Job Training (OJT)	41	47,5	6,5	43	52	9
5	ATC assistants	43,25	44,75	1,5	44	46	2
6	OPS support non-ATCOs	332,7	340,94	8,24	336	344	7,95
7A	Technical support staff for operational CNS/ATM, monitoring and control systems	291,75	311	19,25	294	313	19
7B	Technical support staff for the development and implementation of CNS/ATM systems	67,25	70,55	3,3	68,3	72,6	4,3
8	Administrative staff	334,73	350,5	15,78	338,7	354,7	16
9	Support service staff	43	48,75	5,75	43	48,8	5,75
10	Other employees	26,5	27	0,5	27	28	1
Total		1,815.88	1,910.04	94,16	1,839.00	1,939.00	100,00

Source: PANSA

PANSA's International Cooperation

Our partners include air navigation service providers in other countries under bilateral operational cooperation, as well as international institutions, industry associations and organisations such as:

- ICAO;
- EUROCONTROL/Network Manager;
- CANSO;
- NATO;
- European Commission,
- EU agencies and bodies, such as:
 - EASA;
 - SESAR JU;
 - SESAR DM.

The area of international cooperation includes also PANSA's activities within:

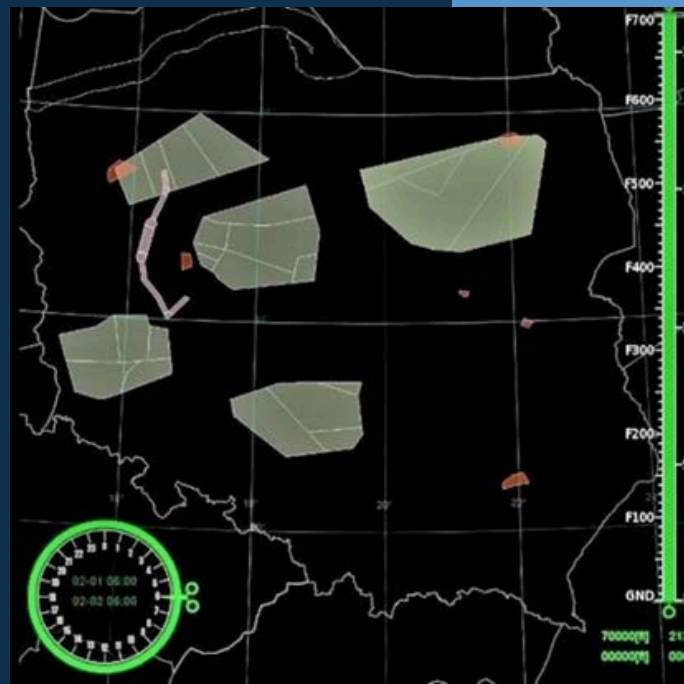
- Baltic FAB,
- A6 Alliance,
- iTEC cooperation.



PANSA strongly emphasises its presence in European research and development projects coordinated by the SESAR Joint Undertaking. In 2023, the Agency continued its participation and involvement in SESAR 2020 and SESAR 3 (Digital European Sky Programme), including under the following projects:

- CEF-HERON, Highly Efficient Green Operations;
- PJ13 ERICA, Enable RPAS Insertion in Controlled Airspace;
- SESAR3 MITRANO, Mission Trajectory in ATC and Network Management Operations;
- SESAR3 HARMONIC, HARMONISED network through smart technology and Collaboration;
- SESAR3 AMPLE3 ATM Master Planning and Monitoring;
- CNS DSP Demonstration of a CNS data service provision (CNS DSP).

In 2023, two Wave 2 (SESAR 2020) projects were completed, namely PJ13 ERICA Enable RPAS Insertion in Controlled Airspace, and PJ02-W2 Airport airside and runway throughput Solution 17.1, 25.1 and 25.2.





In 2023, PANSA has continued its participation in the SESAR Deployment process, both as an Implementing Partner and as a Founding Member of the SESAR Deployment and Infrastructure Partnership (SDIP).

As an Implementing Partner, PANSA has continued to implement the deployment projects launched in the previous years with EU co-financing under the CEF Transport Calls for Proposals.

As a member of the SDIP, PANSA representatives took part in the work of SDIP's governing body (Supervisory Board).

Tab. 9 Projects associated with the SESAR Programme deployment process (Pilot Common Project/Common Project 1) and co-financed from EU funds under the CEF Transport Call for Proposals in which PANSA participates either as a leader or as a contributor

Project name	CEF	Planned project budget (in EUR)	Grant amount awarded (in EUR)
The 1st part of the upgrade of the P_21 PEGASUS system to SESAR functionalities - Test and Validation Platform (project completed)	CEF2014	6,600,000	3,300,000
LAN network upgrade (project completed)	CEF2015	2,009,500	1,708,075
The ECG Communication System upgrade (project completed)	CEF2015	1,567,500	1,332,375
ATM System Upgrade towards Free Route Airspace (project completed)	CEF2016	5,880,000	2,528,400
iTEC Tests, Validation and Planning	CEF2016	1,716,360	738,035
Implementation of Data Link Service for the ATM in FIR Warsaw (project completed)	CEF2016	5,247,102	2,256,254
Deploy SWIM Governance (project completed)	CEF2016	90,400	38,872
NewPENS Stakeholders contribution for the procurement and deployment of NewPENS (project completed)	CEF2016	145,900	62,737
DLS Implementation Project - Path 2 (project completed)	CEF2016	148,805	63,986
General Call - DLS Implementation Project - Path 1 "Ground" stakeholders (project completed)	CEF2016	142,501	61,275
European Deployment Roadmap for Flight Object Interoperability (project completed)	CEF2016	25,000	10,750
Local traffic complexity management (project completed)	CEF2017	1,694,000	847,000
SWIM Common PKI and policies & procedures for establishing a trust framework	CEF2017	101,515	50,758
IP1 DLS European Target Solution assessment (project completed)	CEF2017	139,600	69,800
Clean ATM (Cross-border FRA)	CEF2022	3,382,453	1,691,227
Clean ATM (ACADIA)	CEF2022	2,059,192	1,029,596
Clean ATM (FF-ICE RI eFPL)	CEF2022	1,654,142	827,071
Clean ATM (ASM SWIM)	CEF2022	699,999	349,999
TOTAL		25,508,183	13,068,316

Source: PANSA

PANSA's International Cooperation

A6 Alliance, Baltic FAB, CANSO, iTEC Consortium



In 2023, the Agency has continued to participate in activities of the A6 Alliance, which brings together Europe's largest air navigation service providers (from e.g. Germany, the United Kingdom, France, Spain, Italy, Switzerland):

- coordination of research and development work within the SESAR Joint Undertaking between ANSPs;
- coordination of the work within SESAR Deployment Manager between ANSPs;
- joint actions in the field of European aviation policy/changes in the European ATM system.

In 2023, PANSA has actively participated in the work of the A6 Steering Board and the A6 Strategy Board, developing common A6 alliance positions and representing the A6 Group at high-level meetings. This has provided PANSA with the opportunity to directly influence the decisions related to the development of the air traffic management industry in Europe, including significant participation in the works on the new Single European Sky legislative package.



PANSA has participated in information exchange and ongoing activities within the Baltic FAB (Baltic Functional Airspace Block), which Poland forms with Lithuania, and on the InterFAB forum, which is a platform for the exchange of experience between all European functional airspace blocks.



In 2023, PANSA has continued its cooperation with other ANSPs within the CANSO structures with the aim to develop a common position of ANSPs towards the most important topics and challenges faced by the ATM community, e.g. proposed solutions regarding:

- legislation (the SESII+ legislative package),
- operations,
- infrastructure (including research and development activities),

for shaping future regulatory, technical and operational solutions for the ATM industry in Europe.



In 2023, PANSA has continued to operate within the industry consortium iTEC Collaboration (Interoperability Through European Collaboration) under partnership agreements on joint ATM system development concluded with DFS, NATS, ENAIRE, LVNL, Avinor and Oro Navigacija in 2017.

As part of the iTEC cooperation, air navigation services agencies from seven European countries are working with technology partner Indra Sistemas to achieve smoother and more efficient air traffic management through the harmonisation and development of an advanced, state-of-the-art iTEC ATM system, supporting the implementation of the Single European Sky.

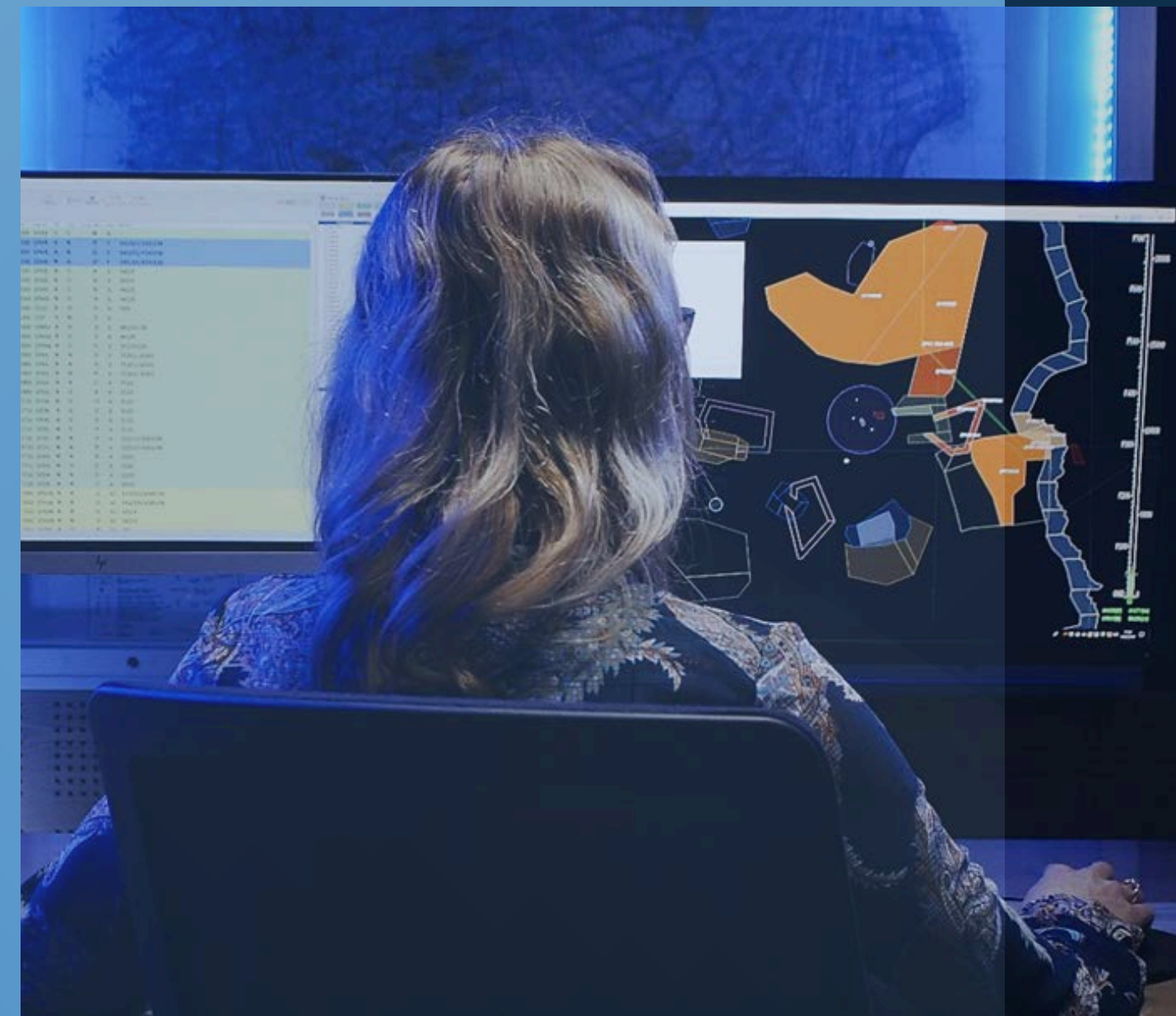


Common Airspace Tool (CAT) system allows accepting and verifying reservations of airspace structures, and streamlines the process of creating and publishing the Airspace Use Plan (AUP), one of the key aviation documents used by the Polish sky users.

