Deployment Programme
Version 1
(DP v1)

FPA MOVE/E2/2014-717/SESAR FPA
SGA MOVE/E2/2014-717/SI2-699519

Work Package B2 – 4.1

Deliverable 4.1.3

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To be approved by EC

Control

Approved by	**Massimo Garbini** Managing Director	**Date** 25/06/2015	**Signature** Signed
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Executive Summary

What's DP v1?

On the 27th of June 2014, the European Commission (EC) has adopted the implementing regulation N° 716/2014 known as the Pilot Common Project (PCP). This regulation is a European law that bounds the 28 Members States to implement 6 ATM Functionalities (AF) at specified airports and in specified airspaces by specified dates. Therefore, what to implement, where, by whom and by when is already set and constrained by the PCP regulation. **What has been missing until now is a unique, consulted, agreed and supported, ATM technological implementation plan by and for industry describing how to get organised to ensure synchronised, coordinated and timely PCP implementation.** This is the scope of the present document which is the Deployment Programme version 1 (DP v1) developed by the SESAR Deployment Manager (SDM).

DP v1 aims at organising local, regional and European wide implementation activities for both Civil and Military operational stakeholders in order to implement the PCP in the most performance driven manner whilst taking due account of PCP's enablers readiness for implementation. It is underlined that DP neither adds more objectives than the ones in the PCP nor changes any of the objectives in the PCP: **it fully complies with the PCP.** When approved by the EC and combined with Connecting Europe Facility (CEF) funding through the mechanism of the calls for proposals of the Innovation & Network Executive Agency (INEA), the DP shall ensure synchronised, coordinated and timely PCP implementation.

DP v1 turns the 6 ATM functionalities and 20 sub-functionalities contained in the PCP into 44 families of implementation projects. For each family of projects, DP v1 flags the activities to be performed by which stakeholders, where, and when indicating the optimum time for their execution. It is underlined that PCP shall be fully implemented. This implies that all families in the DP v1 and all projects in every family shall be implemented at the end. Prioritisation in DP v1 shall be understood as an optimum sequencing of the families and in order to make best use of every call in the CEF period (2014-2020). In particular, prioritisation in DP v1 has been made against families' relevance to the CEF Transport and Cohesion Fund Calls for Proposals to be launched by September 2015[1], without prejudice to their relevance to later calls. Because all families and projects in this DP v1 are PCP related, they are all eligible for co-funding at some point in time. **In this sense, DP v1 represents the blueprint for the ATM technological investment plans by the operational stakeholders impacted by PCP Regulation.**

Once approved by the EC, **DP v1 shall constitute the main reference document to specify the priorities in the CEF Calls for Proposals that will be launched by September 2015.** DP v1 shall also be enforced through an amendment to the SESAR Deployment Framework Partnership Agreement (FPA), replacing former PDP v0 as its technical annex. SDM will then coordinate and synchronise the implementation projects when awarded by INEA as result of the calls in accordance to the DP.

[1] According to last oral update by the EC

A widely consulted plan

On the basis of a joint effort led by the SDM with the contribution of SJU, NM and EDA **Deployment Programme v1 incorporates outcomes from operational stakeholders' consultation through the Stakeholders Consultation Platform (SCP**). Considering the high importance of this platform, consultation's results will be reported in full transparency to EC through a dedicated report.

It is underlined that, in parallel to operational stakeholders' consultation, **SDM held working sessions with other stakeholders.** Through bilateral reviews with EASA, NSAs, EUROCAE, European Standardisation Organisations and manufacturing industry, SDM has been more focused on checking and taking actions to ensure PCP's enablers readiness for implementation. Although those stakeholders are not required to invest into PCP implementation, they will directly influence timely execution of the DP through their respective critical roles in the industrialisation phase, setting regulations and standards and driving and influencing significantly the time to market and operational approval for the systems without which implementation and operation cannot take place. Whilst DP v1 factually reports on the state of play stemming from those reviews, SDM will further assess and closely monitor industrialisation's phase progress through DP's future editions. It is SDM's objective to periodically update the Operational Stakeholders through the SCP about industrialisation's progress and report to EC in terms of risks to PCP timely implementation. Reciprocally, SDM expects that these regular reviews with the key players in the industrialisation phase will further stimulate progress upstream, providing clear vision of what the implementation priorities are, and facilitating alignment of R&D and industrialisation activities to first serve implementation priorities.

DP v1 also incorporates feedback from staff associations. The objective was to take into account the key role of the human factor in ensuring the change within the ATM modernisation process. With the involvement of the staff associations, SDM seeks to capitalise on the in-depth operational expertise of professionals working in the ATM domains, thus helping to shape a human centric DP.

Resulting from wide consultation process and multiple reviews, **DP v1 shall be considered as an ambitious, although realistic and broadly supported, technological implementation plan.**

DP v1's overview

DP v1 is organised into 6 main chapters.

The "Strategic view" that connects between the ATM functionalities in the PCP which sets the frame for this Deployment Programme and the families of projects which are its building blocks. The "Strategic view" outlines the main principles adopted by SDM developing the "Project view" and rolls out the 44 families of implementation projects through which SDM recommends to fully implement PCP. In order to sequence PCP implementation adequately, **the "Strategic view" organises the 44 families in 3 levels of relevance in the perspective of the next CEF Transport and Cohesion Fund Calls for Proposals:**

- **30 high relevance families:** those families are ready for implementation and the related implementation projects are the most urgent to launch in order to continue timely PCP implementation and early benefits delivery. **SDM recommends to EC and INEA to award implementation projects related to those families with the highest priority;**
- **10 medium relevance families:** those families are ready for implementation, although related implementation projects could be less urgent to launch because less critical to timely PCP implementation. **SDM recommends to EC and INEA to award implementation projects related to those families only if available budget permits to first satisfy the high relevance families;**
- **4 low relevance families:** those families are not ready for implementation. **SDM recommends to EC and INEA not to award any implementation projects related to those families.**

The "Project view" is at the heart of DP v1. It propagates the general orientations laid down in the "Strategic View" down to the details of each families and related implementation activities. "Project view" added value lays with the provision, for each of the 44 families in the strategic view, of a clear breakdown in between:

- **Implementation projects (or part of projects) submitted to the call 2014 and flagged by SDM as "Foundation 2014-2016" in the PDP v1**[2]. Until formal decision by EC, those IPs are assumed as awarded through the CEF Transport call for proposals 2014 (the call 2014). Because they are assumed as awarded, the relevance of the family they belong to is no longer applicable;
- **Implementation projects (or part of projects) submitted to the call 2014 and flagged by SDM as "Foundation 2016+" in the PDP v1**, therefore proposed for postponement. Until formal decision by EC, those IPs are assumed as not awarded through the call 2014. Therefore, in accordance with action 1 in PDP v1[3], SDM has protected IPs flagged as "foundation 2016+", granting them the top priority regardless of the relevance of the families they belong to[4];
- **Other implementation activities** not yet submitted, although required to fully implement the family wherever and whenever required by PCP. Those activities are further broken down in between activities relevant to the CEF Transport Call for Proposals or the CEF Cohesion Fund Call for Proposals 2015, depending on the targeted geographical area.

Operational stakeholders' attention is particularly drawn to this third category of implementation activities. Indeed, this is the most innovative part of the DP v1 and this is where awareness - *"What am I expected to implement in order to comply with PCP regulation?"* - and buy-in - *"Is my investment plan aligned enough with DP v1 so that I could be in position to apply successfully to CEF calls 2015?"* - are the most required.

[2] PDP v1 31st of March – chapter 2.1 on page 7: Foundation projects are defined as those IPs, or parts of IPs, which are a necessary technical and operational condition for the subsequent implementation of (elements of) a PCP ATM Functionality.
[3] PDP v1 31st of March – chapter 2.4 on page 18
[4] There is no IP flagged as « Foundation 2016+» in any of the 4 low relevance family.

The "Performance view" is one of DP v1's add-ons compared to PDP v1. This is about PCP and more widely SESAR contribution to achieving SES high level goals. Although still initial in the DP v1, this view will grow into a full methodology to set how much PCP implementation is expected to contribute to the four Key Performance Areas against which the SES high-level goals have been set and monitor actual contributions after implementation. This methodology will be applied on groups of interrelated implementation projects, designated as *performance threads*. A *performance thread* brings together several projects that, when all implemented, deliver a contribution to performance. *Performance threads* could be transversal to several families.

The "Monitoring view" is another DP v1's add-ons. At this early stage, it mainly endeavours to maintain the picture of ATM's modernisation state of play in Europe as previously provided by the IDSG, although with the narrower perspective of only prerequisites and facilitators to PCP implementation. It also informs about how the SDM will grow this monitoring view in future DPs, taking advantage of its coordinator's role for all implementation projects within SESAR Deployment Framework Partnership Agreement. Finally, the "Monitoring view" provides for Data-Link Service implementation status in the SES area.

"Risks and mitigations" flows down from the previous chapters recapping the 9 high level risks to PCP implementation and DP realisation. SDM also proposes related mitigation actions.

Finally, **last chapter looks forward the future versions of the DP** which are the DP v1.1 by 30th September 2015 and DP v2 by 30th June 2016. It anticipates the further improvements that will appear in these future versions:

- In DP v1.1, the main driver will be the need to record the final result of the call 2014, realigning in particular the "project view" and the "monitoring view" with the most up to date state of play to best specify the CEF calls 2015 whilst consolidating the "performance view" and SDM's assessment of standards' and regulations' development status regarding PCP implementation needs;
- The DP v2 will be the next major update of the DP. Expected by June 2016, it will target the call 2016 whilst recording the implementation projects submitted in the framework of the CEF calls 2015 pending final award decisions by INEA. SDM will guarantee an early start for DP v2 development in order to provide stakeholders with a significantly extended consultation period.

1. Introduction

Building on the joint effort led by the SDM, in cooperation with SJU, NM and EDA, DP v1 has been developed according to a set of principles – described in chapter 2 "Strategic view" – which enabled to translate the PCP into families of projects which are DP building blocks.

Where the Strategic view provides for the guidelines to comprehend the overall Programme structure, chapter 3 "Project view" details down, at family level, the implementation projects already submitted to 2014 CEF Call for proposals as well as the implementation initiatives remaining to be tackled to address identified gaps in the PCP implementation and thus support full PCP implementation and performance expectations.

Tightly linked to the "Project view" is the "Performance view" presented in chapter 4: although still to be considered at an initial step which will be further consolidated into a full vision, it provides for the necessary approach to achieve SES high level goals of effective and performance driven deployment of the PCP.

Chapter 5 "Monitoring view" is another of DP v1's add-ons compared to PDP v1. It is structured in order to provide the overview of the current implementation status of the full PCP scope. Furthermore, it provides for the monitoring of the Interim Deployment Programme Activity Areas and/or Work Packages addressing PCP prerequisites and facilitators. The chapter also describes the future SDM monitoring process, which will build on SDM's role as coordinator for all implementation projects within SESAR Deployment Framework Partnership Agreement.

The development of the above views triggers the identification of risks to PCP implementation and DP V1 realisation and related potential mitigation actions either under SDM or other stakeholders' remits, both described in chapter 6.

Chapter 7 concludes DP v1 looking at the future versions of the Programme.

2. Strategic View

The "Strategic view" is at the articulation between the PCP – the business view which sets the frame for this Deployment Programme and the detailed "Project view" in the next chapter.

This chapter outlines the main new features in DP v1 compared to PDP v1 as well as the main principles adopted when expanding the "Project view" initialised in the PDP v1 (§2.1). It provides for the connections between the 6 high level ATM functionalities in the PCP with their 20 related sub-functionalities and the 44 families of projects which are the building blocks required to fully implement PCP (§2.2).

Then, chapter 2.2 rolls out the general orientations proposed to the EC and the INEA in order to continue timely implementation of PCP through the next CEF Transport Calls for Proposals, taking into account technical, operational and financial considerations (§2.3, 2.4).

Finally, the "Strategic view" concludes with a set of recommendations and actions in chapter 2.5 deemed to be raised to EC and the INEA attention.

2.1 What's new with DP v1?

DPv1 builds on PDP v1, itself derived from PDP v0, SDM developed a roadmap timetabled by previous PDP v0 and PDP v1 releases, as the table here below summarises:

	PDP v0	PDP v1	DP v1
Timeline			
Released	15/10/14	31/03/15	24/06/15
Consulted	No	No	Yes
Approved	05/12/14	Noted	September 2015[5]
Contents			
Strategic view	None	Yes	Yes (updated)
Project view			
L1: AFs	As in PCP	As in PCP	As in PCP
L2: sub-AFs			
L3: families	Fast-tracks only	Fast-tracks only (updated)	All families
L4: implementation projects	None	110 projects submitted to call 2014	110 projects submitted to call 2014 **+ activities still to be launched**
Performance view	None	None	Initial
Monitoring view	None	None	Limited to IDSG's hand over for PCP prerequisites and facilitators, including DLS

Table 1 – PDP v0, PDP v1, DP v1 Roadmap

PDP v1 has developed an initial project view of the Pilot Common Project (PCP), bringing a first wave of implementation projects into the 4th layer of the Programme structure,

[5] Target date, subject to EC's approval process

voluntarily left empty in PDP v0, and thus launching the PCP's translation into implementation projects. Such first wave was identified through the development of a dedicated methodology where SDM has further analysed the 110 implementation projects submitted to INEA with the objective to highlight projects (or part of projects) that SDM, in the light of its ATM expertise and industrial know-how, considers as the foundations of timely PCP implementation. In particular, foundation projects are defined as those IPs, or parts of IPs, which are a necessary technical and operational condition for the subsequent implementation of (elements of) a PCP ATM Functionality (see Annex C of DP v1 – "PDP v1/Chapter 2 – Ensuring PCP's foundations").

