Monitoring Report 2021

Poland

Third Reference Period (2020-2024)

Signatories

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NSA names	Name, title and signature of representative
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Additional comments	

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SECTION 1: INTRODUCTION

1 - INTRODUCTION

1.1 Scope

1.1.1 Background

Period covered by the monitoring report	01 Jan. 2021 - 31 Dec. 2021
NSAs responsible for drawing up the monitoring report	Polish Civil Aviation Authority acting as NSA
Adoption date of final performance plan (or, if not yet adopted, of the most recent draft performance plan)	
Additional comments	

1.1.2 ANSPs

Number of ANSPs	**5**

ANSP name	Polish Air Navigation Services Agency (PANSA)
Services	ANSP (ATS,CNS, AIS, SAR coordination)
Geographical scope	Flight Infromation Region Warszawa, all airports concerned

ANSP name	Institute of Meteorology and Water Management - National Research Institute (IMWM)
Services	METEO
Geographical scope	Flight Infromation Region Warszawa (excluding EPRA TMA and CTR/ATZ, EPSY TMA and CTR/ATZ, EPBY TMA and CTR/ATZ)

ANSP name	Radom Meteo sp. z o.o.
Services	METEO
Geographical scope	EPRA TMA and CTR

ANSP name	Warmia i Mazury sp. z o.o.
Services	ATS (AFIS), CNS (COM), METEO
Geographical scope	EPSY METEO: TMA, CTR and ATZ, AFIS: ATZ

ANSP name	Port Lotniczy Bydgoszcz S.A.
Services	ATS (AFIS), METEO
Geographical scope	EPBY METEO: TMA, CTR and ATZ, AFIS: ATZ

1.1.3 Other entities

Number of other entities	**2**

Entity name	Civil Aviation Authority of the Republic of Poland (NSA)
Domain of activity	Supervision

Entity name	EUROCONTROL
Domain of activity	Other/Network

1.1.4 Charging zones

En route:

Number of en route charging zones	**1**

En route charging zone	Poland

Terminal:

Number of terminal charging zones	**2**

Terminal charging zone	Poland zone 1
Terminal charging zone	Poland zone 2

1.1.5 Additional information

No changes were reported during 2021.

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1.2 List of Airports

1.2.1 Airports

Number of airports	**15**

Airport name	Chopina w Warszawie
ICAO code	EPWA
Charging zone	Poland zone 1

Airport name	Bydgoszcz
ICAO code	EPBY
Charging zone	Poland zone 2

Airport name	Gdańsk im. Lecha Wałęsy
ICAO code	EPGD
Charging zone	Poland zone 2

Airport name	Kraków-Balice
ICAO code	EPKK
Charging zone	Poland zone 2

Airport name	Katowice-Pyrzowice
ICAO code	EPKT
Charging zone	Poland zone 2

Airport name	Lublin
ICAO code	EPLB
Charging zone	Poland zone 2

Airport name	Łódź
ICAO code	EPLL
Charging zone	Poland zone 2

Airport name	Warszawa/Modlin
ICAO code	EPMO
Charging zone	Poland zone 2

Airport name	Poznań-Ławica
ICAO code	EPPO
Charging zone	Poland zone 2

Airport name	Radom-Sadków
ICAO code	EPRA
Charging zone	Poland zone 2

Airport name	Rzeszów-Jasionka
ICAO code	EPRZ
Charging zone	Poland zone 2

Airport name	Szczecin-Goleniów
ICAO code	EPSC
Charging zone	Poland zone 2

Airport name	Olsztyn-Mazury
ICAO code	EPSY
Charging zone	Poland zone 2

Airport name	Wrocław-Strachowice
ICAO code	EPWR
Charging zone	Poland zone 2

Airport name	Zielona Góra-Babimost
ICAO code	EPZG
Charging zone	Poland zone 2

1 - INTRODUCTION

1.3 Overview

1.3.1 Economic and operational context and impact on the provisions of ANS

2021 was the second year of COVID-19 pandemic, which impacted ANS and ANSPs in many various ways.
On the one hand, especially over the first half of the year, persisting uncertainty over further evolution of the pandemic and traffic evolution made it difficult for ANSPs to plan on medium term. Restrictions related to the pandemic were still maintained and had to be taken into account also in the rostering schemes. The restrictions also impacted the ability to execute a number of projects – due to physical distancing, remote work and travelling restrictions. At the same time there was a common view that in the longer run aviation will return on a growth path and this expected traffic increase should be duly considered in operational planning, including staffing and infrastructure/systems for the following years. The last months of 2021 were marked by further uncertainty related to the new virus type.
From economic perspective the ANSPs were operating in 2021 in difficult financial situation. The second year in a row, the invoiced revenues from ANS charges were based on unit rates stemming from performance plans developed before the pandemic, in 2019. They were based on much higher traffic forecasts, while at the same time actual traffic was significantly lower. The number of service units for Poland was by more than 50% lower than the figure foreseen for 2021 back in 2019. As a result, charges collected by ANSPs were much lower than the cost of ATM/ANS provision. Due to the need to perform the services irrespective of the level of traffic and - by nature - high level of fixed costs, cost of providing ANS could not be adjusted to the traffic drop. This discrepancy between costs and collected revenues from invoiced charges forces ANSPs to use debt financing. End of 2021 and early 2022 were also characterised by visible significant changes to macroeconomic parameters in Poland as compared to assumptions underlying revised RP3 PP – increase in inflation rates, in energy prices and increase in interest rates – as well as slower recovery of traffic levels.
From operational perspective, additional to the restrictions origin fro the COVID restrictions, changes to traffic flows need to be mentioned following the incident with Ryanair flight diverted to Minsk in May 2021, which led to recommendations for EU operators to avoid Belarusian airspace.

1.3.2 NSA key observations and highlight per KPA

Please provide the key observations from the monitoring for each KPA :

Safety
As in the case of year 2020, the COVID-19 pandemic did not affect safety level of services provided by the ANSP dramatically. In 2021 the ANSP successfully implemented a set of measures to achieve goals established in the KPA SAFETY. The data indicate that safety has remained at a very high level without singalising that it was affected by consequences caused by COVID-19 pandemic situation. The ANSP management systems proof the ability to be sufficiently robust and adequately efficient to manage the impact of the changed conditions.

Environment
In the KPA Environment – the en-route horizontal flight efficiency indicator (KEA) was below the target set for the year 2021. In Poland the value of KEA was achieved at the level 2,33% with the planned target value at the level 1.65%. This situation was caused largely by external circumstances linked to geopolitical situation (users from the Russian Federation avoiding airspace of Ukraine, European users avoiding airspace of Belarus, certain flights circumnavigating around Kaliningrad area etc.) as well as airspace users' preference for certain routes which are different than the shortest route. In relations to terminal traffic the shorter waiting times of aircraft in the holding zones and use of Continuous Descent Approach (CDA) and Continuous Descent Operations (CDO) were positively influencing the situation within KPA ENVIRONMENT.

Capacity
The results in the CAPACITY KPA at the end of 2021 year in Poland was 0,07 minutes/flight with a target of 0,07 minutes/flight. In terminal traffic the national target was 0.02 minutes/flight, while the actual result was 0.00 minutes/flight. The KPA will be monitored through the PRB dashboard.

Cost-efficiency
In the area of cost-efficiency, in terms of route charges, the total real nominal value of costs for 2020/2021 was lower by 19.5% than planned. Total en route costs in real terms were lower by 19.0% compared to the planned ones, SU were by 0.8% higher than planned. DUC for the combined period 2020-2021 was by 19.6% lower than planned. Regarding terminal charges in Terminal Charges Zone I, the total real nominal value of costs for 2020/2021 was lower by 22.1% than planned. The total costs were by 22.0% lower than planned. The total number of SU-L in TCZ I was by 1.6% lower than planned. DUC was by 20.7% lower than planned. In terms of terminal charges in Terminal Charges Zone II, the total real nominal value of costs for 2020/2021 was 19.6% lower than planned. The total terminal costs in TCZ II were lower by 19.4% than planned. The total number of SU-L was by 1.8% higher than planned. DUC was by 20.8% lower than planned.

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1.4 Traffic figures

1.4.1 En route

En route charging zone	Poland

Forecast values from the PP	2020	2021	2022	2023	2024
IFR movements (thousands)	377	461	752	863	920
IFR movements (yearly variation in %)		22%	63%	15%	7%
En route service units (thousands)	2 146	2 549	3 991	4 763	5 130
En route service units (yearly variation in %)		19%	57%	19%	8%

Actual values	2020	2021	2022	2023	2024
IFR movements (thousands)	377	477			
IFR movements (yearly variation in %)		27%			
En route service units (thousands)	2 146	2 586			
En route service units (yearly variation in %)		21%			

Differences	2020	2021	2022	2023	2024
IFR movements (thousands)	0	17			
IFR movements (in %)	0%	4%			
En route service units (thousands)	0	37			
En route service units (in %)	0%	1%			

1.4.2 Terminal

Terminal charging zone	Poland zone 1

Forecast values from the PP	2020	2021	2022	2023	2024
IFR movements (thousands)	40	52	81	87	92
IFR movements (yearly variation in %)		31%	56%	7%	6%
Terminal service units (thousands)	44	55	87	97	103
Terminal service units (yearly variation in %)		26%	59%	11%	7%

Actual values	2020	2021	2022	2023	2024
IFR movements (thousands)	40	0			
IFR movements (yearly variation in %)		-100%			
Terminal service units (thousands)	44	53			
Terminal service units (yearly variation in %)		22%			

Differences	2020	2021	2022	2023	2024
IFR movements (thousands)	0	-52			
IFR movements (in %)	0%	-100%			
Terminal service units (thousands)	0	-2			
Terminal service units (in %)	0%	-3%			

Terminal charging zone	Poland zone 2

Forecast values from the PP	2020	2021	2022	2023	2024
IFR movements (thousands)	57	70	112	118	127
IFR movements (yearly variation in %)		22%	61%	6%	8%
Terminal service units (thousands)	62	76	124	131	142
Terminal service units (yearly variation in %)		22%	62%	6%	8%

Actual values	2020	2021	2022	2023	2024
IFR movements (thousands)	57	0			
IFR movements (yearly variation in %)		-100%			
Terminal service units (thousands)	62	79			
Terminal service units (yearly variation in %)		26%			

Differences	2020	2021	2022	2023	2024
IFR movements (thousands)	0	-70			
IFR movements (in %)	0%	-100%			
Terminal service units (thousands)	0	2			
Terminal service units (in %)	0%	3%			

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1.5 Other general information

1.5.1 Cross-border cooperation initiatives

Despite difficulties resulting from COVID-19 pandemic, PANSA continued cooperation with other ANSPs aiming at improving provision of ATM/ANS.
The main areas of cross-border cooperation in 2021 included the following:
- PANSA signed an agreement with UkSATSE (Ukrainian State Air Traffic Service Enterprise) in May 2021 based on which the agencies exchange radar data (Radar Rzeszów on PANSA side and Radar Lviv on UkSATSE side). This was to allow PANSA to have multiple radar coverage in South-eastern Poland. Due to the war in Ukraine, currently, this agreement is however suspended.
- PANSA is involved in ongoing cooperation with the Network Manager, including weekly conferences of NDOP Coordination Cell aiming at matters related to flow and capacity optimization as well as reduction of delays. Another field of common interest for all Network members is the Operational Excellence Programme, addressing problems regarding the capacity, environment, and cross-border implementation at the Network level.
- PANSA is a member of EUROCONTROL Environmental Transparency Group working toward finding better indicators for measuring environmental performance in SES area.
- PANSA continued working on the implementation of cross-border FRA operations – with Lithuania and Slovakia (successfully implemented in February 2022) and with Sweden and Czech Republic (to be implemented at a later stage).
- Traffic Complexity Tool (TCT) was implemented into operational use in 2021. TCT is used to support air traffic management by ATFCM.
- PANSA continued cooperation with other ANSPs under iTEC Collaboration.

1.5.2 Description of the process and activities implemented by the NSA for the monitoring of performance

The fulfilment of the Polish Performance plan was regularly monitored by the NSA. The process of continuous oversight of all ANSPs was conducted based on the Regulation (EU) 2019/317) and Regulation 2017/373. The monitoring activities were including analysis of the ANSP's business and annual plans and their consistency with the Performance Plan for RP3. They were covering, among the others, the following areas:- investment plan (CAPEX) execution:
- execution of planned costs
- use of public funding, including EU funding
- execution of employment plan
- execution of staff training plan
- ATCO productivity
- implementation of major projects aimed at increasing capacity and enhancing flight efficiency
- implementation of corrective measures in the safety area.

The monitoring of progress in achieving performance targets set in Performance Plan for RP3 was performed also by dedicated Polish NSA inspectors during routine inspections.

SECTION 2: PERFORMANCE

2 - PERFORMANCE AT LOCAL LEVEL

2.1 - Safety

2.1.1 - Key Performance Indicators

2.1.1.(a) - Safety KPI #1: Level of Effectiveness of Safety Management

Please populate the table. The overall score per EoSM component is defined as the lowest score from the questions within a given component. For example, if verified levels for the Safety Culture component for questions 1.1, 1.2 and 1.3 were C, C, A, then the overall score for the component is A.

Polish Air Navigation Services Agency (PANSA)

Effectiveness of Safety Management		2020	2021	2022	2023	2024
(a) safety policy and objectives	Values from PP	C	C	C	C	C
	Actual values	C	D			
(b) safety risk management	Values from PP	C	C	C	C	D
	Actual values	D	D			
(c) safety assurance	Values from PP	C	C	C	C	C
	Actual values	C	D			
(d) safety promotion	Values from PP	C	C	C	C	C
	Actual values	D	D			
(e) safety culture	Values from PP	C	C	C	C	C
	Actual values	D	D			

Assessment of the achieved level of actual performance
At the end of 2021 PANSA achieved level D in all five EoSM areas, thereby exceeding the targets set for 2021. NSA collected evidence proving the EoSM maturity levels, declared by PANSA, and made no objections to the level D in all five areas.

Main measures put in place to achieve the safety performance targets
Over 2021 PANSA continued implementation of improvements initiated in RP2 and carried out over 2020 and consequently implemented measures listed in internal "SMS development roadmap". The "SMS development roadmap" is subject to ongoing review, based on monitoring results. The measures implemented in 2021 included: - review and mapping of processes, using BPMN 2.0 tool (Buiness Process Model and Notation 2.0), - continuation of safety promotion initiatives, including quarterly publication of safety bulletin "Safe Sky", - update of safety training modules for managerial level and for PANSA employees, - update of safety recommendations register to include new functionalities (including dissemination of observations stemming from occurence investigations and safety reviews) and further development of safety recommendations monitoring process, - promotion of occurence reporting (using TOKAI system) through information campaigns and OPS personnel trainings, - continuation of best practices exchanges with national and international organisations and entities, - reviews, excercises and tests as well as updates to contingency plans.

If the targets have not been achieved, please explain the underlying causes or circumstances that let to this situation.
N/A

Is the NSA aware of any circumstances that may cause the SAF performance targets not to be met, either this year or in future years in the reference period?	No

What, if any, remedial actions have been implemented or planned by the ANSP to address this?
N/A

What further measures does the NSA intend to undertake to remedy this situation?
N/A

Port Lotniczy Bydgoszcz S.A.

Effectiveness of Safety Management		2020	2021	2022	2023	2024
(a) safety policy and objectives	Values from PP	C	C	C	C	C
	Actual values	C	C			
(b) safety risk management	Values from PP	C	C	C	C	D
	Actual values	C	C			
(c) safety assurance	Values from PP	C	C	C	C	C
	Actual values	C	C			
(d) safety promotion	Values from PP	C	C	C	C	C
	Actual values	C	C			
(e) safety culture	Values from PP	C	C	C	C	C
	Actual values	C	C			

Assessment of the achieved level of actual performance
In 2021 Bydgoszcz Airport reached values from the Performance Plan in five safety areas.

Main measures put in place to achieve the safety performance targets
In 2021 Bydgoszcz Airport (EPBY) repeated measures aimed at achieving the safety performance targets that it mentioned in the questionnaire the year before; among others: - implementation of SMS related requirements, documents and procedures, compliant with national and international law, including development and maintenance of Safety Policy and Just Culture Policy, - ensuring SMS training for all staff and contractors, - appointment of Safety Manager, Safety Committee and Safety Review Board, - regular organisation of Local Safety Meetings, - development of safety management indicators, - promotion of proactive attitude of the employees regarding safety in the organisation, - conducting internal audit of the SMS and regular safety surveys, - development of annual business plan containing information on safety related investements, - sharing best practices, e.g. via SMS Data Exchange Forum etc.

If the targets have not been achieved, please explain the underlying causes or circumstances that let to this situation.
N/A

Is the NSA aware of any circumstances that may cause the SAF performance targets not to be met, either this year or in future years in the reference period?	No

What, if any, remedial actions have been implemented or planned by the ANSP to address this?
N/A

What further measures does the NSA intend to undertake to remedy this situation?
N/A

Warmia i Mazury sp. z o.o.

Effectiveness of Safety Management		2020	2021	2022	2023	2024
(a) safety policy and objectives	Values from PP	C	C	C	C	C
	Actual values	C	C			
(b) safety risk management	Values from PP	C	C	C	C	D
	Actual values	C	C			
(c) safety assurance	Values from PP	C	C	C	C	C
	Actual values	C	C			
(d) safety promotion	Values from PP	C	C	C	C	C
	Actual values	C	C			
(e) safety culture	Values from PP	C	C	C	C	C
	Actual values	C	C			

Assessment of the achieved level of actual performance
In 2021 Warmia i Mazury Airport, similarly to Bydgoszcz Airport, managed to reach values from the Performance Plan in all five safety areas. As in the previous year, it assessed its advancement and progress in SMS development at level D in the area of Safety risk management and at level C in four remaining areas. Polish NSA have questioned Bydgoszcz Airport self-assessment in a few cases, justifying its opinion with lack of sufficient evidence and thus suggesting lowering the proposed level from D to C in the area of Safety risk management. Therefore, the above levels reflect the assessment made by the NSA.

Main measures put in place to achieve the safety performance targets
In 2021 Warmia i Mazury Airport (EPSY), same as Bydgoszcz Airport (EPBY), repeated measures aimed at achieving the safety performance targets mentioned in the questionnaire the year before. Among others: - implementation of SMS related requirements, documents and procedures, compliant with national and international law, including development and maintenance of Safety Policy and Just Culture Policy, - ensuring SMS training for all staff and contractors, - appointment of Safety Manager, Safety Committee and Safety Review Board, - regular organisation of Local Safety Meetings, - development of safety management indicators, - promotion of proactive attitude of the employees regarding safety in the organisation, - conducting internal audit of the SMS and regular safety surveys, - development of annual business plan containing information on safety related investements, - sharing best practices, e.g. via SMS Data Exchange Forum etc.

