PANSA input to the FAB Performance Plan 2015-2019

2 INVESTMENT

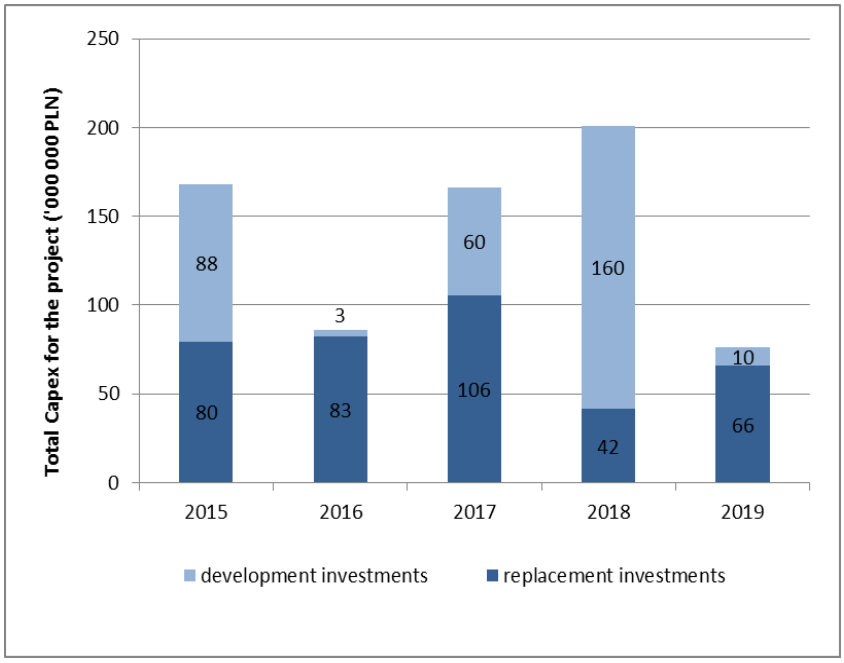
Investment planning process in PANSA

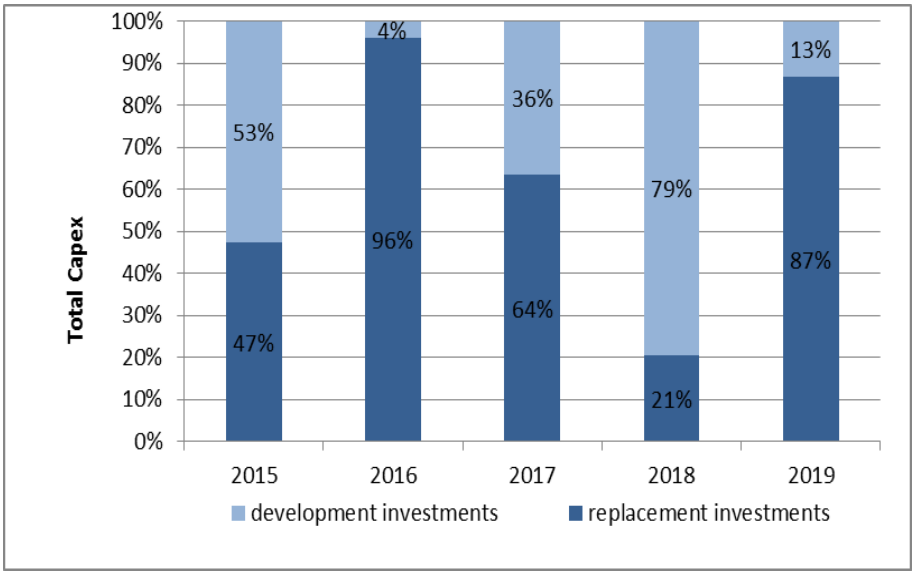
According to PANSA's plans, investments are spread over five-year period in order to reach the strategic milestones including assumed performance measures and maintain unchanged level of safety and optimal cost-efficiency. Planned tasks are collected in two investments plans: One-Year and Five-Years Investment Plan. Proposed investments and organisational needs are specified in application sheet and verified in terms of their alignment with PANSA strategy and European priorities defined in main documents like ATM Master Plan, ESSIP, etc.

The main task of investment planning process is to select and to prioritise investments which improve ATM infrastructure and bring benefits in air traffic safety, capacity, environment and cost-efficiency based on European demands. Therefore, investments have to be linked to the planned tasks to the PANSA strategy and to European ATM Master Plan as well as to the Baltic FAB goals at the very first stage of the planning process. The investments are also linked to PANSA strategic goals and tasks.

For the main investments the expected benefits of investments regarding safety, capacity, environment and cost-efficiency are specified. The tasks are also described with regards to modernization and development of the investment. Investment plans are then elaborated taking into consideration above-mentioned factors.

The below charts present the capital expenditures for the years 2015-2019 expressed in the global values and percentage shares.