The CAT system allows efficient management of structures in accordance with the AFUA concept (Advanced Flexible Use of Airspace) at pre-tactical level and in real time – their activation, deactivation and change of altitude parameters. The CAT system works closely with Network Manager, the European air traffic management system, and, through a B2B Web Services connection, automatically exchanges all information on the activity of the structures included in the AUP.

The CAT system is a major convenience for airspace managers and users. Thanks to a modern, freely accessible web interface (Collaboration Human Machine Interface), anyone using services offered by PANSA may see, in the form of a map, all current and planned structures (even those planned in the long term) and obtain information about them. It is a secure, complete, flexible, coherent and open solution for data exchange with other systems, operationally used by air traffic services.

The development of the CAT system has continued in 2023. The activities included development of a prototype proprietary CAT system to allow automation of the exchange of ASM data with the iTEC system. The continued development of the CAT system was also aimed at implementing new mechanisms to support the CDM process between ASM and ATFCM services.

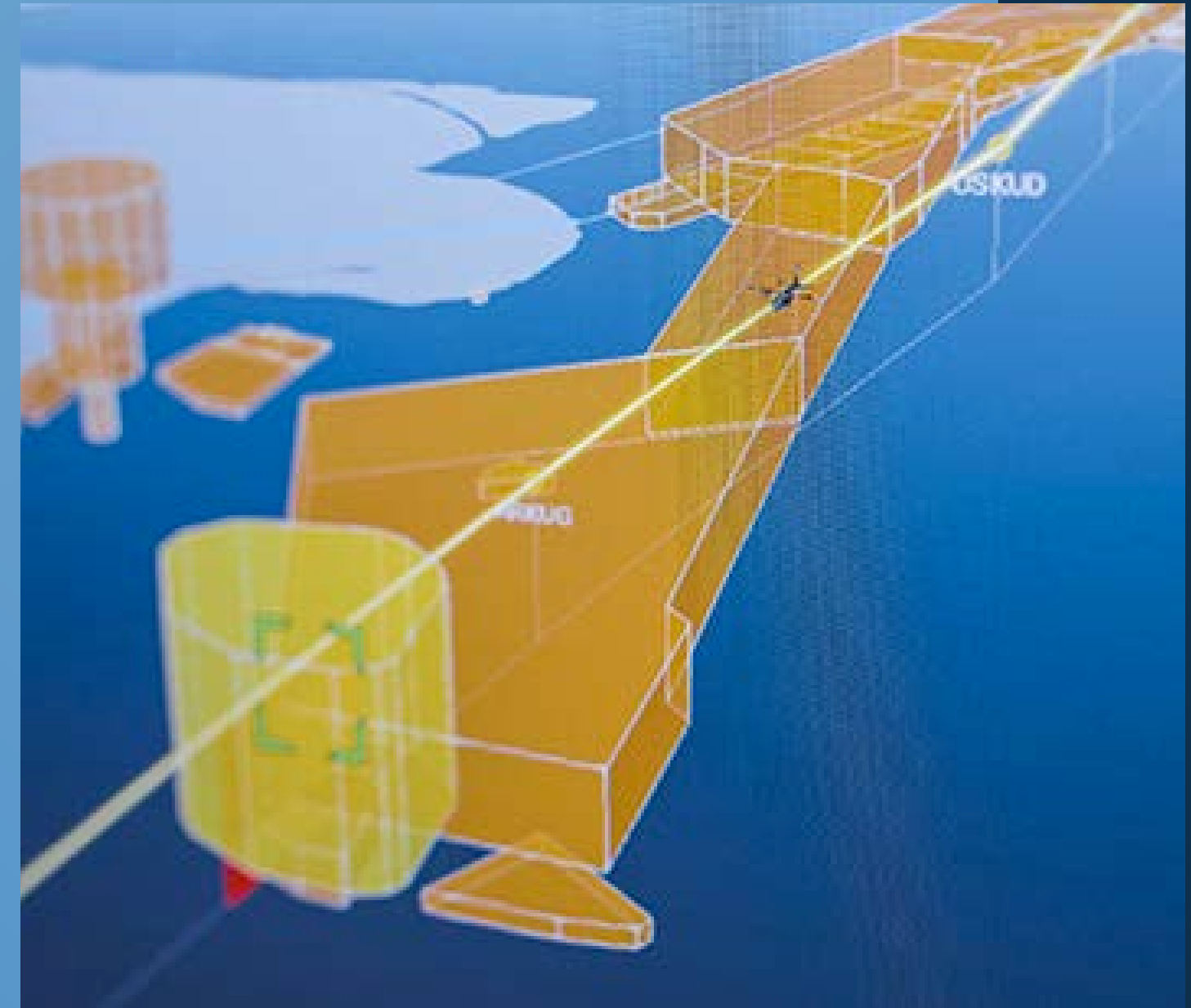


TRAFFIC by PANSA

TRAFFIC (Track Advisor for Flight Information Concerns) is a tool for validation and verification of the operational data contained in flight plans before sending them to ATM systems. It is the solution that enabled PANSA to address the challenges generated by the growing air traffic in a smooth and user-friendly manner.

In 2023,

- PANSA analysed changes in ATM systems that will be necessary for the implementation of the FF-ICE/R1 concept and development of the concept the reception and internal distribution of aeronautical data from NM B2B services.
- The TRAFFIC System was adapted to the implementation of the operational concept of Cross-Border FRA.





A-CDM (Advanced/Airport-Collaborative Decision Making) as a concept and TERMINUS as the Target Startup Approval Time Generator (TSAT) enable prediction and flow of information on aircraft handling in the aerodrome area (landing, completion of ground handling, take-off). Close collaboration of all partners using such information contributes to the streamlining of the entire process and thus translates into operational, financial and environmental gains.

The A-CDM system has a positive impact on the reduction of delays, noise and fuel consumption, translating into tangible benefits for airspace managers, airports, carriers and their operators.



PANSA is responsible for the proper operation of about 150 ground-based air traffic facilities and the validation of instrumental aeronautical procedures in Poland. Operating since 1963, PANSA's Aeronautical Inspection carries out control and measurement flights.

PANSA's Flight Inspection performs deployment, periodic, ad hoc and category inspections and measurements of the following CNS infrastructure:

- instrument landing systems (ILS CAT I, II, III),
- VHF Omnidirectional Radio Range (VOR and DVOR) and non-directional radio beacons (NDB),
- distance measuring equipment (DME),
- navigation light systems (approach light systems ALS and runway light systems),
- precision approach path indicator (PAPI).

PANSA's Flight Inspection is the only unit in Poland to check new and existing instrumental flight procedures – conventional and area navigation (RNAV) based on DME-DME and Global Navigation Satellite Systems (GNSS).

Due to the progressive implementation of the Ground Based Augmentation Systems (GBAS) in Europe, which are used for precision landing of aircraft based on satellite technology, aerial inspection services of such systems and validation of the associated flight procedures will also be provided. In 2023, in addition to providing aeronautical inspection services domestically, PANSA has continued such activities also abroad, in the form of flight inspection services for CNS infrastructure in Lithuania.





Flight schedule coordination

PANSA acts as a flight schedule coordinator. Coordination is performed under EU and Polish legislation and in accordance with International Air Transport Association (IATA) guidelines contained in the Worldwide Slot Guidelines (WSG) and the Standard Schedules Information Manual (SSIM). Flight schedule coordination is based on independence, neutrality, non-discrimination and transparency of the coordinator vis-à-vis all air carriers.

PANSA's strategic and long-term business objective is to develop and refine its co-ordination competencies to meet the future challenges of limited airport capacity. In 2023, the coordination of flight schedules at Kraków-Balice Airport has continued and the development of slot coordination services was implemented.

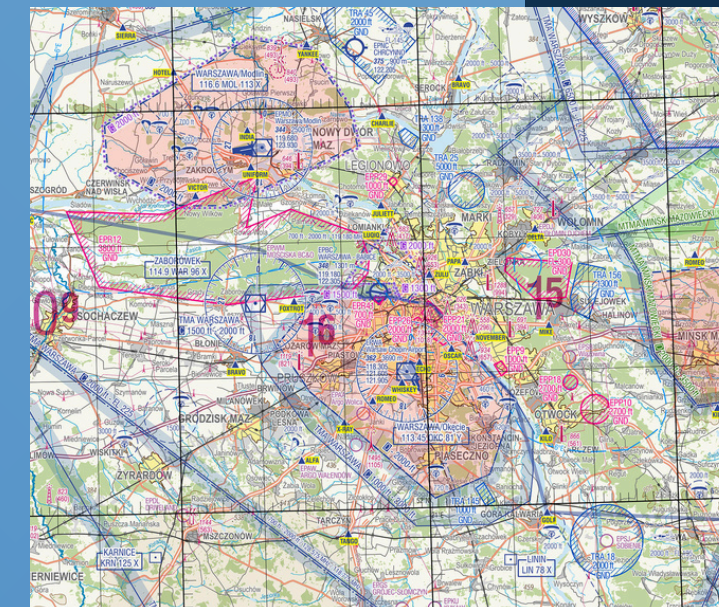


Aviation publications

AIS Poland is responsible for providing aeronautical data and information necessary to ensure the safety, regularity and efficiency of air navigation in FIR Warsaw. AIS Poland prepares aeronautical information products which include:

- Aeronautical Information Publication (AIP), including AIP Amendments and Supplements;
- Aeronautical Information Circular (AIC);
- aeronautical maps;
- NOTAMs;
- digital datasets.

In 2023, PANSA has continued selling aviation publications (AIPs and maps) and digital datasets.



Basis of preparation of the financial statements

The Agency, in accordance with the Act of 8 December 2006 on the Polish Air Navigation Services Agency (Journal of Laws of 2024, item 78 as amended, hereinafter referred to as "PANSA Act"), prepares financial statements for statutory purposes in accordance with IFRS as approved by the EU.

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

Principles of financial management

The Agency, in accordance with the PANSA Act, conducts independent financial management, taking into account EU law, international agreements and EUROCONTROL provisions regarding the air navigation charges system, including the principles of establishing and collecting charges and issuing invoices by CRCO.

By virtue of the PANSA Act, the net loss of the Polish Air Navigation Services Agency for the financial year is covered from the reserve fund. If the net loss is higher than the reserve fund, the part of the loss not covered by the reserve fund will be covered by the statutory fund. Whereas the Agency's net profit for the financial year is allocated to the reserve fund or other funds created on the basis of separate provisions.