If the targets have not been achieved, please explain the underlying causes or circumstances that let to this situation.
N/A

Is the NSA aware of any circumstances that may cause the SAF performance targets not to be met, either this year or in future years in the reference period?	No

What, if any, remedial actions have been implemented or planned by the ANSP to address this?
N/A

What further measures does the NSA intend to undertake to remedy this situation?
N/A

2.1.2 - Performance Indicators

2.1.2.(a) and (b) - Safety PI: rate of runway incursions and rate of separation minima infringements (Member State level)

Important note:
Please refer to the Supporting Guidance Material for the implementation and measurement of the safety key performance indicator (SKPI) and safety performance indicators (SPIs) for the Third Reference Period (RP3) - AMC3 Safety performance indicators (SPIs) for the monitoring of separation minima infringements (SMIs) and runway incursions (RIs) & GM5 Safety performance indicators (SPIs) for the monitoring of separation minima infringements (SMIs) and runway incursions (RIs). Only airports listed in the Performance Plan (mandatory & voluntary) and their corresponding IFR/ VFR movements should be used to derive the rate of runway incursions. At the State level, with safety impact refers to occurrences that have risk classified using the ERCS that appear in the Amber/ Red zones of the matrix.

Easy Access Rules for Safety (Key) Performance Indicators (S(K)PI) – Third Reference Period (RP3) | EASA (europa.eu)

Poland

Runway Incursions	2020	2021	2022	2023	2024
Total number of runway incursions with a safety impact	10	17			
Total number of IFR and VFR movements at the airports	194 403	238 124			
Rate of Runway Incursions at Airports Located in the Member State	0,00005	0,00007			

What initiatives were implemented or are planned that will improve this PI and how does the NSA intend on monitoring their effectiveness on performance?

Separation minima	2020	2021	2022	2023	2024
Total number of separation minima infringements with a safety impact that occurred in the airspace	21	15			
Total number of controlled flight hours within the airspace	217 134	267 414			
Rate of separation minima infringements within the airspace of all controlling air traffic services units in the Member State	0,00010	0,00006			

What initiatives were implemented or are planned that will improve this PI and how does the NSA intend to monitor their effectiveness?

2.1.2.(c) - Safety PI: rate of runway incursions (Airport level)

Important note:
Please refer to the Supporting Guidance Material for the implementation and measurement of the safety key performance indicator (SKPI) and safety performance indicators (SPIs) for the Third Reference Period (RP3) - AMC3 Safety performance indicators (SPIs) for the monitoring of separation minima infringements (SMIs) and runway incursions (RIs) & GM5 Safety performance indicators (SPIs) for the monitoring of separation minima infringements (SMIs) and runway incursions (RIs). Only IFR/ VFR movements at airports listed in the Performance Plan should be used to derive the rate. At the airport level, with Safety Impact refers to occurrences with RAT ground severity of A, B and C.

Easy Access Rules for Safety (Key) Performance Indicators (S(K)PI) – Third Reference Period (RP3) | EASA (europa.eu)

EPBY (Bydgoszcz)	2020	2021	2022	2023	2024
Total number of runway incursions with any contribution from air traffic services or CNS services with a safety impact that occurred at the airport	1	1			
Total number of IFR and VFR movements at the airports	4 117	2 135			
Rate of Runway Incursions at the airport	0,00024	0,00047			

EPLB (Lublin)	2020	2021	2022	2023	2024
Total number of runway incursions with any contribution from air traffic services or CNS services with a safety impact that occurred at the airport	0	0			
Total number of IFR and VFR movements at the airports	1 684	1 825			
Rate of Runway Incursions at the airport	0,00000	0,00000			

EPSY (Olsztyn-Mazury)	2020	2021	2022	2023	2024
Total number of runway incursions with any contribution from air traffic services or CNS services with a safety impact that occurred at the airport	0	0			
Total number of IFR and VFR movements at the airports	1 023	505			
Rate of Runway Incursions at the airport	0,00000	0,00000			

EPWA (Chopina w Warszawie)	2020	2021	2022	2023	2024
Total number of runway incursions with any contribution from air traffic services or CNS services with a safety impact that occurred at the airport	4	3			
Total number of IFR and VFR movements at the airports	79 844	94 666			
Rate of Runway Incursions at the airport	0,00005	0,00003			

EPGD (Gdańsk im. Lecha Wałęsy)	2020	2021	2022	2023	2024
Total number of runway incursions with any contribution from air traffic services or CNS services with a safety impact that occurred at the airport	0	2			
Total number of IFR and VFR movements at the airports	21 607	25 444			
Rate of Runway Incursions at the airport	0,00000	0,00008			

EPKK (Kraków-Balice)	2020	2021	2022	2023	2024
Total number of runway incursions with any contribution from air traffic services or CNS services with a safety impact that occurred at the airport	2	3			
Total number of IFR and VFR movements at the airports	27 087	32 925			
Rate of Runway Incursions at the airport	0,00007	0,00009			

EPKT (Katowice-Pyrzowice)	2020	2021	2022	2023	2024
Total number of runway incursions with any contribution from air traffic services or CNS services with a safety impact that occurred at the airport	1	0			
Total number of IFR and VFR movements at the airports	17 318	24 570			
Rate of Runway Incursions at the airport	0,00006	0,00000			

EPLL (Łódź)	2020	2021	2022	2023	2024
Total number of runway incursions with any contribution from air traffic services or CNS services with a safety impact that occurred at the airport	0	3			
Total number of IFR and VFR movements at the airports	2 345	3 076			
Rate of Runway Incursions at the airport	0,00000	0,00098			

EPMO (Warszawa/Modlin)	2020	2021	2022	2023	2024
Total number of runway incursions with any contribution from air traffic services or CNS services with a safety impact that occurred at the airport	0	0			
Total number of IFR and VFR movements at the airports	8 614	13 085			
Rate of Runway Incursions at the airport	0,00000	0,00000			

EPPO (Poznań-Ławica)	2020	2021	2022	2023	2024
Total number of runway incursions with any contribution from air traffic services or CNS services with a safety impact that occurred at the airport	1	2			
Total number of IFR and VFR movements at the airports	10 833	13 847			
Rate of Runway Incursions at the airport	0,00009	0,00014			

EPRA (Radom-Sadków)	2020	2021	2022	2023	2024
Total number of runway incursions with any contribution from air traffic services or CNS services with a safety impact that occurred at the airport	0	0			
Total number of IFR and VFR movements at the airports	1	0			
Rate of Runway Incursions at the airport	0,00000				

EPRZ (Rzeszów-Jasionka)	2020	2021	2022	2023	2024
Total number of runway incursions with any contribution from air traffic services or CNS services with a safety impact that occurred at the airport	0	1			
Total number of IFR and VFR movements at the airports	4 011	4 268			
Rate of Runway Incursions at the airport	0,00000	0,00023			

EPSC (Szczecin-Goleniów)	2020	2021	2022	2023	2024
Total number of runway incursions with any contribution from air traffic services or CNS services with a safety impact that occurred at the airport	0	0			
Total number of IFR and VFR movements at the airports	3 236	3 243			
Rate of Runway Incursions at the airport	0,00000	0,00000			

EPWR (Wrocław-Strachowice)	2020	2021	2022	2023	2024
Total number of runway incursions with any contribution from air traffic services or CNS services with a safety impact that occurred at the airport	0	1			
Total number of IFR and VFR movements at the airports	13 661	17 399			
Rate of Runway Incursions at the airport	0,00000	0,00006			

EPZG (Zielona Góra-Babimost)	2020	2021	2022	2023	2024
Total number of runway incursions with any contribution from air traffic services or CNS services with a safety impact that occurred at the airport	0	0			
Total number of IFR and VFR movements at the airports	1 030	707			
Rate of Runway Incursions at the airport	0,00000	0,00000			

What initiatives were implemented or are planned that will improve this PI and how does the NSA intend to monitor their effectiveness?
NSA monitors the effectiveness of PANSA performance using EoSM and safety oversight programme. On the PANSA side, Performance Indicators (PI), such as Separation Minima Infringement (SMI) and Runway Incursion (RI), as well as others, are continuously monitored. In the case of exceedances of alarm levels, decisions are made at the Safety Review Board meeting regarding the implementation of corrective actions and limiting the occurrence of similar events in the future. In addition PANSA undertakes activities to increase safety awareness by issuing safety bulletins – "Safe Sky", in which articles refer to the areas of identified risk.

2.1.2.(d) - Safety PI: rate of separation minima infringements (ANSP level)

Important note:
Please refer to the Supporting Guidance Material for the implementation and measurement of the safety key performance indicator (SKPI) and safety performance indicators (SPIs) for the Third Reference Period (RP3) - AMC3 Safety performance indicators (SPIs) for the monitoring of separation minima infringements (SMIs) and runway incursions (RIs) & GM5 Safety performance indicators (SPIs) for the monitoring of separation minima infringements (SMIs) and runway incursions (RIs).
When monitoring SMIs ensure that the following has been coded and reported:
— unambiguously identify the safety occurrences that are SMIs;
— when the SMI occurred at the arrival or departure at an airport, the location indicator of the airport where it took place;
— The ATS unit name, airspace type, class and FIR/UIR name;
— information on whether, in the judgement of the investigators of the occurrence, the ATS or CNS contributed to the SMI, either directly or indirectly or none, as appropriate;
— RAT ground severity associated to the SMI, as obtained by the application of the RAT methodology by the ANSP;
— ERCS risk grade associated to the SMI, as obtained by the application of the ERCS methodology by the State.

Easy Access Rules for Safety (Key) Performance Indicators (S(K)PI) – Third Reference Period (RP3) | EASA (europa.eu)

Polish Air Navigation Services Agency (PANSA)	2020	2021	2022	2023	2024
Total number of separation minima infringements with any contribution from air traffic services, or CNS services with a safety impact	8	15			
Total number of controlled flight hours within the airspace	217 134	267 414			
Rate of separation minima infringements within the airspace where the air navigation service provider provides air traffic services	0,00004	0,00006			

Port Lotniczy Bydgoszcz S.A.	2020	2021	2022	2023	2024
Total number of separation minima infringements with any contribution from air traffic services, or CNS services with a safety impact	0	0			
Total number of controlled flight hours within the airspace	0	0			
Rate of separation minima infringements within the airspace where the air navigation service provider provides air traffic services					

Warmia i Mazury sp. z o.o.	2020	2021	2022	2023	2024
Total number of separation minima infringements with any contribution from air traffic services, or CNS services with a safety impact	0	0			
Total number of controlled flight hours within the airspace	0	0			
Rate of separation minima infringements within the airspace where the air navigation service provider provides air traffic services					

What initiatives were implemented or are planned that will improve this PI and how does the NSA intend on monitoring their effectiveness on performance?

2.1.2.(e) - Safety PI: Application of automated safety data recording systems

Important note:
Please provide details of any automated safety data recording systems that have been implemented, including the use of the systems by the air navigation service provider, as a component of the safety risk management framework, for the purposes of gathering, storing and near-real time analyses of data related to, as a minimum, separation minima infringements and runway incursions
Please refer to the Supporting Material for the implementation and measurement of the safety key performance indicator (SKPI)
https://www.easa.europa.eu/document-library/easy-access-rules/easy-access-rules-safety-key-performance-indicators-skpi-third

Polish Air Navigation Services Agency (PANSA)	Type of automated safety data recording system:	None

(a) What safety data is captured by the automated safety data recording systems?
N/A

(b) How is the data captured used in support of the safety risk management framework?
N/A

(c) How are just-culture organisation principles applied in gathering and using the safety data recorded?
N/A

(d) How is the monitoring of data sources organised and how is it ensured that available data sources are utilised in a coherent way?
N/A

(e) How is the data combined to provide the explanatory power to understand the context that led to safety occurrences and anticipate emerging risks?
N/A

(f) How is the information from safety data analyses fed forward to risk assessment processes and to designers of future systems?
N/A

(g) How is the information disseminated inside and outside the organisation?
N/A

(h) Have obstacles of a technical, operational or cultural nature been identified that prevented the realisation of the full potential of a data-driven safety decision-making process? What are the main issues when using automated safety data recording systems?
N/A

Port Lotniczy Bydgoszcz S.A.	Type of automated safety data recording system:	None

(a) What safety data is captured by the automated safety data recording systems?
The automated safety system used by Port Lotniczy Bydgoszcz S.A. is the "Central Event Database"

(b) How is the data captured used in support of the safety risk management framework?
N/A

(c) How are just-culture organisation principles applied in gathering and using the safety data recorded?
N/A

(d) How is the monitoring of data sources organised and how is it ensured that available data sources are utilised in a coherent way?
N/A

(e) How is the data combined to provide the explanatory power to understand the context that led to safety occurrences and anticipate emerging risks?
N/A

(f) How is the information from safety data analyses fed forward to risk assessment processes and to designers of future systems?
N/A

(g) How is the information disseminated inside and outside the organisation?
N/A

(h) Have obstacles of a technical, operational or cultural nature been identified that prevented the realisation of the full potential of a data-driven safety decision-making process? What are the main issues when using automated safety data recording systems?
N/A

Warmia i Mazury sp. z o.o.	Type of automated safety data recording system:	None

(a) What safety data is captured by the automated safety data recording systems?
N/A

(b) How is the data captured used in support of the safety risk management framework?
N/A

(c) How are just-culture organisation principles applied in gathering and using the safety data recorded?
N/A

(d) How is the monitoring of data sources organised and how is it ensured that available data sources are utilised in a coherent way?
N/A

(e) How is the data combined to provide the explanatory power to understand the context that led to safety occurrences and anticipate emerging risks?
N/A

(f) How is the information from safety data analyses fed forward to risk assessment processes and to designers of future systems?
N/A

(g) How is the information disseminated inside and outside the organisation?
N/A

(h) Have obstacles of a technical, operational or cultural nature been identified that prevented the realisation of the full potential of a data-driven safety decision-making process? What are the main issues when using automated safety data recording systems?
N/A

2.1.3 - Additional Safety Indicators

Number of additional Safety Indicators	Click to select number of additional Indicators

SECTION 2.2: ENVIRONMENT KPA

2.2 - Environment

2.2.1 - Key Performance Indicators

2.2.1.(a) - Environment KPI #1: Horizontal en-route flight efficiency (KEA)

Poland	2020	2021	2022	2023	2024
Targets as shown in PP	1,85%	1,65%	1,65%	1,65%	1,65%
Actual values	1,67%	2,33%			
Difference	-0,18%	0,68%			

Assessment of the achieved level of actual performance in the environment KPA
The 2021 target, based on reference value for Poland established by the PRB, was not achieved. This situation was caused largely by external circumstances, beyond control of either NSA (CAA Poland) or ANSP (PANSA), which include elements linked to geopolitical situation (users from the Russian Federation avoiding airspace of Ukraine, European users avoiding airspace of Belarus, certain flights circumnavigating around Kaliningrad area etc.) as well as airspace users' preference for certain routes which are different than the shortest route. Analysis of monthly evolution of HFE indicator shows that it significantly increased after the incident with Ryanair flight diverted to Minsk in May 2021. This incident led to recommendations for EU operators to avoid Belarusian airspace, what has directly impacted the KEA indicator for Poland. Other factors influencing KEA indicator for Poland in 2021 included weather conditions (e.g. storms visible especially over the summer season) or restricted airspace (also beyond Poland's borders) It needs to be underlined that for the traffic flows affected by the above factors the trajectory inside Poland is almost straight, the additional distance is coming from the overall trajectory inefficiency.

Has the ANSP implemented any major operational or structural changes (incl. any new fixed assets put into operation) during the calendar year impacting performance in this key performance area? Please outline the relevant changes and their estimated impact
FRA (POLFRA, from FL095, 24H) was implemented by PANSA in Warszawa FIR in February 2019. Over 2021 PANSA continued implementation of further improvements aimed also at offering the shortest possible routes to the airspace users, in line with provisions of ERNIP and revised RP3 Performance Plan for Poland. During the whole 2021, due to the lower traffic demand caused by COVID-19 pandemic, PANSA has maintained suspension of significant number of flow restrictions. More than 50 RAD restrictions remained suspended unblocking more than 200 traffic flows. Projects implemented operationally over 2021 included: - TMA improvements: Warszawa TMA improvements (implementation April 2021), Kraków TMA reorganisation (implementation April 2021), Poznań TMA improvement (implementation April 2021) – these projects were aimed, among others, at optimisation of traffic flows to/from the airports concerned, - AMC Poland - FMP Warszawa coordination procedures: implementation of close cooperation and new coordination procedures taking into account forecasted demand of civil traffic on segregated airspace allocation in time on the day of the operations (phased implementation in March and December 2021) – these were aimed at reduction (to the possible extent) of the restrictive influence of segregated areas on civil traffic. Over 2021 PANSA was also working on the following projects to be operationally implemented 2022+: - Baltic FAB cross border FRA operations with Lithuania and Slovakia (implementation February 2022) – aimed at further improvement of FRA operations and flight efficiency between Warszawa FIR, Vilnius FIR and Bratislava FIR, - Cross border FRA with Sweden (initiation of works, planned implementation 2024+ - date still to be decided) – aimed at allowing more efficient flight planning, - Implementation of new FRA significant points at border between POLFRA and FRAU (points AMEDU, DIODA, INFUX between Ukraine and Poland) and change from FRA (E) or FRA (X) to FRA (EX) the existing FRA significant point GOTIX between POLFRA and FRAU (implementation April 2022 but not used due to the war) – aimed at improving FRA FPL options within South East Europe, - Reorganisation ACC Warszawa sector configuration – first step of third layer implementation (planned implementation postponed – new date to be decided).

Implementation of published flight efficiency plans (ERNIP)
See information above. Other initiatives foreseen in ERNIP not mentioned above:

- FRA in TMAs (Warszawa TMA, Gdańsk TMA and Kraków TMA) – implementation date postponed due to reprioritisation, new date to be decided,
- Expansion of Radom/ EPRA airport – project related to radar approach under re-evaluation,
- Cross border FRA operations between Baltic FAB and FRACZECH – implementation date to be decided (2024+),
- Cross border FRA operations between SEE FRA, FRA Poland (BALTIC FRA) and FRA Ukraine – implementation date to be decided (2024+), depending also on the military conflict further evolution,
- Kraków airport new runway - postponed due to airport plans (currently planned to be implemented 2023/2024 at the earliest).

If the performance target for the calendar year was not met

Identification and analysis by the NSA of the underlying reasons or circumstances having led to the performance target not being achieved
Polish NSA is fully aware of the value of the EU efforts to meet criteria of the Environment KPA. Above mentioned projects are supported by NSA, however, the lack of the success and non-achievement of the target in 2021 was caused mainly by external circumstances, beyond control of either ANSP (PANSA) or NSA (CAA Poland).

Recommendations to the ANSP to rectify the situation
NSA urges PANSA continue implementation of measures foreseen in ERNIP and revised RP3 PP.

Remedial measures have been / will be taken by the ANSP?	No

If no measures will be taken by the ANSP, please explain why
As the deviation from the target is caused by factors beyond control of PANSA, this situation cannot be rectified by measures taken by PANSA. However, as stated above, PANSA continues to implement measures foreseen in ERNIP and revised RP3 PP.