DP v1, widening its scope to embrace the full PCP, develops a broader level 3, where 15 new families of synchronized and coordinated Implementation Projects (IPs), identified to best address the related Sub-AF/AF, have been added to the existing ones: the latter keeping the same reference number whilst losing the Fast Track (FT) label. It is worth noting that in some cases, in order to better describe the wider scope of the Deployment Programme in comparison to the PDP and to provide more definite clusters of implementing projects, the structure underpinning selected Sub-AFs have been reorganized and refined.

Furthermore, DP v1 Family template has been improved, reporting also the following information:

- **Initial Operational Capability**, to clearly identify start of deployment[6];
- **Full Operational Capability**, to clearly identify end of deployment[7];
- **Regulatory Requirements**, to report any link to Commission's Implementing Regulations other than the Pilot Common Project ;
- **Applicable Means of Compliance, Certification or Community Specifications,** to report any link to existing or under development AMC, CS as well as the need for AMC, CS yet to be developed;
- **Applicable industry standards**, to report any link to existing or under development standards as well as the need for standards yet to be developed;
- **Interdependencies** between families;
- **Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015 (High, Medium and Low Relevance)**
- **Recommendation for the IPs proposal,** developed in accordance with the information reported in the Gap analysis Chart (see fig. 8)

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[6] Start deployment date for a family is driven by the start of the first implementation of at least one of the operational improvements/one of the enablers associated with this family at least in one place with PCP geographical scope. As a consequence, it could happen that a family has already started to be implemented (start date = 2014 or before) whilst not all associated operational improvements/enablers are ready for implementation yet.

[7] End deployment date for a family occurs when all the operational improvements/enablers associated with this family have been implemented and switched operational everywhere within PCP's geographical scope. End deployment date shall occur at the latest by the deadline set for parent sub-AF in the PCP regulation.

Furthermore, it is worth noting that DP v1, taking into account the relevant role of standardisation and regulation activities for the effective deployment of the PCP, also encompasses dedicated matrixes, highlighted in the Annex B. Such annex, which has been developed working in fruitful cooperation with EASA, EUROCAE, SESAR JU and manufacturing industry, aims at defining in a structured manner the expected timing of standardisation and regulatory activities, as well as the timeline of industrialisation and actual deployment for each level 3 families.

Furthermore, through bilateral reviews with EASA, NSAs, EUROCAE and manufacturing industry, SDM will be focused on checking and taking actions to ensure PCP's enablers readiness for implementation. Lack of standardisation and adequate industrialization could constitute one of the major risk to successful deployment. Accordingly, it will be the objective of the SDM, to periodically report and update the SCP stakeholders about the progresses of the consultations with the abovementioned institutional bodies.

SDM will also take into account EDA contribution for mapping of civil and military standards supporting interoperability, with the aim to take any appropriate actions to address relevant gaps.

With regard to the level 4, where PDP v1 recorded in a structured and harmonised manner the 110 implementation projects submitted to the 2014 CEF Call for proposals, DP v1 goes further by identifying through the concept of gaps all implementation activities that are still to be submitted to one of the next CEF calls for proposals and then developing an optimum allocation in between the next CEF calls for proposals in 2015 and beyond.

Furthermore, DP v1 level 4 provides for:

- update of IPs description according to the reorganized level 3 (Annex A: Project View – Project Details);
- evidence of the projects (or part of) proposed for postponement in PDP v1, thus to be secured in the next CEF Call for Proposals;
- evidence of the implementation initiatives (gap analysis) not yet submitted by the operational stakeholders to any CEF transport call for proposals, although necessary to PCP implementation; it is to be noted that such exercise has been performed with the twofold objective to:
    - support the ATM stakeholders targeted by the PCP in the easy identification of the implementation areas to be tackled by their investments, and consistently sustained by the EU financial mechanisms
    - avoid significant gaps in programme's implementation, thus supporting performances' expectations.

With regard to the programme monitoring, it is to be noted that DP v1 takes into account the result of the level 4 gap analysis developed by SDM with the support of the Network Manager. As detailed in the Monitoring view (see chapter 5 below), the ad-hoc process relies on an intermediate working arrangement adopted to provide, to the maximum extent possible, an up-to-date implementation status picture. The SDM monitoring process will be soon ready to replace this intermediate working arrangement.

With regard to the Risk analysis, building on the inputs presented in PDP v1, DP v1 further develops them and identifies mitigation actions either under SDM remits or suggested to other stakeholders.

2.2 Full PCP implementation

PCP combines coherent technological improvements aiming to enhance the performance of the European Air Traffic Management system in the short to medium term. It focuses on the technological improvements that are mature enough to start deployment in 2014-2024 and require a synchronized implementation among the key investors. It also fosters the implementation of key ground-ground and air-ground infrastructural building blocks for the future Common Projects.

As above mentioned, DP v1 aims at providing the project view for full PCP implementation, thus becoming the blueprint for PCP operational stakeholders: in particular, level 3 identifies coherent groups of implementation activities, the families underpinning the deployment of the 6 ATM Functionalities in the PCP. The following chart illustrates DP v1 overall structure, where families have been clustered per AF. Each family has been labelled according to:

- both its readiness for implementation and time wise urgency to be launched in order to pursue timely PCP implementation:
  - **High Relevance Families**: ready for implementation families, which **need** to be awarded through 2015 calls; these families are ready for implementation and time wise the most urgent to launch in order to continue timely PCP implementation and early benefits delivery. SDM will recommend to EC and INEA to award implementation projects related to those families within 2015 calls;
  - **Medium Relevance Families**: ready for implementation families that should be **ideally** awarded through 2015 calls; these families are ready for implementation, although time wise less urgent to launch for PCP implementation. SDM will recommend to EC and INEA to award implementation projects related to those families only if available budget permits to first satisfy the high relevance families. It is to be noted that foundation projects which relate to those families are recommended to be awarded through 2014 CEF Transport CfP, in line with PDP v1.
  - **Low Relevance Families**: not ready for implementation families that would represent a **high risk** if awarded through 2015 calls; these families are not yet ready for implementation. As explained in section 2.5 "Recommendations and actions", their status will be re-considered when developing the future versions of the Deployment Programme as their readiness for implementation is expected to improve in time
- its new identification compared to PDP v1 content; it is to be noted that PDP v1 Fast Tracks have been renamed in families in DP v1 for consistency, although they kept the same reference number.

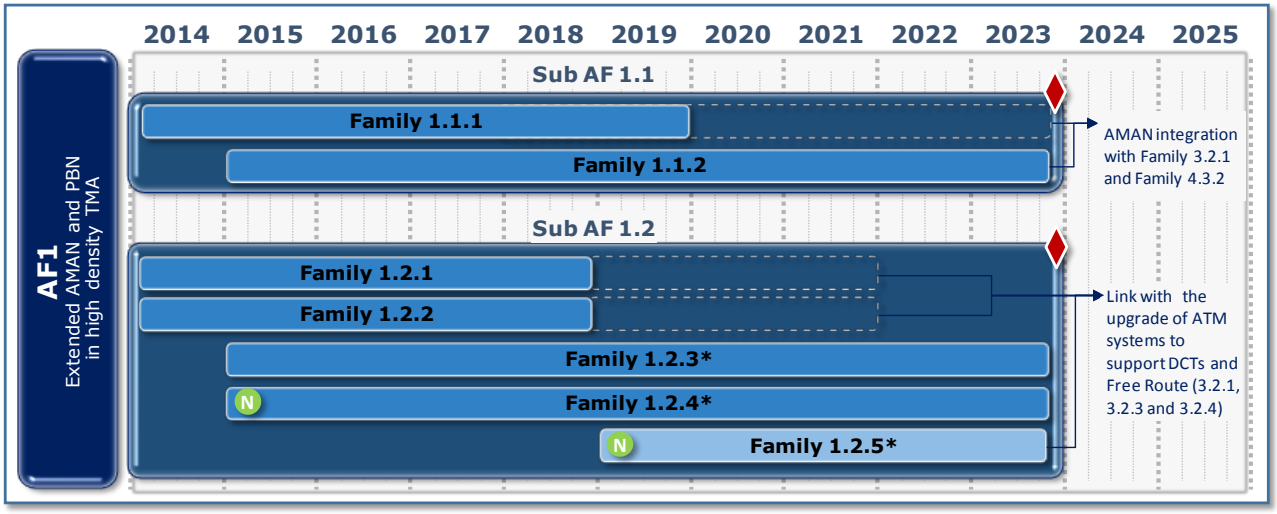
Fig. 1 – Overall DP v1 Structure

In particular, here below the full list of 44 DP v1 families is reported, along with dedicated GANTT charts which highlight the recommended roadmap for implementation of each Family, clustered by ATM Functionality:

2.2.1 AF1 – Extended Arrival Management and Performance Based Navigation in the High Density TMAs

- 1.1.1 Basic AMAN
- 1.1.2 AMAN Upgrade to include Extended Horizon function
- 1.2.1 RNP Approaches with vertical guidance
- 1.2.2 Geographic Database for Procedure Design
- 1.2.3 RNP 1 Operations in high density TMAs (ground capabilities)
- 1.2.4 RNP 1 Operations in high density TMAs (aircraft capabilities) - *NEW*
- 1.2.5 Implement Advanced RNP routes below Flight Level 310 – *NEW*

PDP v1's Fast Track 1.2.3 - RNP/RNAV (2D navigation), for high density TMAs - has been replaced by the new families 1.2.3 and 1.2.4, which now separate ground and aircraft capabilities.



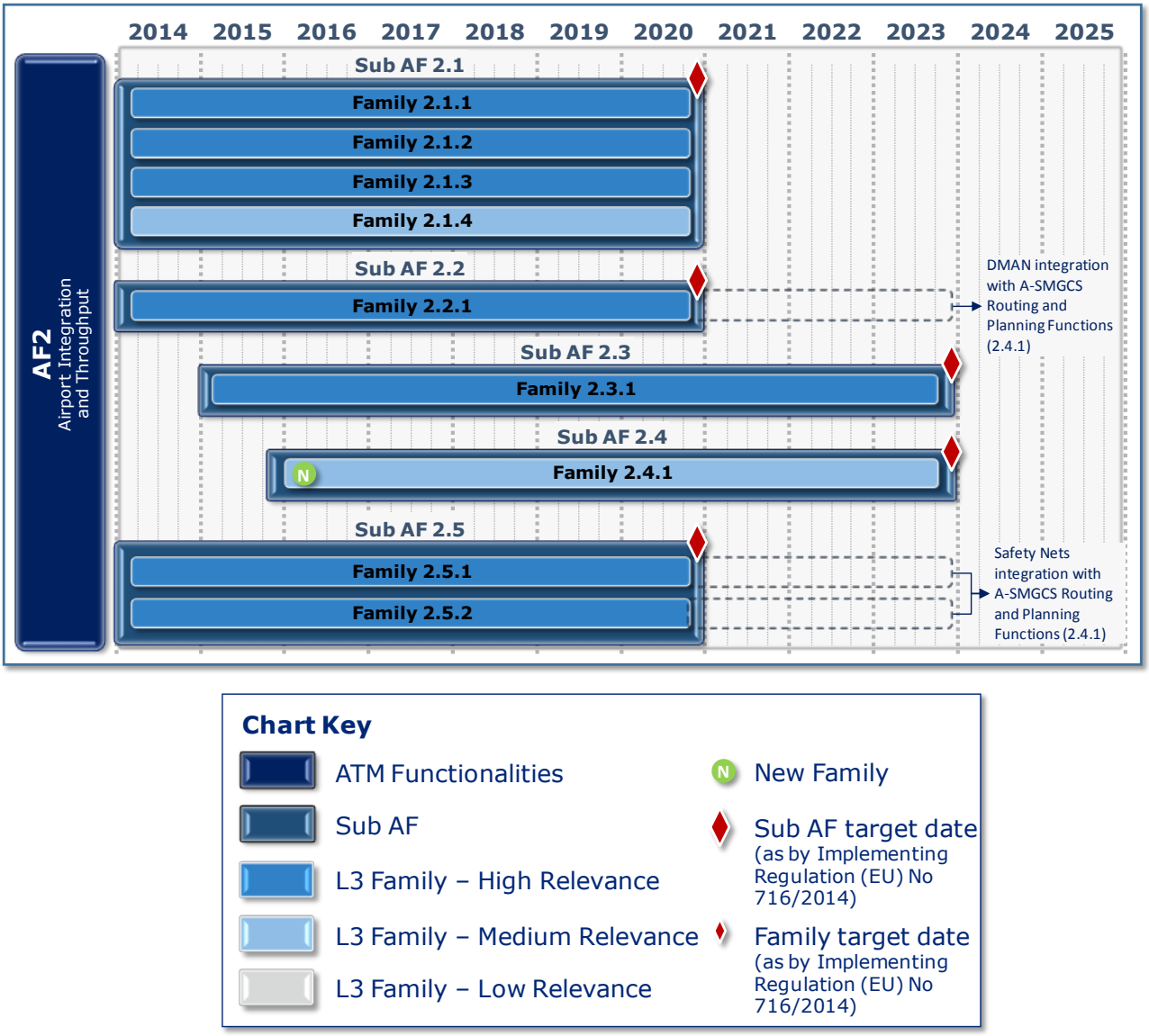
* Potential update of the FOC, pending EASA PBN-NPA Implementing Rule (currently in consultation phase)

NB. The dotted lines indicate where integration efforts are necessary to be compliant to other families

Fig. 2 - AF1 Proposed Roadmap for Implementation

2.2.2 AF2 – Airport Integration and Throughput

- 2.1.1 Initial DMAN
- 2.1.2 Electronic Flight Strips (EFS)
- 2.1.3 Basic A-CDM
- 2.1.4 Initial Airport Operational Plan (AOP)
- 2.2.1 A-SMGCS Level 1 and 2
- 2.3.1 Time Based Separation (TBS)
- 2.4.1 A-SMGCS Routing and Planning Functions - *NEW*
- 2.5.1 Airport Safety Nets associated with A-SMGCS (Level 2)
- 2.5.2 Implement Aircraft and vehicle systems contributing to Airport Safety Nets (former title in PDP v1: *Implement aircraft systems contributing to Airport Safety Nets*)