Operating expenses are covered by the generated revenues. The sources of revenues are:

- revenues from services provided,
- interest on bank deposits,
- grants and donations from the state budget,
- other revenues including funds obtained as non-returnable aid.

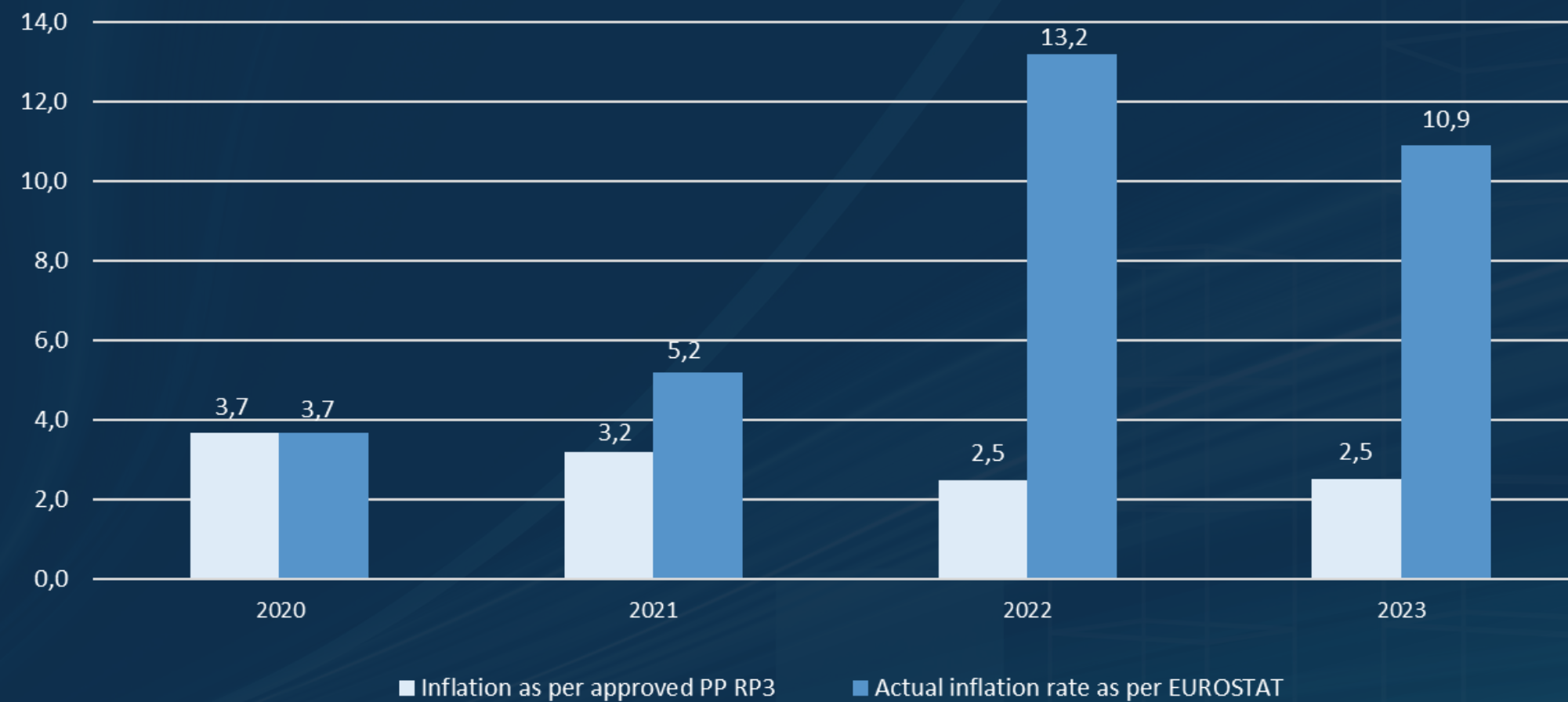
The main source of the revenue generated from sales constitutes the revenue from navigation activities, which includes charges levied for the provision of air navigation services^[1]. The amount of the revenue generated due to the provision of navigation services (en-route and terminal services) depends, among other things, on the level of unit rates for charges for navigation services established annually. The calculation of revenue from the sale of navigation services provided by the Agency is based on:

- actual number of service units:
 - for en-route services (SU), which derive from the weight of the aircraft, number of movements and the length of the route of the flight over the territory of Poland,
 - for terminal services (SU-L), which derive from the weight of the aircraft and the number of landing approaches at 'controlled' Polish airports;
- unit rates of en-route and terminal charges,
- estimated value of carry-overs reflected in the calculation of the unit rates under applicable law.

[1] Commission Implementing Regulation (EU) 2019/317

Over 2021-2023, Poland faced a significant increase in the inflation rate compared to previous reporting periods and to the assumptions underlying the PP RP3. Inflation decreased from 13.2% in 2022 to 10.9% in 2023, although remain high and increased vs. assumed 2.5% in Performance Plan for RP3. The high inflation had an impact on PANSA operating costs.

Fig. 14 Planned vs actual inflation rates (%)



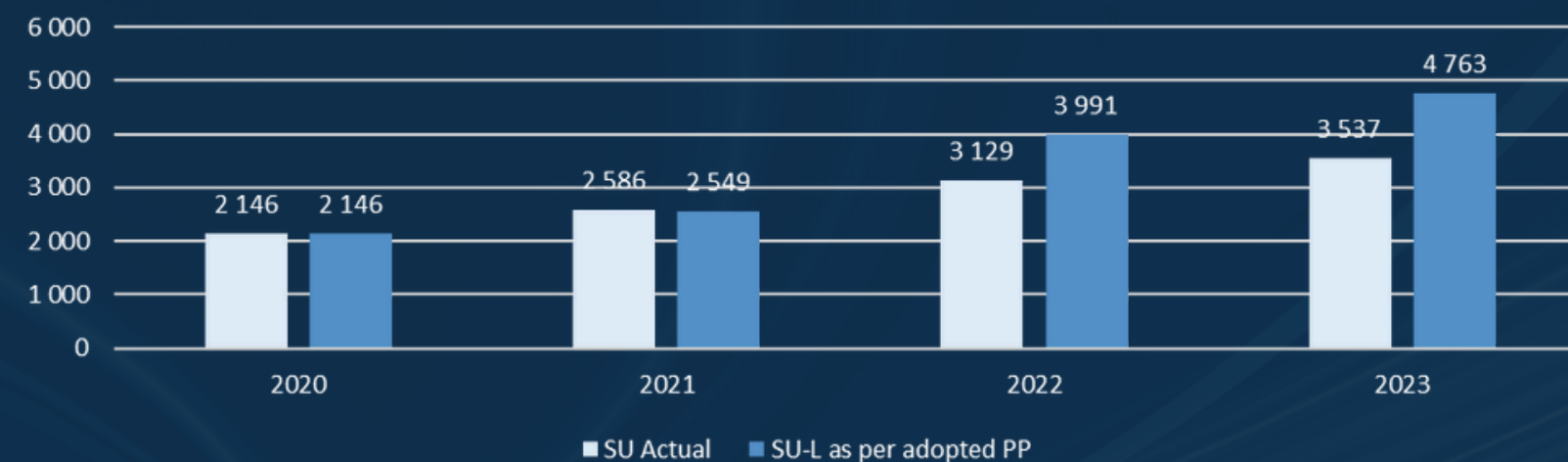
Source: PANSA own elaboration based for planned values on IMF "World Economic Outlook Database" (April 2021) and for actual values on Eurostat (April 2024)

Uncertainty regarding traffic evolution in FIR Warszawa was still visible in 2023. Traffic over 2023 was strongly impacted by the consequence of the military aggression of the Russian Federation on Ukraine, a war right behind Poland's eastern border. The resulting closure of the Ukrainian airspace and further restrictions imposed on traffic flows on east-western axis led to significant changes to traffic flows in the Polish airspace (including drop in overflights and increase in traffic on the north-southern axis along Poland's eastern border). At the same time, a direct consequence of the war was significant increase in military activity in FIR Warszawa, which impacted airspace availability for civil traffic.

Traffic decrease is mainly visible in en-route actual service units which in 2023 were lower by 25.7% vs planned in Performance Plan (PP RP3) and 28.9% below 2019 figures.

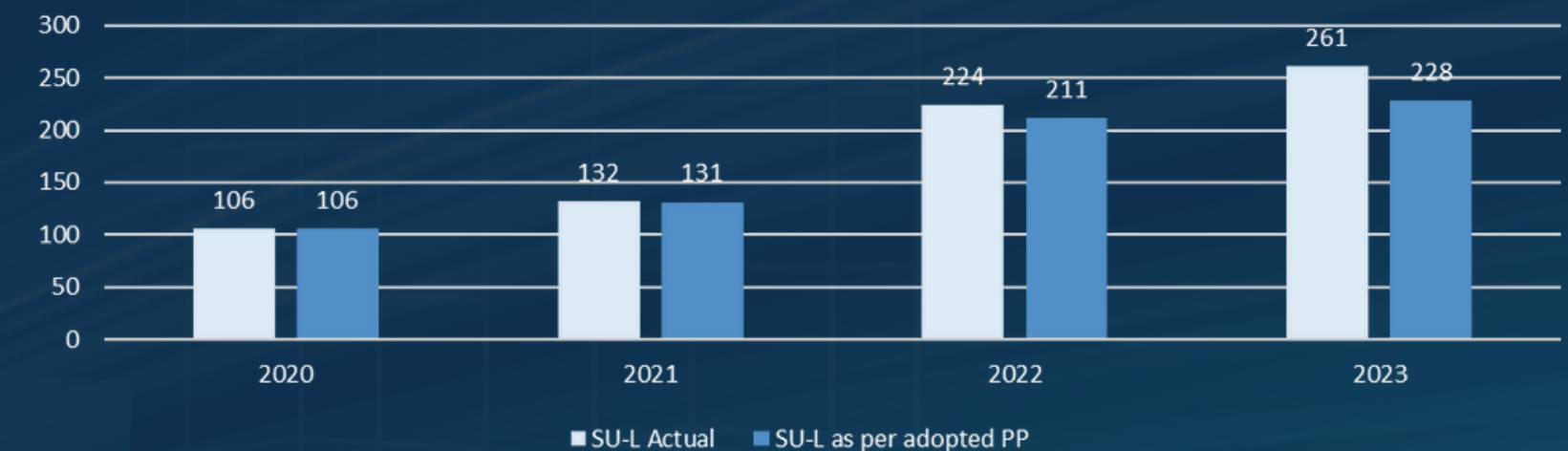
The restoration of terminal traffic, especially at regional airports, was much faster (+14.6% vs PP RP3) and successfully 2023 annual results are above 2019 figures by 6.1%.

Fig. 15 En-route service units – SU ('000)



Source: PANSa

Fig. 16 Terminal service units – SU-L ('000)



Source: PANSa

For the provision of navigation services, PANSA calculates and collects the following charges:

- en-route charges – invoiced and collected on behalf of PANSA by EUROCONTROL CRCO, based on unit rate approved by the EUROCONTROL enlarged Commission,
- terminal charges – invoiced and collected by PANSA, based on unit rates approved by the President of the Civil Aviation Authority. In RP3 terminal unit rates are established for two separate terminal charging zones, approved in 2019 by a decision of Minister of Infrastructure – one for Warsaw Chopin airport and the second one for 14 regional airports where PANSA provides air traffic services.