Follow-up of the measures relating to previous calendar years

Remedial measures have been / will be taken by the ANSP?	No

Is the NSA aware of any significant risks which are likely to lead to performance targets not being achieved during the ongoing calendar year or during the following calendar years of the reference period?	Yes

What has been done by the ANSP in order to address the identified performance issues?
The performance issues (situation related to use of Belarusian airspace, impact of war in Ukraine and related sanctions) are related directly to geopolitical situation and cannot be addressed by PANSA (are beyond control of PANSA or NSA).

What further measures does the NSA intend to undertake to remedy this situation?
NSA urges PANSA continue implementation of measures foreseen in RP3 PP.

Additional comments
N/A

2.2.2 - Performance Indicators

2.2.2.(a) - Environment PI #1: Horizontal en-route flight efficiency of last filed flight plan (KEP)

Poland	2020	2021	2022	2023	2024
Actual values	3,07%	3,69%			

What initiatives were implemented or are planned that will improve this PI and how does the NSA intend on monitoring their effectiveness on performance?
In February 2019 PANSA implemented FRA (POLFRA) in Warszawa FIR from FL95, H24. Changes implemented over 2020 and changes implemented in 2021 include changes to the airspace as well as coordination between AMC and FMP. Details are listed in chapter 2.2.1.(a) of this report and Monitoring Report 2020. Further development of FRA is pursued, including cross border FRA operations with Lithuania (Baltic FAB project) and Slovakia (implementation 2022), as well as other States - e.g. Sweden (planned implementation 2024+). Further planned vertical split of Warszawa FIR into three layers will reduce risk of negative impact of possible congestion in ACC sectors on KEP. Similarly as KEA, KEP indicator is influenced by the geopolitical factors, beyond control of PANSA, as indicated in chapter 2.2.1.(a) of this report. In NSA opinion, it is very probable HFE indicators further deterioration in 2022 due to the military conflict in Ukraine and related sanctions. The situation will be continuously monitored based on the data derived from Pan-European ANS Performance data repository and information provided by Polish Air Navigation Services Agency – PANSA.

2.2.2.(b) - Environment PI #2: Horizontal en-route flight efficiency of shortest constrained route (KES)

Poland	2020	2021	2022	2023	2024
Actual values	2,42%	2,79%			

What initiatives were implemented or are planned that will improve this PI and how does the NSA intend on monitoring their effectiveness on performance?
In February 2019 PANSA implemented FRA (POLFRA) in Warszawa FIR from FL95, H24. Changes implemented over 2020 were listed in 2020 Performance monitoring report and changes implemented in 2021 are listed in chapter 2.2.1.(a) of this report and include changes to the airspace as well as coordination between AMC and FMP. Further development of FRA is pursued, including cross border FRA operations with Lithuania (Baltic FAB project) and Slovakia (implementation 2022), as well as other States - e.g. Sweden (planned implementation 2024+). Further planned vertical split of Warszawa FIR into three layers will reduce risk of negative impact of possible congestion in ACC sectors on KES. Similarly as KEA, KES indicator is also influenced by the geopolitical factors, beyond control of PANSA. As indicated in chapter 2.2.1.(a) of this report, HFE indicators are expected to further deteriorate in 2022 due to the military conflict in Ukraine and related sanctions. The situation will be continuously monitored by NSA based on the data derived from Pan-European ANS Performance data repository (http:ansperformance.eu/data/) and information provided by Polish Air Navigation Services Agency – PANSA.

2.2.2.(c) - Environment PI #3: Additional taxi-out time (>80K movements)

Important note:
If the data at airport level are not available, the field will show "N/A"

Poland *only airports > 80k movements (2016-18)*		2020	2021	2022	2023	2024
EPWA (Chopina w Warszawie)	Actual	1,99	2,11			

What initiatives were implemented or are planned that will improve this PI and how does the NSA intend on monitoring their effectiveness on performance?
Implemented in 2020: - A-CDM. Planned: - Traffic Complexity Tool (2022), - A-SMGCS (2024). The situation will be continuously monitored by NSA based on the data derived from Pan-European ANS Performance data repository (http:ansperformance.eu/data/) and information provided by Polish Air Navigation Services Agency – PANSA.

If the data at airport level are not available, please explain the reasons why data is missing and describe the measures planned to resolve the situation
N/A

2.2.2.(d) - Environment PI #4: Additional time in terminal airspace (>80K movements)

Important note:
If the data at airport level are not available, the field will show "N/A"

Poland *only airports > 80k movements (2016-18)*		2020	2021	2022	2023	2024
EPWA (Chopina w Warszawie)	Actual	1,21	1,05			

What initiatives were implemented or are planned that will improve this PI and how does the NSA intend on monitoring their effectiveness on performance?
For information on measures implemented before 2021 please see the 2020 Monitoring Report. Implemented in 2021: - EPWA TMA Reconfiguration & resectorization; - New SID/STAR Procedures. The situation will be continuously monitored by NSA based on the information provided by Polish Air Navigation Services Agency – PANSA.

If the data at airport level are not available, please explain the reasons why data is missing and describe the measures planned to resolve the situation
N/A

2.2.2.(e) - Environment PI #5: Share of arrivals applying continuous descent operation

Important note:
If the data at airport level are not available, the field will show "N/A"

Poland *all airports included in the SES PS*		2020	2021	2022	2023	2024
EPBY (Bydgoszcz)	Actual	0,43	0,42			
EPGD (Gdańsk im. Lecha Wałęsy)	Actual	0,58	0,49			
EPKK (Kraków-Balice)	Actual	0,53	0,45			
EPKT (Katowice-Pyrzowice)	Actual	0,49	0,46			
EPLB (Lublin)	Actual	0,36	0,39			
EPLL (Łódź)	Actual	0,42	0,35			
EPMO (Warszawa/Modlin)	Actual	0,66	0,61			
EPPO (Poznań-Ławica)	Actual	0,42	0,36			
EPRA (Radom-Sadków)	Actual	n/a	n/a			
EPRZ (Rzeszów-Jasionka)	Actual	0,52	0,48			
EPSC (Szczecin-Goleniów)	Actual	0,53	0,58			
EPSY (Olsztyn-Mazury)	Actual	0,47	0,54			
EPWA (Chopina w Warszawie)	Actual	0,51	0,49			
EPWR (Wrocław-Strachowice)	Actual	0,43	0,40			
EPZG (Zielona Góra-Babimost)	Actual	0,68	0,61			

What initiatives were implemented or are planned that will improve this PI and how does the NSA intend on monitoring their effectiveness on performance?
Measures implemented before 2021: - Arrival Manager for EPWA (2019). Implemented in 2021: - New SID/STAR improved procedures for EPWA (2021); - Electronic Flight Strip EFES implemented in: EPRZ, EPLB, EPSC, EPBY, EPLL, EPZG (2021). Planned: - Electronic Flight Strip EFES: EPMO (2022); - EPKK, EPPO TMAs Reconfiguration & resectorisation (2022-23); - New SID/STAR procedures for EPKK (2022); - New SID/STAR procedures for EPRA (2023). The situation will be continuously monitored by NSA based on the information provided by Polish Air Navigation Services Agency – PANSA.

2.2.2.(f) - Environment PI #6: Effective use of reserved or segregated airspace (per ACC)

Poland	2020	2021	2022	2023	2024
Total number of hours allocated & notified to NM	176 507	174 077			
Total number of hours used	64 424	62 469			
Ratio	36%	36%			

What initiatives were implemented or are planned that will improve this PI and how does the NSA intend on monitoring their effectiveness on performance?
See description below for ACC.

Warsaw (EPWW ACC)	2020	2021	2022	2023	2024
Total number of hours allocated & notified to NM	176 507				
Total number of hours used	64 424				
Ratio	36%				

What initiatives were implemented or are planned that will improve this PI and how does the NSA intend on monitoring their effectiveness on performance?
On strategic airspace management level all significant exercises and permanent areas are evaluated and analysed taking into account historic civil traffic flows and civil traffic predictions. The impact, depending on scale, is consulted with the key stakeholders including neighbouring states, aerodrome operators, aircraft operators, ATS, military, EUROCONTROL NM. The lateral and vertical limits of the airspace elements published are designated considering the actual needs of users and nature of activities. All airspace elements shall be planned only for the time period necessary to perform the intended task. The user is obliged to specify precisely the period of activity of a selected element and all timely suspensions of activity between these periods. The locations of the activities are designed not to affect the main traffic flows, ATC routes, DCTs and POLFRA connectivity. Segmentation, time and level restrictions are imposed when needed to mitigate the impact in location in heavy traffic periods of day. If possible class C TRA airspace is implemented to minimize the impact on civil routing. When the areas excess the set scale they are always divided into smaller modules/segments. Each of these segments is designed in order to fit particular activities without necessity to activate the whole area to perform specific assignments. The shape of these segments is always aligned with main civil traffic flows to minimize the horizontal flight inefficiency. Further measures include: - update of local ASM system/radar data added to visualize military activity in segregated areas. As a result, update of coordination procedures to reduce time required to release segregated areas back to civil traffic. - implementation of closer cooperation between AMC Poland and FMP Warszawa in order to reduce as much as possible negative influence of segregated areas on civil traffic. Implementation of new coordination procedures (NPZ management) taking into account forecasted demand of civil traffic on segregated airspace allocation in time on day of the operations. Annual review of the efficiency of airspace utilization is conducted. The situation will be continuously monitored by NSA based on the information provided by Polish Air Navigation Services Agency – PANSA.

2.2.2.(g) - Environment PI #7: Rate of planning via available airspace structures (per ACC)

Poland	2020	2021	2022	2023	2024
Number of aircraft filing flight plans via reserved or segregated airspace and CDRs	130 396	221 868			
Number of aircraft that could have planned through those airspace structures	216 861	269 735			
Ratio of planning via available airspace structures	166%	122%			

What initiatives were implemented or are planned that will improve this PI and how does the NSA intend on monitoring their effectiveness on performance?
See description below for ACC.

Warsaw (EPWW ACC)	2020	2021	2022	2023	2024
Number of aircraft filing flight plans via reserved or segregated airspace and CDRs	130 369	221 868			
Number of aircraft that could have planned through those airspace structures	216 861	269 735			
Ratio of planning via available airspace structures	2	1			

What initiatives were implemented or are planned that will improve this PI and how does the NSA intend on monitoring their effectiveness on performance?
The available flight planning options are constantly updated to allow Aircraft Operator (AO) to plan the most horizontally effective trajectory, even when the areas are active. Except ATS network and DCTs, the AOs have the possibility to plan in Free Route Airspace environment (POLFRA). Implementation of cross-border free route airspace operations within Lithuanian and Polish airspace (BALTIC FRA) and the cross border operations between BALTIC FRA and South East Europe FRA were implemented in 1Q 2022 which could further increase the planning opportunities. The lateral and vertical limits of the airspace elements published are designated considering the actual needs of users and nature of activities. All airspace elements shall be planned only for the time period necessary to perform the intended task. The user is obliged to specify precisely the period of activity of a selected element and all timely suspensions of activity between these periods. Segmentation, time and level restrictions are imposed when needed to mitigate the impact in location in heavy traffic periods of day. If possible class C TRA airspace is implemented to minimize the impact on civil routing. Special procedures are prepared including dynamic change of level or segment and creation of new temporary routings for avoidance of military traffic. Further measures include: - update of local ASM system/radar data added to visualize military activity in segregated areas. As a result, update of coordination procedures to reduce time required to release segregated areas back to civil traffic. - implementation of closer cooperation between AMC Poland and FMP Warszawa in order to reduce as much as possible negative influence of segregated areas on civil traffic. Implementation of new coordination procedures (NPZ management) taking into account forecasted demand of civil traffic on segregated airspace allocation in time on day of the operations. The situation will be continuously monitored by NSA based on the information provided by Polish Air Navigation Services Agency – PANSA.

2.2.2.(h) - Environment PI #8: Rate of using available airspace structures (per ACC)

Poland	2020	2021	2022	2023	2024
Number of aircraft flying via reserved or segregated airspace and CDRs	261 904	350 244			
Number of aircraft that could have planned through those airspace structures	216 861	269 735			
Ratio of using available airspace structures	83%	77%			

What initiatives were implemented or are planned that will improve this PI and how does the NSA intend on monitoring their effectiveness on performance?
See description below for ACC.

Warsaw (EPWW ACC)	2020	2021	2022	2023	2024
Number of aircraft flying via reserved or segregated airspace and CDRs	261 904	350 244			
Number of aircraft that could have planned through those airspace structures	216 861	269 735			
Ratio of using available airspace structures	1	1			

What initiatives were implemented or are planned that will improve this PI and how does the NSA intend on monitoring their effectiveness on performance?
The lateral and vertical limits of the airspace elements published are designated considering the actual needs of users and nature of activities. All airspace elements shall be planned only for the period necessary to perform the intended task. The user is obliged to specify precisely the period of activity of a selected elements and all timely suspensions of activity between these periods. Segmentation, time and level restrictions are imposed when needed to mitigate the impact in location in heavy traffic periods of day. If possible class C TRA airspace is implemented to minimize the impact on civil routing. Special procedures are prepared including dynamic change of level or area segment. Further measures include: - update of local ASM system/radar data added to visualize military activity in segregated areas. As a result, update of coordination procedures to reduce time required to release segregated areas back to civil traffic. - implementation of closer cooperation between AMC Poland and FMP Warszawa in order to reduce as much as possible negative influence of segregated areas on civil traffic. Implementation of new coordination procedures (NPZ management) taking into account forecasted demand of civil traffic on segregated airspace allocation in time on day of the operations. The situation will be continuously monitored by NSA based on the information provided by Polish Air Navigation Services Agency – PANSA.

2.2.3 - Additional Environment Indicators

Number of additional Environment Indicators	0

Does the Member State use internal metrics for measuring environmental performance that are not subject to Commission Implementing Regulation?	

SECTION 2.3: CAPACITY KPA

2.3 - Capacity

2.3.1 - Key Performance Indicators

2.3.1.(a) - Capacity KPI #1: En-route ATFM delay per flight

Poland (PANSA)	2020	2021	2022	2023	2024
Targets as shown in PP	0,30	0,07	0,12	0,12	0,12
Actual values	0,00	0,07			
Difference	-0,30	0,00			

Assessment of the achieved level of actual performance – in respect of calendar year 2020, please analyse the achieved actual performance in the capacity KPA in light of the substantial reduction of traffic stemming from the COVID-19 crisis.
Actual annual performance recorded in 2021 was in line with the target set for Poland in the revised RP3 performance plan. The target set for 2021 already took into account lower traffic levels following the outbreak of the COVID-19 pandemic. The delays recorded in 2021 were determined mostly by two factors: ATC Staffing and ATC Capacity. 2% of the delays were attributable to weather conditions. Majority of the delays was generated in December 2021 and was related to staffing issues at ACC Warszawa. The traffic reduction related to COVID-19 pandemic and actions undertaken by PANSA to mitigate risks related to possible infection spread among employees as well as flexible roster planning responding to expected traffic evolution under the rolling NOP planning allowed for achieving very low value of delays in the period January-November 2021 an in consequence to achieve the goal set for the year.

Monitoring process
The monitoring process in 2021 was conducted I accordance with the Regulation (EU) 2019/317) and Regulation 2017/373 based on the information received from ANSPs. The data was including ANSP's business and annual plans and their consistency with the PP. Despite the fact that the monitoring process was affected by COVID-19 pandemic, the monitoring activities of KPA CAPACITY were conducted systematically and were covering, among the others, the following areas: - implementation of major projects aimed at increasing capacity and enhancing flight efficiency, - execution of employment plan, especially operational personnel, - execution of training plan, - ATCO productivity. The scope of the selected areas was chosen taking into account airspace users' remarks, as well as CAA own assessment. All the above supervision exercise was providing the CAA the awareness and knowledge on the ANSPs Performance. The monitoring was performed also by dedicated Polish NSA inspectors during routine inspections.

Capacity planning
Due to COVID-19 pandemic and related traffic drop, year 2021 was (similarly as 2020) quite exceptional - also in terms of capacity planning. Capacity planning focused on mid and long-term planning based on STATFOR forecasts, NM data, PANSA simulations and internal recovery plan prepared by PANSA as well as short term planning (up to 4-6 weeks) under the NOP rolling planning initiative coordinated by the Network Manager. Rostering at PANSA also had to consider implementation of measures aimed at limiting the risk of virus spread among ATCOs. Despite the traffic drop and along with the above mentioned flexible rolling short-term capacity planning, PANSA continued to implement initiatives aimed at improving capacity in FIR Warszawa to meet challenges related to traffic increase after the crisis as well as potential changes in traffic flows. These included the following: - continuation of new ATCOs training (continued training process for trainees employed before the pandemic breakout, while plans for additional recruitments to start 2020+ were suspended/revised, considering lower traffic levels expected by end of RP3 as well as difficulties related to training caused by low levels of traffic and COVID restrictions; new recruitment process for ATCO trainees started in January 2022), - continued adaptation of the air traffic management system (Pegasus_21) to operational needs and modernisation of the ATM system, - development of tools supporting ATCOs and flow management optimisation (including Traffic Complexity Tool and update of CAT system – implementation of CAT 3.0), - continued investments in infrastructure (CNS) and technology allowing for optimisation of airspace structures and optimisation of coverage in the Polish airspace as well as supporting contingency, - continued improvement of AMAN in Warsaw TMA, - reorganisation of Warsaw TMA and Poznań TMA. Plans for the following years of RP3 include, among others: - reorganisation of ACC Warszawa sector configuration - three layer vertical division - to be implemented under staged approach (planned implementation postponed – new date to be decided), - reorganisation of TMA Kraków in 2022 – new sectors, new SID/STAR procedures, - continuation of training process for new ATCOs (new recruitment started 2022), - refreshment training for current ATCOs to maintain their competence following the 2020-2021 significant traffic drop, - adaptation of the air traffic management system to operational needs and modernisation of the ATM System, - continued investments in infrastructure (CNS) and technology allowing for optimisation of airspace structures and optimisation of coverage in the Polish airspace as well as supporting resilience, scalability and flexibility of service provision, - continuation of flexible rostering, - evolving ACC sector configurations and management to cope with updated traffic forecasts, - continued FMP dynamic management and ATFCM techniques including STAM, - improvement of comprehensive airspace management.

ATCOs in OPS

Warsaw (EPWW ACC)	Plan values from the PP				
	2020	2021	2022	2023	2024
Number of additional ATCOs in OPS who have started working in the OPS room (FTEs)		5	10	6	5
Number of ATCOs in OPS who have stopped working in the OPS room (FTEs)		4	0	0	0
Number of ATCOs in OPS operational at year-end (FTEs)		173	183	189	194

	Actual values				
	2020	2021	2022	2023	2024
Number of additional ATCOs in OPS who have started working in the OPS room (FTEs)	1,25	5,00			
Number of ATCOs in OPS who have stopped working in the OPS room (FTEs)	4,00	5,25			
Number of ATCOs in OPS operational at year-end (FTEs)	172,00	171,75			

	Differences				
	2020	2021	2022	2023	2024
Number of additional ATCOs in OPS who have started working in the OPS room (FTEs)		-0,25			
Number of ATCOs in OPS who have stopped working in the OPS room (FTEs)		1,25			
Number of ATCOs in OPS operational at year-end (FTEs)		-1,50			

Additional comments
The deviation from planned figure at the end of 2021 results from unplanned demise of one ACC ATCO and reduction of working time of another ACC ATCO.