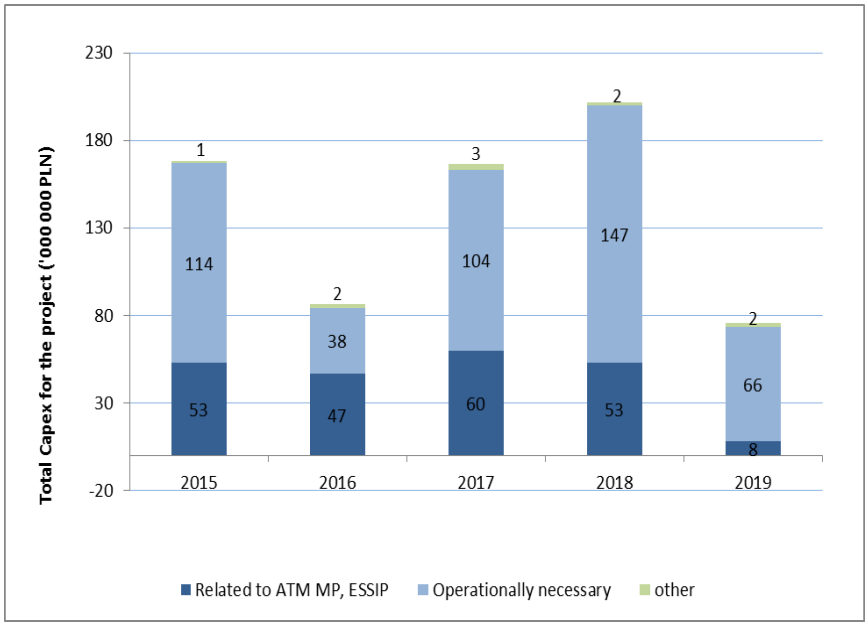


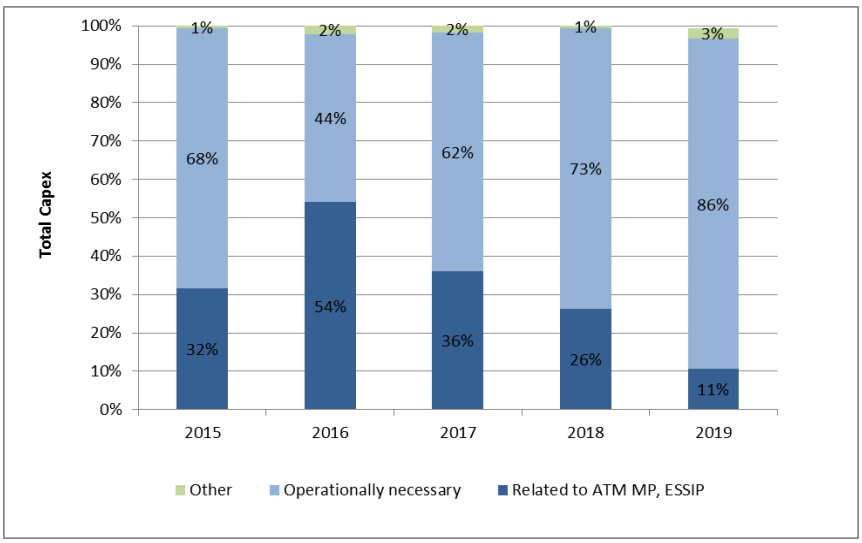
PANSA's investment activities planned for the years 2015-2019 are divided into three groups in order to reflect their strategic character.

The first group consists of the strategic investments which include tasks directly linked to the ATM Master Plan. The second group contains the investments which are necessary to fulfill the operational and safety requirements and needs. The third group consists of other tasks improving work efficiency of PANSA.

Such prioritization allows to determine precisely the validity of the implementation of activities and investment projects, an indication the impact of the KPA implementation. The maintenance of the declared capacity of the space are mainly replacement investments, guaranteeing the continuous operation of infrastructure and continuity of air traffic services. On the development investments, allowing an optimal configuration and airspace using, activities will be focused on the increase of the technological level, functionality of the ATM system and the development of CNS / ATM infrastructure.

The graphs below illustrate the share and the value (in mln PLN) of each of the investment group in the years 2015-2019.





Within the scope of the Regulation (EC) No 550/2004 Lithuania and Poland have taken the following actions which lead to implementation and increase of the performance benefits of the Baltic FAB:

Assessment of operational, economic, social and institutional consequences to the air transportation stakeholders (ANSP, Civil Aviation Authority, Ministries, airspace users, including the Military, and airports) was carried out. The following factors were taken into account:

- **Strategy:** compliant with the overall pan-European policy and strategy for Air Traffic Management, with a positive development of the ATS provision and ensuring an optimum evolution of the Baltic FAB within the Single European Sky development, including integration with the neighbouring FABs and regional initiatives;

- **Sustainable traffic development:** Baltic FAB airspace re-configuration and route network optimization were assessed as drivers for increasing traffic demand;

− **Sustainable infrastructure development:** a comprehensive assessment was developed for the implementation of a cost-effective service provision, including possible required investments, new operational and technological requirements will be introduced by FAB common operation, and together with the European SESAR new technologies to be implemented in the next years;

- **Long-term financial sustainability**: the ability to finance capital expenditures and operating costs through an adequate revenue and cost planning model, and an adequate route charging mechanism within the Baltic FAB;

- **Performances**: compliance of the proposed alternatives with the EU performance targets and average results according to the established KPI in the areas of safety, security, capacity, efficiency, environment and cost-effectiveness;

- **Benefits and quick wins for Lithuania and Poland**: benefits and quick wins in different areas such as common operation opportunities, technical infrastructure, human resources and economic-financial management achieved when implementing the FAB.

- **Legal/regulatory**: safety, operation and Single European Sky regulatory compliance and consideration of airspace sovereignty, delegation of ATC for portions of airspace, liability, accountability.

ANSPs will coordinate, harmonize, support, develop and improve the activities of the ANSPs in the context of Baltic FAB.

The table below shows the Polish-Lithuanian activities with the expected dates of the implementation and contribution to the key performance areas.

Name	Schedule	FAB Partner	Status	Expected Contribution to the Key Performance Areas
ASM/ATFCM cooperation within Baltic FAB	Dec 2013-Sept 2018	ANSPs	Initiation phase	Safety - Medium Capacity - High Environment - - High Cost efficiency – High
Establishment of a Free Route Airspace within Baltic FAB	Nov 2013-Jun 2017	ANSPs	Initiation phase	Safety - Medium Capacity - High Environment –High Cost efficiency - High
Harmonization of ANS provision and supervision rules and procedures within Baltic FAB	Dec 2013-Jun 2016	NSAs, ANSPs	Initiation phase	Safety - High Capacity - High Environment - Medium Cost efficiency - High
Convergence of ATM systems in the Baltic FAB ACCs and Cross Borders Service provision with Joint Contingency Service Provision	Dec 2013-Jun 2019	NSAs, ANSPs	Initiation phase	Safety - High Capacity - High Environment - Low Cost efficiency - High
Optimization of ATM/CNS technical infrastructure within Baltic FAB	Dec 2013-Oct 2015	ANSPs	Initiation phase	Safety - Medium Capacity - High Environment - High Cost efficiency - High
Coordinated AIS provision	Dec 2013-	ANSPs	Initiation phase	Safety - Medium

Name	Schedule	FAB Partner	Status	Expected Contribution to the Key Performance Areas
within Baltic FAB	Nov 2017			Capacity - Medium Environment - - Medium Cost efficiency - High
Enhancement of inter-FAB cooperation and cooperation with non-EU countries	Nov 2013-ongoing	ANSPs	Initiation phase	Safety - Medium Capacity - Medium Environment - Medium Cost efficiency - Medium
Best practice sharing among Baltic FAB stakeholders	Oct 2013-Jan 2019	ANSPs	Initiation phase	Safety - Low Capacity - Low Environment - Low Cost efficiency - High
Optimization of MET service provision model within Baltic FAB	Dec 2013-Oct 2017	NSAs,METs	Initiation phase	Safety - Low Capacity - Low Environment - Low Cost efficiency - High
Search and Rescue (SAR) service coordination within Baltic FAB	Dec 2013-Jan 2018	MoTs, MoDs, ANSPs	Initiation phase	Safety - Medium Capacity - Low Environment - Low Cost efficiency - High

3 PERFORMANCE TARGETS AT LOCAL LEVEL

3.1 KEY PERFORMANCE AREAS

Environment

Within KPA Environment, Commission Implementing Regulation (EU) No 390/2013 of 3 May 2013 sets out the average horizontal *en route* flight efficiency of the actual trajectory as the key performance indicator for local target setting and performance monitoring at local level.