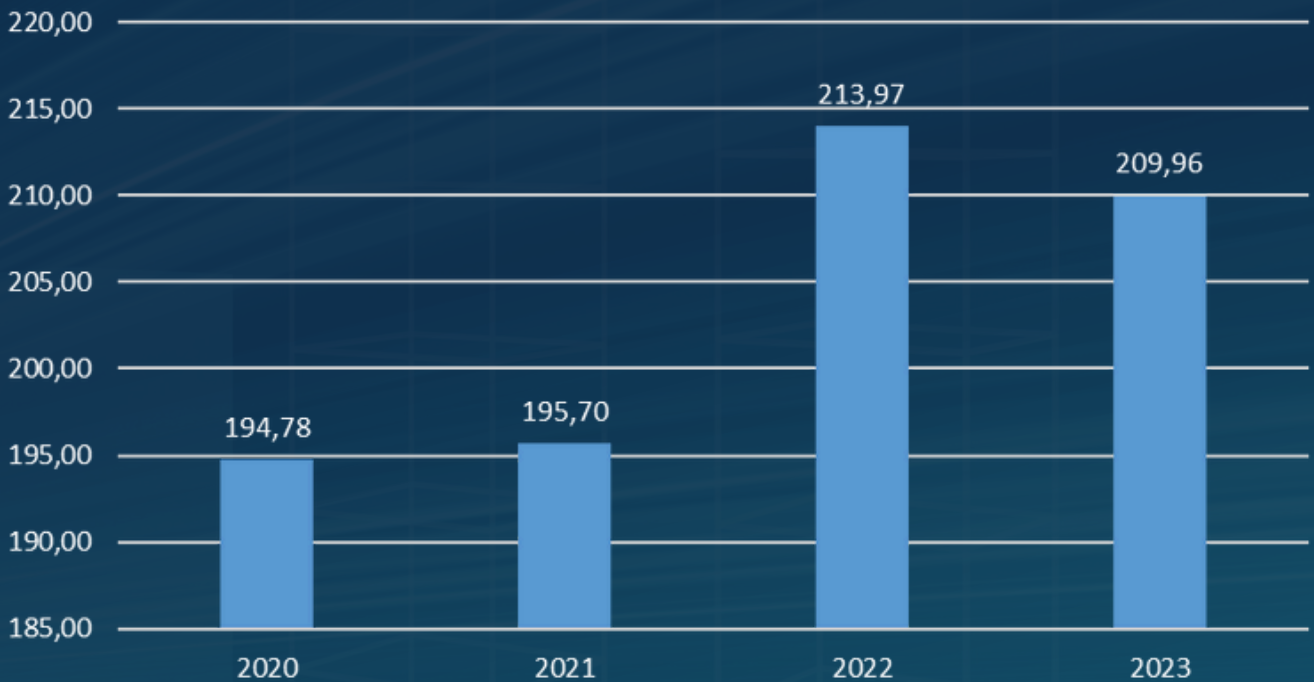
The unit rates of air navigation charges are calculated using three elements:

- determined costs of providing air navigation services in the given charging zone for the given year, as established in the Performance Plan for Poland (total of costs of all entities covered by the plan),
- adjustments stemming from EU Charging Scheme,
- forecasted number of service units in the given charging zone for the given year, as forecasted in the Performance Plan for Poland.

The Unit rates applicable in Poland in 2023 were the following:

- en-route unit rate: PLN 209.96,
- terminal unit rate:
 - charging zone 1 (Warsaw Chopin airport): PLN 505.43,
 - charging zone 2 (other airports): PLN 1,249.75.

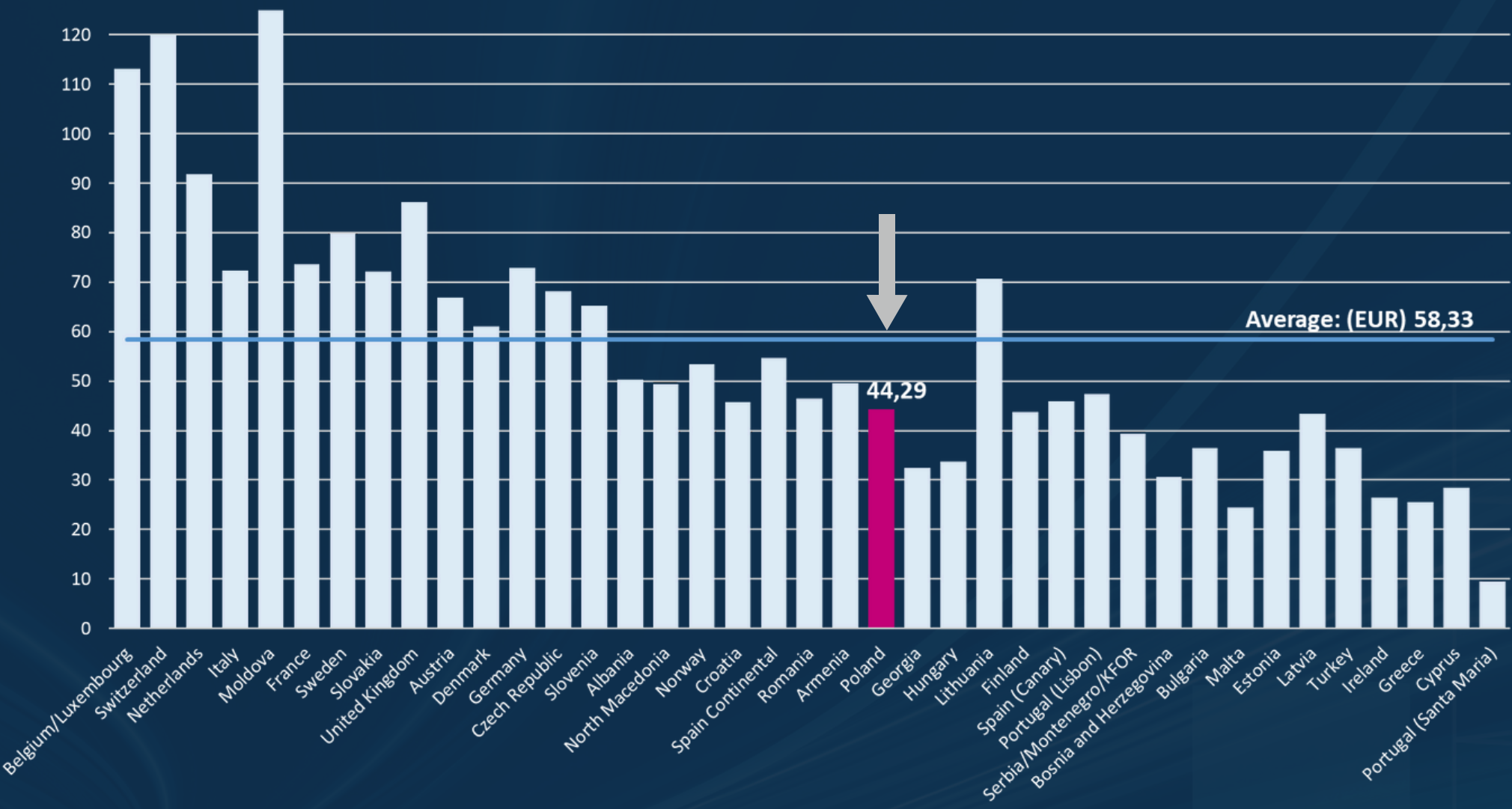
Fig. 17 En-route charges unit rates in Poland (PLN)



Source: PANSA

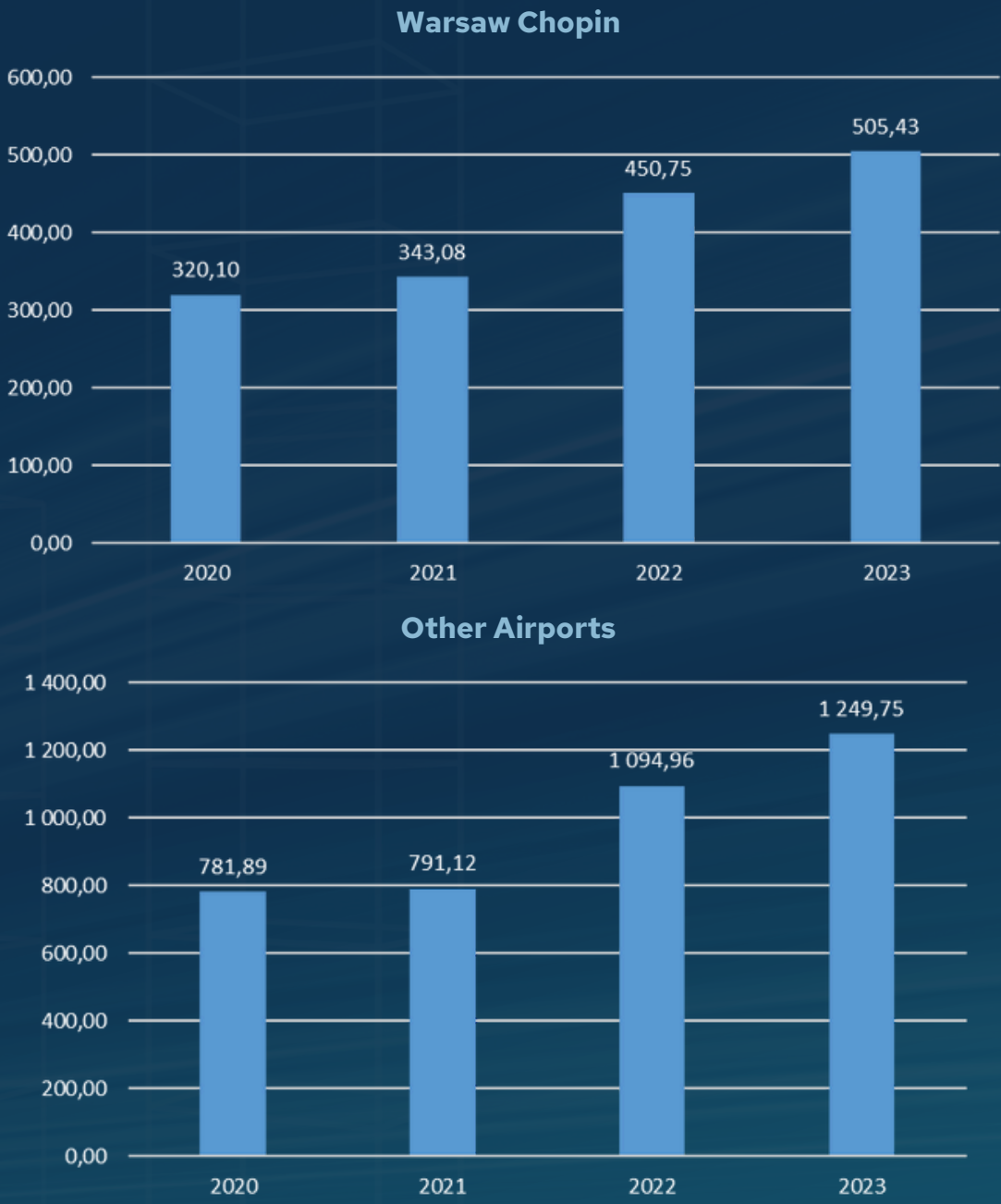
The average value of the en-route unit rate in 2023 in EUROCONTROL Member States was **EUR 58.33**. The Polish unit rate for en-route navigation services was **EUR 44.29**.