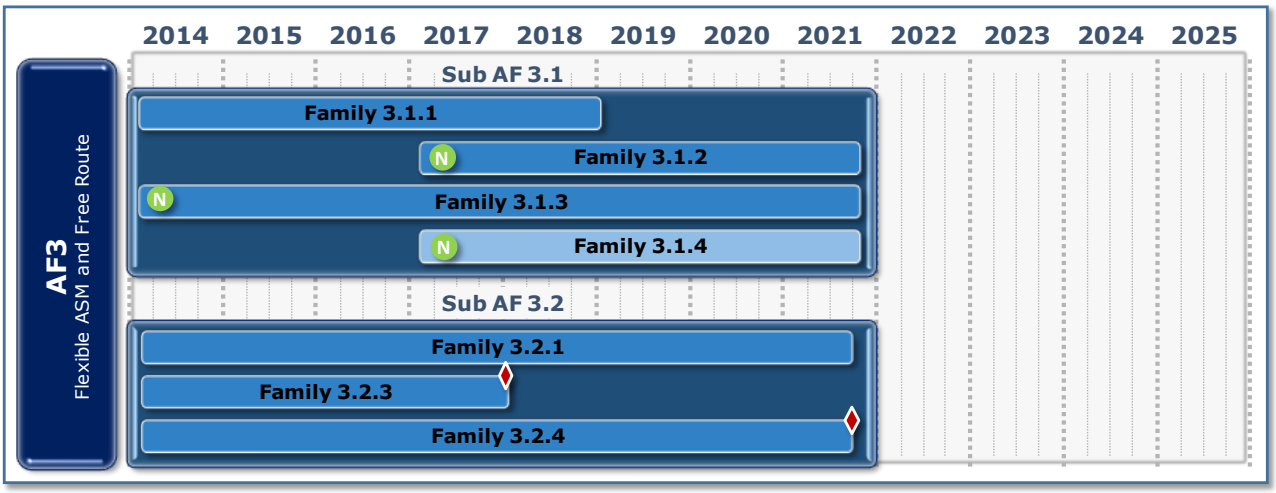
NB. The dotted lines indicate where integration efforts are necessary to be compliant to other families

Fig. 3 - AF2 Proposed Roadmap for Implementation

2.2.3 AF3 – Flexible Airspace Management and Free Route

- 3.1.1 (Initial) ASM Tool to support AFUA
- 3.1.2 ASM management of real time data - *NEW*
- 3.1.3 Full rolling ASM/ATFCM process and ASM information sharing - *NEW*
- 3.1.4 Management of Dynamic Airspace configurations - *NEW*
- 3.2.1 Upgrade of ATM systems (NM, ANSPs, Aus) to support Direct Routings (DCTs) and Free Routing Airspace (FRA)
- 3.2.3 Implement Published Direct Routings (DCTs) (former title in PDP v1: *Direct Routes / Free Route*, which has been split in 3.2.3 and 3.2.4)
- 3.2.4 Implement Free Route Airspace

PDP v1's Fast Track 3.2.1 – Upgrade ATM systems – and Fast Track 3.2.2 – Upgrade NM systems – have been united in the new Family 3.2.1.



NB. For Sub-AF 3.2, the Implementing Rule states that Direct routing shall be implemented by 01/01/2018, while Free Route shall be implemented by 01/01/2022

Fig. 4 – AF3 Proposed Roadmap for Implementation

2.2.4 AF4 – Network Collaborative Management

- 4.1.1 STAM Phase 1 (former title in PDP v1: *STAM phase 1 and local ATFCM tools)*
- 4.1.2 STAM Phase 2 - *NEW*
- 4.2.2 Interactive Rolling NOP
- 4.2.3 Interface ATM systems to NM systems (former title in PDP v1: *Interface to NMS AFP)*
- 4.2.4 AOP/NOP Information Sharing
- 4.3.1 Target times for ATFCM purposes - *NEW*
- 4.3.2 Reconciled Target Times for ATFCM and arrival sequencing - *NEW*
- 4.4.2 Traffic Complexity Tools (former title in PDP v1: *Initial Local Traffic Complexity Tools*)

PDP v1's Fast Track 4.4.1 – FDP System adaptation and EFD (EFTMS flight data message) – has been included within the scope of the revised Family 4.4.2.

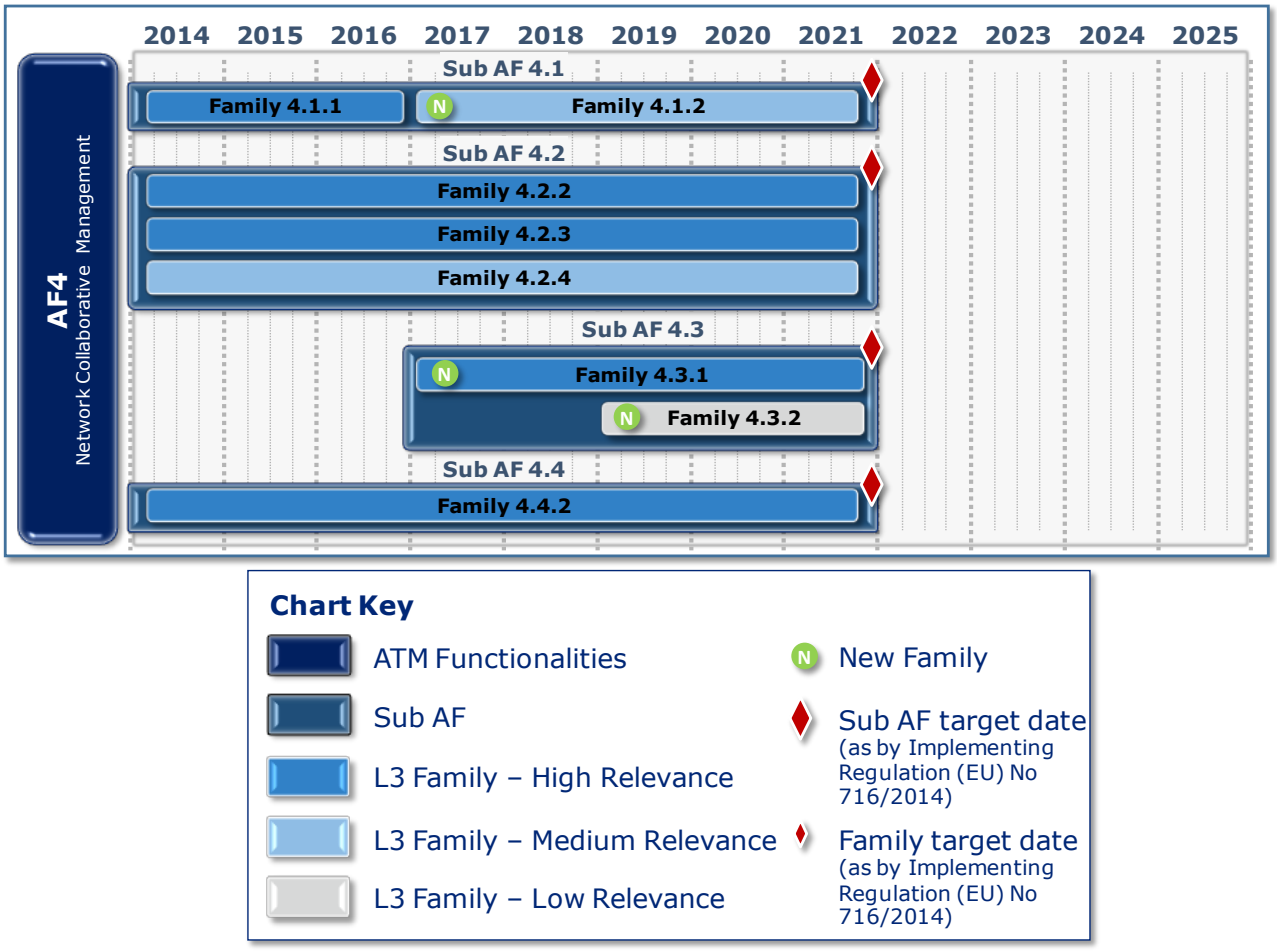
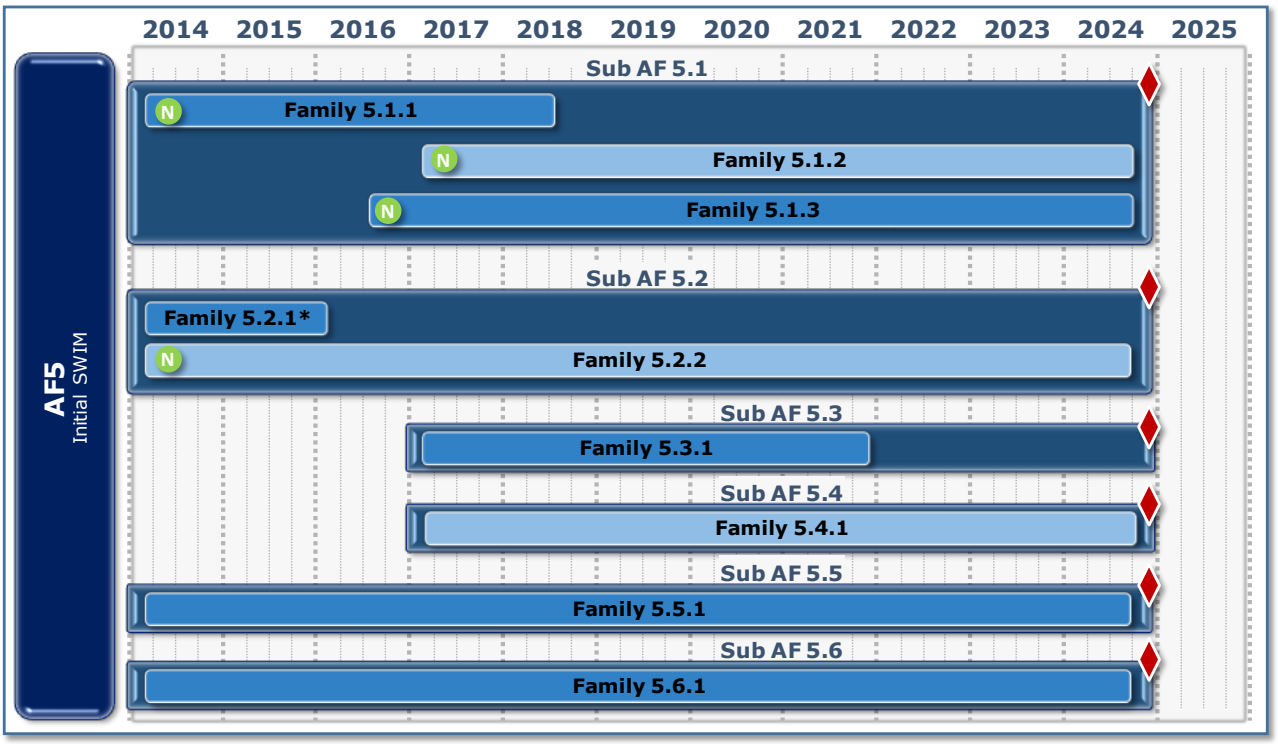


Fig. 5 – AF4 Proposed Roadmap for Implementation

2.2.5 AF5 – Initial System Wide Information Management

In order to better describe the wider scope of the iSWIM implementation as reported in the PCP and to provide more definite clusters of implementing projects, the structure underpinning AF5 have been thoroughly reorganized, having specific regard to sub-AF 5.1, sub-AF 5.2 and sub-AF 5.3. AF5's Families are presented hereafter:

- 5.1.1 PENS 1 – Pan-European Network Service v. 1 - *NEW*
- 5.1.2 Future PENS – Future Pan-European Network Service - *NEW*
- 5.1.3 Common SWIM Infrastructure Components - *NEW*
- 5.2.1 Stakeholders Internet Protocol Compliance (former title in PDP v1: *ITY FMTP*)
- 5.2.2 Stakeholders SWIM Infrastructure components - *NEW*
- 5.3.1 Upgrade / Implement Aeronautical Information Exchange System / Service (this family replaces the following PDP v1 FTs: *AIS system upgrade to support AIXM 5.1*, *ATM System Upgrade to support AIXM 5.1* and *Interface to NMS*)
- 5.4.1 Upgrade / Implement Meteorological Information Exchange System / Service (former title in PDP v1: *Implement new MET data model*)
- 5.5.1 Upgrade / Implement Cooperative Network Information Exchange System / Service (former title in PDP v1: *Interface and data requirements of AF4 NOP*)
- 5.6.1 Upgrade / Implement Flight Information Exchange System / Service (former title in PDP v1: *FDPS Upgrade in preparation of IOP Flight Object Exchange*)

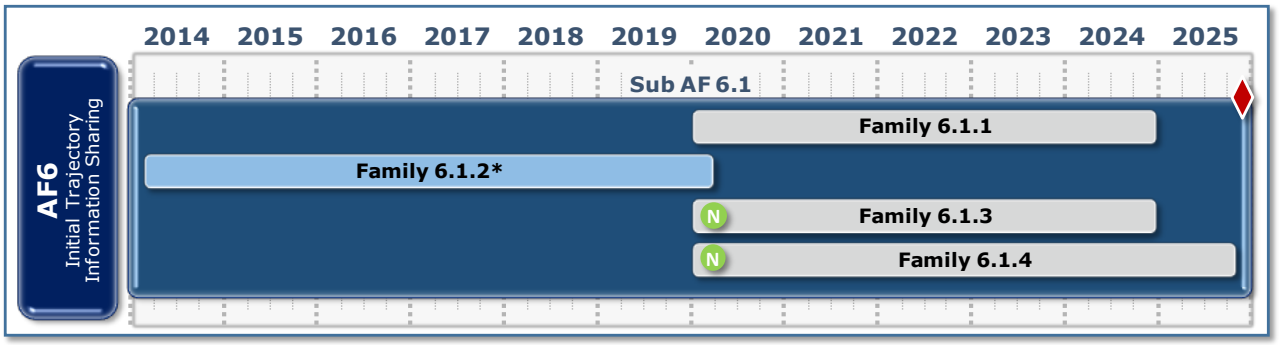


* Considering the FMTP Implementing Regulation

Fig. 6 – AF5 Proposed Roadmap for Implementation

2.2.6 AF6 – Initial Trajectory Information Sharing

- 6.1.1 FDP upgrade in preparation of integration of aircraft flight data prediction
- 6.1.2 Air Ground Data Link deployment for A/G Communication
- 6.1.3 Air Ground Communication Service Upgrade - *NEW*
- 6.1.4 Aircraft Equipage in preparation of exchange of aircraft flight data prediction - *NEW*



***** According to (EU) No 310/2015 implementation of Datalink is set for 2/2018 (ground side) and 2/2020 (airside)

NB. Family 6.1.2 level of Relevance could be changed in future versions of DP, since specific study from SJU results are expected by mid-2016

Fig. 7 – AF6 Proposed Roadmap for Implementation

2.3 Priorities for 2015 CEF Calls for proposals

Whereas the above chapter 2.2 provides an overview for full PCP implementation until CEF ends, this chapter focuses on the very next opportunities for co-funding that are the calls CEF Transport and CEF Cohesion Fund 2015.