Flight efficiency at local level is assessed against a target measuring the route extension from an optimum trajectory defined by the great circle based on the design of the routes (the difference between the “actual” and “optimal” flight profile).

Analysis of PANSA’s airspace network operation indicates that the opportunity for further reducing routes extension is limited. We believe that restricting performance targets to en-route horizontal flight efficiency limits the effectiveness of this KPI. Therefore, in order to reap tangible benefits in the KPA Environment, our focus shall also be placed on other efficiency-driven activities comprising particularly improvements in vertical flight profiles.

Horizontal flight efficiency

Despite relatively small en-route track extension, PANSA is committed to additional activities related to the efficient management of operations and airspace, comprising:

- Optimization of route designs, including deployment of the en-route direct flights and the night direct flights where operationally justified,
- Development of Free Route Airspace concept,

- Improving airspace utilization,
- Providing sufficient capacity as available airspace is a prerequisite for enabling alternative flight options.

3.1.(b).(i) Description of the process to improve route design

3.1.(b).(ii) Environment KPI #1: Horizontal en route flight efficiency (KEA)

Optimization of routes structure

The opportunity for further improvements in horizontal *en route* flight efficiency within airspace of PANSA is small. For a long time, PANSA's activities have largely been concentrated on airspace modernization with the ultimate aim of flight efficiency improvements.

Today, due to DCT development in the years 2011-2013, the horizontal flight extension in FIR EPWW nearly equals shortest track (from entry point to exit point within FIR EPWW). Implementation of DCT contributed in 2013 largely to our customers' cost savings and added up to over 383 thousand dollars.

Table xx. Impact of DCT on airlines costs and fuel burn savings:

	Year 2013
Distance reduction (NM)	60 856,1
Fuel burn savings (tonnes)	426
Cost savings ($)	383 383,43
Reduction of CO_2 (tonnes)	1 339

In order to further optimize routes, ultimately at FAB level, a new package of routes proposals has been elaborated, agreed and eventually undergone a real-time simulation. Expected benefits include among others:

- Increase in both FAB partners' ACC capacity,
- Reduction of traffic complexity and ACC ATCOs workload,
- Environmental measures: an annual reduction of track extension of 16 thousand NM which results in a reduction of CO_2 emissions by 220 tonnes,
- Benefits for airspace users: a fuel burn saving of 65 thousand dollars.

The above-mentioned project is tightly linked with an implementation of ACC vertical split in FIR EPWW which is scheduled for 2015 and the expected benefits, presented above, are to a large extent determined by actions taken by Russian Federation.

In order to further optimize flight efficiency, a strengthened collaboration with other FABs and Russian Federation on development of AWY/DCT and in future on FRA Like/FRA is of key importance. This is true in particular for Kaliningrad FIR. New

AWYs in Kaliningrad FIR together with new AWY/DCT within Baltic FAB will be key enabler for further reduction of track extension.

Free Route Airspace

Potential further improvements in terms of en-route horizontal en route flight efficiency might be achieved through a development of Free Route Airspace concept which is supposed to be accelerated as soon as ACC vertical split in FIR EPWW is implemented. FRA Like/FRA implementation in upper ACC sectors (TOP) is scheduled for end 2015 while its launch in MID sectors (planned in 2017) is determined by the results of a real-time simulation.

In the context of Baltic FAB, free route operations are foreseen as an evolution of the existing DCT route network initially based on the utilization of the COPs in each ACC. An extension of free route airspace on a H24 basis in complex portions of airspace will be a further evolution of free route application with the support of ATC system capabilities.

The implementation of uniform FRA within upper airspace of the Baltic FAB will be accomplished in phases. The first phase consists of a number of designated DCTs, available during the night time due to less traffic volume, sectors can be unified and the overall air traffic controller's workload is lower. The next phase is the implementation of FRA within the upper airspace of the Baltic FAB.

However, it must be remembered that a relatively short border between both FIRs poses a real limitation to FRA implementation within Baltic FAB since majority of flights from entry to exit point cross FIR Kaliningrad.

Having this in mind and in order to reap real operational benefits from FRA, it is recommended to extend FRA concept at inter-FAB level including non-EU countries. First, in concert with other ANSPs, PANSA will seek to ensure further development of DCTs and FRA Like/FRA beyond Baltic FAB, i.e. the concepts' expansion to the airspaces covering the entire area of the following functional airspace blocks: Baltic FAB, FAB CE and FAB Danube. This will be done under umbrella of Gate One, a strategic alliance comprising ANSPs of eleven countries from Central and Eastern Europe.

In the context of cooperation with FAB CE, a particular focus should be placed on further routes optimization within north-south traffic flows ("N-S Stream Project"), in particular routes optimization within airspaces of Slovakia and Hungary, as this might be conducive to creation of long-haul direct routes with the option to convert them into a Free Route Airspace backbone in this part of the Continent.

Then, a feasibility of further extension of FRA at regional level, including Kaliningrad FIR and airspaces of Belarus and Ukraine, will be investigated.

Improving airspace utilization (z FAB implementation program)

In relation to pre-tactical and tactical airspace management aspects (Flexible Use of Airspace, FUA level 2&3) related to Baltic FAB, there is currently neither joint nor lead Airspace Management Cell. The AMC function enriched with certain ATFCM

functions (i.e. ACC sectors capacity scenarios) within the FAB could be realized in future by the joint AMC.

Pre-tactical airspace management coordination within the Baltic FAB will be activated with the aim to identify solutions for efficient use of the airspace within the entire FAB area of application. Specifically, the process is aimed at identifying the most appropriate use of the Baltic FAB airspace by balancing requests of different users and/or different categories of users.

At a tactical airspace management level joint AMC will ensure that all of the coordination procedures are put in place to optimize the trade-off between civil and military requirements. Joint AMC will be responsible for real-time activation, deactivation or reallocation of airspace allocated at pre-tactical level as well as the distributing this information through a common Updated Airspace Use Plan (UUP) at a FAB level.

In order to ensure such processes, adequate supporting systems allowing for management of the whole Baltic FAB airspace from the FAB perspective, to share the current status of the airspace among all the appropriate stakeholders and to ensure seamless and flexible operations within Baltic FAB and across its boundaries are used. Also, in order to ensure better coordination at inter-FAB level, there are plans to use common software systems, which is seen as one of the qualitative steps forward in this area.