Follow-up of the measures relating to previous calendar years

Remedial measures have been / will be taken by the ANSP?	No

Is the NSA aware of any significant risks which are likely to lead to performance targets not being achieved during the ongoing calendar year or during the following calendar years of the reference period?	Yes

What has been done by the ANSP in order to address the identified performance issues?
On the risk related to impact of war in Ukraine, PANSA implemented RAD measures and EU Restrictions that were aimed to reduce ATFCM delays within EPWW FIR sectors with limited capacity due to additional military activity.

What further measures does the NSA intend to undertake to remedy this situation?
The situation will be deeply analysed with close cooperation with PANSA.

Additional comments
There are two streams of risks which are expected to impact delays level in 2022: - Risks linked to War in Ukraine – possible increase in delays due to military activities, also liked to increased number of NATO flights in eastern part of the Polish airspace. Significant portion of this part of airspace is reserved for military flights (performed H24) thus unavailable for civil traffic. - Risks linked to staffing issues in ACC and APP Warszawa. Depending on further evolution of the military conflict and situation related to ATCOs in PANSA, the impact may be also visible in 2023-2024 results.

2.3.1.(b) - Capacity KPI #2: Terminal and airport ANS ATFM arrival delay per flight

Important note:
If the data at airport level are not available, the field will show "N/A"

Poland		2020	2021	2022	2023	2024
National level *(all airports included in the SES PS)*	PP values	0,45	0,02	0,21	0,24	0,23
	Actual	0,02	0,00			
	Diff.	-0,43	-0,02			
Airport level	***EPBY (Bydgoszcz)*** PP values	0,00	0,00	0,00	0,00	0,00
	Actual	0,00	0,00			
	EPGD (Gdańsk im. Lecha Wałęsy) PP values	0,00	0,00	0,00	0,00	0,00
	Actual	0,00	0,00			
	EPKK (Kraków-Balice) PP values	0,06	0,02	0,04	0,25	0,23
	Actual	0,04	0,00			
	EPKT (Katowice-Pyrzowice) PP values	0,02	0,00	0,02	0,16	0,11
	Actual	0,00	0,00			
	EPLB (Lublin) PP values	0,00	0,00	0,00	0,00	0,00
	Actual	0,00	0,00			
	EPLL (Łódź) PP values	0,00	0,00	0,00	0,00	0,00
	Actual	0,00	0,00			
	EPMO (Warszawa/Modlin) PP values	0,24	0,00	0,37	0,34	0,31
	Actual	0,01	0,00			
	EPPO (Poznań-Ławica) PP values	0,08	0,00	0,11	0,10	0,09
	Actual	0,00	0,01			
	EPRA (Radom-Sadków) PP values	0,00	0,00	0,00	0,00	0,00
	Actual	0,00	n/a			
	EPRZ (Rzeszów-Jasionka) PP values	0,00	0,00	0,03	0,00	0,00
	Actual	0,00	0,00			
	EPSC (Szczecin-Goleniów) PP values	0,00	0,00	0,00	0,00	0,00
	Actual	0,00	0,00			
	EPSY (Olsztyn-Mazury) PP values	0,00	0,00	0,00	0,00	0,00
	Actual	0,00	0,00			
	EPWA (Chopina w Warszawie) PP values	0,95	0,04	0,42	0,39	0,38
	Actual	0,04	0,00			
	EPWR (Wrocław-Strachowice) PP values	0,00	0,03	0,00	0,00	0,00
	Actual	0,00	0,00			
	EPZG (Zielona Góra-Babimost) PP values	0,00	0,00	0,00	0,00	0,00
	Actual	0,00	0,00			

Additional comments
The actual performance over 2021 was better than the target set in the revised RP3 performance plan. ATC-related delays accounted for 60% of terminal delays in 2021. Weather conditions generated 27% of the terminal delays and aerodrome-related delays 13%.

Follow-up of the measures relating to previous calendar years

Remedial measures have been / will be taken by the ANSP?	No

Is the NSA aware of any significant risks which are likely to lead to performance targets not being achieved during the ongoing calendar year or during the following calendar years of the reference period?	No

Additional comments
N/A

2.3.2 - Performance Indicators

2.3.2.(a) - Capacity PI #1: Adherence to ATFM slots

Important note:
If the data at airport level are not available, the field will show "N/A"

Poland		2020	2021	2022	2023	2024
National level	Actual	95,3%	96,2%			
EPBY (Bydgoszcz)	Actual	94,0%	100,0%			
EPGD (Gdańsk im. Lecha Wałęsy)	Actual	93,3%	97,0%			
EPKK (Kraków-Balice)	Actual	95,9%	97,9%			
EPKT (Katowice-Pyrzowice)	Actual	89,6%	92,3%			
EPLB (Lublin)	Actual	91,7%	96,2%			
EPLL (Łódź)	Actual	100,0%	92,0%			
EPMO (Warszawa/Modlin)	Actual	96,4%	98,3%			
EPPO (Poznań-Ławica)	Actual	97,9%	97,3%			
EPRA (Radom-Sadków)	Actual	n/a	n/a			
EPRZ (Rzeszów-Jasionka)	Actual	93,3%	98,4%			
EPSC (Szczecin-Goleniów)	Actual	95,7%	100,0%			
EPSY (Olsztyn-Mazury)	Actual	88,9%	100,0%			
EPWA (Chopina w Warszawie)	Actual	97,5%	97,4%			
EPWR (Wrocław-Strachowice)	Actual	88,9%	92,1%			
EPZG (Zielona Góra-Babimost)	Actual	100,0%	100,0%			

Please provide background information on the actual performance:
- If performance improved compared to previous years, please describe the measures that were implemented (if any),
- If performance deteriorated compared to previous years, please explain the reasons which lead to the deterioration, and describe the improvement measures which are planned to improve performance. How does the NSA intend on monitoring their effectiveness on performance

Performance achieved in 2021 should not be compared to previous years (before 2020). Due to COVID-19 pandemic and related traffic drop, data for 2021 is not reliable and not comparable to periods before the pandemic.
For EPWA the following measures will be implemented:
- planned: Traffic Complexity Tool (2022), A-SMGCS (2024).

If the data at airport level are not available, please explain the reasons why data is missing and describe the measures planned to resolve the situation

EPRA has been closed for civil traffic due to airport extension project.

Additional comments

N/A

2.3.2.(b) - Capacity PI #2: Air traffic control pre-departure delay (>80k movements)

Important note:
If the data at airport level are not available, the field will show "N/A"

Poland		2020	2021	2022	2023	2024
only airports > 80k movements (2016-18)						
EPWA (Chopina w Warszawie)	Actual	n/a	0,59			

Please provide background information on the actual performance: - If performance improved compared to previous years, please describe the measures that were implemented (if any), - If performance deteriorated compared to previous years, please explain the reasons which lead to the deterioration, and describe the improvement measures which are planned to improve performance. How does the NSA intend on monitoring their effectiveness on performance
Due to COVID-19 pandemic and related traffic reduction, data for 2021 is not reliable and not comparable to periods before 2020 (pre-pandemic). Measures planned to be implemented 2022+: - Traffic Complexity Tool (2022), - A-SMGCS (2024).

If the data at airport level are not available, please explain the reasons why data is missing and describe the measures planned to resolve the situation
Not applicable for 2021.

Additional comments
N/A

2.3.2.(c) - Capacity PI #3: Average time of all cause departure delay per flight (>80K movements)

Important note:
If the data at airport level are not available, the field will show "N/A"

Poland *only airports > 80k movements (2016-18)*		2020	2021	2022	2023	2024
EPWA (Chopina w Warszawie)	Actual	9,32	12,61			

Please provide background information on the actual performance: - If performance improved compared to previous years, please describe the measures that were implemented (if any), - If performance deteriorated compared to previous years, please explain the reasons which lead to the deterioration, and describe the improvement measures which are planned to improve performance. How does the NSA intend on monitoring their effectiveness on performance
Due to COVID-19 pandemic and related traffic drop, performance achieved in 2021 should not be directly compared to previous years. Measures planned to be implemented 2022+: - Traffic Complexity Tool (2022), - A-SMGCS (2024).

If the data at airport level are not available, please explain the reasons why data is missing and describe the measures planned to resolve the situation
N/A

Additional comments
N/A

2.3.3 - Additional Capacity Indicators

Number of additional Capacity Indicators	Click to select number of additional Indicators

SECTION 2.4: COST-EFFICIENCY KPA

2.4 - Cost-efficiency

2.4.1 - Key Performance Indicators

List of En-Route Charging Zones and ETNA data references

	Reporting Tables ETNA Reference	Additional Information ETNA Reference
Poland		

List of Terminal Charging Zones and ETNA data references

	Reporting Tables ETNA Reference	Additional Information ETNA Reference
Poland zone 1		
Poland zone 2		

2.4.1.(a) - Cost efficiency KPI: Determined unit cost (DUC) for en-route ANS

1. DUC for en route air navigation services

En route charging zone	RP3 revised cost-efficiency targets (determined 2020-2024)			
Poland	2020/2021 D	2022 D	2023 D	2024 D
Total en route costs in nominal terms (in national currency)	1 602 947 276	875 857 917	914 029 458	950 341 024
Total en route costs in real terms (in national currency at 2017 prices)	1 503 108 131	798 885 838	819 037 945	837 052 160
Total en route Service Units (TSU)	4 695 117	3 990 970	4 762 963	5 129 508
Real en route unit costs (in national currency at 2017 prices) - DUC	320,14	200,17	171,96	163,18

En route charging zone	RP3 actuals			
Poland	2020/2021 A	2022 A	2023 A	2024 A
Total en route costs in nominal terms (in national currency)	1 290 605 284			
Total en route costs in real terms (in national currency at 2017 prices)	1 217 547 467			
Total en route Service Units (TSU)	4 731 739			
Real en route unit costs (in national currency at 2017 prices)	257,32			

En route charging zone	Difference between actual and plan (in %)			
Poland	2020/2021	2022	2023	2024
Total en route costs in nominal terms (in national currency)	-19,5%			
Total en route costs in real terms (in national currency at 2017 prices)	-19,0%			
Total en route Service Units (TSU)	0,8%			
Real en route unit costs (in national currency at 2017 prices)	-19,6%			

a) Assessment of actual performance (actual unit cost), including analysis of differences observed between the determined costs and the actual costs for the year

As concerns PANSA:

1) staff costs: the actual staff costs for the combined period 2020-2021 are lower by 31.5% than determined costs. Such difference in staff costs is a result of one-off changes to provisions, including provisions for jubilee awards and other elements of staff benefits reflected in the level of provisions underlying RP3 determined costs (as indicated in the rev RP3 PP, considering the planned changes to Remuneration Scheme, PANSA took into account additional obligations towards its employees and assumed one-off costs in 2021 determined costs related to the switch to the new Scheme - for more information see additional information to charges' reporting tables annexed to rev RP3 PP letter f)). Following implementation of the new Remuneration Scheme in PANSA at the turn of 2021 and 2022, jubilee awards are no longer calculated and paid - what had to be reflected in PANSA 2021 financial statement and 2021 actual costs through release of the provision. Moreover, the accounting impact of changes to the Remuneration Scheme at end of 2021 in terms of provisions related to other staff benefits (the assumed one-off costs related to the switch to the new Remuneration Scheme mentioned above) has been different (significantly lower) than estimated at the stage of drafting the rev RP3 PP. This lower impact on 2021 costs can, however, be partly reversed in the following years of RP3 - possible additional costs for the following years will be reported accordingly in line with the Performance and Charging Scheme. Difference in the level of staff costs provisions between actual 2021 results and costs determined for 2021 amount to 285 mPLN (total for PANSA covering all ANS and non-ANS). Moreover, lower levels of actual employment than foreseen in rev RP3 PP at end 2021 contributed to lower remuneration costs (lower employment levels result from difficulties to find employees for certain staff categories on the market and therefore prolonged recruitments as well as staff departures not foreseen in the rev RP3 PP). Actual level of bonuses and rewards was also lower than rev RP3 PP assumptions and continued use of furloughs/downtime allowed further savings in remuneration costs. This had a direct impact also on lower costs related to social security contributions, including pensions.

2) other operating costs: the actual 2020-2021 other operating cost are lower by 13.7% than determined costs. This is largely due to prolonged COVID-19-related restrictions resulting also from the new virus type that emerged in 2H2021 (Delta). These restrictions impacted trainings, business trips and events and contributed to extension of remote work, allowing for savings in certain cost categories, including energy and materials. Optimisation (including cancellation/postponement) of repair schedules where possible, using own staff for some repairs instead of external contractors led to temporary reductions in repair services costs. Certain works and projects and related costs had to be postponed due to the persisting restrictions following another wave of COVID-19 restrictions mentioned above.

3) depreciation: the 2.4% increase in the level of depreciation costs in 2020-2021 as compared to determined costs for this period is mainly impacted by differences in useful life of some assets put into operation over 2021 as compared to standard periods assumed in the rev RP3 PP (this is specifically related to upgrades of assets already in use earlier, where the useful life period of the upgrade had to be aligned with remaining useful life of the initial asset). It needs to be clarified that 2020-2021 actual depreciation presented in the charges' reporting tables does not include effects of implementation of IFRS16 – costs related to leasing are still disclosed under other operating costs.

4) cost of capital: the actual cost of capital for the combined period 2020-2021 is higher by 33.4% comparing to determined cost. This is mainly due to unpredictable changes in macroeconomic assumptions leading to huge increase in WIBOR 3M reference rate used for the calculation of updated effective annual interest rate for the RP3 period (this relates to 2021 as well as to the following years of RP3). It needs to be indicated that following recommendation by PRB and EC to reduce the monetary level of cost of capital for RP3 (further details are included in the rev RP3 PP) determined cost of capital reflects theoretical capital structure that resulted from the monetary value of this cost item and unchanged average interest on debts. For the purpose of reporting on actual costs the capital structure had to be adjusted and the figure reflects hypothetical efficient capital structure. This has an impact on higher actual level of cost of capital. RoE remains unchanged as compared to the level resulting from reduced monetary value of determined cost of capital over RP3 agreed with EC in Feb 2022 (RoE as in the reporting tables for determined RP3 costs).

As concerns PL Bydgoszcz:

The nominal costs of MET services were slightly below planned values (-3.5%, -88 kPLN), which was a result of lower staff and other operating costs. Staff costs were below the planned values due to postponement of promotions (and therefore wage rises) till 2022 for several employees dedicated for ANS. What is more, there was a change of cash-flow for newly hired MET personnel trainer (instead of payment in advance, cash-flows were spread over time). In terms of other operating costs, these costs were lower due to changes of AWOS maintenance services provider. PLB struggled to find new provider for several months as the former contractor went bankrupt - in the meantime these tasks were performed to some extent by own electric personnel, who had to be additionally trained specially for this purpose. PL Bydgoszcz also faced savings in energy and material costs and in external trainings for MET personnel due to its cancellation by IMWM. The differences in execution of depreciation and cost of capital were marginal, yet PL Bydgoszcz faced huge rise of debt interest rates in last quarter of 2021, which will continue in 2022.

PL Bydgoszcz achieved its cost-efficiency target (0,4720 PLN AUC vs 0,4964 PLN DUC), what was also a consequence of higher than planned inflation rates and levels of traffic.

As concerns Radom Meteo:

In nominal terms, the costs of Radom Meteo in 2020/2021 were at the level of 95.1% planned values (-30 kPLN). The major difference concerns other operating costs: part of third-party costs were postponed and are currently planned to be incurred in 2022. What is more, AWOS sensor replacement resulted in lower cost than planned (permanent reduction). Differences in staff costs, depreciation and cost of capital were marginal. Due to higher inflation rate and higher level of traffic than planned, the target

was achieved (0.1153 PLN AUC vs 0.1229 PLN DUC).

As concerns Warmia i Mazury:

MET costs in nominal terms were 1.3% above the Plan, yet the higher then planned inflation rates and TSU allowed Warmia i Mazury to achieve its target (AUC 0,6450 PLN comparing to DUC 0,6482 PLN). The differences in nominal terms were:

- in staff costs (-9.4 k PLN, -1.1%) due to changes of the form of cooperation with some of MET observers and synoptics (changed to a third-party services), which was partly diminished by the additional involvement of the other employees in actions connected with the process of revision of PP RP3,
- in other operating costs (+56.9 kPLN, +2.4%) due to increase of costs of third-party services,
- in depreciation (-4.9 kPLN, -10.8%) due to lower than planned investments attributed to Coordinator of ANS (cyclic investments, mainly IT equipment), which are currently being executed in 2022,
- in cost of capital (-0.4 kPLN, -1.9%) as a consequence of the same as above.

As concerns IMWM:

The difference between the actual and planned costs of the en-route charges was PLN 43.973 and results from:

- higher other operating costs by about 1%. Despite the introduction of numerous restrictions resulting from the persistent pandemic, such as remote work (where possible), limiting business trips and suspending foreign business trips, other operating costs increased compared to the plan. The above-mentioned situation is mainly caused by an increase in inflation - the PP accounted for an inflation of 3.2%, while the actual level of inflation in 2021, according to EUROSTAT data, was 5.2%. The above contributed to the growth of, inter alia, gas, energy and fuel prices;
- lower staff costs resulting from the plan revaluation;
- lower depreciation costs resulting from the failure to complete all planned investment purchases, including purchase of AWOS-R;
- lower cost of capital resulting from the lower average interest rate on debt - planned at 1.4%, actual level 1.17%.

As concerns CAA PL:

The actual staff costs for combined period of 2020-2021 are slightly higher than planned. The difference in staff costs is a result of rise of wages stemming from the government budget.

b) Identification and analysis by the NSA of the underlying reasons or circumstances having led to the targets not being achieved
There were significant differences between actual data and general assumptions made in PP RP3 regarding i.e. macroeconomic data such as higher inflation rate, exchnage rate PLN/EUR and interes rates i.e. inflation rate planned for 2021 3.2% vs actual 5.2% , exchange rate planned for 2021 4.45 PLN vs actual 4.56 PLN. The above factors had a significant impact on the targets.

c) Recommendations to the ANSP to rectify the situation
CAA recommended to continue efforts related to the improvement of cost efficiency in order to ensure conditions for achieving the set goals in this respect.

d) Remedial measures taken or planned to be taken by the ANSP	0

If no measures have been or will be taken by the ANSP, please explain why
1. PANSA - The 2020-2021 target has been met, therefore no dedicated remedial measures needed to be taken in PANSA. But it needs to be stressed that over 2020-2021 PANSA undertook a number of initiatives aiming at ensuring cost-efficiency of ANS provision. These covered all cost by nature categories and are listed in Annex R to rev RP3 PP. They are reflected in revised RP3 determined costs. PANSA constantly monitors its costs to support efficient financial management. 2. PL Bydgoszcz successfully achieved its cost-efficiency targets, and the level of costs execution was close to the planned value. Therefore no remedial measures has to be taken. 3. Radom Meteo has achieved its target, therefore no special remedial measures are planned to be taken. The majority of 2020/2021 savings are planned to be spent in 2022. 4. Warmia i Mazury: Cost-efficiency target was achieved and there is no need for remedial measures. 5. IMWM: No remedial measures were implemented. 6. CAA PL: No remedial measures were implemented.