In order to ensure optimum use of these opportunities by the operational stakeholders, the "Project view" zooms on level 4, which reflects for each family:

1. **The implementation projects (or part of) identified, out of the 110 "green" projects submitted to 2014 CEF Call for proposal, as Foundation Projects in the timeframe 2014- April 2016** *(dark blue box on the left end side of figure 8 below)*. It is to be noted that , due to the on-going INEA evaluation of the 110 IPs submitted in the frame of 2014 CEF Call for Proposal, **SDM has built DP v1 on the assumption that INEA would award in accordance with PDP v1 recommendations, i.e. all PCP's Foundation IPs 2014-2016 would be awarded**;

2. **The implementation projects (or part of) identified, out of the 110 "green" projects submitted to 2014 CEF Call, as Foundation Projects in the timeframe 2016+** *(light blue box at the centre of figure 8 below)***.** It is to be noted that , due to the on-going INEA evaluation of the 110 IPs submitted in the frame of 2014 CEF Call for Proposal, **SDM has built DP v1 on the assumption that INEA would award in accordance with PDP v1 recommendations, i.e. all PCP's Foundation IPs 2016+ would not be awarded.** However, being foundation, they shall be protected as high priority **for the 2015 CEF Calls for proposals**. In this respect, all PCP Foundation IPs shall be protected in the same way as the foundation projects of previous INEA Call(s);

3. **The identified gaps,** i.e. the implementation initiatives deemed necessary to be awarded through one of the future CEF calls for proposals to ensure the timely implementation of the related family, sub-AF, AF and then overall PCP (grey box on the right end side of figure 8 below). It is to be noted that the non-foundation IPs inherited from PDP v1 and call 2014 are recycled under the "gap part" of the related families (purple box on the right end side of figure 9 below). Indeed, being non-Foundation Projects, SDM has built DP v1 on the assumption that they would not be awarded through the call 2014, therefore remaining to be re-submitted for later award. Being non Foundation, these projects, although already submitted once, are recycled without any other specific relevance than the one allocated to the family they belong to. **In this perspective, the gap analysis exercise becomes a tool at disposal of the operational stakeholders** with a twofold objective:
    - **ease the timely alignment** of the ATM technological investment plans with PCP implementation sequencing
    - **maximise operational stakeholders' probability to access the available financial support** by synchronizing the implementation initiatives with the co-funding priorities.

As further explained in chapter 4 "Monitoring view", SDM has developed the gap analysis in cooperation with the Network Manager, while also consulting, to the maximum extent possible, the impacted operational stakeholders, in order to get an up-to-date picture of the implementation status. **The consultation of the operational stakeholders has been taken as an opportunity to further consolidate the gap analysis**.

This is the resulting generic work breakdown structure (WBS) of a family. This generic WBS is developed for each family in the chapter 3 "Project view" below:

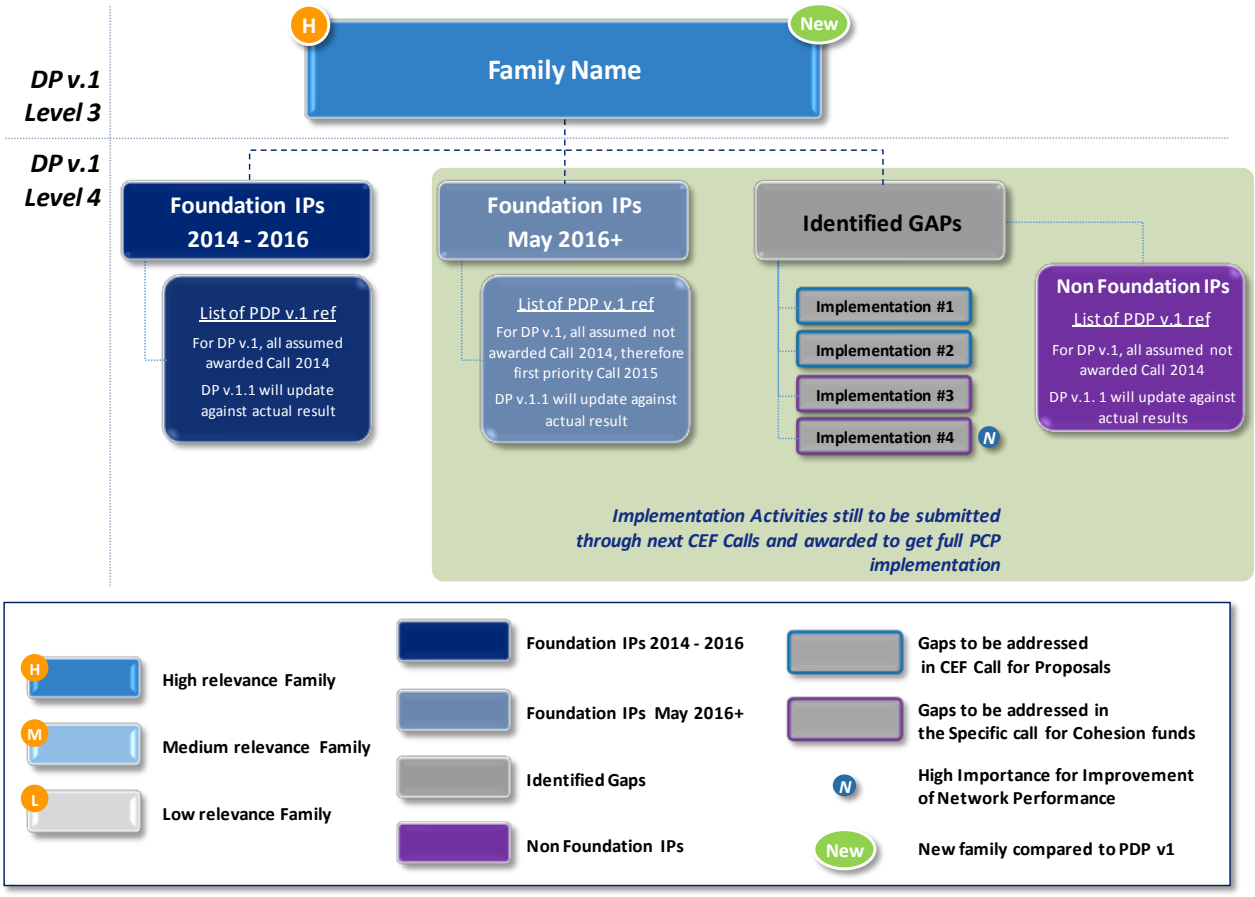


Fig. 8 – Family WBS

As the legend reports, the WBS has been developed in order to report:

- The readiness for implementation and criticality of the Family, as described in paragraph 2.2;
- The indication whether the family is new compared to PDP v1
- The family related implementation projects (or part of) assumed as awarded through the call 2014;
- The family related implementation projects (or part of) assumed as not awarded through the call 2014 and to be protected through the call 2015 as Foundation;
- The family related implementation initiatives (gaps) not yet submitted by the operational stakeholders, but deemed necessary to ensure a timely and effective deployment of the Programme and to support the performance expectations. In particular, as mentioned the gaps focus on the very next opportunities for co-

funding (2015 CEF Calls). In addition as detailed in chapter 5 "Monitoring view", the gaps identified per each family address four different cases:
    - the complete lack of any implementation initiative (excluding relevant projects already implemented);
    - initiatives which are planned and/or are in progress of implementation but for which co-financing through CEF Calls have not been requested so far;
    - the partial coverage in terms of scope (not all the necessary functionalities have been implemented);
    - the partial coverage in terms of involved stakeholders.
- The implementation initiatives critical to the improvement of the performance at network level, identified by the Network Manager in the latest version of the European Network Operations Plan (2015-2019) released in March 2015, have been also labelled with a blue "N" symbol;
- The indication whether each implementation project/initiative, according to its geographical scope, should be co-funded through CEF Transport Call for proposals or CEF Cohesion fund call for proposals.

The full list of priorities is reported within Chapter 5.

Whilst the 3 types of families explained above clearly set 3 level of relevance with respect to the 2015 CEF calls in the level 3 of the DP, the conjunction with the concept of foundation/non-foundation IPs and gaps in the level 4 of the DP requires additional explanations regarding the resulting prioritization. This is illustrated by the following figure:

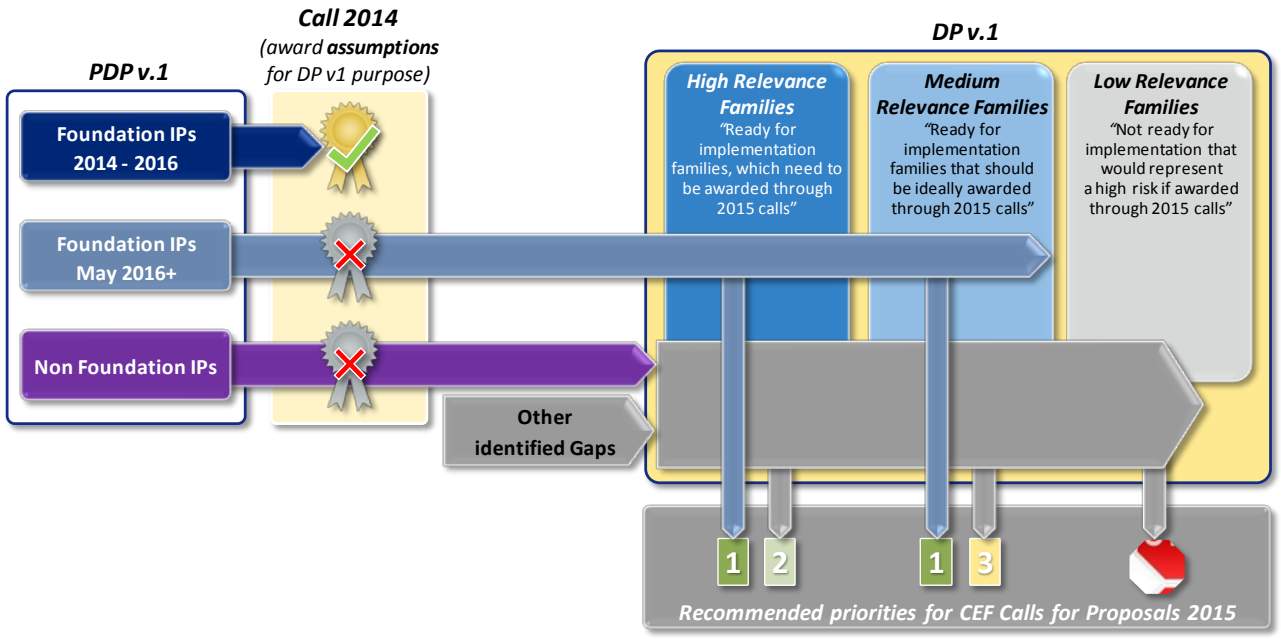


Figure 9 – Overview of the sequence PDP v1 through call 2014 and DP v1 to calls 2015

The above figure starts from the 3 main blocks in the PDP v1 on the left and how it is assumed it shall go through the call 2014. In line with DP v1's working assumption "Foundation IPs May 2016+" and "non-foundation IPs" are not awarded, therefore remaining for re-submission to the CEF calls 2015. Moving to the right, figure 9 shows

that "Foundation IPs May 2016+" are spread only amongst High Relevance families, "ready for implementation families which need to be awarded through calls 2015 calls" and Medium Relevance families, "ready for implementation families that should be ideally awarded through 2015 calls". "Non-foundation IPs" are captured as part of the gaps and spread amongst all three types of families. Now moving to the bottom, figure 9 concludes that:

- Foundation IPs not awarded through the call 2014, given their criticality to PCP implementation and their precedence in time, remain as the priority 1 for the next 2015 CEF Calls, **regardless of the type of family they are allocated to.**
- Gaps, including non-foundation IPs not awarded through the call 2014, come as priorities 2 and 3 depending whether they are associated to a family "ready for implementation that need to be awarded through calls 2015 calls (priority 2) or a family "ready for implementation that should be ideally awarded through 2015 calls" (priority 3).
- Gaps, including non-foundation IPs not awarded through the call 2014, related to families "not ready for implementation" are recommended not to be awarded.