Providing sufficient capacity

This theme will be depicted in more detail in a chapter concerning delays and capacity as available airspace is a prerequisite for enabling alternative flight options.

Vertical dimension of flight

Horizontal flight efficiency is a main indicator of environmental nature within the SES Performance Scheme for RP2. However, this indicator tends to ignore the vertical phase of flights and thus misses a large potential source of flight efficiency metric. Having this in mind and taking into account Baltic FAB airspace's specificity, particular consideration should be given to the vertical dimension of flight profiles as fuel savings enabled in it are potentially as large as horizontal fuel savings.

In this regard, PANSA's intention is to promote and foster Continuous Descent Operations at those airports where CDOs are already performed (Warsaw, Kraków, Katowice, Gdańsk, Poznań, Wrocław). PANSA intends to increase the volume of the Continuous Descent Operations by approximately 7% annually, which will translate directly into the significant reduction of the CO_2 emissions. A fuel burn savings due to the application of the CDO ranges, according to EUROCONTROL estimations, from 50 to 150 Kgs per flight depending on the aircraft type while noise can be reduced up to 5 dg (sel) per aircraft.

Also, in medium-term perspective, PANSA will seek to phase in Continuous Climb Operations (CCO) at major Polish airports. This will fall within wider context of TMA/Approach airspace reorganization and optimization with the overriding aim of

more efficient flight profile. To this end, work is underway on the project to optimize SID/STAR procedures.

3.1.(b).(iii) Optional section - Additional Environment KPI(s)

Other activities

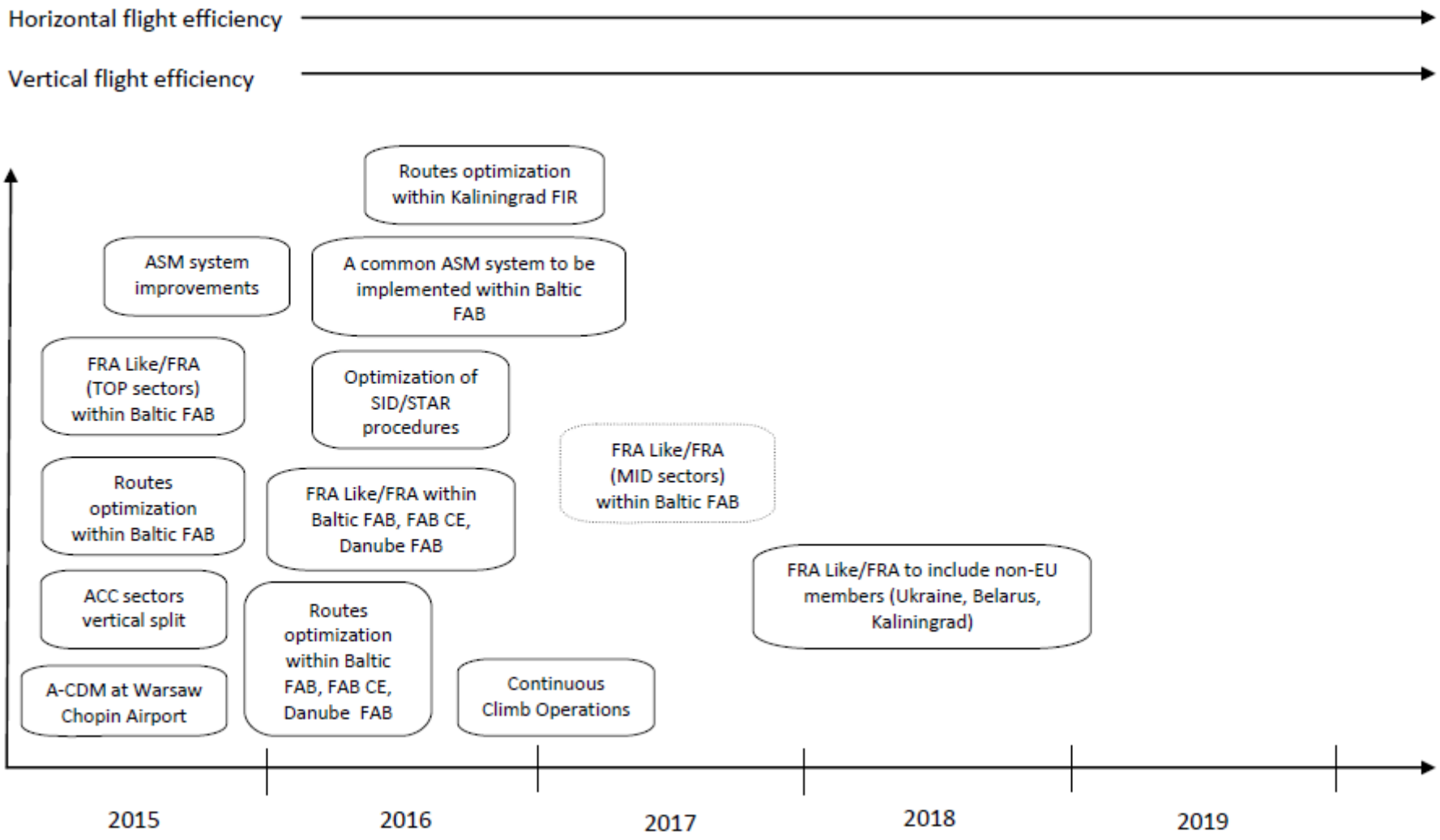
To comply with the objective of the environmental protection, the Agency in cooperation with airport operators engages also in a number of other activities aimed at mitigating the nuisance of the aviation transport and airports activity suffered by the local community. The key PANSA's activities in this scope, apart from the CDO/CCO landing technique mentioned before include:

- CEM (*Collaborative Environmental Management*), that consists in supporting core operational stakeholders in their continued efforts to deal with environmental impacts at and around airports,

- A-CDM (*Airport Collaborative Decision-Making*) project implementation at Warsaw Airport that contributes to fuel as well as CO_2 savings.

The above-mentioned actions to be taken by PANSA in terms of flight efficiency in general fall within the European ATM Master Plan, the Network Strategy Plan (NSP) 2015-2019 and the common projects referred to in Article 15a(3) of Regulation (EC) No 550/2004. Their relevance to the European strategic and planning documents and initiatives is presented below.