2. Follow-up of the measures relating to previous calendar years

Were any remedial measures put in place relating to deviations from performance targets in previous calendar years?	No

3. Further observations

Is the NSA aware of any significant risks which are likely to lead to cost-efficiency performance targets not being achieved during the ongoing calendar year or during the following calendar years of the reference period?	Yes

What are those risks ?
The risks are linked to the following factors: - significant drop in en-route traffic (MVS and SU) resulting from war in Ukraine and related sanctions. Following outbreak of the war, Poland lost large share of overflights, which before the war have had the largest share in ER SU. Over the period March-April 2022 actual ER SU were 30% below the traffic forecast used in the rev RP3 PP underlying the en-route cost-efficiency target for 2022; EUROCONTROL forecast of May 2022 indicates that by the end of RP3 the number of SU in Poland will be significantly lower than in 2019 and the forecast assumed in the rev RP3 PP; - increase in inflation rate (in March and April 2022, prices had increased resvectively by 11.0% and 12.4% compared to March, April 2021, while rev RP3 PP assumed annual inflation rate for 2022 at the level of 2.52%) - the impact of changes to inflation on cost-efficiency target are two-fold: on the one hand the inflation index used for discounting nominal costs and presenting the costs in real terms is higher, but at the same time nominal costs for various items increase; - increase in fuel and energy prices (beyond levels foreseen in the rev RP3 PP) - impacting other operating costs expressed in nominal terms; - huge increase in interest rates, directly impacting cost of debt financing and actual costs incurred by PANSA (interest rates on loans taken by PANSA in 2020-2021 are directly linked to WIBOR, which in the rev RP3 PP was assumed at the level of 1.2%, while current level (May 2022) of WIBOR is 6.4%). The above factors are expected to impact not only the 2022 results, but also results of 2023 and 2024. Another element of risks may be linked to the staffing issues in ACC and APP Warsaw mentioned also under capacity KPI. If this risk materialises, the level of traffic may further decrease due to possible restrictions to operations in FIR Warszawa. Moreover ANSP's identify the growth of staff costs since the beginning of 2022 as a consequence of introduction of new government policies related to health and personal income tax for employees (so called "The Polish Deal"). All above occurrences were not possible to be predicted and included in determind costs.

What has been done by the ANSP in order to address the identified performance issues?
The majority of identified risks are beyond control of ANSP's. In order to maintain the appropriate level of financial liquidity and adjust to current macroeconomic situation, PL Bydgoszcz is in constant dialogue with social partners. Radom Meteo continues to carefully monitor its current financial situation and is constantly looking for possible savings while at the same time performing air navigation services of the highest quality. PANSA constantly monitors its costs to look for possible optimisation - but due to necessity to provide uninterrupted services and be prepared for possible traffic recovery after the war ends and sanctions are lifted as well as increasing prices for main goods and services, cost reductions reflecting the traffic drop cannot be made. On the risk related to ATCOs, PANSA Management is running intensive negotiation process with the ATCO Trade Union.

What further measures does the NSA intend to undertake to remedy this situation?
Consultation meetings with EC and PRB representatives are conducted in order to remedy the situation.

4. Major operational or structural changes

Has the ANSP implemented any major operational or structural changes (incl. any new fixed assets put into operation) during the calendar year enabling current or future cost-efficiency gains? Please outline the relevant changes and their estimated impact on performance.
PANSA has been implementing a number of projects aimed at increasing efficiency and effectiveness of its operations and use of resources, which should allow for limiting further increase in e.g. staff numbers in certain areas (e.g. tools supporting ATCO work or tools supporting efficiency of financial management processes). These projects constitute continuation of measures initiated already in RP2 and were taken into consideration during financial planning during development of revised RP3 PP. Expected benefits resulting from major investments were subject to benefit analysis conducted in 2021 that was delivered to the CAA and outcome of which was presented in the revised RP3 PP. In case of PL Bydgoszcz no major operational or structural changes were implemented. Radom Meteo has not faced major operational or structural changes in 2020/2021. These are planned to be implemented at the turn of 2022 and 2023, as a preparation actions for the reopening of Radom-Sadków (EPRA) airport after its renovation. Warmia i Mazury: In terms of MET services, no major operational or structural chagnes have been noted in 2020-2021. In case of IMWM no major operational or structural changes were implemented. CAA PL has not faced major operational or structural changes in 2020/2021.

5. Verification of actual costs

Findings of the verification of actual costs by the NSA (in accordance with Art. 22(7), Art. 23 and Art. 28(7) of IR 2019/317), and where applicable identification of corrections applied to the reported actual costs as a result of this verification.
No inconsistencies were found during the data verification and no corrections were made.

2.4.1.(b) - Cost efficiency KPI: Determined unit cost (DUC) for terminal ANS

1. DUC for terminal air navigation services

Terminal charging zone	RP3 revised cost-efficiency targets (determined 2020-2024)			
Poland zone 1	2020/2021 D	2022 D	2023 D	2024 D
Total terminal costs in nominal terms (in national currency)	81 799 669	48 871 242	50 173 711	52 624 872
Total terminal costs in real terms (in national currency at 2017 prices)	75 884 885	44 037 508	44 320 933	45 668 485
Total terminal Service Units (TNSUs)	98 511	87 356	96 630	103 108
Real terminal unit costs (in national currency at 2017 prices) - DUC	770,32	504,11	458,67	442,92

Terminal charging zone	RP3 actuals			
Poland zone 1	2020/2021 A	2022 A	2023 A	2024 A
Total terminal costs in nominal terms (in national currency)	63 686 127			
Total terminal costs in real terms (in national currency at 2017 prices)	59 199 923			
Total terminal Service Units (TNSUs)	96 933			
Real terminal unit costs (in national currency at 2017 prices)	610,73			

Terminal charging zone	Difference between actual and plan (in %)			
Poland zone 1	2020/2021	2022	2023	2024
Total terminal costs in nominal terms (in national currency)	-22,1%			
Total terminal costs in real terms (in national currency at 2017 prices)	-22,0%			
Total terminal Service Units (TNSUs)	-1,6%			
Real terminal unit costs (in national currency at 2017 prices)	-20,7%			

a) Assessment of actual performance (actual unit cost), including analysis of differences observed between the determined costs and the actual costs for the year

Based on Regulation 2020/1627, target setting for combined 2020-2021 period relates only to en-route services, not to terminal services (article 4.2 reads: "By way of derogation from points 4.1(a)(i) and 4.1(a)(iii) of Section 2 of Annex I to Implementing Regulation (EU) 2019/317, the key performance indicator on the DUC for en route air navigation services at local level shall be defined, in respect of calendar years 2020 and 2021, as a combined value for those 2 years. To this end, a single average DUC for calendar years 2020 and 2021 shall be calculated as a ratio between the total en route determined costs for those 2 calendar years and the total en route service units for those 2 calendar years, in respect of the charging zone concerned.". Nevertheless, as the template for 2021 monitoring report combines the two years into a single period also for terminal services, explanations provided below relate to the combined period 2020-2021.

As concerns PANSA:

1) staff costs: the actual staff costs for the combined period 2020-2021 are lower by 27.4% than determined costs. Such difference in staff costs is a result of one-off changes to provisions, including provisions for jubilee awards and other elements of staff benefits reflected in the level of provisions underlying RP3 determined costs (as indicated in the rev RP3 PP, considering the planned changes to Remuneration Scheme, PANSA took into account additional obligations towards its employees and assumed one-off costs in 2021 determined costs related to the switch to the new Scheme - for more information see additional information to charges' reporting tables annexed to rev RP3 PP letter f)). Following implementation of the new Remuneration Scheme in PANSA at the turn of 2021 and 2022, jubilee awards are no longer calculated and paid - what had to be reflected in PANSA 2021 financial statement and 2021 actual costs through release of the provision. Moreover, the accounting impact of changes to the Remuneration Scheme at end of 2021 in terms of provisions related to other staff benefits (the assumed one-off costs related to the switch to the new Remuneration Scheme mentioned above) has been different (significantly lower) than estimated at the stage of drafting the rev RP3 PP. This lower impact on 2021 costs can, however, be partly reversed in the following years of RP3 - possible additional costs for the following years will be reported accordingly in line with the Performance and Charging Scheme. Difference in the level of staff costs provisions between actual 2021 results and costs determined for 2021 amount to 285 mPLN (total for PANSA covering all ANS and non-ANS). Moreover, lower levels of actual employment than foreseen in rev RP3 PP at end 2021 contributed to lower remuneration costs (lower employment levels result from difficulties to find employees for certain staff categories on the market and therefore prolonged recruitments as well as staff departures not foreseen in the rev RP3 PP). Actual level of bonuses and rewards was also lower than rev RP3 PP assumptions and continued use of furloughs/downtime allowed further savings in remuneration costs. This had a direct impact also on lower costs related to social security contributions, including pensions.

2) other operating costs: the actual 2020-2021 other operating cost are lower by 35.6% than determined costs. This is largely due to prolonged COVID-19-related restrictions resulting also from the new virus type that emerged in 2H2021 (Delta). These restrictions impacted trainings, business trips and events and contributed to extension of remote work, allowing for savings in certain cost categories, including energy and materials. Optimisation (including cancellation/postponement) of repair schedules where possible, using own staff for some repairs instead of external contractors led to temporary reductions in repair services costs. Certain works and projects and related costs had to be postponed due to the persisting restrictions following another wave of COVID-19 restrictions mentioned above.

3) depreciation: the 1.0% increase in the level of depreciation costs in 2020-2021 as compared to determined costs for this period is mainly impacted by differences in useful life of some assets put into operation over 2021 as compared to standard periods assumed in the rev RP3 PP (this is specifically related to upgrades of assets already in use earlier, where the useful life period of the upgrade had to be aligned with remaining useful life of the initial asset). It needs to be clarified that 2020-2021 actual depreciation presented in the charges' reporting tables does not include effects of implementation of IFRS16 – costs related to leasing are still disclosed under other operating costs.

4) cost of capital: the actual cost of capital for the combined period 2020-2021 is higher by 39.2% comparing to determined cost. This is mainly due to unpredictable changes in macroeconomic assumptions leading to huge increase in WIBOR 3M reference rate used for the calculation of updated effective annual interest rate for the RP3 period (this relates to 2021 as well as to the following years of RP3). It needs to be indicated that following recommendation by PRB and EC to reduce the monetary level of cost of capital for RP3 (further details are included in the rev RP3 PP) determined cost of capital reflects theoretical capital structure that resulted from the monetary value of this cost item and unchanged average interest on debts. For the purpose of reporting on actual costs the capital structure had to be adjusted and the figure reflects hypothetical efficient capital structure. This has an impact on higher actual level of cost of capital. RoE remains unchanged as compared to the level resulting from reduced monetary value of determined cost of capital over RP3 agreed with EC in Feb 2022 (RoE as in the reporting tables for determined RP3 costs).

As concerns IMWM:

The difference between the actual and planned costs within the zone I terminal in air navigation charges was PLN 6.672 and results from:

- higher other operating costs by about 1%. Despite the introduction of numerous restrictions resulting from the persistent pandemic, such as remote work (where possible), limiting domestic business trips and suspending foreign business trips, other operating costs increased compared to the plan. The above-mentioned situation is mainly caused by an increase in inflation - the

PP accounted for an inflation of 3.2%, while the actual level of inflation in 2021, according to EUROSTAT data, was 5.2%. The above contributed to the growth of, inter alia, gas, energy and fuel prices;
- lower staff costs resulting from the plan revaluation.

As concerns CAA PL:

The actual staff costs for the combined period 2020-2021 are higher by 4,8% than planned. The cost allocation between both terminal charging zones (TNC EPWA and TNC OTHER) is based on the actual IFR movements (MVS) broken down by airports. The MVS structure in 2021 in comparison to 2020 data (which were basis for 2021 TNC EPWA and OTHER cost planning process) has changed and this is reflected in the cost execution for the combined period. Therefore, the actual staff costs are higher than planned. Additionally, due to the fact that total NSA costs in 2021 were higher than planned, this in turn increased the share of indirect costs allocated to ANS area. The actual other operating costs for combined period of 2020-2021 are higher by 4,7% than planned. The cost allocation between both terminal charging zones (TNC EPWA and TNC OTHER) is based on the actual IFR

b) Identification and analysis by the NSA of the underlying reasons or circumstances having led to the targets not being achieved
There were significant differences between actual data and general assumptions made in PP RP3 regarding i.e. macroeconomic data such as higher inflation rate, exchnage rate PLN/EUR and interes rates i.e. inflation rate planned for 2021 3.2% vs actual 5.2% , exchange rate planned for 2021 4.45 PLN vs actual 4.56 PLN. The above factors had a significant impact on the targets.

c) Recommendations to the ANSP to rectify the situation
CAA recommended to continue efforts related to the improvement of cost efficiency in order to ensure conditions for achieving the set goals in this respect.

d) Remedial measures taken or planned to be taken by the ANSP	0

If no measures have been or will be taken by the ANSP, please explain why
As concerns PANSA: The 2021 target for PANSA has been met, therefore no dedicated remedial measures needed to be taken. But it needs to be stressed that over 2020-2021 PANSA undertook a number of initiatives aiming at ensuring cost-efficiency of ANS provision. These covered all cost by nature categories and are listed in Annex R to rev RP3 PP. They are reflected in revised RP3 determined costs. PANSA constantly monitors its costs to support efficient financial management.

2. Follow-up of the measures relating to previous calendar years

Were any remedial measures put in place relating to deviations from performance targets in previous calendar years?	No

3. Further observations

Is the NSA aware of any significant risks which are likely to lead to cost-efficiency performance targets not being achieved during the ongoing calendar year or during the following calendar years of the reference period?	Yes

What are those risks ?
The risks are linked to the following factors: - observed slower recovery of traffic than assumed in the rev RP3 PP, reflected in lower number of service units for EPWA - lower number of SU-L would directly impact unit cost for EPWA; - increase in inflation (in March and April 2022, prices had increased resvectively by 11.0% and 12.4% compared to March, April 2021, while rev RP3 PP assumed annual inflation rate for 2022 at the level of 2.52%) - the impact of changes to inflation on cost-efficiency target are two-fold: on the one hand the inflation index used for discounting nominal costs and presenting the costs in real terms is higher, but at the same time nominal costs for various items increase; - increase in fuel and energy prices (beyond levels foreseen in the rev RP3 PP) - impacting other operating costs expressed in nominal terms; - huge increase in interest rates, directly impacting cost of debt financing and actual costs incurred by ANSPs (e.g. interest rates on loans taken by PANSA in 2020-2021 are directly linked to WIBOR, which in the rev RP3 PP was assumed at the level of 1.2%, while current level (May 2022) of WIBOR is 6.4%). The above factors are expected to impact not only the 2022 results, but also results of 2023 and 2024. Another element of risks may be linked to the staffing issues in ACC and APP Warszawa mentioned also under capacity KPI. If this risk materialises, the level of traffic may decrease due to possible restrictions to operations in FIR Warszawa, especially for flight to/from EPWA.

What has been done by the ANSP in order to address the identified performance issues?
The majority of identified risks are beyond control of PANSA. Nevertheless, PANSA constantly monitors its costs to look for possible optimisation - but due to necessity to provide uninterrupted services and be prepared for possible traffic recovery after the war ends and sanctions are lifted as well as increasing prices for main goods and services, cost reductions reflecting the traffic drop cannot be made. On the risk related to ATCOs, PANSA Management is running intensive negotiation process with the ATCO Trade Union.

What further measures does the NSA intend to undertake to remedy this situation?
Consultation meetings with EC and PRB representatives are conducted in order to remedy the situation.

4. Major operational or structural changes

Has the ANSP implemented any major operational or structural changes (incl. any new fixed assets put into operation) during the calendar year enabling current or future cost-efficiency gains? Please outline the relevant changes and their estimated impact on performance.
As concerns PANSA: PANSA has been implementing a number of projects aimed at increasing efficiency and effectiveness of its operations and use of resources, which should allow for limiting further increase in e.g. staff numbers in certain areas (e.g. tools supporting ATCO work or tools supporting efficiency of financial management processes). These projects constitute continuation of measures initiated already in RP2 and were taken into consideration during financial planning during development of revised RP3 PP. Expected benefits resulting from major investments were subject to benefit analysis conducted in 2021 that was delivered to the CAA and outcome of which was presented in the revised RP3 PP. In case of IMWM no major operational or structural changes were implemented. CAA PL has not faced major operational or structural changes in 2020/2021.

5. Verification of actual costs

Findings of the verification of actual costs by the NSA (in accordance with Art. 22(7), Art. 23 and Art. 28(7) of IR 2019/317), and where applicable identification of corrections applied to the reported actual costs as a result of this verification.
No inconsistencies were found during the data verification and no corrections were made.

2.4.1.(b) - Cost efficiency KPI: Determined unit cost (DUC) for terminal ANS

1. DUC for terminal air navigation services

Terminal charging zone	RP3 revised cost-efficiency targets (determined 2020-2024)			
Poland zone 2	2020/2021 D	2022 D	2023 D	2024 D
Total terminal costs in nominal terms (in national currency)	260 288 740	149 058 558	150 166 336	149 863 037
Total terminal costs in real terms (in national currency at 2017 prices)	242 273 070	134 684 632	133 096 739	130 519 058
Total terminal Service Units (TNSUs)	138 720	123 910	131 402	141 942
Real terminal unit costs (in national currency at 2017 prices) - DUC	1 746,49	1 086,95	1 012,90	919,52

Terminal charging zone	RP3 actuals			
Poland zone 2	2020/2021 A	2022 A	2023 A	2024 A
Total terminal costs in nominal terms (in national currency)	209 394 534			
Total terminal costs in real terms (in national currency at 2017 prices)	195 299 267			
Total terminal Service Units (TNSUs)	141 160			
Real terminal unit costs (in national currency at 2017 prices)	1 383,53			

Terminal charging zone	Difference between actual and plan (in %)			
Poland zone 2	2020/2021	2022	2023	2024
Total terminal costs in nominal terms (in national currency)	-19,6%			
Total terminal costs in real terms (in national currency at 2017 prices)	-19,4%			
Total terminal Service Units (TNSUs)	1,8%			
Real terminal unit costs (in national currency at 2017 prices)	-20,8%			

a) Assessment of actual performance (actual unit cost), including analysis of differences observed between the determined costs and the actual costs for the year

Based on Regulation 2020/1627, target setting for combined 2020-2021 period relates only to en-route services, not to terminal services (article 4.2 reads: "By way of derogation from points 4.1(a)(i) and 4.1(a)(iii) of Section 2 of Annex I to Implementing Regulation (EU) 2019/317, the key performance indicator on the DUC for en route air navigation services at local level shall be defined, in respect of calendar years 2020 and 2021, as a combined value for those 2 years. To this end, a single average DUC for calendar years 2020 and 2021 shall be calculated as a ratio between the total en route determined costs for those 2 calendar years and the total en route service units for those 2 calendar years, in respect of the charging zone concerned.". Nevertheless, as the template for 2021 monitoring report combines the two years into a single period also for terminal services, explanations provided below relate to the combined period 2020-2021.