Fig. 18 En-route unit rate in EUROCONTROL Member States in EUR



Source: PANSA's own elaboration based on Decision No 22/173 of the EUROCONTROL enlarged Commission

Fig. 19 Terminal charges unit rates in Poland (PLN)

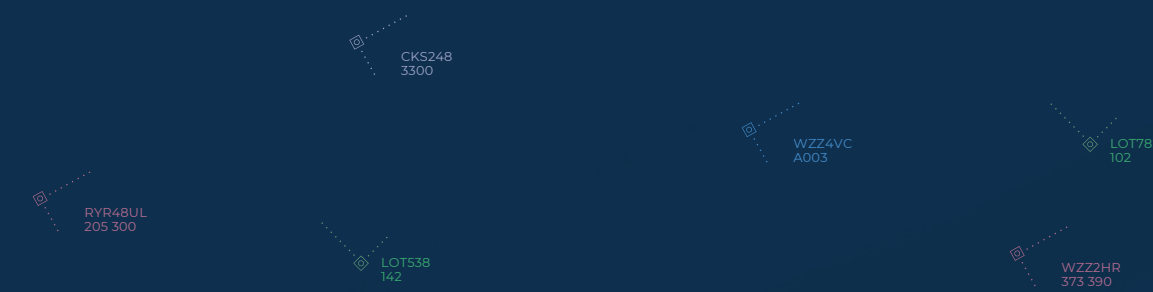


Source: PANSA

Tab. 10 Statement of comprehensive income

Statement of comprehensive income ('000 PLN)	For the year ended 31.12.2023	For the year ended 31.12.2022
Sales revenues	1,219,990	1,140,616
Operating expenses	1,190,329	993,077
Profit on sales	29,661	147,538
Other operating revenues	48,211	43,951
<i>including: EU grants and donations from the state budget</i>	39,721	38,749
Other operating expenses	36,749	38,255
Operating profit	41,123	153,234
Financial revenues	68,761	6,782
Financial expenses	46,747	63,077
Gross profit	63,137	96,940
Income tax expense	41,731	20,323
Net profit	21,406	76,616
Items of other comprehensive income	1,480	1,912
Total comprehensive income	22,886	78,529

Source: PANSA



Tab. 11 Sales revenues

Sales revenues ('000 PLN)	For the year ended 31.12.2023	For the year ended 31.12.2022
Navigation services, including:	1,209,989	1,131,567
En-route navigation, including:	950,274	878,529
Balance of adjustments for carry-overs	224,673	222,311
Terminal navigation, including	227,494	209,278
Balance of adjustments for carry-overs	-13,002	28,850
Grant for exempted flights	32,221	43,761
Non-navigation services, including:	9,960	8,999
Measurement of meteorological parameters	1,771	1,771
Radar data	3,185	2,733
Sales of materials	41	50
Total	1,219,990	1,140,616

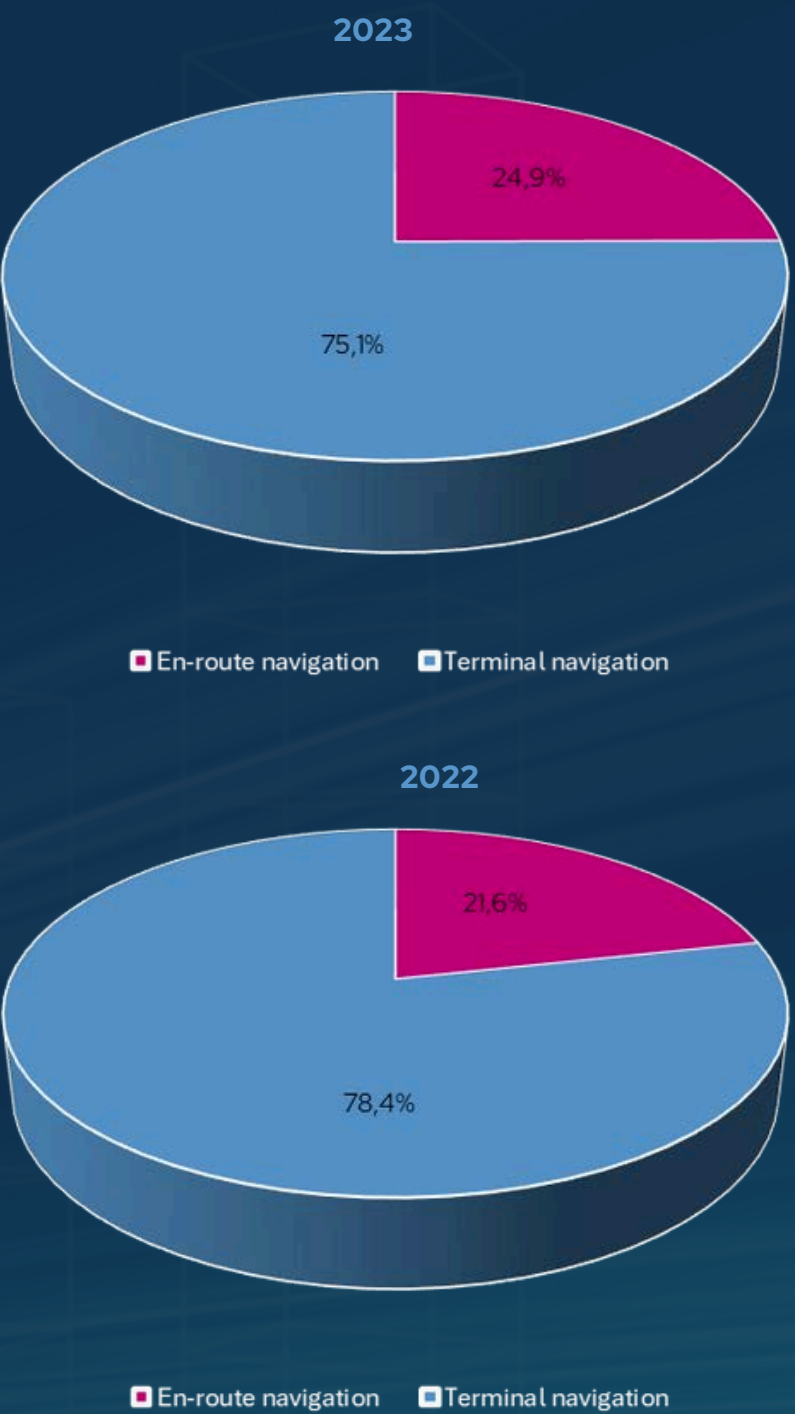
Source: PANSa

The analysis of the PANSa's revenue structure shows that the dominant share in total revenues is sales revenue, which in 2023 amounted to kPLN 1,219,990. The Agency's primary revenue source is providing en-route and terminal navigation services.

Also, the balance of adjustments for carry-overs in the total amount of kPLN 211,671 significantly affects the Agency's recognized revenue.

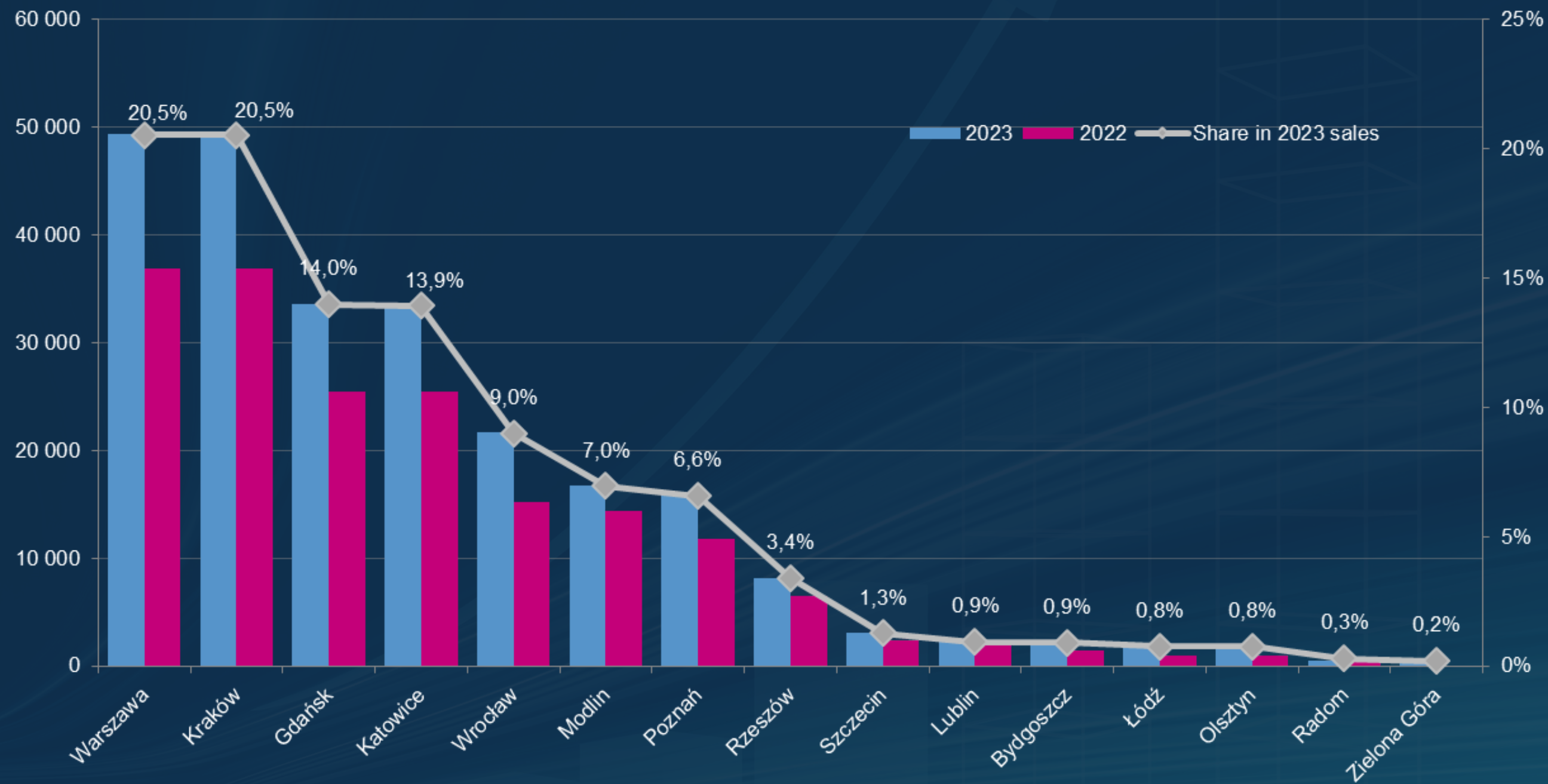
The value of the estimated adjustments for carry-overs shall be subject to settlement with the airspace users in subsequent years. In 2023, the share of sales revenue of navigation services accounted for 91% of the total income reported by the Agency.