Actions	ATM Master Plan	Interim Deployment Programme	Pilot common projects	Network Strategy Plan
Route network optimization	AOM-0205: Modular Temporary Airspace Structures and Reserved Areas AOM-0401: Multiple Roue Options&Airspace Organisation Scenarios AOM-0402: Further Improvements to Route Network and Airspace incl. Cross-Border Sectorisation and Further Routeing Options AOM-0504: Optimum Trajectories in Defined Airspaces at Particular Times AOM-0801: Flexible Sectorisation Management AOM-0802: Modular Sectorisation ADAPTED TO Varations in Traffic Flows	Activity Area 2: Airspace management improvements and data sharing	AF#3: Flexible Airspace Management and Free Route	SO3: Implement a de-fragmented and flexible airspace enabling Free Routes *SO4:Plan optimum capacity and flight efficiency (partially; in this context, network performance is targeted to en-route capacity and emphasis the close link between capacity and efficiency since without meeting capacity targets, flight efficiency will not be achievable).*
Free Route Airspace	AOM-0401: Multiple Roue Options&Airspace Organisation Scenarios AOM-0402: Further Improvements to Route Network and Airspace incl. Cross-Border Sectorisation and Further Routeing Options	Activity Area 2: Airspace management improvements and data sharing	AF#3: Flexible Airspace Management and Free Route	SO3: Implement a de-fragmented and flexible airspace enabling Free Routes *SO4:Plan optimum capacity and flight efficiency (partially; in this context, network performance is targeted to en-route capacity and emphasis the close link between capacity and efficiency since without meeting capacity targets, flight efficiency will not be achievable).*
Flexible Use of Airspace	AOM-0201: Moving Airspace Management Into Day of Operation AOM-0202: Enhanced Real-time Civil-Military Coordination of Airspace Utilisation AOM-0205: Modular Temporary Airspace Structures and Reserved Areas AOM-0401: Multiple Roue Options&Airspace Organisation Scenarios DCB-0203: Enhanced ASM/ATFCM Coordinated Process	Activity Area 2: Airspace management improvements and data sharing	AF#3: Flexible Airspace Management and Free Route	SO3: Implement a de-fragmented and flexible airspace enabling Free Routes SO5: Facilitate business trajectories by cooperative traffic management *SO4:Plan optimum capacity and flight efficiency (partially; in this context, network performance is targeted to en-route capacity and emphasis the close link between capacity and efficiency since without meeting capacity targets, flight efficiency will not be achievable).*
CDO/CCO Application	AOM-0703: Continuous Climb Departure	Activity Area 7: CDO/CCO Operations (CCO monitoring remains important within IDP as an awareness item but without a defined applicability area.		SO6: Integrate airport and network operations
A-CDM	AO-0501: Improved Operations in Adverse Conditions through Airport Collaborative Decision Making	Activity Area 3: A-CDM	AF#2: Airport Integration and Throughput (partially)	SO6: Integrate airport and network operations

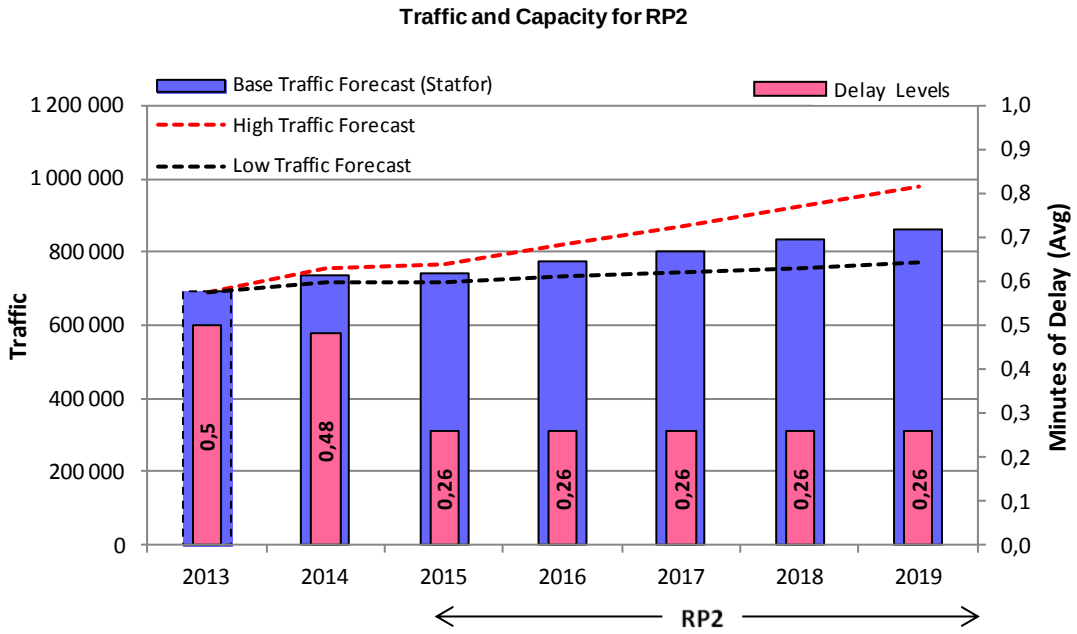

Horizontal flight efficiency
Vertical flight efficiency
Routes optimization within Kaliningrad FIR
ASM system improvements
A common ASM system to be implemented within Baltic FAB
FRA Like/FRA (TOP sectors) within Baltic FAB
Optimization of SID/STAR procedures
FRA Like/FRA (MID sectors) within Baltic FAB
Routes optimization within Baltic FAB
FRA Like/FRA within Baltic FAB, FAB CE, Danube FAB
FRA Like/FRA to include non-EU members (Ukraine, Belarus, Kaliningrad)
ACC sectors vertical split
Routes optimization within Baltic FAB, FAB CE, Danube FAB
A-CDM at Warsaw Chopin Airport
Continuous Climb Operations
2015
2016
2017
2018
2019