As concerns PANSA:

1) staff costs: the actual staff costs for the combined period 2020-2021 are lower by 31.2% than determined costs. Such difference in staff costs is a result of one-off changes to provisions, including provisions for jubilee awards and other elements of staff benefits reflected in the level of provisions underlying RP3 determined costs (as indicated in the rev RP3 PP, considering the planned changes to Remuneration Scheme, PANSA took into account additional obligations towards its employees and assumed one-off costs in 2021 determined costs related to the switch to the new Scheme - for more information see additional information to charges' reporting tables annexed to rev RP3 PP letter f)). Following implementation of the new Remuneration Scheme in PANSA at the turn of 2021 and 2022, jubilee awards are no longer calculated and paid - what had to be reflected in PANSA 2021 financial statement and 2021 actual costs through release of the provision. Moreover, the accounting impact of changes to the Remuneration Scheme at end of 2021 in terms of provisions related to other staff benefits (the assumed one-off costs related to the switch to the new Remuneration Scheme mentioned above) has been different (significantly lower) than estimated at the stage of drafting the rev RP3 PP. This lower impact on 2021 costs can, however, be partly reversed in the following years of RP3 - possible additional costs for the following years will be reported accordingly in line with the Performance and Charging Scheme. Difference in the level of staff costs provisions between actual 2021 results and costs determined for 2021 amount to 285 mPLN (total for PANSA covering all ANS and non-ANS). Moreover, lower levels of actual employment than foreseen in rev RP3 PP at end 2021 contributed to lower remuneration costs (lower employment levels result from difficulties to find employees for certain staff categories on the market and therefore prolonged recruitments as well as staff departures not foreseen in the rev RP3 PP). Actual level of bonuses and rewards was also lower than rev RP3 PP assumptions and continued use of furloughs/downtime allowed further savings in remuneration costs. This had a direct impact also on lower costs related to social security contributions, including pensions.

2) other operating costs: the actual 2020-2021 other operating cost are lower by 31.8% than determined costs. This is largely due to prolonged COVID-19-related restrictions resulting also from the new virus type that emerged in 2H2021 (Delta). These restrictions impacted trainings, business trips and events and contributed to extension of remote work, allowing for savings in certain cost categories, including energy and materials. Optimisation (including cancellation/postponement) of repair schedules where possible, using own staff for some repairs instead of external contractors led to temporary reductions in repair services costs. Certain works and projects and related costs had to be postponed due to the persisting restrictions following another wave of COVID-19 restrictions mentioned above.

3) depreciation: the 2.9% increase in the level of depreciation costs in 2020-2021 as compared to determined costs for this period is mainly impacted by differences in useful life of some assets put into operation over 2021 as compared to standard periods assumed in the rev RP3 PP (this is specifically related to upgrades of assets already in use earlier, where the useful life period of the upgrade had to be aligned with remaining useful life of the initial asset). It needs to be clarified that 2020-2021 actual depreciation presented in the charges' reporting tables does not include effects of implementation of IFRS16 – costs related to leasing are still disclosed under other operating costs.

4) cost of capital: the actual cost of capital for the combined period 2020-2021 is higher by 38.9% comparing to determined cost. This is mainly due to unpredictable changes in macroeconomic assumptions leading to huge increase in WIBOR 3M reference rate used for the calculation of updated effective annual interest rate for the RP3 period (this relates to 2021 as well as to the following years of RP3). It needs to be indicated that following recommendation by PRB and EC to reduce the monetary level of cost of capital for RP3 (further details are included in the rev RP3 PP) determined cost of capital reflects theoretical capital structure that resulted from the monetary value of this cost item and unchanged average interest on debts. For the purpose of reporting on actual costs the capital structure had to be adjusted and the figure reflects hypothetical efficient capital structure. This has an impact on higher actual level of cost of capital. RoE remains unchanged as compared to the level resulting from reduced monetary value of determined cost of capital over RP3 agreed with EC in Feb 2022 (RoE as in the reporting tables for determined RP3 costs).

As concerns PL Bydgoszcz:

The nominal costs of MET services were slightly below planned values (-4.4%, -144 kPLN), which was a result of lower staff and other operating costs. Staff costs were below the planned values due to postponement of promotions (and therefore wage rises) till 2022 for several employees dedicated for ANS. What is more, there was a change of cash-flow for newly hired MET personnel trainer (instead of payment in advance, cash-flows were spread over time). In terms of other operating costs, these costs were lower due to changes of AWOS maintenance services provider. PLB struggled to find new provider for several months as the

former contractor went bankrupt - in the meantime these tasks were performed to some extent by own electric personnel, who had to be additionally trained specially for this purpose. PL Bydgoszcz also faced savings in energy and material costs and in external trainings for MET personnel due to its cancellation by IMWM. The differences in execution of depreciation and cost of capital were marginal.
In terms of AFIS costs at EPBY airport, PL Bydgoszcz managed to keep the difference between determined and actual costs at marginal level (-0.4%). The decrease in staff costs (-36 kPLN) is related to increase in operating costs (+36 kPLN) which are stemming from the fact that part of AFISOs are PL Bydgoszcz's employees while the other part are external contractors included in other operating costs. The actual rostering has shown that the second group has served more shifts.
PL Bydgoszcz achieved its cost-efficiency target (MET+AFIS, 24,8329 PLN AUC vs 26,4222 PLN DUC), what was also a consequence of higher than planned inflation rates and levels of traffic.

As concerns Radom Meteo:

In nominal terms, the costs of Radom Meteo in 2020/2021 were at the level of 95.1% planned values (-10 kPLN). The major difference concerns other operating costs: part of third-party costs were postponed and are currently planned to be incurred in 2022. What is more, AWOS sensor replacement resulted in lower cost than planned (permanent reduction). Differences in staff costs, depreciation and cost of capital were marginal. Due to higher inflation rate and higher level of traffic than planned, the target was achieved (1.2887 PLN AUC vs 1.3871 PLN DUC).

As concerns Warmia i Mazury:

MET, AFIS and COM costs in nominal terms were 1.6% below the Plan, what with the higher then planned inflation rates and TSU allowed Warmia i Mazury to achieve its target (AUC 0,6450 PLN comparing to DUC 0,6482 PLN). The differences in nominal terms were:
- in staff costs (-109.1 k PLN, -4.5%) due to lower than planned activity of AFIS services due to financial liquidity problems stemming from the inadequate navigation charges distribution systems at the national level and also changes of the form of cooperation with some of MET observers, synoptics and AFISOs (changed to a third-party services), which was partly diminished by the additional involvement of the other employees in actions connected with the process of revision of PP RP3,
- in other operating costs (+49.9 kPLN, +1.6%) due to increase of costs of third-party services,
- in depreciation (-27.4 kPLN, -10.0%) due to lower than planned investments in terms of not executed new important COM infrastrucure development and also due to lower level of investments attributed to Coordinator of ANS (cyclic investments, mainly IT equipment), which are currently being executed in 2022,
- in cost of capital (-12.5 kPLN, -11.6%) as a consequence of the same as above.

As concerns IMWM:

The difference between the actual costs and the costs planned under the terminal air navigation charges, zone II, amounted to PLN 68.166 and results from:
- higher other operating costs by about 1%. Despite the introduction of numerous restrictions resulting from the persistent pandemic, such as remote work (where possible), limiting domestic business trips and suspending foreign business trips, other operating costs increased compared to the plan. The above-mentioned situation is mainly caused by an increase in inflation - the PP accounted for an inflation of 3.2%, while the actual level of inflation in 2021, according to EUROSTAT data, was 5.2%. The above contributed to the growth of, inter alia, gas, energy and fuel prices;
- lower staff costs resulting from the plan revaluation
- lower depreciation costs resulting from the failure to complete all planned investment purchases, including purchase of AWOS-R;
- lower cost of capital resulting from the lower average interest rate on debt - planned at 1.4%, actual level 1.17%.

As concerns CAA PL:

Staff costs for the combined period 2020-2021 are slightly below the planned values. The cost allocation between both terminal charging zones (TNC EPWA and TNC OTHER) is based on the actual IFR movements (MVS) broken down by airports. The MVS structure in 2021 in comparison to 2020 data (which were basis for 2021 TNC EPWA and OTHER cost planning process) has changed and this is reflected in the cost execution. Therefore, the actual staff costs are lower than planned. Other operating costs for the combined period 2020-2021 were slightly below the planned values. The cost allocation between both terminal charging zones (TNC EPWA and TNC OTHER) is based on the actual IFR movements (MVS) broken down by airports. The MVS structure in 2021 in comparison to 2020 data (which was the basis for 2021 TNC EPWA and OTHER costs planning) has changed compared and this is reflected in the cost execution. Therefore, the actual other operating costs are lower than planned.

b) Identification and analysis by the NSA of the underlying reasons or circumstances having led to the targets not being achieved
There were significant differences between actual data and general assumptions made in PP RP3 regarding i.e. macroeconomic data such as higher inflation rate, exchnage rate PLN/EUR and interes rates i.e. inflation rate planned for 2021 3.2% vs actual 5.2% , exchange rate planned for 2021 4.45 PLN vs actual 4.56 PLN. The above factors had a significant impact on the targets.

c) Recommendations to the ANSP to rectify the situation
CAA recommended to continue efforts related to the improvement of cost efficiency in order to ensure conditions for achieving the set goals in this respect.

d) Remedial measures taken or planned to be taken by the ANSP	0

If no measures have been or will be taken by the ANSP, please explain why
As concerns PANSA: The 2021 target for PANSA has been met, therefore no dedicated remedial measures needed to be taken. But it needs to be stressed that over 2020-2021 PANSA undertook a number of initiatives aiming at ensuring cost-efficiency of ANS provision. These covered all cost by nature categories and are listed in Annex R to rev RP3 PP. They are reflected in revised RP3 determined costs. PANSA constantly monitors its costs to support efficient financial management. **As concerns PL Bygdoszcz:** PL Bydgoszcz successfully achieved its cost-efficiency targets, and the level of costs execution was close to the planned value. Therefore no remedial measures has to be taken. **As concerns Radom Meteo:** Radom Meteo has achieved its target, therefore no special remedial measures are planned to be taken. The majority of 2020/2021 savings are planned to be spent in 2022. **As concerns Warmia i Mazury:** Cost-efficiency target was achieved and there is no need for remedial measures.

2. Follow-up of the measures relating to previous calendar years

Were any remedial measures put in place relating to deviations from performance targets in previous calendar years?	No

3. Further observations

Is the NSA aware of any significant risks which are likely to lead to cost-efficiency performance targets not being achieved during the ongoing calendar year or during the following calendar years of the reference period?	Yes

What are those risks ?
The risks are linked to the following factors: - persisting uncertainty related to traffic evolution as campared to the forecast underlying rev RP3 PP; - increase in inflation (in March and April 2022, prices had increased resvectively by 11.0% and 12.4% compared to March, April 2021, while rev RP3 PP assumed annual inflation rate for 2022 at the level of 2.52%) - the impact of changes to inflation on cost-efficiency target are two-fold: on the one hand the inflation index used for discounting nominal costs and presenting the costs in real terms is higher, but at the same time nominal costs for various items increase; - increase in fuel and energy prices (beyond levels foreseen in the rev RP3 PP) - impacting other operating costs expressed in nominal terms; - huge increase in interest rates, directly impacting cost of debt financing and actual costs incurred by PANSA (interest rates on loans taken by PANSA in 2020-2021 are directly linked to WIBOR, which in the rev RP3 PP was assumed at the level of 1.2%, while current level (May 2022) of WIBOR is 6.4%), - possible increase in costs resulting from different distribution of traffic among charging zones (ER and two TANS) than assumed in the rev RP3 PP, following from the factors described under ER and EPWA cost-efficiency chapters, as well as other factors including changes to PANSA Remuneration Scheme. Moreover ANSP's identify the growth of personnel costs since the beginning of 2022 as a consequence of introduction of new government policies related to health and personal income tax for employees (so called "The Polish Deal"). The above factors are expected to impact not only the 2022 results, but also results of 2023 and 2024.

What has been done by the ANSP in order to address the identified performance issues?
The majority of identified risks are beyond control of ANSP's. In order to maintain the appropriate level of financial liquidity and adjust to current macroeconomic situation, PL Bydgoszcz is in constant dialogue with social partners. Radom Meteo continues to carefully monitor its current financial situation and is constantly looking for possible savings while at the same time performing air navigation services of the highest quality. PANSA constantly monitors its costs to look for possible optimisation - but due to necessity to provide uninterrupted services and be prepared for possible traffic recovery after the war ends and sanctions are lifted as well as increasing prices for main goods and services, cost reductions reflecting the traffic drop cannot be made. On the risk related to ATCOs, PANSA Management is running intensive negotiation process with the ATCO Trade Union.

What further measures does the NSA intend to undertake to remedy this situation?
Consultation meetings with EC and PRB representatives are conducted in order to remedy the situation.

4. Major operational or structural changes

Has the ANSP implemented any major operational or structural changes (incl. any new fixed assets put into operation) during the calendar year enabling current or future cost-efficiency gains? Please outline the relevant changes and their estimated impact on performance.

As concerns PANSA:
PANSA has been implementing a number of projects aimed at increasing efficiency and effectiveness of its operations and use of resources, which should allow for limiting further increase in e.g. staff numbers in certain areas (e.g. tools supporting ATCO work or tools supporting efficiency of financial management processes). These projects constitute continuation of measures initiated already in RP2 and were taken into consideration during financial planning during development of revised RP3 PP. Expected benefits resulting from major investments were subject to benefit analysis conducted in 2021 that was delivered to the CAA and outcome of which was presented in the revised RP3 PP.
As concerns PL Bydgoszcz:
In case of PL Bydgoszcz no major operational or structural changes were implemented. PL Bydgoszcz is constantly taking actions in order to find possible savings.
As concerns Radom Meteo:
Radom Meteo has not faced major operational or structural changes in 2020/2021. These are planned to be implemented at the turn of 2022 and 2023, as a preparation actions for the reopening of Radom-Sadków (EPRA) airport after its renovation.
As concerns Warmia i Mazury:
In terms of MET services, no major operational or structural chagnes have been noted in 2020-2021.
As concerns IMWM:
IMWM has not faced major operational or structural changes in 2020/2021.
As concerns CAA PL:
CAA PL has not faced major operational or structural changes in 2020/2021.

5. Verification of actual costs

Findings of the verification of actual costs by the NSA (in accordance with Art. 22(7), Art. 23 and Art. 28(7) of IR 2019/317), and where applicable identification of corrections applied to the reported actual costs as a result of this verification.
No inconsistencies were found during the data verification and no corrections were made.

2.4.2.(a) - Cost efficiency PI: Actual unit cost incurred by users for en route ANS

En route charging zone				
Poland	2020/2021	2022	2023	2024
Real en route unit costs (in national currency) - DUC	320,14	200,17	171,96	163,18

Adjustments stemming from the year (in national currency)	2020/2021	2022	2023	2024
Inflation adjustment (Art. 26)	12 332 444			
Cost exempt from cost-sharing (Art. 28(4) to 28(6))	-2 595 322			
Traffic risk sharing adjustment (Art. 27(2) to 27(5))	0			
Traffic adjustement (Art. 27(8))	-1 484 042			
Financial incentives (Art. 11(3) and 11 (4))				
Adjustment for modulation of charges (Art. 32(1))	0			
Difference in revenue from temporary application of unit rate (Art. 29(4) and 29(5))				
Cross-financing to (-) / from (+) other charging zone(s) (Art. 25(2)(j))	0			
Total other revenues (Art. 25(3))	-52 415 054			
Loss of revenue from application of a lower unit rate (Art. 29(6))	0			
Total adjustments stemming from year n (in nat. currency)	**-44 161 974**			

Actual service units	4 731 739			
Total adjustements per actual service unit (in nat. Currency)	-9			
Actual unit cost incurred by users (in nat. Currency)	310,81			

What initiatives were implemented or are planned that will improve this PI and how does the NSA intend on monitoring their effectiveness on performance?
This PI reflects adjustments foreseen by Regulation 2019/317 that are calculated automatically and cannot be modified. Therefore possibility for ANSPs or NSA to take initiatives aimed at improving this PI is very limited. PI does not use cross financing between charging zones and does not apply provision of Article 29(6). Modulation of charges is also not used in RP3. **As concerns PANSA:** PANSA tries to use public funds to support its costs, especially those related to investment projects, to maximum extent possible - this is then reflected in the calculation of other revenues. **As concerns PL Bydgoszcz:** The execution of IFR costs in nominal terms was close to planned values (96.5%). The differences in actual service units and actual inflation index were beyond ANSP's control. PL Bydgoszcz's share of impact on adjustment was marginal and equal to +0.0006 PLN. **As concerns Radom Meteo:** Radom Meteo's performance in the level of cost incurred in nominal terms was close to the planned values (95.1% of determined costs). The level of handled traffic and inflation rates were beyond control of ANSP. Radom Meteo's impact on Poland's AUC is marginal (effect on final value = +0.0001 PLN). **As concerns Warmia i Mazury:** Warmia i Mazury has achieved its cost-efficiency target and the presented carry-overs are fully inline with Reg. 2019/317. Warmia i Mazury's impact on adjustment is marginal (+0.0012 PLN). **As concerns IMWM:** IMWM's performance in the level of cost incurred in nominal terms was close to the planned values. IMWM's share of impact on adjustment was marginal and equal to +0.02305 PLN.

2.4.2.(b) - Cost efficiency PI: Actual unit cost incurred by users for terminal ANS

Terminal charging zone				
Poland zone 1	2020/2021	2022	2023	2024
Real terminal unit costs (in national currency) - DUC	770,32	504,11	458,67	442,92

Adjustments stemming from the year (in national currency)	2020/2021	2022	2023	2024
Inflation adjustment (Art. 26)	815 870			
Cost exempt from cost-sharing (Art. 28(4) to 28(6))	97 511			
Traffic risk sharing adjustment (Art. 27(2) to 27(5))	-			
Traffic adjustement (Art. 27(8))	87 526			
Financial incentives (Art. 11(3) and 11 (4))				
Adjustment for modulation of charges (Art. 32(1))	0			
Difference in revenue from temporary application of unit rate (Art. 29(4) and 29(5))				
Cross-financing to (-) / from (+) other charging zone(s) (Art. 25(2)(j))	-			
Total other revenues (Art. 25(3))	-1 516 405			
Loss of revenue from application of a lower unit rate (Art. 29(6))	0			
Total adjustments stemming from year n (in nat. currency)	**-515 498**			

Actual service units	96 933			

Total adjustements per actual service unit (in nat. Currency)	-5			

Actual unit cost incurred by users (in nat. Currency)	765,00			

What initiatives were implemented or are planned that will improve this PI and how does the NSA intend on monitoring their effectiveness on performance?
This PI reflects adjustments foreseen by Regulation 2019/317 that are calculated automatically and cannot be modified. Therefore possibility for ANSPs or NSA to take initiatives aimed at improving this PI is very limited. Poland does not use cross financing between charging zones (there is only one ER charging zone in Poland) and does not apply provision of Article 29(6). Modulation of charges is also not used in RP3. PANSA tries to use public funds to support its costs, especially those related to investment projects, to maximum extent possible - this is then reflected in the calculation of other revenues. As concerns IMWM: IMWM's performance in the level of cost incurred in nominal terms was close to the planned values. IMWM's share of impact on adjustment equal to +0.912845 PLN.