Fig. 20 Invoiced sales revenues by services



Source: PANSa

Fig. 21 Terminal invoiced sales revenues by airport



Source: PANSA

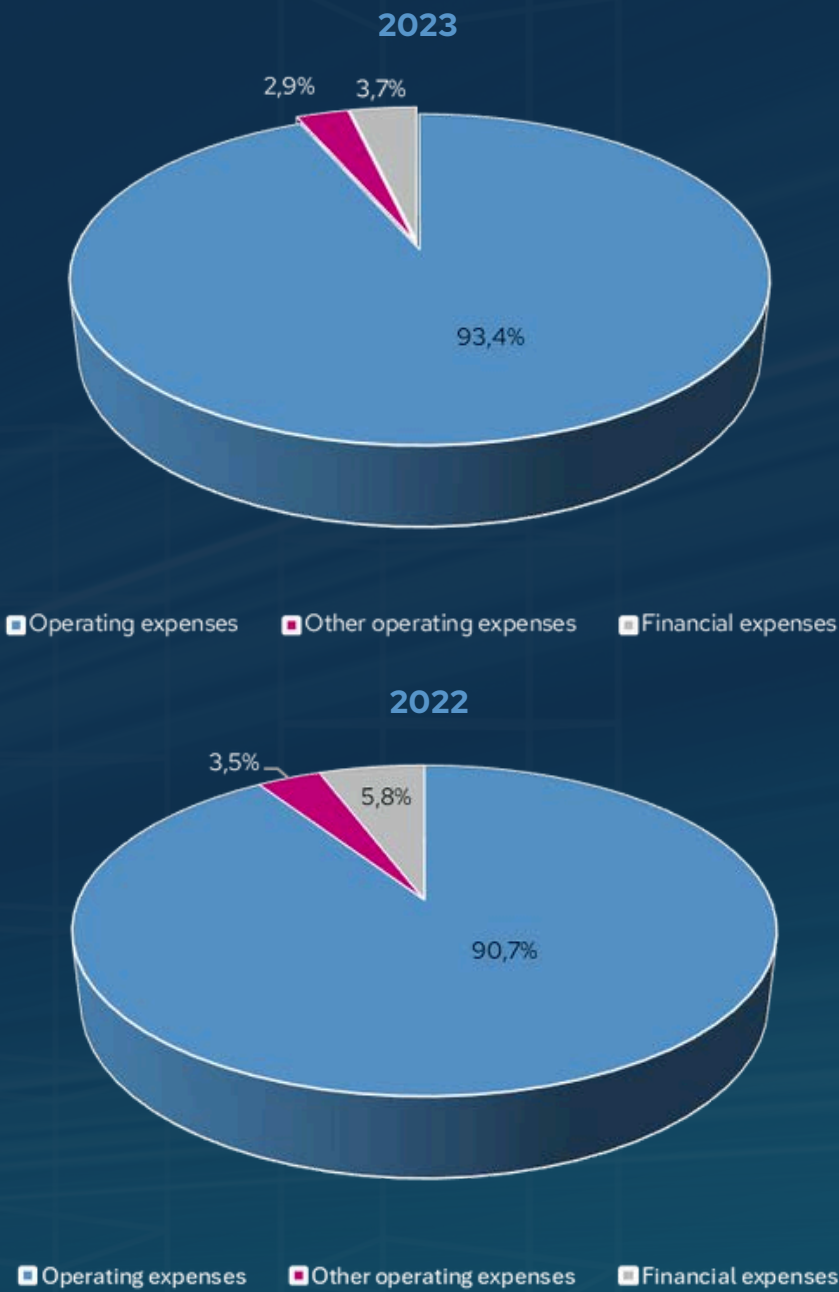
The total costs incurred by PANSA in 2023 amounted to kPLN 1,273,825.
The analysis of the PANSA cost structure shows that the significant share in total costs corresponds to the operating expenses, which in 2023 amounted to kPLN 1,190,329 (93% of total costs).

Tab. 12 Total costs

Total costs ('000 PLN)	For the year ended 31.12.2023	For the year ended 31.12.2022
Operating expenses	1,190,329	993,077
Other operating expenses	36,749	38,255
Financial expenses	46,747	63,077
Total costs	1,273,825	1,094,409

Source: PANSA

Fig. 22 Total costs



Source: PANSA

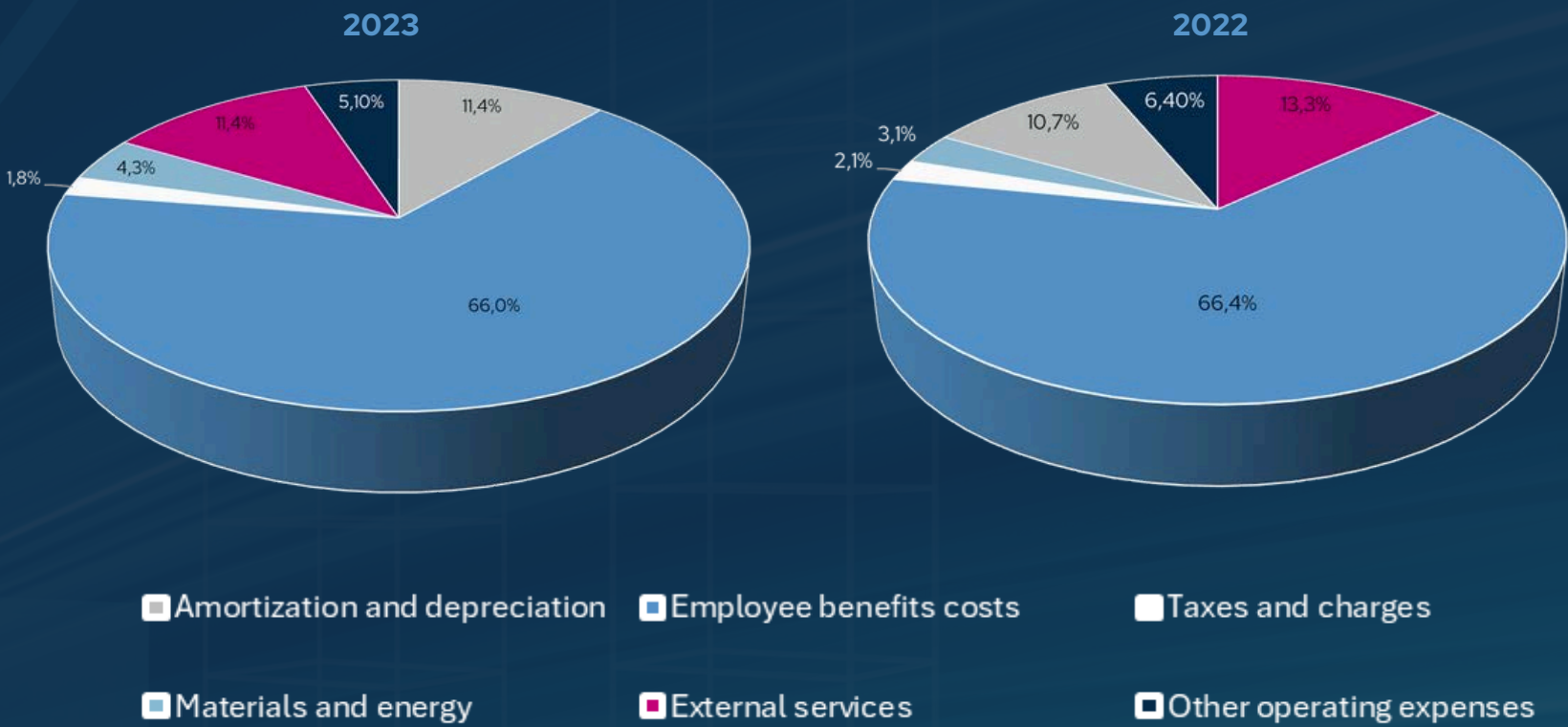
The total costs incurred by PANSA in 2023 amounted to kPLN 1,273,825.
The analysis of the PANSA cost structure shows that the significant share in total costs corresponds to the operating expenses, which in 2023 amounted to kPLN 1,190,329 (93% of total costs).

Tab. 13 Operating expenses by type

Operating expenses by type ('000 PLN)	For the year ended 31.12.2023	For the year ended 31.12.2022
Amortization and depreciation	135,299	132,020
Materials and energy	50,811	30,941
Employee benefits costs	785,572	639,172
External services	136,128	106,410
Taxes and charges	21,867	21,282
Other operating expenses	60,652	63,252
Total of cost by kind	1,190,329	993,077

Source: PANSA

Fig. 23 Operating expenses by type



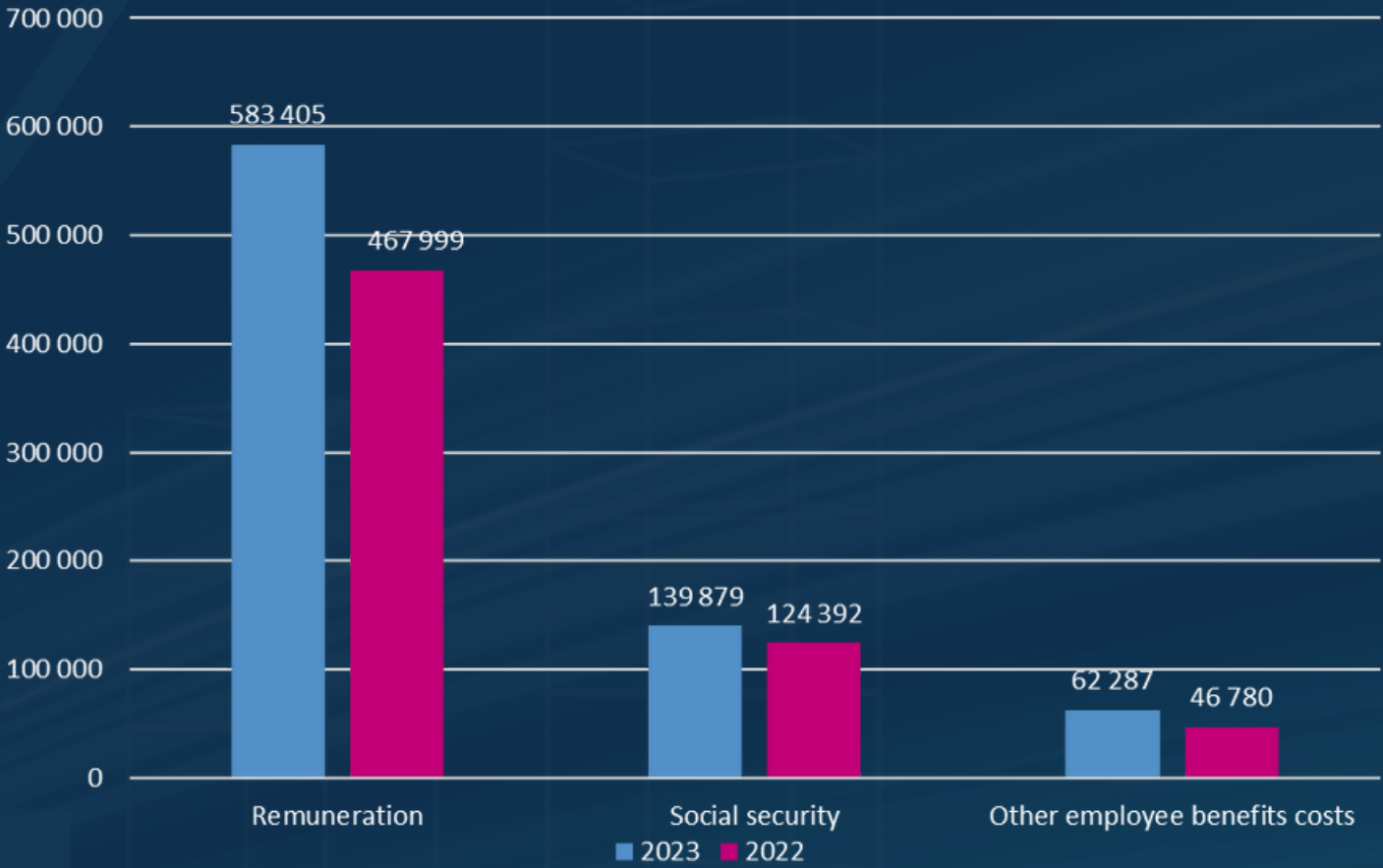
Source: PANSA

Tab. 14 Employee benefits costs

Employee benefits costs ('000 PLN)	For the year ended 31.12.2023	For the year ended 31.12.2022
Remuneration	583,405	467,999
Social security	139,879	124,392
Other employee benefits costs	62,287	46,780
Employee benefits costs	785,572	639,172

Source: PANSA

Fig. 24 Employee benefits costs



Source: PANSA

In compliance with the Commission Implementing Regulation (EU) 2019/317, the costs of providing air navigation services are broken down into: staff, other operating costs, depreciation, cost of capital and exceptional items.