Capacity

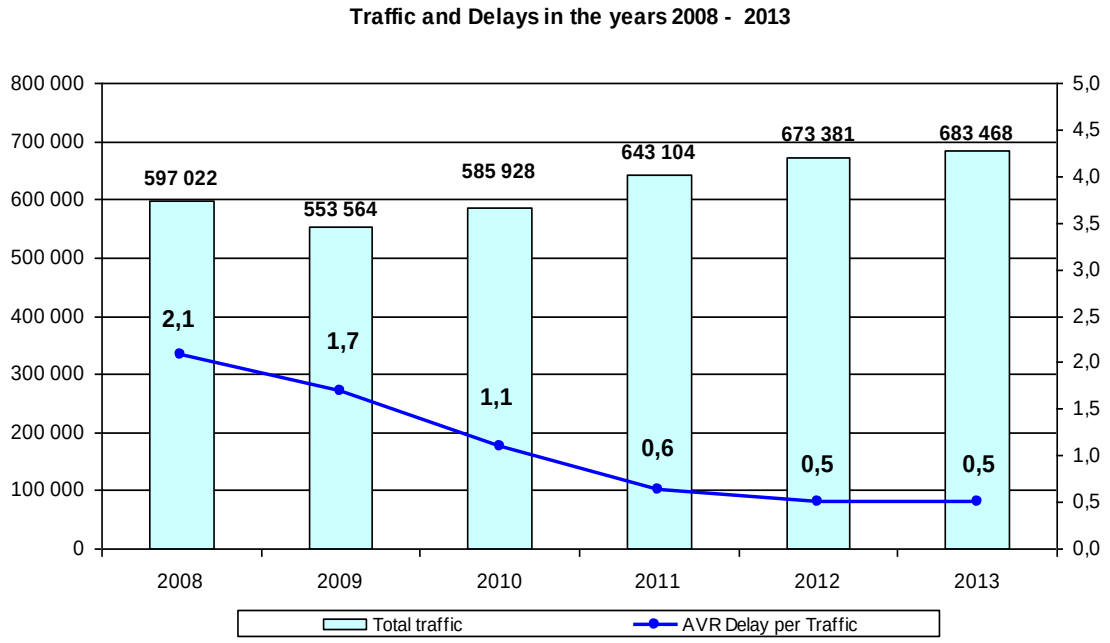
3.1.(c).(i) Capacity KPI #1: En route ATFM delay per flight

In terms of capacity, in the second reference period, EU-wide goal set by the European Commission is the average en route ATFM delay of 0.5 minutes per flight for the years 2015-2019.

PANSA, recognizing this very ambitious target, will try to contribute through appropriate measures to the achievement of the Union -wide target. The purpose of the Agency during the RP2 will decrease delays in 2015 to a level of 0.26 minutes per flight and to maintain this value in subsequent years of the reference period. This objective will be achieved by providing such capacity, which offset the expected increase in traffic.



It is important to emphasize the results which Agency has achieved in the area of capacity in previous years. Beginning from 2008, thanks to a multipronged action (e.g. enabling dynamic capacities management) and a significant commitment, Agency was able to reduce the level of delays, and in the most of that period it has been done with the increasing traffic, as illustrated in the chart below.



The period between November 2013 and the end of 2014 is a transitional period for Agency, in which the process of achieving the target capacity of the new system will take place. Particularly important in this period was the launch of operational air traffic control system P_21 late 2013, a smooth transition from the previous air traffic management system to the new one and, consequently, the fulfillment of a basic condition for the introduction at the end of the 2014 of a vertical sectors split. It will result in the removal of the main obstacles for constant, structural reduction of air traffic delays. The next steps of the vertical split will aim at balancing the increasing demand in traffic.

Due to postponed introduction of P_21 it will be difficult to achieve 0.48 min/flight in 2014, mainly due to expected delays in the summer.

Starting from 2015 PANSA expects the delays at constant level of 0.26 min/flight while predicting at the same time a significant increase of traffic.

Key factors affecting the operational efficiency in the area of "Capacity" and influencing the reduction of delays in RP2 are the development of airspace structures and route network conditioned by the degree of development of the CNS/ATM systems and ATS personnel availability. A key role in this areas will play in the short and medium term implementation of new air traffic management system and the implementation of the vertical split of airspace.

Agency aims at optimizing the capacity of airspace in accordance with needs of all users, including the adjustment of working hours of individual ACC sectors to air traffic volumes.

Achieving the required airspace capacity is also depending on the effectiveness of measures aimed at minimizing the PANSA staff shortages (especially in the group of air traffic controllers) and the maintenance and development of the qualifications of the operational staff .

Considering the CNS/ATM systems and equipment the maintenance of the declared capacity is supported mainly by replacement investments, guaranteeing uninterrupted functioning of infrastructure used by air traffic services. At the same time effort will be directed to raise the level of technology and functionality of the ATM system and the development of CNS/ATM infrastructure. One of the most important investments will be simulator for the purposes of the vertical split, thanks to which PANSA will get ready for the first stage of the vertical split, what will bring a significant reduction in delays starting from 2015.

Vertical split as a key enabler for future capacity gains

PANSA is among few ANSPs in the current ECAC community with no vertical sector split. The Polish Airspace Project 2010+ is a project currently being carried out by PANSA with the aim to develop proposals for the implementation of a new airspace structure where control sectors will be divided by both vertical and horizontal boundaries.

Based on a network and operation-oriented approach, the objective of the Polish Airspace Project 2010+ is to develop an ATS route network structure to accommodate major traffic flows including terminal connectivity and define a new sectorisation with vertical splits adapted to the proposed route network structure within Warsaw FIR.

The study undertaken indicates that the proposed airspace structure with a vertical sector split is able to accommodate all major traffic flows on the most optimum way while balancing flight efficiency and capacity, considering traffic demand. The developed structure provides a flexible sectorisation that can be adjusted according to traffic demand and as a consequence increases the overall capacity within Warsaw FIR by balancing traffic and controller workload.

Now that the new ATM system PEGASUS_21 has been successfully deployed (the new system was a prerequisite for the new airspace structure), the vertical split paves the way for further delays reduction in the Polish airspace since this is the key element for delivering an additional capacity, while improving flight efficiency and maintaining or improving safety of operations.

On top of the vertical split, the following activities will be taken by PANSA in order to improve capacity:

Demand Capacity Balancing: Short-term ATFCM Measures ATFCM (STAM)

STAM phase 1 initial deployment will address the use of occupancy counts for the monitoring of sector configuration instead of entry counts, as well as of procedures for manual implementation of STAM measures and relevant training. The implementation of such measures in terms of flight level capping and minor re-routings applied to a limited number of flights can reduce the complexity of anticipated traffic peaks enabling network benefits.

STAM does not add new physical capacity, but simply allows for a better utilization of existing capacity which makes it an important contributor to achieving capacity targets. STAM phase 1 will also contribute somewhat to the safety of ATC operations by the prevention of overloads as well as to KPA cost efficiency through an increase in ATCO productivity.

In accordance with ESSIP objective FCM-04, PANSA has already taken the following actions:

- PANSA considered to join STAM Phase 1 after successful launch of the new ATM system (November 2013),
- PANSA requested NMC EUROCONTROL to join Mandatory Cherry Pick (Network STAM) trials and has been officially accepted,
- PANSA ACC/FMP key staff attended a short familiarization meeting regarding STAM in NMC EUROCONTROL in January 2014,
- PANSA introduced STAM trial usage from 16 January 2014.

PANSA reposes a lot of hope in STAM as one of key enablers for capacity gains in the near future.