2.4.2.(b) - Cost efficiency PI: Actual unit cost incurred by users for terminal ANS

Terminal charging zone				
Poland zone 2	2020/2021	2022	2023	2024
Real terminal unit costs (in national currency) - DUC	1 746,49	1 086,95	1 012,90	919,52

Adjustments stemming from the year (in national currency)	2020/2021	2022	2023	2024
Inflation adjustment (Art. 26)	2 495 636			
Cost exempt from cost-sharing (Art. 28(4) to 28(6))	-4 308			
Traffic risk sharing adjustment (Art. 27(2) to 27(5))	0			
Traffic adjustement (Art. 27(8))	-870 812			
Financial incentives (Art. 11(3) and 11 (4))				
Adjustment for modulation of charges (Art. 32(1))	0			
Difference in revenue from temporary application of unit rate (Art. 29(4) and 29(5))				
Cross-financing to (-) / from (+) other charging zone(s) (Art. 25(2)(j))	0			
Total other revenues (Art. 25(3))	-6 223 995			
Loss of revenue from application of a lower unit rate (Art. 29(6))	0			
Total adjustments stemming from year n (in nat. currency)	**-4 603 480**			

Actual service units	141 160			

Total adjustements per actual service unit (in nat. Currency)	-33			

Actual unit cost incurred by users (in nat. Currency)	1 713,88			

What initiatives were implemented or are planned that will improve this PI and how does the NSA intend on monitoring their effectiveness on performance?
This PI reflects adjustments foreseen by Regulation 2019/317 that are calculated automatically and cannot be modified. Therefore possibility for ANSPs or NSA to take initiatives aimed at improving this PI is very limited. Poland does not use cross financing between charging zones and does not apply provision of Article 29(6). Modulation of charges is also not used in RP3. As concerns PANSA: PANSA tries to use public funds to support its costs, especially those related to investment projects, to maximum extent possible - this is then reflected in the calculation of other revenues. As concerns PL Bydgoszcz: PL Bydgoszcz: The execution of IFR costs in nominal terms was close to planned values (96.3%). The differences in actual service units and actual inflation index were beyond ANSP's control. PL Bydgoszcz's share of impact on adjustment was marginal and equal to -0.1686 PLN. As concers Radom Meteo: Radom Meteo's performance in the level of cost incurred in nominal terms was close to the planned values (95.1% of determined costs). The level of handled traffic and inflation rates were beyond control of ANSP. Radom Meteo's impact on Poland's AUC is marginal (effect on final value = -0.0132 PLN). As concerns Warmia i Mazury: Warmia i Mazury has achieved its cost-efficiency target and the presented carry-overs are fully inline with Reg. 2019/317. Warmia i Mazury's impact on adjustment is marginal (+0.0834 PLN). As concerns IMWM: IMWM's performance in the level of cost incurred in nominal terms was close to the planned values. IMWM's share of impact on adjustment equal to -2.1086 PLN.

2.4.3 - Additional Cost-Efficiency Indicators

Number of additional Cost-Efficiency Indicators	Click to select number of additional Indicators

SECTION 3: INCENTIVE SCHEMES

3 - INCENTIVE SCHEMES

Incentive schemes not applicable for 2020-2021

SECTION 4: INVESTMENTS

4 - INVESTMENTS

Polish Air Navigation Services Agency (PANSA)

Currency	PLN

Investment plan as per RP3 performance plan

Number of new major investments (PP)	12

#	Name of new major investment (i.e. above 5 M€ equivalent in national currency)	Total value of the asset (capex or contractual leasing value) (in national currency)	Value of the assets allocated to ANS in the scope of the PP (in national currency)	**Determined costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)					Lifecycle (Amortisation period in years)	Allocation (%)*		Planned date of entry into operation	**Actual costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)				
				2020	2021	2022	2023	2024		Enroute	Terminal		2020	2021	2022	2023	2024
1	*01440701_Campus*	722 261 693	167 859 621	243 422	275 706	511 449	1 801 404	5 735 184	40	93%	7%	after RP3	243 422	2 374 925			
2	*02440701_Communication_systems*	54 777 202	40 095 848	50 469	253 279	1 555 903	2 763 951	4 168 370	00/15/20	100%	0%	2024, after RP3	50 469	579 937			
3	*03440701_iTEC*	274 984 161	170 534 160	458 299	727 953	2 015 604	4 193 469	5 843 007	10	100%	0%	after RP3	458 299	6 621 807			
4	*06440701_VCS_system*	34 620 196	14 820 196	0	13 631	107 591	268 451	606 210	05/15	100%	0%	after RP3	0	70 722			
5	*21440701_ATM_OPS_Centre_Poznan*	92 335 659	4 447 011	2 041 113	2 773 247	5 056 443	5 082 500	5 065 357	07/20/40	100%	0%	2021, 2022	2 041 113	7 896 078			
6	*IP470701_U-Space_Program*	29 110 512	11 242 540	23 225	133 519	463 040	778 662	1 063 564	10	0%	100%	after RP3	23 225	1 262 618			
7	*IT170202_Tower_at_the_Central_Hub_Airport*	61 538 020	38 020	0	0	0	0	899	15/40	30%	70%	after RP3	0	0			
8	*IT430803_Radar_PSR/MSSR_Gdańsk*	24 966 688	24 960 773	150	429	103 763	683 668	2 289 011	15/20	100%	0%	2024	150	281			
9	*IT430900_Modernization_of_the_ATM_system_2*	101 011 895	34 821 458	115 698	536 262	2 605 840	3 820 586	3 743 463	10/15	88%	12%	2022	115 698	9 906 953			
10	*IT440732_MLAT_system_for_FIR_Warsaw*	35 950 119	22 683 430	0	1 494	75 903	365 687	1 748 413	10	90%	10%	after RP3	0	579 145			
11	*IR470209_CWP_TWR*	32 313 562	8 445 298	16 715	38 434	284 447	337 256	455 460	07/10/40	88%	12%	after RP3	16 715	296 068			
12	*IT430404_Server_Business_Infrastructure*	25 985 556	20 795 077	0	24 704	459 203	2 070 770	4 132 891	05	81%	19%	recurring	0	953 548			
	Sub-total of **new major investments** above (1)	1 489 855 263	520 743 431	2 949 091	4 778 658	13 239 186	22 166 404	34 851 828					2 949 091	30 542 080	0	0	0
	Sub-total **other new investments** (2)	822 072 250	406 576 722	2 022 374	4 940 731	18 595 257	33 513 157	43 222 372					2 022 374	46 719 627			
	Sub-total **existing investments** (3)			145 157 661	146 846 296	156 330 820	143 371 651	131 784 305					145 157 661	109 507 371			
	Total new and existing investments (1) + (2) + (3)	2 311 927 513	927 320 153	150 129 125	156 565 685	188 165 264	199 051 212	209 858 505					150 129 125	186 769 078	0	0	0

** The total % enroute+terminal should be equal to 100%.*

Has the ANSP made progress on the implementation of major investments in accordance with the schedule contained in the performance plan?	No

Please indicate what were the changes related to the planned schedule and for which major investments did those changes apply
In 2020-2021 period of the COVID-19 lockdowns and other precautions, global economic slowdown entailed stagnation of economic growth and negatively impacted companies activities, driving the global economy into crisis. Within a few months, many companies had fallen to recession. Supply chain disruptions have developed during the pandemic, spiking in 2021. This had a significant impact also on the civil aviation sector which in 2021 was still reeling from lockdowns and restrictions due to travel restrictions. Restrictions related to the COVID-19 pandemic also impacted ability to execute some of the elements of the planned investments in line with earlier assumed schedules (delays or even failure to delivery and acceptance, lack of raw materials/materials, lack of staff on the side of contractors, lack of offers from companies to carry out investment, significant increase in prices). Supply chain disruptions together with increasing raw material prices were leading to significant increase in contractors prices. The above difficulties are also visible in 2022. The situation was exacerbated by tense Russian-Ukrainian relations, which culminated in the Russian invasion of Ukraine in February 2022. The war in Ukraine necessitated re-evaluation of PANSA priorities and investments plans. New additional investments might be required supporting accelerated availability of contingency solutions. Furthermore PANSA is reviewing its CAPEX plan on ongoing basis, looking for investments optimisation and additional sources of funding. Following the ongoing review of the investment plan, which considers also changing macroeconomic and geopolitical situation, adjustments were implemented to a number of projects - some had to be shifted in time, for some the scope had to be changed (details are further provided below), for some the value had to be updated. These changes aimed at adjusting the CAPEX plan to current operational needs as well as to changed market situation. Investments carried out during 2020-2022 are limited to those which were considered necessary to ensure core services continuity, required by regulatory framework or result from previously signed contracts and obligations. Updated schedule for investments took into account implementation progress and actual financial values for each project from 2021 and even until March 2022. Additional changes in the projects' values resulted from fluctuation of EUR/PLN exchange rate (for the contracts in EUR) and consequences of the necessity to use investment loan for project financing. Having in mind current dynamic economic situation, growing inflation and increase in interest rates, the total value of assets resulting from CAPEX implementation might significantly increase in the future. PANSA is in the process of verifying CAPEX forecast for the following year as well as the following months of 2022.

In case of changes to the implementation schedule, please analyze the related justifications provided by the ANSP for each major investment
The information presented below relate to PANSA implementation plan for major investments included in investment plan developed in 2021 underlying the revised RP3 performance plan (rev RP3 PP). The prolonged crisis and the economic situation of PANSA requires constant monitoring and updates to ongoing projects. 1. 01440701_Campus - construction and design - postponed - The benefits identified at the stage of developing the draft rev RP3 PP remain valid, although due to postponed/reviewed schedule of implementation might be achieved later than initially planned. Apart from changes in CAPEX breakdown by particular years, also estimated total value of assets has significantly increased (even up to 20% increase in prices at the end of 2021) in comparison to previously estimated budget. Currently, considering the current market situation and observed significant growth in prices, the necessary budget would increase and might be subject to further increases. Considering the dynamic market situation and persisting uncertainty regarding traffic and geopolitical situation evolution, the investment schedule might be subject to further verification, including the possible project re-phasing, closely correlated with the schedules of the ATM system implementation. Work is currently underway on the preparation of the first phase of the project, including the construction of the operational part of the facility. 2. 02440701_Communication_systems –no change in scope. In 2021 works were executed according to the schedule. Operational structured cabling has been delivered and executed. The equipment of active network infrastructure system (delivery, installation, configuration and implementation) in the Poznań ATC Center is planned for 2022. The final value of this investment has been slightly increased (result of contract price increase) but benefits identified on the RP3 PP remain valid. Change to the schedule will not postpone achieving the expected benefits. The war in Ukraine necessitated re-evaluation of PANSA priorities and investments plans. New additional investments might be required supporting accelerated availability of contingency solutions. 3. 03440701_ATM system with a simulator - no change. In 2021 works were executed according to the schedule resulting from contract signed in August 2020 (delivery, installation and implementation in Poznań ATC Center). In accordance with the contract with INDRA in 2021: familiarization workshops were conducted i.a. on FAM4 Lower,FAM5 Conflicts, FAM6 Safety Nets and FAM7 Preparation; SWB3 was installed on the platform (proved and accepted by protocol); RedHat upgrade to version 8 on the validation&test platform has been made. Furthermore II stage of contract in reference to SWB3 has been settled as the required changes in lower airspace management for APP has been introduced. The benefits identified at the stage of work on the RP3 PP remain valid. 4. 06440701_VCS_system –no change in scope. Only small adjustment in the schedule to correlate with the implementation of ATM system in the Poznań ATC Center. The benefits identified in the RP3 PP remain valid. Change to the schedule will not postpone achieving the expected benefits. The war in Ukraine necessitated re-evaluation of PANSA priorities and investments plans. New additional investments might be required supporting accelerated availability of contingency solutions. 5. 21440701_ATM OPS Centre Poznań –no change in scope. The scope of the investment has not changed, however some modifications were introduced in the 2021 time schedule. Due to the prolonged COVID-19 pandemic and the effect of the economic crisis, problems accrued in finding a contractor willing to carry out the investment. The benefits identified in the RP3 PP remain valid, though rescheduling will delay the expected benefits. The war in Ukraine necessitated re-evaluation of PANSA priorities and investments plans. New additional investments might be required supporting accelerated availability of contingency solutions. 6. IP470701_UAV environment development (U-Space Programme) - no change to scope. The change to time schedule. In 2021 PANSA has operationally deployed a new version of the PansaUTM system (v.1.2) which already is used by all the TWR controllers in Poland in all 15 Controlled Zones. The new version introduced the mechanism for the operations coordinated in CTRs to be analysed by the system in order to issue digitalised flight authorisation. System filters operations into those which could be approved automatically and those which require ATC's attention. This allows to reduce ATCO workload without compromising safety. Financial schedule of the U-space Program had to be updated in 2021 due to a few external factors. One of the major factors was persisting COVID-19 pandemic with new virus type spreading in Q4. Second was a complicated regulatory situation. The investments planned within the Program are dependent on UAS regulations which were planned to be introduced to Polish law in 2021, but are still under development. Moreover, the set of AMCs and GMS to Regulation 2019/947 was published by EASA only on 9 February 2022. Among others, it links common unique digital format, described in Regulation 2019/947 with EUROCAE ED-269 standard. It is crucial for publication, management and distribution of the information about geographical zones for the UAS flights. All of the above resulted in amendment to the annual schedule of planned CAPEX – functionalities of the system has to be aligned with updated regulatory framework. The main initiation of the core investment has been moved to 2022. Two additional elements of the project concerning building tracking infrastructure for PansaUTM purposes in order to complement information for the air traffic controllers providing the live UAS traffic in order to build operational awareness also had to be slightly postponed to 2022. The benefits identified in the RP3 PP remain valid, though rescheduling will delay the expected benefits. 7. IT170202_Tower at the Central Hub Airport - change to time schedule. Changes to the financial schedule and scope will not reduce the benefits for users. The task schedule is closely correlated with the Solidarity CTH investments. The deadlines for achieving the expected benefits are subject to Solidarity CTH implementation schedule. This investment is under review by Solidarity CTH, the result of the analysis may have an impact on the future PANSA project plan. 8. IT430803_Radar PSR/MSSR Gdańsk – no change to scope, change in value and to time schedule - The scope of the project has not changed, although project budget needs to be revised. As a result of the COVID-19 pandemic and the global economic crisis, currently also impacted by the war in Ukraine, prices of construction works (increase of approximately 40%) rose so significantly that PANSA needs to revise the project budget and the deadlines for the implementation of the task. The operational benefits identified in the RP3 PP remain valid. More details will be known on the benefits of the new/revised investment value after a new cost-benefits analysis is conducted. Changing the schedule will postpone the deadlines for achieving the expected benefits. 9. IT430900_Modernization_of_the_ATM_system_2 – no change. In 2021 works were executed according to the schedule. Works were conducted, according to the contract signed in December 2020. Phase I - complete refurbishment of PEGASUS_21 hardware as well as application migration to RedHat 7 took place in Q2 2021. Phase II – delivery and operational implementation of new functionalities for P_21 ended in December 2021. New functionalities were introduced i.a. better integration with EFES TWR (Electronic Flight Strips for Tower Controlers), adjustments for Mode S airspace, adaptations towards Cross-border FRA, Safety Net and HMI improvements. In December 2021 Annex No.1 to the contract was signed, which covered small change to the schedule (extending the contract time for 3 additional months), relocation of P_21 workstations in Warsaw TWR Operational Room and resignation on some of the new P_21 positions that were originally ordered. The benefits identified in the RP3 PP remain valid. Change to the schedule will not postpone achieving the expected benefits. The war in Ukraine necessitated re-evaluation of PANSA priorities and investments plans. New additional investments might be required supporting accelerated availability of contingency solutions. 10. IT440732_MLAT system for FIR Warsaw –no change to scope. In 2021 there were changes to the way in which project milestones are delivered, but the benefits identified in the RP3 PP remain valid. Change to the schedule will not postpone achieving the expected benefits. 11. IR470209_CWP_TWR –no change to scope. Work on the controller's workstation model for Warsaw TWR continued in 2021. Work on the modernisation of the EPWA TWR is ongoing and is scheduled for completion in 2022. The benefits identified in RP3 PP remain valid. The difficulties

related to COVID-19 in 2021 entailed small changes in the work schedule, this though will not postpone the achievement of the anticipated benefits.
12. IT430404_Server_Business_Infrastructure – no change to scope. In 2021 the purchase of equipment for Poznań ATC Centre has been accelerated, with the contract finally signed in 2022. The scope of contract includes delivery of equipment, installation and implementation. The schedule was changed. The benefits identified in RP3 PP remain valid. The schedule change should accelerate the achievement of the expected benefits for this milestone.

Additional investments not foreseen as part of the performance plan and requested by the ANSP in accordance with Art. 28(4) of IR 2019/317.