2.4 Performance based financing of PCP implementation

The operational stakeholders have endorsed the PCP on the basis of a positive high level Cost Benefit Analysis (CBA). With this CBA as justification, there was the commitment of the EC to facilitate PCP deployment by EU public funding through the Connecting Europe Facility (CEF) financial instrument in the period 2014-2020.

In order to ensure that PCP implementation is performed within the boundaries of the high level CBA and that EU financial support first targets that part of PCP implementation which is the most critical to performance contribution, SDM will ramp up in the fields of performance analysis and monitoring, CBA and financial instruments development. All together, they will form the performance view of the DP as initialised in the chapter 4 below.

2.4.1 Performance analysis and monitoring

Performance analysis is prepared before IPs' award and then monitored until IPs' completion.

Before IPs' awards, the objective is to set the baseline against which performance will then be monitored during DP execution. It consists of a two steps approach:

1. **Collect performance related information from the candidate IPs.** Required information is mainly a self-assessment by the candidate IP Manager. As the current INEA's template does not provide for collecting such information, SDM will issue a recommendation to INEA in order to update its template accordingly. The SDM has developed a performance assessment grid and a methodology to fill in this grid in order to catch the best available information. This grid has been tested with the IPs submitted to INEA CEF Call 2014.
2. **Analysis of information received, including consistency checks against overall PCP CBA and definition of threads of IPs that complement each other to achieve a specific contribution to performance.** SDM analysis, performed with the support of the Network Manager, will provide the baseline for performance monitoring.

By construction of the DP, any candidate IP that could demonstrate relevance to at least one of the high or medium relevance family in the DP would be supported by SDM, including award of grant up to maximum co-funding rate. **Therefore, SDM's performance analysis and monitoring remains without prejudice to access to co-funding for any PCP related implementation project.**

Once the IPs would be awarded by the INEA and kicked-off under SDM's coordination, the SDM will monitor that declared performance contributions timely materialised and that each thread of IP brings expected benefits. The monitoring of actual performance against expected performance for each thread will rely on project management and on the coordination and synchronisation by the SDM.

In addition to develop and maintain the Deployment Programme, SDM is accountable to EC for its timely realisation and delivery of expected benefits. Whilst the award of projects

through CEF transport Calls for Proposals by INEA in accordance to DP is a significant leverage, SDM will recommend EC and INEA to develop other mechanisms to further incentivise projects' execution in compliance with DP after they have been awarded.

In future versions of the DP, examples will be given to illustrate the performance view as soon as some information from awarded IPs will be available.

2.4.2 Cost and Benefit Analysis

The translation of PCP into DP and then into projects induces a significant refinement of the costs compared to the assumptions used for PCP CBA. At the same time, several SJU's validation campaigns have occurred since PCP's CBA, also refining the benefits side. Therefore, it is SDM's intention to analyse refined costs and benefits on the basis of performance related data to be collected through CEF Calls for Proposals. These analysis and subsequent monitoring once projects are awarded and running will provide a consistent view on the expected outcome of the projects. Differences with the initial purpose will be analysed and explained.

On the costs side, the analysis and monitoring will rely on the data provided in the submission to INEA CEF Calls for Proposals as well as on the monitoring of the project during the course of implementation.

A separated allocation and view of the different cost positions is essential for a common understanding of the project calculation. Therefore the SDM role is a global assistance to the project leaders in any questions concerning PCP program related financial topics. The new template will in any case request information of self-evaluation, where the project and business will allow providing such figures.

In the exercise of CBA, it will be accounted that co-funding is awarded and managed in accordance with all the relevant regulations, in particular the Implementing Regulations (EU) on CEF (No 1316/2013), on the Charging Scheme (No 391/2013) and on the Performance Scheme (No 390/2013).

Key drivers of the CBA are also the assumptions on discount rates and traffic evolution, deeper analysis as well as numbers of retrofit and forward fit aircraft. These figures should be reported every year to gain an overview and confirmation of the former assumptions. Critical deviations (i.e. older aircrafts being operated for a longer period of time), must be recognized. Such monitored deviations could as well help to allocate financial means to incentivise some projects in order to achieve the global target.

On the benefits side, it is the intention to use the threads of projects to assess the global outcome and to issue CBA.

Specific assumptions will be defined according to existing data such as SJU trials or other demonstrations, available traffic data and other related financial data.

The SDM is bound to fully implement the IR PCP and its objective is certainly not to withdraw any project from the DP. However, negative CBAs will trigger specific analysis and potentially involve recommendations to the EC and INEA to optimize the overall Deployment Programme investment. Prior to reaching this point, the SDM will inform the concerned stakeholders in a transparent way and look for sustainable solutions. As a last

resort, if a project or a thread of projects is identified that they will not deliver the expected benefits, than consideration should be given for them to be suspended or cancelled.

2.4.3 Financial mechanisms

SDM is firstly consolidating the investment needs and their possible pattern across the coming years in order for the PCP to be deployed in full. SDM identifies it as the PCP Investment Needs Profile. In continuation, the SDM compares the Deployment Programme investment needs with the existing funding options through the Connecting Europe Facility (CEF) and the Cohesion Fund. Furthermore, the SDM has started to involve the European Investment Bank to evaluate the possible financing to further support those who invest into PCP implementation.

2.4.3.1 PCP Investment Needs Profile

This action aims at consolidating volume and pattern time wise of the economic envelope for the PCP implementation. This view will be built on the data captured with the first 2014 CEF Call for Proposal and the priorities identified in DP v1. Global figures will also take into account the high level costs estimation of the PCP CBA.

This view will help to compare envisaged investments magnitude per period with respect to the available source of funding at that period.

Target date to achieve this view is for September 2015 with DPv1.1.

2.4.3.2 The Connecting Europe Facility

The Connecting Europe Facility is the main source of public funding for PCP implementation. It envisaged at the start of the Programme an envelope of 3 billion € supporting the deployment. As such, the frequency of the CEF Transport Calls for Proposals by INEA sets the frequency for SDM to update the DP and priorities for the upcoming calls in the light of what has already been awarded, what remains to be implemented, what's ready for implementation by the date of the call and, finally, budget envelope.

Grants effect, other than providing funds to sustain the deployment actions decreasing the request of external finance, have the positive effect to stabilize the context and allow Implementing Partner's management to take decisions with less variables in capital expenditures planning.

It is therefore important for the deployment strategy to consider the timing and amounts of grants of the different CEF Calls.

A first round of call for CEF funding was closed early March 2015 and INEA would probably award funds on September 2015 with a potential global amount in the expected order of 300 million €.

For the next calls, the best assumption from SDM side is that the second INEA CEF Call will occur in December 2015, closing in April 2016. Awarding in this case would be expected for September 2016 with an estimated envelope of 600 million €.

This call could happen in parallel with a Cohesion Fund call of about 500 million € coming from the Cohesion Fund envelope under CEF.

A third call is then expected by December 2016 closing April 2017 and with awarding projects in September 2017. The call envelope could reach the 600M€.

2.4.3.3 Cohesion fund

The Cohesion Fund is part of the EU Regional Policy framework. The Cohesion Fund is aimed at the EU Member States whose Gross National Income (GNI) per inhabitant is less than 90 % of the EU average. It aims to reduce economic and social disparities and to promote sustainable development.

The current EU Regional Policy framework is set for a period of seven years, from 2014 to 2020. In particular, the Cohesion Fund contributes to interventions in the field of the environment and trans-European transport networks.

For the 2014-2020 period, the Cohesion Fund concerns Bulgaria, Croatia, Cyprus, the Czech Republic, Estonia, Greece, Hungary, Latvia, Lithuania, Malta, Poland, Portugal, Romania, Slovakia and Slovenia.

The main point in favour of this funding option is the available co-funding rate for this source which sets out a ceiling of 85% making the opportunity more appealing compared to the CEF.

Preliminary discussions with implementing partners and the EC identified however that financial resources of the Cohesion Fund envelope earmarked for eligible Member States had generally been decided by relevant national authorities well before the dates of the calls. This was in line with priorities identified in the official guidelines and at national level. Up to now, they are not considering the Air Traffic Management as a priority.

Nevertheless a number of considerations also apply:

- Even recognizing that emphasis has been given to the road and railway investments in the current Cohesion Funds envelope, this does not automatically exclude ATM investments from eligibility for funding from the Cohesion Fund call(s). As for point above, where some Cohesion Fund budget could be considered to be reallocated, it would be worth to get profit of it and swap up ATM in the priorities list. This would show interest from the "*cohesion States*" and might trigger some further consideration on EC side;
- It is on eligible member States convenience to show interest and demonstrate willingness to invest in this sector to their own Governments. There might be the opportunity to use unallocated budget for the next calls or to have a new priority in highlighting ATM. Member States might then consider this investment area for the new calls and prepare accordingly.
- SDM will keep monitoring the timelines EC will set for Cohesion funds as well as openness from the EC to expand next Cohesion calls toward aviation and ATM especially. In the meanwhile the Cohesion Fund opportunity is recommended to be further assessed and considered.

2.4.3.4 European Investment Bank (EIB) involvement

On the basis of the positive PCP CBA and successful initial discussions, the SDM has started to involve the EIB as an additional PCP implementation financing channel.

The European Investment Bank (EIB) shown willingness to support the deployment phase of SESAR (and the implementation of SES in more general terms) by offering a range of financial products that could include EIB/EC risk-sharing instruments. The Bank offers attractive interest-rates by passing on the benefits of its AAA funding rates and can lend large amounts with long loan maturities and long grace periods. It has been also anticipated that the Bank's appraisal process could be streamlined to afford time efficient loan approvals.

2.5 Recommendations and actions

This chapter aims at drawing the main recommendations to EC, INEA and actions by SDM from the strategic view.

Recommendations

Recommendation 1: Short term "Foundation Implementation Projects" (May 2016+) shall be awarded with first priority and co-funded up to the maximum co-funding rate as from the CEF Transport Call for proposals 2015 and the CEF Cohesion Fund Call for proposals 2015 regardless of the relevance of the family they are related to.

Recommendation 2: Implementation initiatives under gaps referring to High Relevance families, "ready for implementation families which need to be awarded through 2015 calls", shall be awarded with second priority and co-funded up to the maximum co-funding rate as from the CEF Transport Call for proposals 2015 and the CEF Cohesion Fund Call for proposals 2015.

Recommendation 3: Implementation initiatives under gaps, referring to Medium Relevance families, "ready for implementation families that should ideally be awarded through 2015 calls", shall be awarded with third priority and co-funded up to the maximum co-funding rate as from the CEF Transport Call for proposals 2015 and the CEF Cohesion Fund Call for proposals 2015.

Recommendation 4: Implementation initiatives under gaps referring to families "not ready for implementation" shall not be awarded through the CEF Transport Call for proposals 2015 and the CEF Cohesion Fund Call for proposals 2015.

Recommendation 5: In order to guarantee the achievement of PCP objectives covering the CEF timeframe (2014-2020), SDM recommends to ensure the needed funding support.

SDM's analysis of PCP enablers' actual and forecast readiness for implementation demonstrates that some of PCP enablers will not be ready for implementation by the call 2016. This would prevent the operational stakeholders to apply for all remaining implementation activities after the CEF Transport Calls for proposals 2014 and 2015 by the call 2016. Therefore SDM recommends EC to explore the opportunity of either additional co-funding or different allocation of the co-funding available under CEF in order to ensure the launch of additional calls beyond 2016. This is required to ensure the full coverage of PCP implementation under CEF.

Recommendation 6: The part of the CEF budget earmarked for SESAR deployment and allocated to the Cohesion Fund shall first be used for PCP implementation in the 15 Cohesion States.

In order to ensure the appropriate financial support to PCP implementation, SDM recommends to protect the Cohesion Fund call of 500 million € coming from the Cohesion Fund envelope under CEF, for SESAR deployment.

Recommendation 7: EC and INEA to develop fair and transparent mechanisms to further incentivize projects' execution in compliance with DP after they have been awarded.

Actions

Action 1: Implementation initiatives referred to Medium and Low relevance families will be re-considered as higher relevance families when developing the future versions of the Deployment Programme.

DP v1 being the specification for the CEF Calls for proposals 2015, priorities in DP v1 have been set in accordance with this timeline. Future versions of the DP will target later calls, giving more time for late PCP's enablers to reach readiness for implementation. SDM will ensure that the implementation initiatives deriving from level 4 gap analysis and comprised in Medium and Low relevance families, will be duly tracked and protected through DP future versions for next CEF calls for proposals in order to guarantee timely implementation of the PCP.

Action 2: Gaps and risks identified in DP v1 shall be closely monitored through SDM coordinating role.

SDM will ensure that gaps and risks identified in DP v1 are closely monitored in full cooperation with the institutional bodies and the operational stakeholders involved. In particular, SDM will work with EASCG, EUROCAE and EASA to grant the appropriate coverage of standardization of the families.

Action 3: Implementation projects shall provide the appropriate set of information to ensure a timely, coordinated and performance driven SESAR implementation.

SDM is mandated to develop, maintain & implement the Deployment Programme: in order to ensure such goals are achieved, the right set of information at implementation project level should be made available. For this purpose, SDM will develop, in full cooperation with INEA, an IP template which will be included in DP v1.1

3. Project view

With regard to the project view, on top of the detailed descriptions of the Programme families addressing the full PCP, DP v1 also includes in the updated level 4 the list of all implementation projects submitted to CEF Transport Call for proposals 2014 (detailed IPs description, updated according to DP v1 nomenclature, has been annexed to the present document – Annex A, section, and the list of the implementation priorities highly recommended to be protected for next CEF Transport Call for proposal, in order to guarantee timely and synchronized implementation of the PCP.

PDP v1 presented a project view based on the 110 implementation projects submitted under SDM's coordination to the CEF Transport Calls for proposals 2014. Being INEA evaluation process ongoing, the update of level 4 following the projects awarding will be ensured in DP v1.1.