Air-Ground Data-link (AGDL) implementation

In the medium-term horizon, an important tool giving a possibility to increase the capacity of the sectors and to have control over delays in air traffic will be the implementation of the data link technology.

The data-link implementation is regulated by the DLS IR (Regulation (EC) N°29/2009) above FL285. The DLS IR regulates applicability area and dates for implementation. In case of PANSA, the deadline for AGDL implementation has been set for 5 February 2015.

AGDL could deliver significant performance improvements in capacity and cost-efficiency KPAs. Trials have revealed that AGDL deployment would enable to increase ACC sectors capacity by 11% under the proviso that 75% of aircrafts are retrofitted with a compliant system. Also, safety could also improve by the delivering of standard and unambiguous messages and the provision of additional communication means.

PANSA intends to meet the IR target date for AGDL deployment, however it is likely that the implementation schedule might be revised in forthcoming months as a result of the new ATC system implementation that has been launched latterly.

Action at FAB level: ASM/ATFCM and Flexible Use of Airspace

This theme emphasizes a close link between capacity and flight efficiency since without meeting capacity targets, flight efficiency cannot be achievable.

In terms of strengthening intra-FAB cooperation, it is planned to establish joint Baltic FAB Flow Management Position (FMP). Based on EU capacity targets, the joint FMP will prepare detailed capacity plans for ACC Warsaw & Vilnius. It is foreseen that these plans comprise of capacity values for sectors, occupancy rates, sectors opening scheme, rostering planning system to manage traffic demand and management procedures. During pre-tactical and tactical phase joint FMP use all ATFCM tools to monitor and protect ACCs.

The ACCs/joint FMP will ensure promptly reaction to any short-notice and/or real-time requirements, activating/deactivating or reallocating specific tactical route scenarios and, at the same time, establishing and activating the most appropriate airspace configurations (if established). As soon as dynamic airspace management based on enhanced FUA through a CDM process involving all the partners at tactical level (ACCs, joint FMP/joint AMC and the NM) is implemented, the most suitable flight trajectory/profile, together with short notice users requirements, will be accommodated through dynamic routes and airspace availability.

The consolidated information coming i.e. from joint FMP will ensure optimal provision of regional solutions, especially in terms of coordinated TSA/TRA allocation and sector configuration between the different ACCs in the Baltic FAB, leading towards more dynamic sector management across ACCs to optimize the resources available. In order to harmonize the FUA procedures in the Baltic FAB, a detailed assessment of current FUA procedures will be completed. Based on it the common rules and procedures for harmonized FUA application in the Baltic FAB area will be developed. The harmonization will cover different areas depending on airspace complexity, rules and regulations, traffic intensity and cross-border functionality requirements. The established processes, allow to achieve the maximum benefits from more accurate information sharing. Moreover, this organization will allow the activation of routing scenarios on the basis of the pre-defined permanent or conditional route networks established at strategic (planning) level, granting the best usage of the ACCs sectors' capacities. Such pre-defined route networks will rely not only on the status, modularity and permeability of military reserved areas but also on sector configuration capability (modular/cross-border sectorizations).

FUA could provide for increased safety levels by improved co-ordination of civil/military airspace needs, for increased capacity by better utilization of airspace resources (i.e. no additional physical resources needed) for improved environment performance (flight efficiency) via the availability of optimum routes. In terms of technical and procedural improvements within FUA concept, PANSA has already started the development of AIXM 5.1 interface for its ASM system called "CAT" – Common Airspace Tool. In order to ensure better coordination at inter-FAB level, there are plans to use common software systems allowing for management of the whole Baltic FAB airspace.

Action at FAB level: convergence of ATM systems and cross-border service provision

Project target is to achieve convergence of ATM systems in the Baltic FAB through implementation of the functionally identical fully interchangeable systems in Vilnius and Warsaw ACC during next upgrade of ATM systems at PANSA and Oro Navigacija. ATM systems should be mirrored and enable flexible use of either system to provide services in whole FAB airspace.

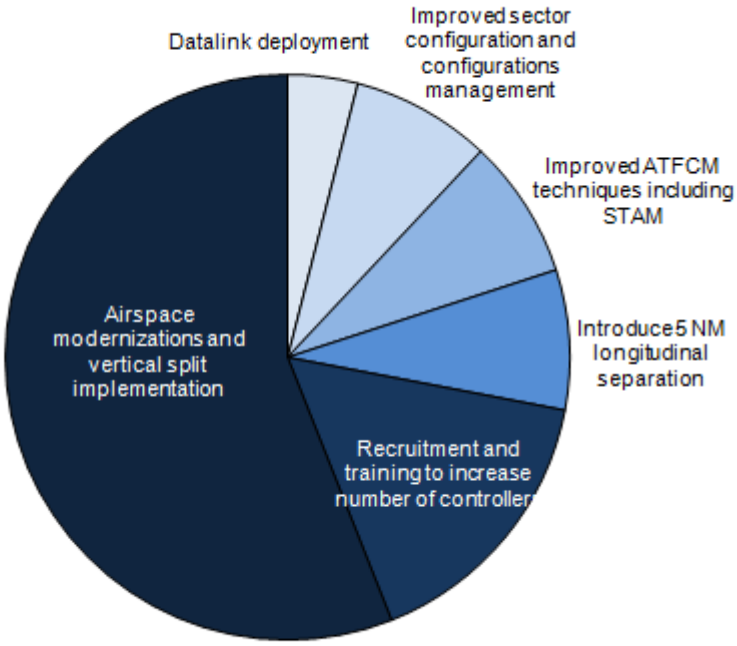
A planned technical-technological solution of ATM systems in the Baltic FAB will be based on two interconnected functionally identical fully interchangeable ATM systems ensuring the implementation of a number of previously identified the Baltic FAB opportunities related to ATM system convergence, contingency and cross-border operations.

It is planned, that the airspace within the FAB will be uniform and defined sectors in the whole FAB can be assigned dynamically resulting in optimized use of resources in peak traffic, ability to take offline certain services at low traffic and enables business continuity in case of total ACC failure.

In order to implement such capabilities both ATM systems will be supplied by the identical data provided by all Baltic FAB technical-technological infrastructure (each ATS position in parallel will be connected to both ATM systems).

The table below shows links of PANSA activities to the European strategic and planning documents or initiatives such as European ATM Master Plan, Interim Deployment Programme (IDP), the Network Strategy Plan (NSP) 2015-2019 and the common projects.

The below chart presents quantified drivers of capacity gains in RP2.