The employee benefits costs (excluding training costs) are included in the staff costs. Other operating costs include the following categories of costs: consumption of materials and energy, external services, taxes and charges, other expenses, training in employee costs, other operating expenses and eligible financial costs. Lease payments resulting from the application of IFRS16 are also presented in other operating expenses.

The portion of depreciation resulting from the application of IFRS16 is not presented under depreciation. The cost of capital is not calculated on assets recognized due to the application of IFRS16.

Tab. 15 Operating expenses by service

Specification according to the Regulation 2019/317	Constituent items	En-route navigation ('000 PLN)	Terminal navigation ('000 PLN)
Staff	Total, including:	614,139	161,599
	Operating expenses	610,076	160,532
	Other operating expenses	4,063	1,067
Other operating costs	Total, including:	124,206	35,769
	Operating expenses	127,624	33,074
	Other operating and financial expenses	1,010	4,143
	Other operating and financial revenues	-4,428	-1,448
Depreciaton		100,715	21,424
Cost of capital		59,723	11,693
Exceptonal items		0	0
Total costs		898,783	230,484

Source: PANSA

The total value of assets/liabilities increased by kPLN 369,152 to kPLN 3,076,070 at the end of 2023.



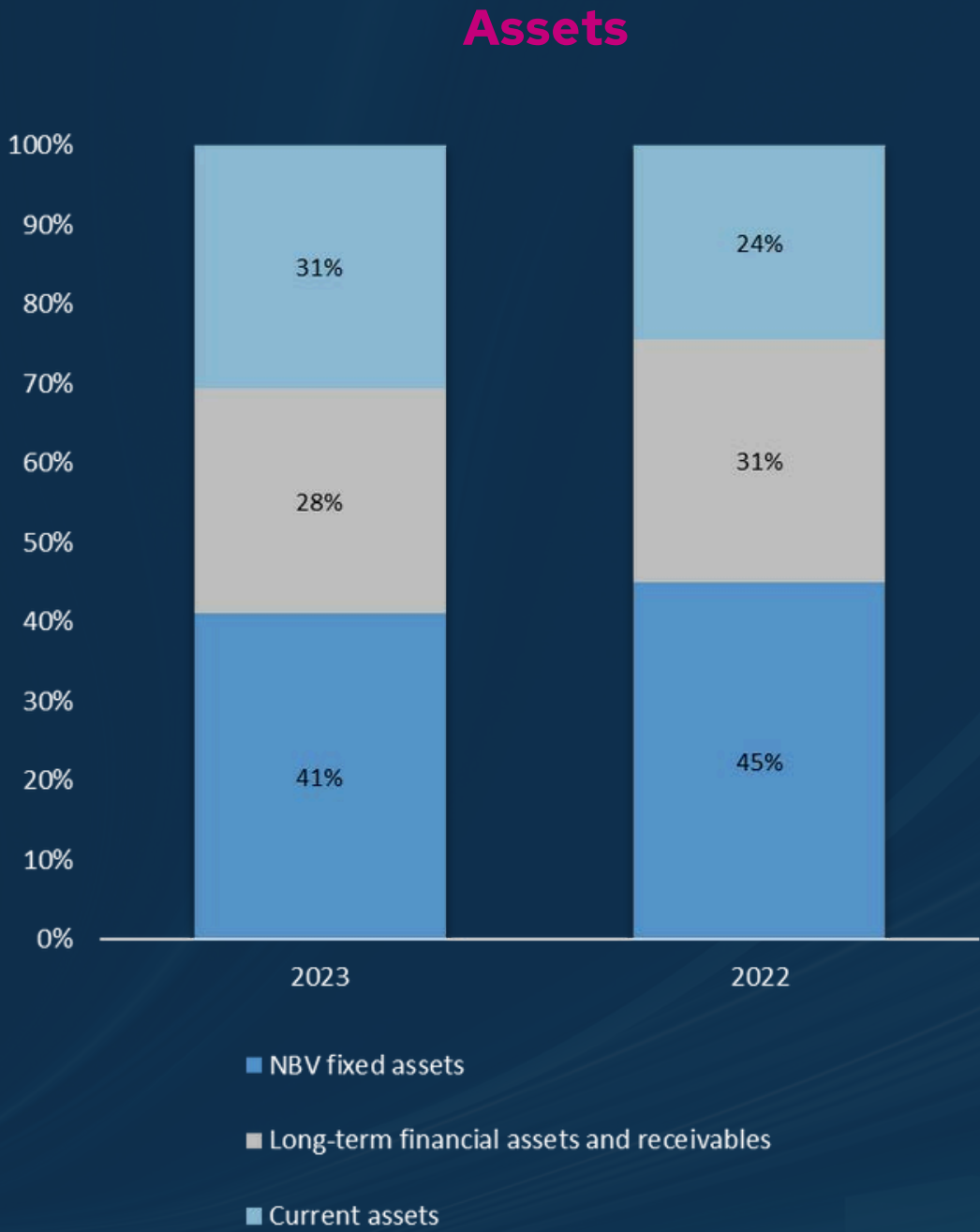
Tab. 16 Statement of financial position

Statement of financial position as at	31.12.2023	31.12.2022
Non-current assets	2,134,580	2,044,602
Intangible fixed assets	304,047	280,073
Property, plant and equipment	960,123	937,314
Right-of-use assets IFRS 16	49,733	44,476
Long-term receivables	146	134
Deferred tax assets	0	0
Long-term assets due to adjustments for carry-overs	811,155	775,401
Other accruals	9,376	7,204
Current assets	941,490	662,315
Inventories	158	111
Trade and other receivables	197,949	162,984
Income tax receivables	0	0
Short-term assets due to adjustments for carry-overs	414,465	186,989
Short-term accruals	17,580	6,399
Cash and cash equivalents	311,337	302,558
Assets available-for-sale	0	3,274
Total Assets	3,076,070	2,706,918

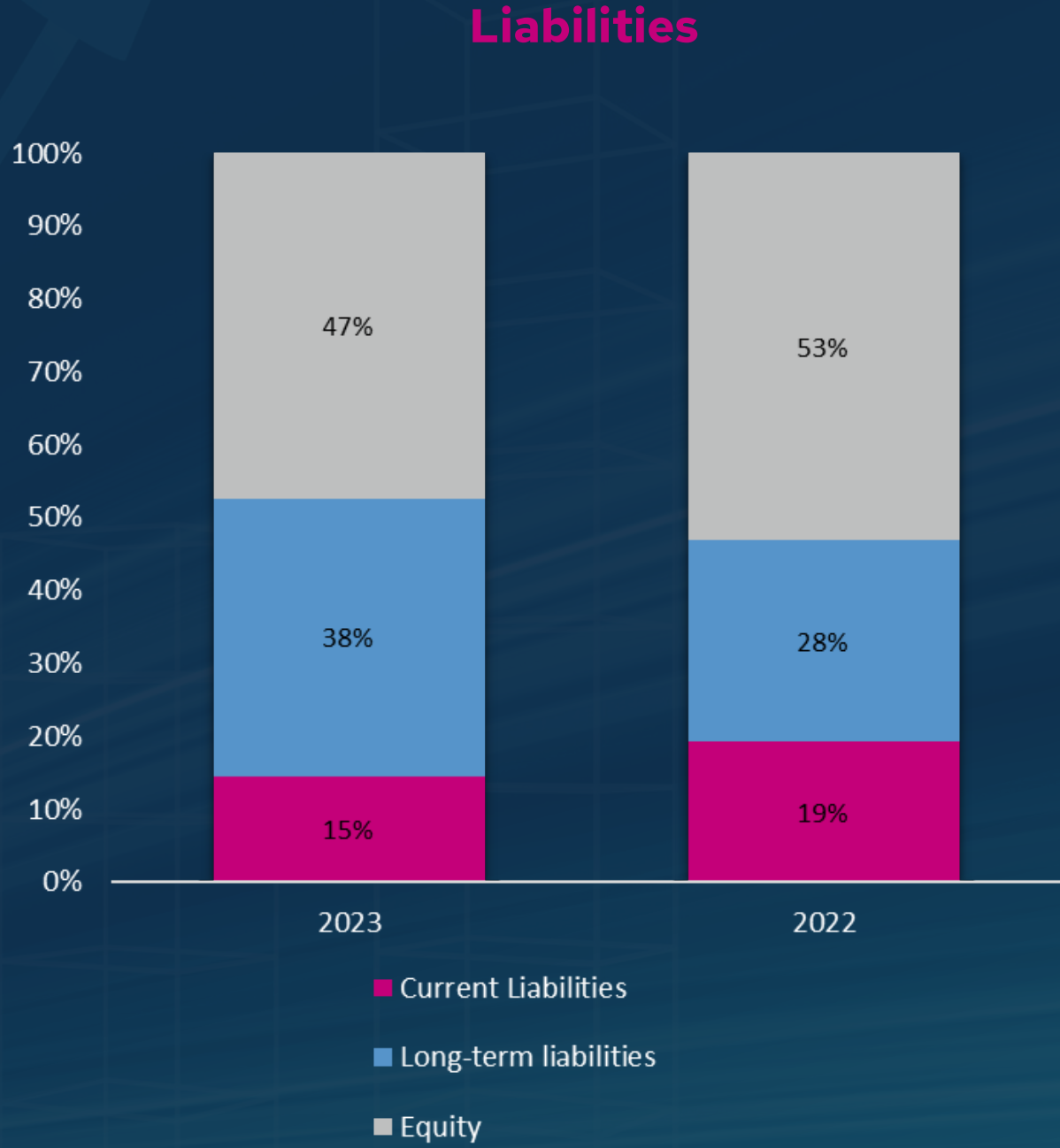
Statement of financial position as at	31.12.2023	31.12.2022
Equity, including:	1,457,175	1,434,288
Statutory Fund	475,022	475,022
Reserve Fund	948,177	869,648
Retained earnings	0	0
Accumulated other comprehensive income	12,570	13,002
Profit (loss) for the financial year	21,406	76,616
Long-term liabilities	1,171,185	752,928
Long-term provisions	290,806	153,868
Deferred tax liability	79,824	37,747
Other long-term accruals	297,782	234,068
Long-term liabilities due to adjustments for carry-overs	90,292	53,189
Liabilities due to IFRS 16	43,749	39,439
Liabilities due to loan	367,887	233,733
Other long-term liabilities	846	883
Short-term liabilities	447,711	519,702
Short-term provisions	12,141	1,421
Trade and other liabilities	195,754	137,183
Short-term liabilities due to adjustments for carry-overs	51,317	89,332
Liabilities due to IFRS 16	9,798	7,994
Liabilities due to loan	91,793	92,642
Other short-term accruals	86,908	191,129
Total Liabilities	3,076,070	2,706,918

Source: PANSA

The graphs below present the PANSA balance sheet structure changes in the years 2023 and 2022.