The main features of DP v1 project view are instead due to the widened picture targeting the full PCP implementation.

Accordingly, this chapter is structured as follows:

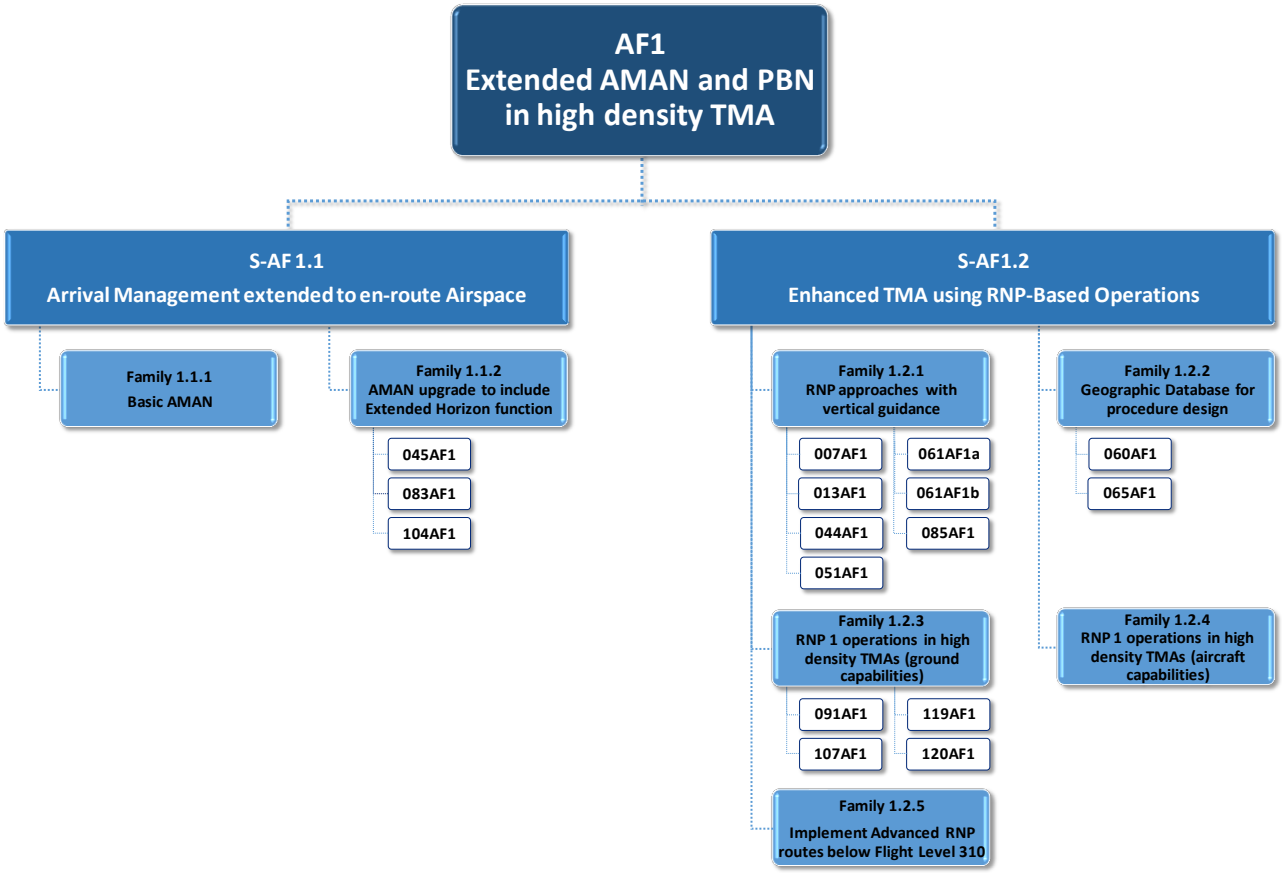
- Overview of the first 4 levels of the structure, re-organized in line with the identification of the new families and the update of the existing ones, also including the L4 Implementation Projects already submitted in CEF Transport Call 2014;
- Detailed description of the DP v1 families per each AF (the Family template has been improved with further information, compared to PDP v1);
- Dedicated Work Breakdown Structures, as illustrated in section 2.3, encompassing both the projects submitted by stakeholders in CEF Transport Call 2014 and supported by SDM as "ready to go for implementation" (highlighting those to be co-funded through 2014 CEF and those to be protected for 2015 CEF Call) and the implementation initiatives not yet fully addressed (level 4 Gaps);

It is worth noting that the DP v1's Gap Analysis has been enhanced through the additional monitoring data collected through the consultation. In this respect, the SDM will further improve such picture by processing any other implementation status report from civil and military operational stakeholders, in particular Airspace Users, which will be reflected in DP v1.1, to be released in September 2015.

3.1 AF #1– Extended AMAN and PBN in high density TMA

3.1.1 List of Families and Implementation Projects

The following chart highlights all Families and Implementation projects (identified by their Reference Number) related to the AF #1, divided in sub-AFs.



The following table encompasses the list of all projects related to the AF #1. Further details for each Implementation Projects are provided within Annex A.

Reference Number	Title	Foundation	IP description Page Number
007AF1	Performance Based Navigation (PBN) implementation in Vienna (LOWW)	Yes	3
013AF1	Implementation of Required Navigation Performance Approaches with Vertical Guidance at Brussels Airport and Antwerp Airport	Yes	5
044AF1	Enhanced Terminal Airspace using Required Navigation Performance-Based Operations	Yes	7
045AF1	FABEC extended Arrival Manager XMAN/Arrival Manager AMAN	Yes	9
051AF1	Required Navigation Performance Approaches at CDG Airport with vertical guidance	Yes	11

Reference Number	Title	Foundation	IP description Page Number
060AF1	ENAIRE reference geographic database	Yes	13
061AF1a	Required Navigation Performance Approach Implementation in Palma de Mallorca	Yes	15
061AF1b	Required Navigation Performance Approach Implementation in Madrid, Barcelona	Yes	15
065AF1	ENAV Geographic DB for Procedure Design	Yes	17
083AF1	AMAN extended to en-route	Yes	19
085AF1	Study on Required Navigation Performance Approaches	Yes	21
091AF1	Enhanced Terminal Airspace (TMA) using Required Navigation Performance based Operations	Yes	23
104AF1	Lower Airspace optimization for the Stockholm TMA	Yes	25
107AF1	First phase of RNAV1 and RNP-APCH approaches Amsterdam Schiphol (EHAM)	Yes	27
119AF1	Manchester TMA Redevelopment	Yes	29
120AF1	London Airspace Management Programme	Yes	31

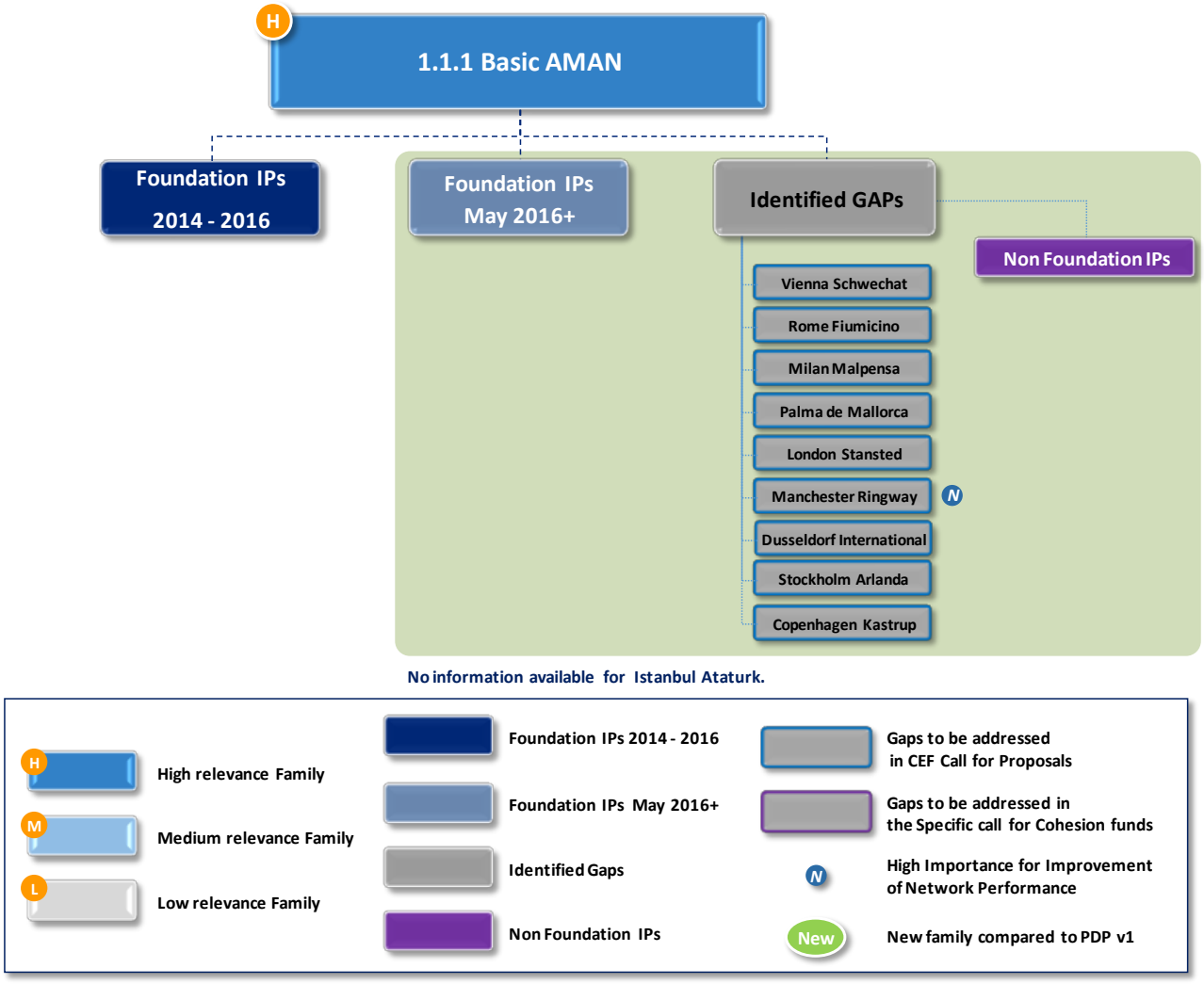
Table 2 – List of AF1 Implementation Projects (IPs)

3.1.2 Family 1.1.1 – Basic AMAN

Designator	1.1.1
Name	Basic AMAN
Main Sub-AF	Arrival Management extended to en-route Airspace
Description and Scope	Implement Basic AMAN to support traffic synchronization in high density TMAs. Basic AMAN shall: - improve sequencing and metering of arrival aircraft in selected TMAs and airports; - continuously calculate arrival sequences and times for flights, taking into account the locally defined landing rate, the required spacing for flights arriving to the runway and other criteria; - provide automated sequencing support for the ATCOs handling traffic arriving to an airport; and - provide as a minimum simple Time To Lose / Time To Gain - TTL/TTG – information, optionally also more complex direct trajectory management solutions, such as "speed to be flown". If AMAN is already implemented, it might be necessary to upgrade the functionality or consider replacement to meet the requirements and/or to prepare for the automatic coordination with adjacent ACCs as required for AMAN with extended horizon (see 1.1.2). On-board capabilities (FMS) should support either/or Time to Lose or Gain or Speed Advice. RTA functionality (Required Time of Arrival) could be one option to support on-board time management for metering and sequencing of arrival aircraft. Retrofit FMS may be an option subject to a positive CBA.
Initial Operational Capability	Before 2014
Full Operational Capability	01/01/2020
References and guidance material	ATM Master Plan Level 2 (Dataset 14): TS-0102 (Baseline) ATM Master Plan Level 3 (Edition 2014): Link to ATC07.1 EUROCONTROL - Arrival Manager - Implementation Guidelines and Lessons Learned; Edition:0.1 Edition Date: 17/12/2010
Concerned stakeholders	ANSPs
Geographical applicability	EU Regulation 716/2014

Synchronization	Ex-ante synchronization requirements, to be further assessed at the level of Local Implementation Projects. Integration with local ATM systems necessary to process the flight plan and radar data. Therefore at least synchronization with local ATM-system required.
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014
Industry Standards	None
Means of compliance and Certification or community specifications	None
Interdependencies	Precision of AMAN planning will be improved once the airborne trajectory data is downlinked to ATM systems. This future feature is part of AF6.
Relevance for CEF Transport Call for Proposals 2015	High
Recommendation for the IPs proposal	It is recommended to take into consideration the results of level 4 Gap analysis, as reported in the following Chart and within section 5.1.2

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.