	ATM Master Plan	Interim Deployment Programme	Pilot common projects	Network Strategy Plan
Demand Capacity Balancing	DCB-0205: Short-term ATFCM Measures	Activity Area 1: Collaborative flight planning and demand and capacity balancing tools	AF#4: Network Collaborative Management (Flow&NOP)	SO4:Plan optimum capacity and flight efficiency SO5: Facilitate business trajectories by cooperative traffic management SO9: Develop the network human capital and improve its flexibility
Air-Ground Data-link (AGDL) implementation	AUO-0301: Voice Controller-Pilot Communications (En Route) Complemented by Data Link	Activity Area 4: Air-Ground Data Link	AF#6: Initial Trajectory Information Sharing (AGDL deployment is prerequisite)	SO4:Plan optimum capacity and flight efficiency
ASM/ATFCM and Flexible Use of Airspace	DCB-0203: Enhanced ASM/ATFCM Coordinated Process	Activity Area 2: Airspace management improvements and data sharing	AF#3: Flexible Airspace Management and Free Route AF#4: Network Collaborative Management (Flow&NOP)	SO3: Implement a de-fragmented and flexible airspace enabling Free Routes SO4:Plan optimum capacity and flight efficiency
Vertical split deployment		Horizontal action		SO4:Plan optimum capacity and flight efficiency
Action at FAB level: Convergence of ATM systems and cross-border service provision		Horizontal action		SO4:Plan optimum capacity and flight efficiency
Major modernization of the ATM system (ultimately iTEC platform)		Horizontal action		SO4:Plan optimum capacity and flight efficiency

3.1.(c).(ii) Capacity KPI #2: Terminal and airport ANS ATFM arrival delay per flight

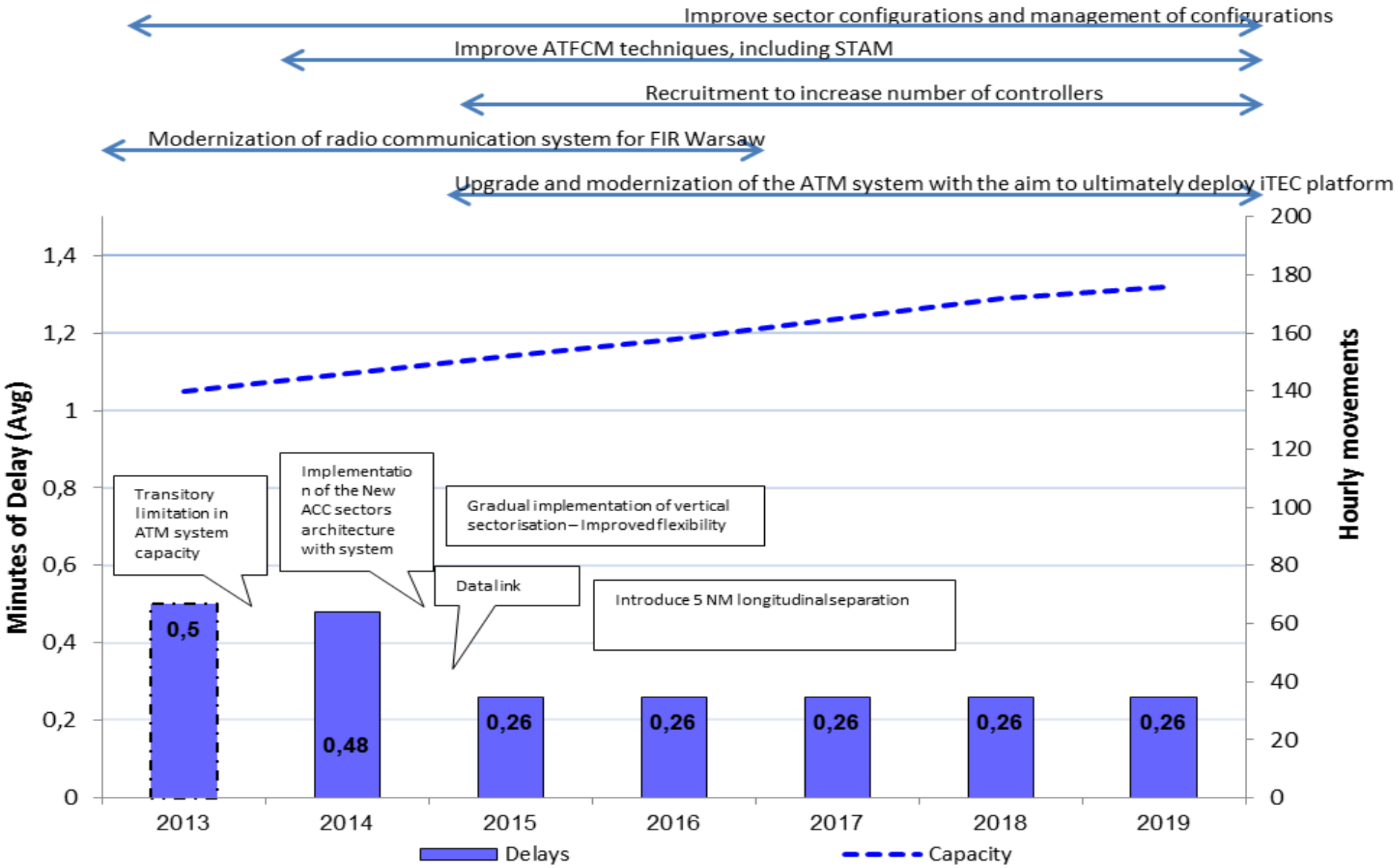
In the second reference period, in addition to the above mentioned en route ATFM delays, another indicator at the national level will be terminal and airport ANS, ATFM delay per flight arrival. The Agency is not expecting delays in this area during RP2. As in the first reference period Agency will monitor this indicator.

3.1.(c).(iii) Capacity plans

3.1.(c).(iv) Optional section - Additional Capacity KPI(s)

3.1.(d) Cost-efficiency

- Introduction of 5NM longitudinal separation.


Improve sector configurations and management of configurations
Improve ATFCM techniques, including STAM
Recruitment to increase number of controllers
Modernization of radio communication system for FIR Warsaw
Upgrade and modernization of the ATM system with the aim to ultimately deploy iTEC platform
Minutes of Delay (Avg)
Hourly movements
1,4
1,2
1
0,8
0,6
0,4
0,2
0
200
180
160
140
120
100
80
60
40
20
0
Transitory limitation in ATM system capacity
Implementation of the New ACC sectors architecture with system
Gradual implementation of vertical sectorisation – Improved flexibility
Data link
Introduce 5 NM longitudinal separation
0,5
0,48
0,26
0,26
0,26
0,26
0,26
2013
2014
2015
2016
2017
2018
2019
Delays
Capacity