Number of additional new major investments	1

#	Name of additional new major investment (i.e. above 5 M€ equivalent in national currency)	Total value of the asset (capex or contractual leasing value) (in national currency)	Value of the assets allocated to ANS in the scope of the PP (in national currency)	**Determined costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)					Lifecycle (Amortisation period in years)	Allocation (%)*		Date of entry into operation	**Actual costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)				
				2020	2021	2022	2023	2024		Enroute	Terminal		2020	2021	2022	2023	2024
1	*IT430804_Radar_PSR/MSSR_Katowice*	31 388 500	22 918 006			73 561	605 472	2 045 948	15/20	100%	0%	2024		7 580			
Sub-total of **additional new major investments** above (1)		31 388 500	22 918 006			73 561	605 472	2 045 948						7 580			

** The total % enroute+terminal should be equal to 100%.*

Name of New Major Additional investment 1	**IT430804_Radar_PSR/MSSR_Katowice**														Total value of the asset	31 388 500
Description of the asset	New radar PSR/MSSR (replacement of currently used radar PSR/MSSR) with associated infrastructure. The project covers design and installation of radar facility, including construction of necessary building elements together with communication lines, construction of technical building with supporting power supply and telecommunication connections and road access and also a purchase of necessary radar and technical equipment. New Mode-S functionality is planned to be introduced. The project includes the construction of radar facilities for the needs of approach control (with the possibility of using it also for area control) which should be implemented in 2024. The following main functionalities are planned: • PSR/MSSR surveillance in Kraków TMA, • Mode-S functionality. Replacement required to ensure reliability of SUR infrastructure and service continuity. As a result of persisting COVID-19 pandemic and significant increase in prices, with possible further increases following outbreak of the war in Ukraine, the expected project budget has increased and reached the limit for becoming a new major investment. The schedule for implementation of the investment and total value of assets are subject to possible change in the future after signature of the contract. The total asset value of 31 mPLN shown in the table above is the current estimate, while the determined costs for this investment represent costs included in RP3 PP calculated considering the initially estimated, lower total asset value for this investment (22.9 mPLN).															
The investment is mandated by a SES Regulation (i.e. PCP/CP1/Interoperability)?	Yes															
Ref. to the Regulation and, if funded through Union assistance programmes, ref. to the relevant grant agreement.	Commission Implementing Regulation (EU) No 1207/2011 of 22 November 2011 laying down requirements for the performance and the interoperability of surveillance for the Single European Sky															
	AF1	AF2	AF2	AF2	AF2	AF2	AF3	AF4	AF5	AF6	Interoperabilit	Interoperabilit	Interoperabilit	Interoperabilit	Interoperabilit	

Specify links to the PCP/CP1/Interoperability Regulations (add the sub-AF number(s) under each relevant box)											Commission Implementing Regulation (EU) No 1207/2011 of 22 November 2011 laying down requirements for the performance and the interoperability of surveillance for the single European sky				

Level of impact of the investment	Network	Yes
	Local	Yes
	Non-performance	
Quantitative impact per KPA	Safety	As concerns radars, there are close links with the other projects, which together are aimed at ensuring service continuity through reduced risk of SUR coverage loss.
	Environment	No impact
	Capacity	Loss of capacity avoided by replacement of the previous radar with a new one. Reduced risk of irregularities resulting in lower cost of delays.
	Cost Efficiency	For quantitative impact of the new/revised investment value after a new cost-benefits analysis is conducted.
Benefits for airspace users and results of the consultation of airspace users' representatives	The investment was foreseen in the RP3 PP but at the time of drafting the rev RP3 PP the estimated total value of the project did not exceed the threshold for major investments. At that time investments in radars were also subject to benefit analysis conducted by PANSA with regard to the four key performance areas. As a result of persisting COVID-19 pandemic and significant increase in prices, with possible further increases following outbreak of the war in Ukraine, the expected project budget has increased and reached the limit for becoming a new major investment in the meaning of Regulation 2019/317. The economic and pandemic crisis resulted in increase in the value estimated at approximately 40%. As a result the deadlines for the implementation of the task were postponed. The operational benefits identified at the stage of drafting the rev RP3 PP remain valid. More details on the benefits of the new/revised investment value will be known after a new cost-benefits analysis is conducted.	
Joint investment / partnership	No	
Investment in ATM systems	No	
If investment in ATM system, type?	Click to select	Not applicable
If investment in ATM system, Reference to European ATM Master Plan / PCP / CP1	Click to select	Not applicable
Please describe if the investment is delivering the expected impact on the KPAs	Radar PSR/MSR_Katowice is closely linked with two major investments, Radar PSR/MSSR_Gdańsk and MLAT_system_for FIR_Warsaw, which together are aimed at ensuring service continuity through reduced risk of SUR coverage loss.	

Description and justification of the costs nature and benefits of additional other new investments in fixed assets planned over the reference period

In 2021 PANSA did not execute additional investments not foreseen in the RP3 PP to be financed under the EU Performance and Charging Scheme.
PANSA implements 7 programmes containing combined and/or separate deployment projects/ initiatives foreseen in PANSA investment plan underlying rev RP3 PP. 7th, new programme is closely linked to Solidarity CTH. Existing investments are dedicated to completing ongoing projects aiming to support the 4 KPAs (capacity, cost-efficiency, environment and safety) or to keep the business operations running/service continuity. The other investments (not listed under the major investments above) complement the new/major ones in the wider context of PANSA strategic plan, which aims at transforming PANSA so that it is ready for the challenges stemming from the Single European Sky development. There is also a number of investments that are are related to replacement of equipment at life-end (often also upgrading the equipment), to infrastructure optimization, IT and rolling stock required to provide continuity of air navigation services.
The other ongoing/planned investments include communication ground stations necessary for airspace developments aimed at capacity improvement, Traffic Complexity Tool development, DVOR/DMEs, ILs/DMEs, voice communication systems, WAN modernization, investments related to cybersecurity, virtual airport control towers (rTWR), radars etc.
The planned investment projects include implementation of functionalities foreseen by the Common Project One and ATM Master Plan.
With regards to existing investments, they cover the depreciation costs and cost of capital related to projects developed before RP3.

4 - INVESTMENTS

Institute of Meteorology and Water Management - National Research Institute (IMWM)

Currency	PLN

Investment plan as per RP3 performance plan

Number of new major investments (PP)	0

#	Name of new major investment (i.e. above 5 M€ equivalent in national currency)	Total value of the asset (capex or contractual leasing value) (in national currency)	Value of the assets allocated to ANS in the scope of the PP (in national currency)	**Determined costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)					Lifecycle (Amortisation period in years)	Allocation (%)*		Planned date of entry into operation	**Actual costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)				
				2020	2021	2022	2023	2024		Enroute	Terminal		2020	2021	2022	2023	2024
Sub-total of **new major investments** above (1)		0	0	0	0	0	0	0					0	0	0	0	0
Sub-total **other new investments** (2)		8 000 000	8 000 000	0	72 459	694 960	1 381 029	2 025 147					314	43 164			
Sub-total **existing investments** (3)				2 736 852	2 729 764	2 013 506	1 572 726	2 123 043					2 736 538	2 655 724			
Total new and existing investments (1) + (2) + (3)		0	0	2 736 852	2 802 223	2 708 466	2 953 754	4 148 191					2 736 852	2 698 888	0	0	0

** The total % enroute+terminal should be equal to 100%.*

Has the ANSP made progress on the implementation of major investments in accordance with the schedule contained in the performance plan?	Click to select

Additional investments not foreseen as part of the performance plan and requested by the ANSP in accordance with Art. 28(4) of IR 2019/317.

Number of additional new major investments	0

#	Name of additional new major investment (i.e. above 5 M€ equivalent in national currency)	Total value of the asset (capex or contractual leasing value) (in national currency)	Value of the assets allocated to ANS in the scope of the PP (in national currency)	**Determined costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)					Lifecycle (Amortisation period in years)	Allocation (%)*		Date of entry into operation	**Actual costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)				
				2020	2021	2022	2023	2024		Enroute	Terminal		2020	2021	2022	2023	2024
Sub-total of **additional new major investments** above (1)		0	0			0	0	0						0			

** The total % enroute+terminal should be equal to 100%.*

Description and justification of the costs nature and benefits of additional other new investments in fixed assets planned over the reference period
The new investments will allow for the alignment of current requirements for meteorological services in Europe with data transmission standards in appropriate, standardized formats, which in turn will unify products for air carriers. Modernisation of AWOS at 7 airports will increase the

safety of air operations in difficult weather conditions and also will increase the safety of meteorological services and its continuity. Purchase of additional infrastructure /AWOS spare parts/ will increase their reliability, which in a significant way will affect the security and continuity of the meteorological service. Involvement in the development of new products dedicated to the meteorological services used by ATC services will result in better and faster decision making, which will significantly reduce the delays that result from suddenly changing weather conditions. As for long-term priorities, we want to better respond to the wishes of our primary audience, which are pilots. When it comes to commercial aviation, our goal is to further develop our services for civil aviation. We constantly try to improve the methods of our work so as to provide pilots with meteorological information in the most optimal and user-friendly form, while performing it in accordance with the regulations.

4 - INVESTMENTS

Port Lotniczy Bydgoszcz S.A.

Currency	PLN

Investment plan as per RP3 performance plan

Number of new major investments (PP)	0

#	Name of new major investment (i.e. above 5 M€ equivalent in national currency)	Total value of the asset (capex or contractual leasing value) (in national currency)	Value of the assets allocated to ANS in the scope of the PP (in national currency)	**Determined costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)					Lifecycle (Amortisation period in years)	Allocation (%)*		Planned date of entry into operation	**Actual costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)				
				2020	2021	2022	2023	2024		Enroute	Terminal		2020	2021	2022	2023	2024
Sub-total of **new major investments** above (1)		0	0	0	0	0	0	0					0	0	0	0	0
Sub-total **other new investments** (2)		4 317 155	4 317 155	0	0	0	176 112	668 799					0,000	0,000			
Sub-total **existing investments** (3)				579 213	565 279	516 034	479 394	454 701					579 213	567 317			
Total new and existing investments (1) + (2) + (3)		0	0	579 213	565 279	516 034	655 507	1 123 500					579 213	567 317	0	0	0

** The total % enroute+terminal should be equal to 100%.*

Has the ANSP made progress on the implementation of major investments in accordance with the schedule contained in the performance plan?	Click to select

Additional investments not foreseen as part of the performance plan and requested by the ANSP in accordance with Art. 28(4) of IR 2019/317.

Number of additional new major investments	0

#	Name of additional new major investment (i.e. above 5 M€ equivalent in national currency)	Total value of the asset (capex or contractual leasing value) (in national currency)	Value of the assets allocated to ANS in the scope of the PP (in national currency)	**Determined costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)					Lifecycle (Amortisation period in years)	Allocation (%)*		Date of entry into operation	**Actual costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)				
				2020	2021	2022	2023	2024		Enroute	Terminal		2020	2021	2022	2023	2024
Sub-total of **additional new major investments** above (1)		0	0			0	0	0						0			

** The total % enroute+terminal should be equal to 100%.*

Description and justification of the costs nature and benefits of additional other new investments in fixed assets planned over the reference period
PL Bydgoszcz: Not applicable.

4 - INVESTMENTS

Radom Meteo sp. z o.o.

Currency	PLN

Investment plan as per RP3 performance plan

Number of new major investments (PP)	0

#	Name of new major investment (i.e. above 5 M€ equivalent in national currency)	Total value of the asset (capex or contractual leasing value) (in national currency)	Value of the assets allocated to ANS in the scope of the PP (in national currency)	**Determined costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)					Lifecycle (Amortisation period in years)	Allocation (%)*		Planned date of entry into operation	**Actual costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)				
				2020	2021	2022	2023	2024		Enroute	Terminal		2020	2021	2022	2023	2024
Sub-total of **new major investments** above (1)		0	0	0	0	0	0	0					0	0	0	0	0
Sub-total **other new investments** (2)		915 000	915 000	0	0	0	160 476	166 838					0	0			
Sub-total **existing investments** (3)				72 456	51 248	28 185	0	0					72 456	51 226			
Total new and existing investments (1) + (2) + (3)		0	0	0	51 248	28 185	160 476	166 838					72 456	51 226	0	0	0

** The total % enroute+terminal should be equal to 100%.*

Has the ANSP made progress on the implementation of major investments in accordance with the schedule contained in the performance plan?	Click to select

Additional investments not foreseen as part of the performance plan and requested by the ANSP in accordance with Art. 28(4) of IR 2019/317.

Number of additional new major investments	0

#	Name of additional new major investment (i.e. above 5 M€ equivalent in national currency)	Total value of the asset (capex or contractual leasing value) (in national currency)	Value of the assets allocated to ANS in the scope of the PP (in national currency)	**Determined costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)					Lifecycle (Amortisation period in years)	Allocation (%)*		Date of entry into operation	**Actual costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)				
				2020	2021	2022	2023	2024		Enroute	Terminal		2020	2021	2022	2023	2024
Sub-total of **additional new major investments** above (1)		0	0			0	0	0						0			

** The total % enroute+terminal should be equal to 100%.*

Description and justification of the costs nature and benefits of additional other new investments in fixed assets planned over the reference period
Radom Meteo: Not applicable.

4 - INVESTMENTS

Warmia i Mazury sp. z o.o.

Currency	PLN

Investment plan as per RP3 performance plan

Number of new major investments (PP)	0

#	Name of new major investment (i.e. above 5 M€ equivalent in national currency)	Total value of the asset (capex or contractual leasing value) (in national currency)	Value of the assets allocated to ANS in the scope of the PP (in national currency)	**Determined costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)					Lifecycle (Amortisation period in years)	Allocation (%)*		Planned date of entry into operation	**Actual costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)				
				2020	2021	2022	2023	2024		Enroute	Terminal		2020	2021	2022	2023	2024
Sub-total of **new major investments** above (1)		0	0	0	0	0	0	0					0	0	0	0	0
Sub-total **other new investments** (2)		6 830 000	1 776 667	0	13 940	50 546	48 644	453 485					0	0			
Sub-total **existing investments** (3)				214 533	213 470	223 928	212 156	211 832					214 533	189 911			
Total new and existing investments (1) + (2) + (3)		0	0	214 533	227 410	274 474	260 800	665 317					214 533	189 911	0	0	0

** The total % enroute+terminal should be equal to 100%.*

Has the ANSP made progress on the implementation of major investments in accordance with the schedule contained in the performance plan?	Click to select

Additional investments not foreseen as part of the performance plan and requested by the ANSP in accordance with Art. 28(4) of IR 2019/317.

Number of additional new major investments	0

#	Name of additional new major investment (i.e. above 5 M€ equivalent in national currency)	Total value of the asset (capex or contractual leasing value) (in national currency)	Value of the assets allocated to ANS in the scope of the PP (in national currency)	**Determined costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)					Lifecycle (Amortisation period in years)	Allocation (%)*		Date of entry into operation	**Actual costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)				
				2020	2021	2022	2023	2024		Enroute	Terminal		2020	2021	2022	2023	2024
Sub-total of **additional new major investments** above (1)		0	0			0	0	0						0			

** The total % enroute+terminal should be equal to 100%.*

Description and justification of the costs nature and benefits of additional other new investments in fixed assets planned over the reference period
Warmia i Mazury: Not applicable.

SECTION5: MILITARY DIMENSION OF THE PLAN

5 - MILITARY DIMENSION OF THE PLAN

Environment

Provide analysis and evaluate the scale of the impact of military dimension on the environment KPA. Please highlight the role of airspace design, procedures used in airspace reservation, interoperability of systems, information management, and specific local circumstances.
There are over 30 permanent military areas extending over FL95 in FIR EPWW that have impact on civil traffic flows and thereby can influence the horizontal flight efficiency indicator. Additionally in FIR EPWW recurring significant multinational NATO military exercises are held including: Anakonda, Astral Knight, AV-DET Rotation, Baltops, Defender, Dragon, Rammstein Guard, Tobruq Legacy. Due to large scale of those exercises there are aircraft stopovers and regroupings on military aerodromes in FIR EPWW that increase the load on ACC GAT and OAT Warszawa that might impact the route efficiency of civil aircrafts. Military aerodromes, including EPLK, EPKS, EPPW, EPMM, are located nearby the main civil aerodromes. There are agreed procedures and LoA signed between PANSA and the Military side describing the process of airspace management at pre-tactical and tactical level in order to optimise its use. The procedures are continuously updated according to the current needs of both the civilian and military sides. The local ASM system (CAT) automatically exchanges the data with the Network Manager system. ASM information is available in ATM system, additionally published on PANSA website.

What measures have been implemeted or planned to improve the situation?
On strategic airspace management level all significant military exercises and permanent military areas are evaluated and analysed taking into account historic civil traffic flows and civil traffic predictions. The impact is consulted with the key stakeholders including neighbouring states, aerodrome operators, aircraft operators, ATS, the military, EUROCONTROL NM. The locations of the military activities are, whenever possible, designed to not affect the main traffic flows, ATC routes, DCTs and POLFRA connectivity. Segmentation, time and level restrictions are imposed when needed to mitigate the impact in location in heavy traffic periods of day. If possible class C TRA airspace is implemented to minimize the impact on civil routing. Military areas are always divided into smaller modules/segments. Each of these segments is designed in order to fit particular military activities without necessity to activate the whole area to perform specific military training assignments. The shape of these segments is always aligned with main civil traffic flows to minimize the horizontal flight inefficiency. Special procedures are prepared including dynamic change of level or segment and creation of new temporary routings for avoidance of military traffic. Special coordination points are prepared in advance to improve the cooperation between military aircrafts and ATC arriving/departing to/from military areas. The information flow is guaranteed by internal procedures and Supporting Self Check-in Documents System. Further measures include: -update of local ASM system/radar data addeed to visualize military activity in segregated areas. As a result update of coordination procedures to reduce time required to release segregated areas back to civil traffic. - implementation of closer cooperation between AMC Poland and FMP Warszawa in order to reduce as much as possible negative influence of segregated areas on civil traffic. Implementation of new coordination procedures (NPZ management) taking into account forecasted demand of civil traffic on segregated airspace allocation in time on day of the operations.

Capacity

Provide analysis and evaluate the scale of the impact of military dimension on the capacity KPA. Please highlight the role of airspace design, procedures used in airspace reservation, interoperability of systems, information management, and specific local circumstances.
There are over 30 permanent military areas extending over FL95 in FIR EPWW that have an impact on civil traffic flows and available airspace for civil traffic, which however by end of 2021 had only minor impact on declared occupancy values

without need for ATFCM measures. Additionally in FIR EPWW recurring significant multinational military exercises are held including: Anakonda, Astral Knight, AV-DET Rotation, Baltops, Defender, Dragon, Rammstein Guard, Tobruq Legacy. Due to large scale of those exercises there are aircraft stopovers and regroupings on military aerodromes in FIR EPWW that increase the load on ACC GAT and OAT Warszawa that might impact the route efficiency of civil aircrafts and airspace capacity.
Military aerodromes, including EPLK, EPKS, EPPW, EPMM, are located nearby the main civil aerodromes.
There are agreed procedures and LoA signed between PANSA and the Military side describing the process of airspace management at pre-tactical and tactical level in order to optimise its use. The procedures are continuously updated according to the current needs of both the civilian and military sides. The local ASM system (CAT) automatically exchanges the data with the Network Manager system. ASM information is available in ATM system, additionally published on PANSA website.

What measures have been implemeted or planned to improve the situation?
On strategic airspace management level all significant military exercises and permanent military areas are evaluated and analysed taking into account historic civil traffic flows and civil traffic predictions taking into account both entry count and occupancy. The locations of the military activities are, whenever possible, designed not to affect the main traffic flows, ATC routes, DCTs and POLFRA connectivity and to have minimal or even no impact on capacity. Segmentation, time and level restrictions are imposed when needed to mitigate the impact in location in heavy traffic periods of day. If possible class C TRA airspace is implemented to minimize the impact on civil operations. Further measures include: - update of local ASM system/radar data added to visualize military activity in segregated areas. As a result, update of coordination procedures to reduce time required to release segregated areas back to civil traffic. - implementation of closer cooperation between AMC Poland and FMP Warszawa in order to reduce as much as possible negative influence of segregated areas on civil traffic. Implementation of new coordination procedures (NPZ management) taking into account forecasted demand of civil traffic on segregated airspace allocation in time on day of the operations.

Cost-efficiency

Provide analysis and evaluate the scale of the impact of military dimension on the cost-efficiency KPA. Please highlight what type of commercial/financial agreements exist between the ANSP(s) and the Military (if any).
No material impact of the military dimension on the cost-efficiency KPA has been noted. There are to commercial/financial agreements between PANSA and the Military - cooperation and agreements focus on operational issues.

SECTION 6: ANNEXES

6 - ANNEXES

List of annexes