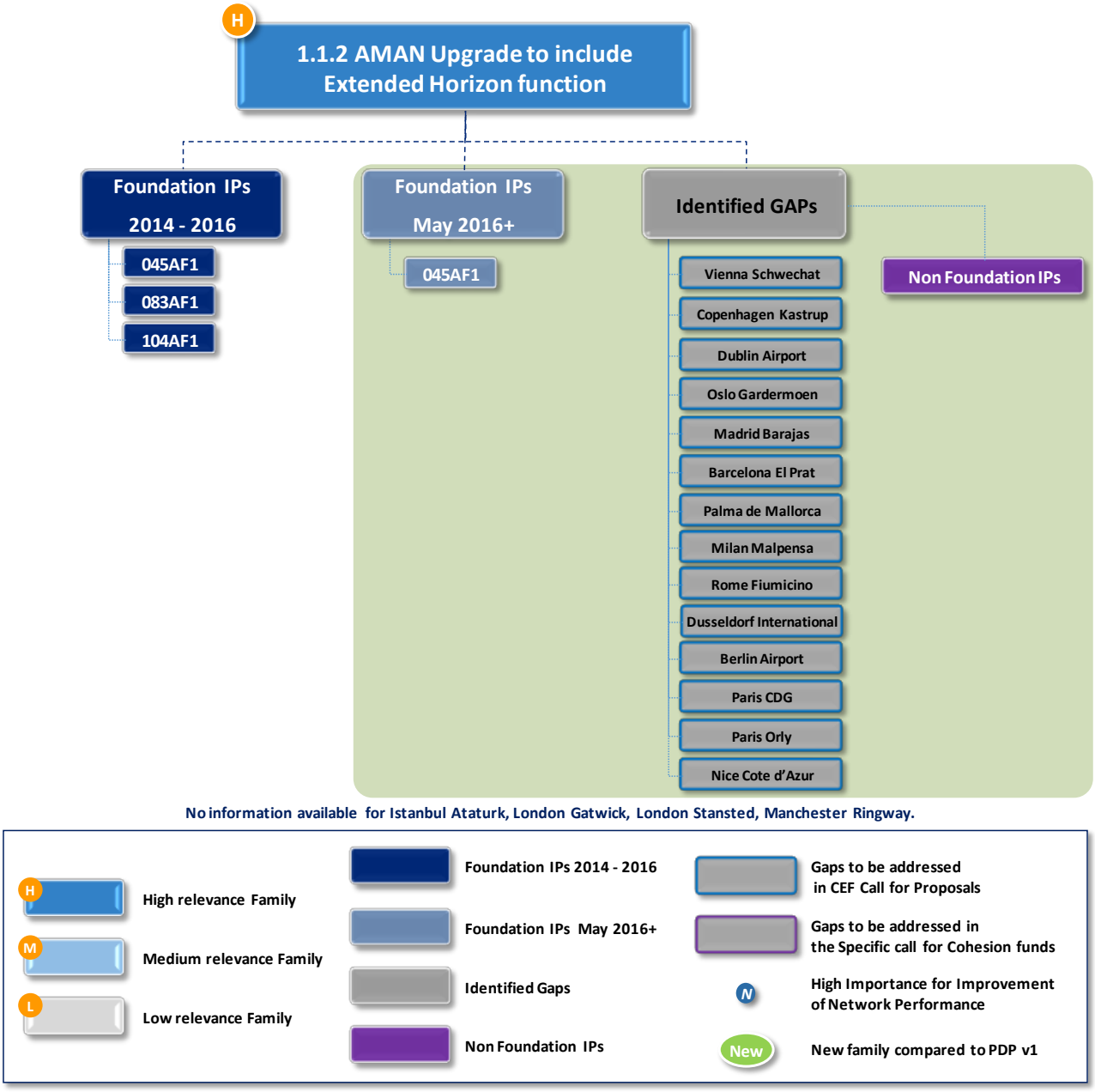


3.1.3 Family 1.1.2 – AMAN upgrade to include Extended Horizon function

Designator	1.1.2
Name	AMAN upgrade to include Extended Horizon function
Main Sub-AF	Arrival management extended to en-route airspace
Description and Scope	Implementation of arrival management extended to en-route airspaces at high density TMAs and its associated adjacent ACCs/UACs. Arrival Management extended to en-route Airspace extends the AMAN horizon from the 100-120 nautical miles to 180-200 nautical miles from the arrival airport. Traffic sequencing/metering may be conducted in the en-route before top-of-decent, thus allowing the aircraft operator to optimise the flight profile. Extending the AMAN horizon may in many cases affect the airspace design, and it is therefore essential that all stakeholders, including military authorities are consulted. Air Traffic Control (ATC) services in the TMAs implementing AMAN operations shall coordinate with Air Traffic Services (ATS) units responsible for adjacent en-route sectors. Arrival management information exchange (AMA) or other generic arrival message can be used. Where iSWIM functionality referred to in AF5 is available, data exchange concerning Extended AMAN shall be implemented using SWIM services. Input data to AMAN need to be provided by the most accurate trajectory prediction information available (including EFD, CPR, etc.). Downlinked trajectory information as specified in AF6, where available, shall be used by the AMAN. It should be noted that "AMAN upgrade to include Extended Horizon function" includes the following aspects: - A sector receiving arrival messages must display information for the controller in order to facilitate that instructions are given to aircraft. - A sector operating a "Basic AMAN" should be able to generate arrival messages to adjacent sectors providing instructions to aircraft outside its own sector. - ATM systems must be upgraded in order to be able to generate, communicate, receive and display AMA messages. - Bilateral agreements must be established between the sectors involved that very well can be in different ATC units and also in different countries. In some cases the Network Manager should be informed. - Integration of departing traffic from airfields within the extended horizon destined to arrive at the AMAN airfield.
Initial Operational Capability	01/01/2015

Full Operational Capability	01/01/2024
References and guidance material	ATM Master Plan Level 2 (Dataset 14): TS-0305, TS-0305-A ATM Master Plan Level 3 (Edition 2014): Link to ATC15 IDP WP5.2 EUROCONTROL AMAN Information Extension to En Route Sectors - Concept of Operations; Edition 1.0; Edition date: 5/06/2009
Concerned stakeholders	ANSPs (operating each high density TMA and ANSPs operating associated and adjacent en-route ACCs/UACs, i.e. control centres responsible for ATS in any airspace that lies within the Extended AMAN horizon range), NM, AU, Military Authority.
Geographical applicability	Any of the airports/TMAs listed in Regulation (EU 716/2014) + adjacent ACCs /UACs (the adjacent ACC may be operated by a different ANSP than the one operating the TMA). Note: the Implementing rule does not specify the list of impacted ACCs/UACs.
Synchronization	When extending the AMAN horizon, synchronization must be made with all affected sectors. Airspace design and procedural changes must be coordinated with military authorities. Synchronization is also needed to adjust/upgrade the ATM-systems of the adjacent ACC/UACs to process the arrival message provided by Extended AMAN (SW-change, test, integration, and implementation). Extending the AMAN horizon assumes that an AMAN is in place (see Family 1.1.1). It is possible to implement both Family 1.1.1 and Family 1.1.2 at the same time.
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014
Industry Standards	None
Means of compliance and Certification or community specifications	None
Interdependencies	1.1.1 (Basic AMAN) is a facilitator 3.2.1 Upgrade of ATM systems (NM, ANSPs, AUs) to support Direct Routings (DCTs) and Free Routing Airspace (FRA) 4.3.2 Reconciled Target Times for ATFCM and arrival sequencing
Relevance for CEF Transport Call for Proposals 2015	High
Recommendation for the IPs proposal	It is recommended to take into consideration the results of level 4 Gap analysis, as reported in the following Chart and within section 5.1.2

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.

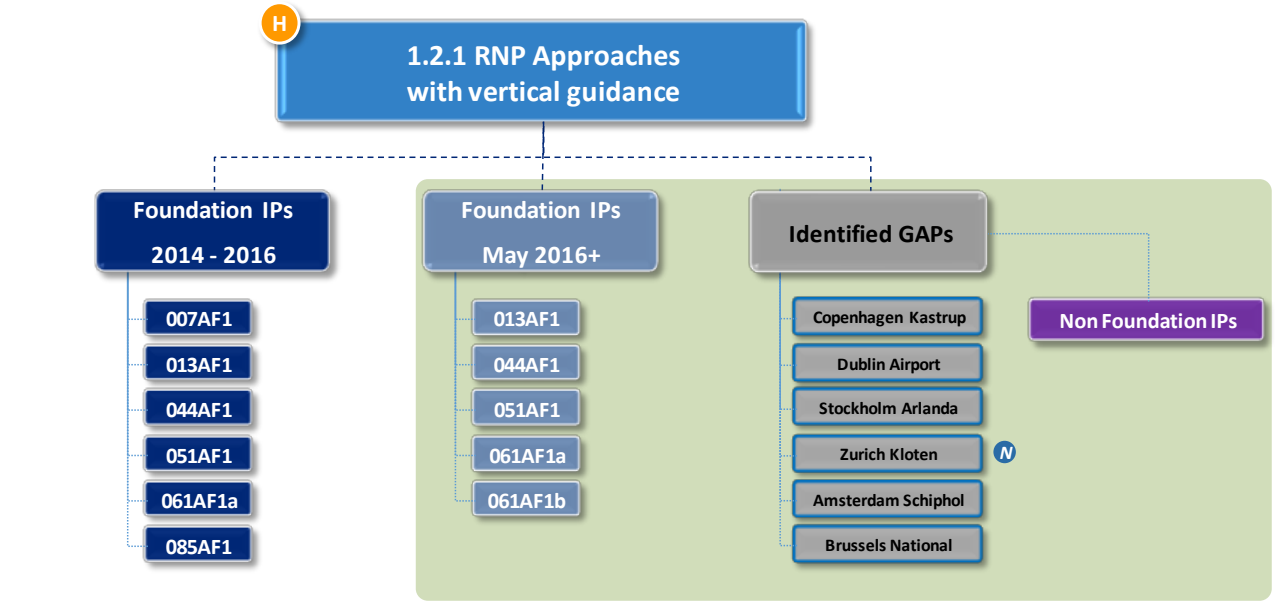


3.1.4 Family 1.2.1 – RNP APCH with vertical guidance

Designator	1.2.1
Name	RNP APCH with vertical guidance
Main Sub-AF	Enhanced Terminal Airspace using RNP-Based Operations
Description and Scope	Implementation of environmental friendly procedures (noise and GHG emissions) for approach using PBN in high-density TMAs, as specified in RNP APCH (Lateral Navigation/Vertical Navigation (LNAV/VNAV) and Localizer Performance with Vertical guidance (LPV) minima. Required Navigation Performance (RNP) is a type of Performance Based Navigation (PBN) that allows an aircraft to fly a specific path between two 3D-defined points in space. Implement approach procedures with vertical guidance APV/Baro and/or APV/SBAS (as per ESSIP NAV10. For RNP APCH, the Lateral and Longitudinal Total System Error (TSE) shall be +/– 0,3 nautical mile for at least 95 % of flight time for the Final Approach Segment and on-board performance monitoring, alerting capability and high integrity navigation databases are required. RNP APCH capability requires inputs from Global Navigation Satellite System (GNSS). Vertical Navigation in support of APV may be provided by GNSS Satellite Based Augmentation System (SBAS), by barometric altitude sensors or by alternative technical performance based equivalent means particularly for State aircraft. Augmentation data can also be provided through Ground Based Augmentation System (GBAS). Further industrialisation of SBAS & GBAS Cat 2/3 will be required. Flight Crew training may be required for operational approval. Note that from IDP APV national deployment includes actions to - nav-aids rationalization / decommissioning plan - national RNP approach deployment plan - RNP Approaches Deployment If mixed mode of operation (RNP APCH procedures together with conventional APCH procedures) is offered, harmonized and best-practise procedures for non-equipped RNP-APCH aircraft across the PCP applicability area should be considered in order to minimize controller workload, aircrew training burden and standardize airport controllers training.
Initial Operational Capability	Before 2014
Full Operational Capability	01/01/2019

References and guidance material	ATM Master Plan Level 2 (Dataset 14): AOM-0605, AOM-0602 (Baseline), AOM-0604 (Baseline) ATM Master Plan Level 3 (Edition 2014): Link to NAV10 NOP 2014-2018/2019. ICAO Doc 9613 (PBN Manual) ICAO Manual on the use of PBN in Airspace Design (Doc 9992) PANS OPS Doc 8168 ICAO RNP AR Manual Doc 9905
Concerned stakeholders	ANSP, Military authority, applicable airport, airspace users
Geographical applicability	Implementation projects will deliver "RNP approaches with vertical guidance" at all runway ends at the airports listed in Regulation (EU 716/2014) (whenever it is not already implemented). (Note that according to ICAO AR37.11, "RNP approaches with vertical guidance" shall be implemented at all IFR Runways).
Synchronization	There is the need to coordinate/synchronise efforts (operational procedures, ground infrastructure and aircraft capabilities) between ANSPs and Airspace users to ensure the return of investment and/or the start of operational benefits. Coordination of deployment of PBN procedures is a local issue and must include all affected parties (ANSPs, airports, AUs and military).
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014
Industry Standards	None
Means of compliance and Certification or community specifications	Technical requirement and operation procedures for Airspace design including procedure design (RMT.0445) Provision of requirements in support of global PBN operations RMT.0519
Interdependencies	1.2.2 Geographical database 3.2.1 Upgrade of ATM systems (NM, ANSPs, AUs) to support Direct Routings (DCTs) and Free Routing Airspace (FRA)
Relevance for CEF Transport Call for Proposals 2015	High
Recommendation for the IPs proposal	It is recommended to take into consideration the results of level 4 Gap analysis, as reported in the following Chart and within section 5.1.2

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.