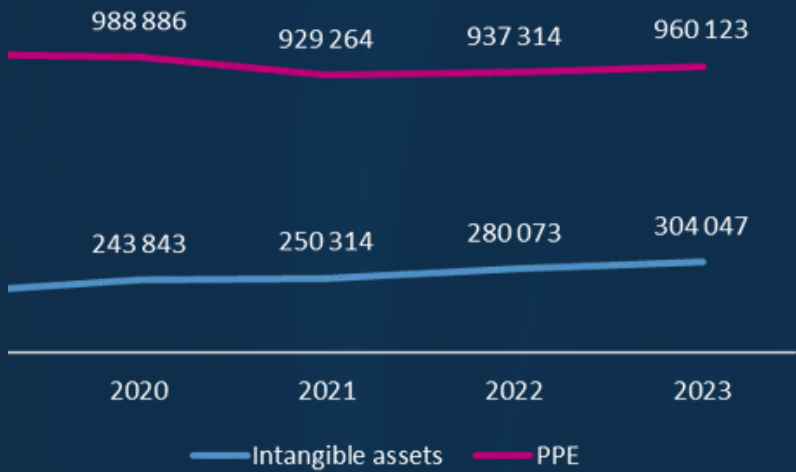
Source: PANSA



Source: PANSA

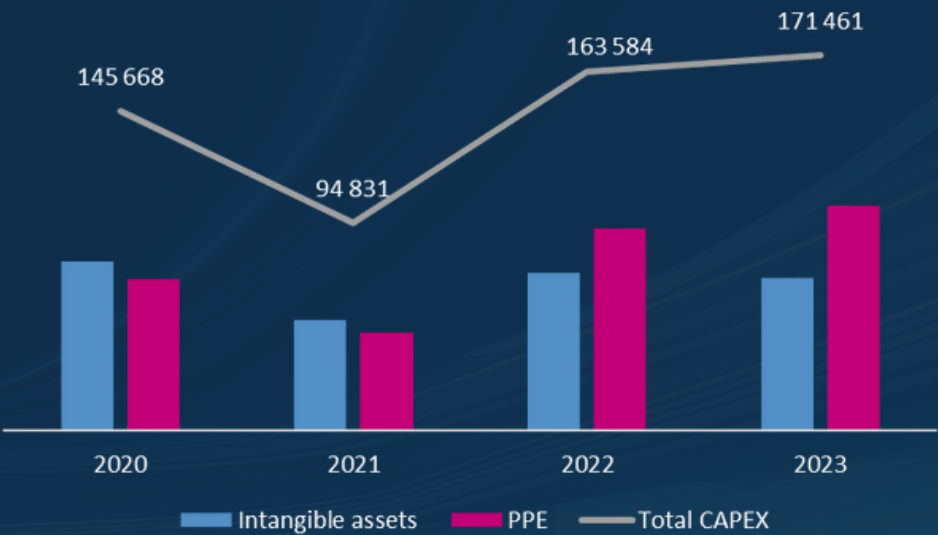
Property, plant and equipment comprise assets owned by the Polish Air Navigation Services Agency. At the end of 2023, the Agency had at its disposal tangible fixed assets (PPE) in the total amount of kPLN 960,123, which consisted mainly of technical equipment and machinery, buildings and structures, land (including rights of perpetual usufruct of land), and tangible fixed assets under construction.

Fig. 25 PPE & Intangible assets



Source: PANSA

Fig. 26 CAPEX



Source: PANSA

Tab. 17 Property, plant and equipment

Property, plant and equipment ('000 PLN)	Net value as at 31.12.2023	Net value as at 31.12.2022
Land & Perpetual usufruct of land	145,208	142,017
Buildings and struktures	325,585	311,972
Machinery and equipment	357,232	358,328
Fixed assets under constructions	98,938	89,111
Vehicles, other non-current assets	33,159	35,886
Total	960,123	937,314

Source: PANSA

The analysis of the asset financing sources shows that the Agency’s funds (equity) amounting to kPLN 1,457,175 represent 47.4% of total liabilities. The remaining 52.6% are long-term and short-term liabilities in the total amount of kPLN 1,618,896.

Tab. 18 Statement of changes in equity

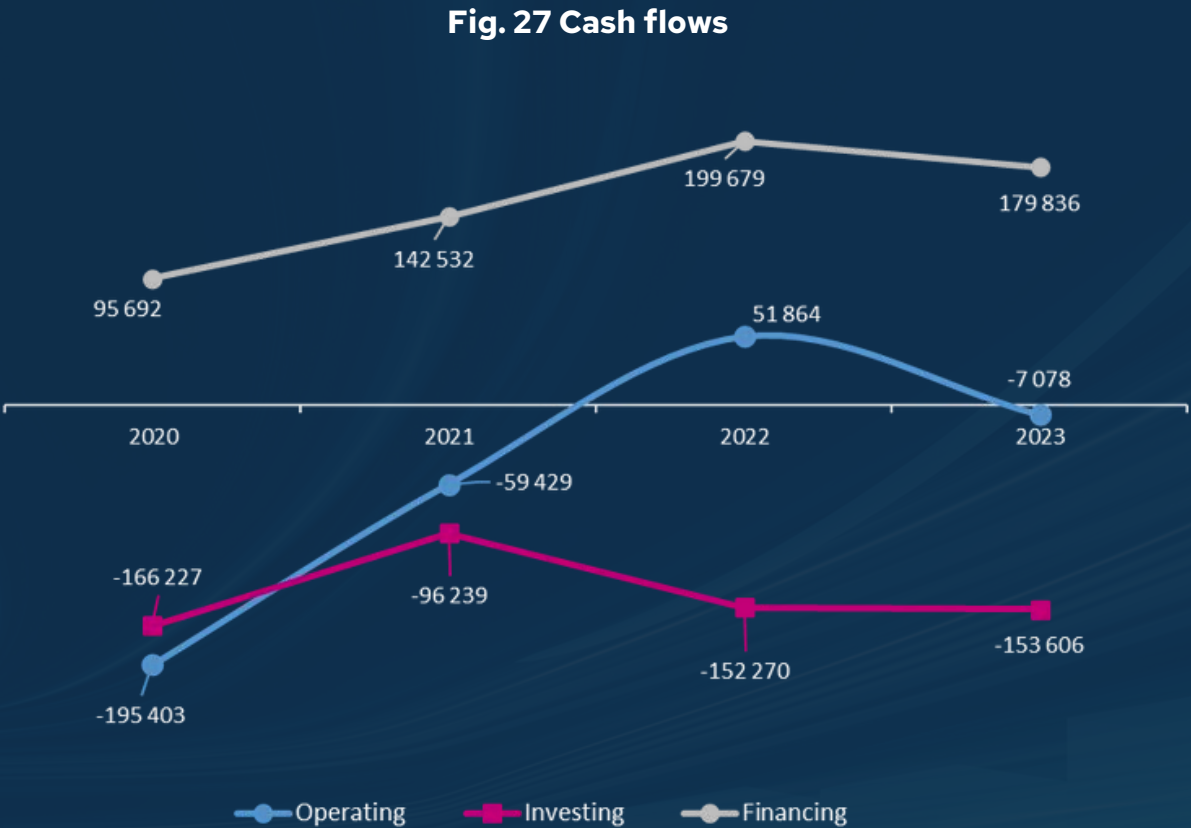
Statement of changes in equity ('000 PLN)	Statutory fund	Reserve fund	Retained earnings	Profit (loss) for the financial year	Accumulated other comprehensive income	Total
As for 31 December 2022	475,022	869,648	0	76,616	13,002	1,434,288
Distribution of prior year profit	0	76,616	0	-76,616	0	0
Profit (loss) for the financial year	0	0	0	21,406	0	21,406
Retained earnings	0	1,912	0	0	-1,912	0
Actuarial profit (loss)	0	0	0	0	1,480	1,480
As for 31 December 2023	475,022	948,177	0	21,406	12,570	1,457,175

Source: PANSA

The net cash flow from PANSA’s operating activities for 2023 was negative: kPLN -7,078 mainly due to lower service units (SU) for en-route traffic. However, actual net cash flow from operating activities was higher than planned for 2023 by kPLN 138,804.

The net cash flow from PANSA’s investments activities for 2023 was negative and amounted to kPLN -153,606. The negative cash flows in this area provides that PANSA continued its activities aimed at modernising the Agency through digitalisation as well as development in the area of new technologies.

The net cash flow from financing activities in the analysed period was positive and amounted to kPLN 179,836, which to a large extent resulted from launched loan in the amount of kPLN 228,627 and the impact of grants amounting to kPLN 74,930.



Source: PANSA

Tab.19 Statement of cash flows

Statement of cash flows	For the year ended 31.12.2023	For the year ended 31.12.2022
Cash flow from operating activities		
Profit before tax	63,137	96,940
Total adjustments	-70,215	-45,075
Depreciation	135,299	132,020
Foreign exchange profit (loss)	10,373	-773
Interest	23,378	11,429
Profit (loss) on investments	1,291	145
Change in provisions	148,005	12,711
Change in inventories	-47	24
Change in receivables	-34,977	-18,919
Change in liabilities	41,229	35,578
Change in accruals	-91,595	23,581
Change in adjustments for carry-overs	-264,143	-203,886
Income tax (paid)	0	0
Other adjustments	-39,028	-36,986
Net cash flows from operating activities	-7,078	51,864
Cash flows from investing activities		
Disposal of tangible and intangible assets	552	6
Acquisition of tangible and intangible assets	-136,193	-144,178
Development works	-17,964	-8,099
Net cash flows from investments	-153,606	-152,270
Cash flows from financing activities		
Credits and loans	228,627	167,560
Interest received	6,810	4,368
Proceeds from grants	74,930	60,418
Repayment of credits and loans	-93,976	-14,667
Interest paid	-27,663	-15,844
Change in liabilities due to IFRS 16	-6,314	-2,156
Net cash from financing activities	179,836	199,679
Net increases in cash and cash equivalents	19,153	99,273
Change in cash due to exchange rates changes	-10,373	773
Balance sheet change in cash and cash equivalents	8,779	100,047
Operating balance of cash and cash equivalents	302,558	202,511
Closing balance of cash and cash equivalents, including:	311,337	302,558
restricted cash	29,634	30,465

Source: PANSA



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