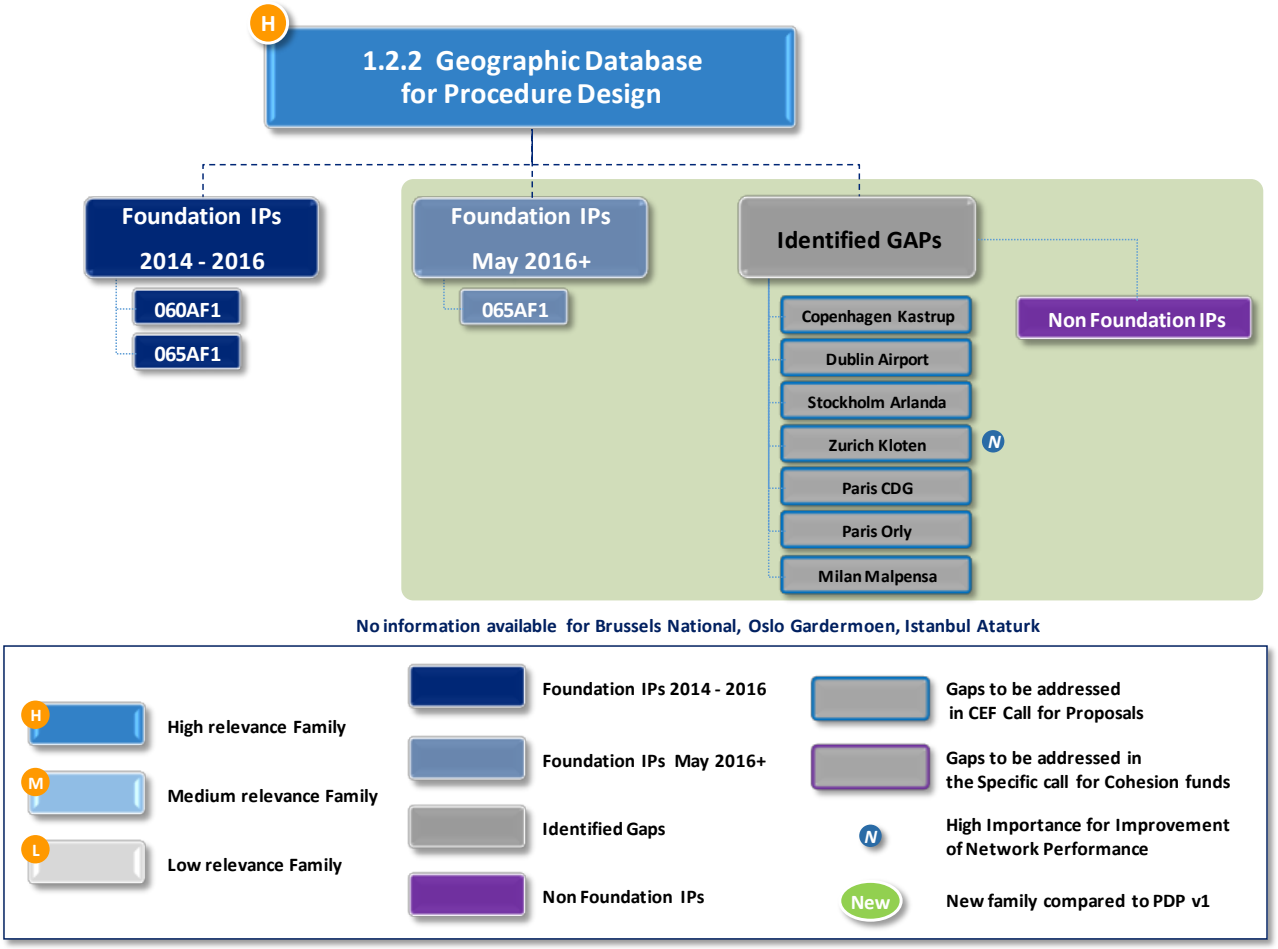


3.1.5 Family 1.2.2 – Geographic Database for Procedure design

Designator	1.2.2
Name	Geographic database for procedure design
Main Sub-AF	Enhanced Terminal Airspace using RNP-Based Operations
Description and Scope	Procurement/provision of geographic database to support procedure design including obstacle data as part of AIM The availability of an up-to-date and quality assured geographic database (including the obstacle items) of each TMA is a prerequisite to design new procedures such as RNP approaches. Geographical databases could be used by AUs to validate procedures with regards to performance for different aircraft types. PBN is in most cases based upon procedures including geographical positions expressed in latitude and longitude and not on radio beacons placed on ground, thus a geographical point will have a direct impact on safety and quality of navigation. A geographical point expressed in latitude and longitude can consist of up to 19 characters and the highest risk of introducing errors is when humans are handling this kind of information manually. Procedures and functions must be in place to ensure that the full chain from the originator of the information (land surveyor) to the database in the procedure design tools, the AIM databases and the on-board navigation databases is such that no errors are introduced. Implementation of support procedures and functions to detect errors is one component in order to maintain the origin of the data and the quality attributes, but also secure means for communicating the geographical data is fundamental. Handling of latitude/longitude and other navigation data manually is not an option as the risk of introduction of errors is too high. On-board aircraft geographical data is included in the navigation database.
Initial Operational Capability	01/01/2014
Full Operational Capability	01/01/2019
References and guidance material	ICAO Annex 15 Chapter 10, ICAO Annex 4, ICAO Annex 14 ICAO Docs: 8168 Vol. II; 9906; 9888; 9613; 9905; 9997; 9992; 8697
Concerned Stakeholders	States (responsible for provision of AIM data). Airport authorities (responsible for providing original geographical data but actual measurements are often done by commercial companies).

	Procedure designers (can be ANSPs, AIM providers and commercial companies). AIM-providers (can be States, Military authorities, ANSPs and commercial companies).
Geographical applicability	Implementation projects will deliver "geographic database for procedure design" at any of the airports listed in Regulation (EU 716/2014) (whenever it is not already implemented).
Synchronization	Prerequisite for 1.2.1, 1.2.3 and 1.2.4.
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014 Requirements and administrative procedures related to aerodromes IR (EU regulation 139/2014) EASA Opinion 02/2015 "Technical Requirements and Operating procedures for the provision of data to Airspace Users for the purpose of Air Navigation"
Industry Standards	EUROCAE ED-76 (RTCA DO-200A) Terrain Avoidance and Warning System (ETSO-C151B)
Means of compliance and Certification or community specifications	Technical requirements and operational procedures for the provision of data for airspace users for the purpose of air navigation RMT.0593 EASA AMC/GM 2014/012R Data contained in the database shall represent necessary information for the design of instrument procedures in accordance with: - ICAO Doc 8168 (PANS-OPS Vol. 1 & 2) - ICAO Doc 9613 (PBN Manual)
Interdependencies	Exchange of geographical data is included in AIM that is supposed to be a service within SWIM (AF5).
Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	High
Recommendation for the IPs proposal	It is recommended to take into consideration the results of level 4 Gap analysis, as reported in the following Chart and within section 5.1.2.

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.



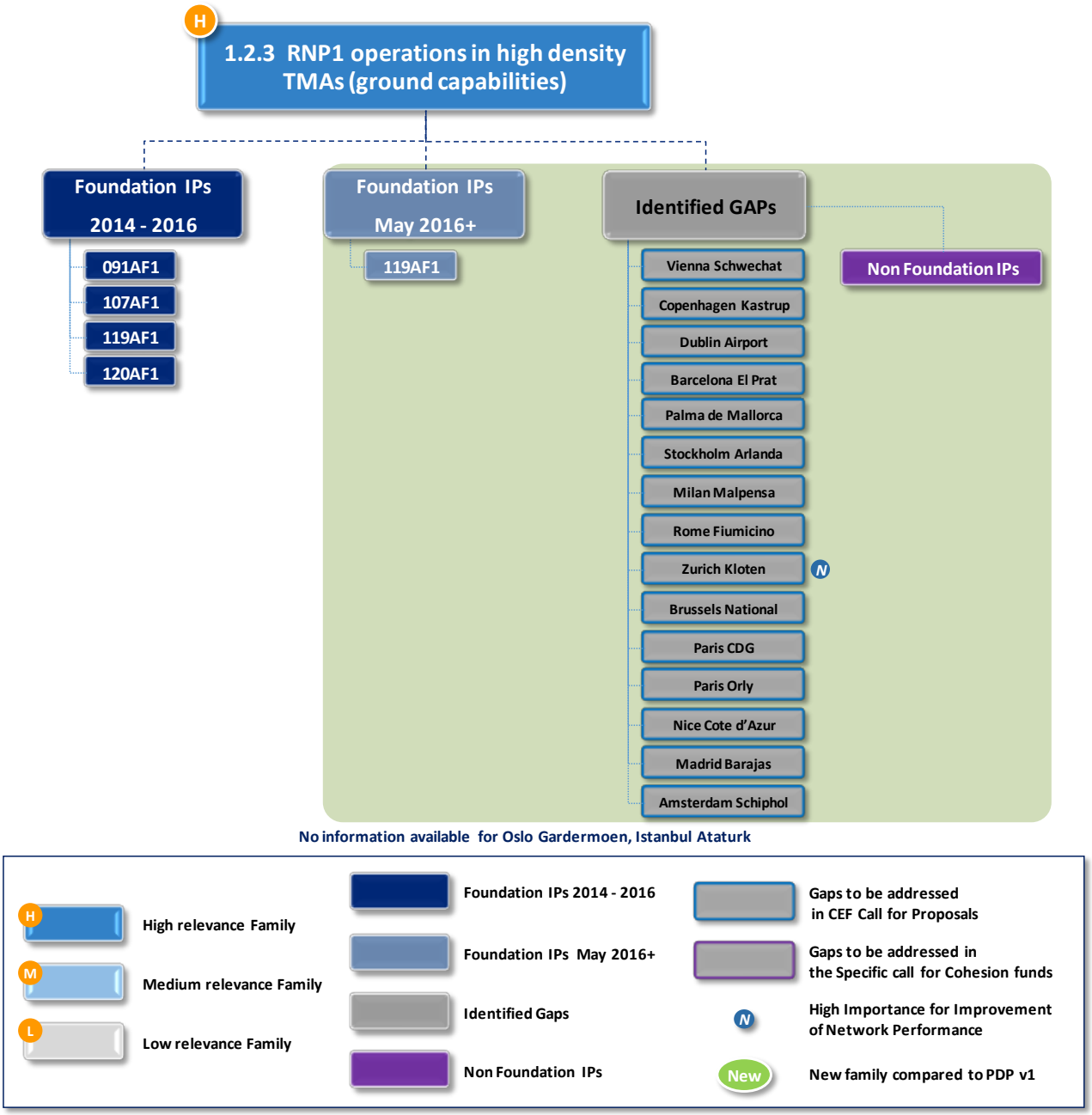
3.1.6 Family 1.2.3 – RNP1 Operations in high density TMAs (ground capabilities)

Designator	1.2.3
Name	RNP1 operations in high density TMAs (ground capabilities)
Main Sub-AF	Enhanced Terminal Airspace using RNP Based Operations
Description and Scope	Implementation of flexible and environmental friendly procedures (noise and GHG emissions) for departure, arrival and initial approach using PBN/RNP in high density TMAs, as specified in RNP 1 specification with the use of the Radius to Fix (RF) path terminator for SIDs, STARs and transitions where benefits are evident for noise exposure, emissions and/or flight efficiency. Required Navigation Performance (RNP) is a type of Performance Based Navigation (PBN) that allows an aircraft to fly a specific path between two 3D-defined points in space. Enhance arrival/departure procedures in high-density TMAs to include RNP 1 defined SIDs, STARs providing higher efficiency and transitions with the use of the Radius to Fix (RF) attachment where there are opportunities to enhance flight efficiency, reduce noise exposure and/or emissions. RNP 1 operations require the Lateral and Longitudinal Total System Error (TSE) to, be within +/− 1 nautical mile for at least 95 % of flight time and on-board performance monitoring, alerting capability and high integrity navigation databases. RNP 1 capability requires inputs from Global Navigation Satellite System (GNSS). To gain advantage of the new flexible RNP based procedures that is independent of ground infrastructure, requires redesign of TMA airspace. Consequently related ATM systems must be upgraded that also includes safety nets like MTCD, STCA, CDT, CORA etc. According to the EASA NPA, airports and ANSPs when implementing RNP procedures must maintain a level of conventional navigation capabilities not to exclude any airspace user, i.e. accommodating non-PBN capable traffic. These mix modes of operations (critical to accommodate some military flights conducted as GAT) requires special attention. If mixed mode of operation (PBN/RNP procedures together with conventional procedures) is offered, harmonized and best-practise procedures for non-equipped PBN/RNP aircraft across the PCP applicability area should be considered in order to minimize controller workload, aircrew training burden and standardize airport controllers training. For consistency, PBN/RNP should be extended to en-route environment (ref Family 1.2.5) and covered by Extended AMAN (ref Family 1.1.2). Implementation of PBN in TMA and in en-route should be coordinated in order to optimise resources and ensure consistency.
Initial Operational Capability	01/01/2015

Full Operational Capability	01/01/2024
References and guidance material	ATM Master Plan Level 2 (Dataset 14): AOM-0605; AOM-0603; AOM-0602 (Baseline); AOM-0601 (Baseline). ATM Master Plan Level 3 (Edition 2014): Link to NAV03 ICAO Doc 9613 (PBN Manual) ICAO Manual on the use of PBN in Airspace Design (Doc 9992) PANS OPS Doc 8168 ICAO RNP AR Manual Doc 9905 EUROCONTROL European Airspace Concept Handbook for PBN Implementation; Edition 3.0.
Concerned stakeholders	Civil/Military ANSPs and airport operators
Geographical applicability	High density TMAs surrounding airports defined in PCP IR (EC 716/2014)
Synchronization	The deployment of PBN in high density TMAs shall be coordinated due to the potential network performance impact of delayed implementation in the airports referred to in the list. Coordination of deployment is a local issue and must include all affected parties (ANSPs, airports, AUs and military). From a technical perspective, the adjustment/upgrade of ATM systems and procedural changes shall be synchronized with civil and military aircraft capabilities in order to ensure that the performance objectives are met. The synchronization of investments shall involve multiple airport operators ANSP and airspace users. 1.2.3, 1.2.4 and 1.2.5 should be coordinated.
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014
Industry Standards	None
Means of compliance and Certification or community specifications	None
Interdependencies	Capability of ground systems and services should be synchronised with capability of aircraft and airspace users including military. PBN operations require availability of quality assured and accurate geographical data. See AF1 1.2.2. The implementation of PBN/RNP in High-Density TMAs should be coordinated with implementation of PBN/RNP in adjacent airspace covered by Extended AMAN. See Families 1.1.2 and 1.2.5.
Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	High

Recommendation for the IPs proposal	It is recommended to take into consideration the results of level 4 Gap analysis, as reported in the following Chart and within section 5.1.2.

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.

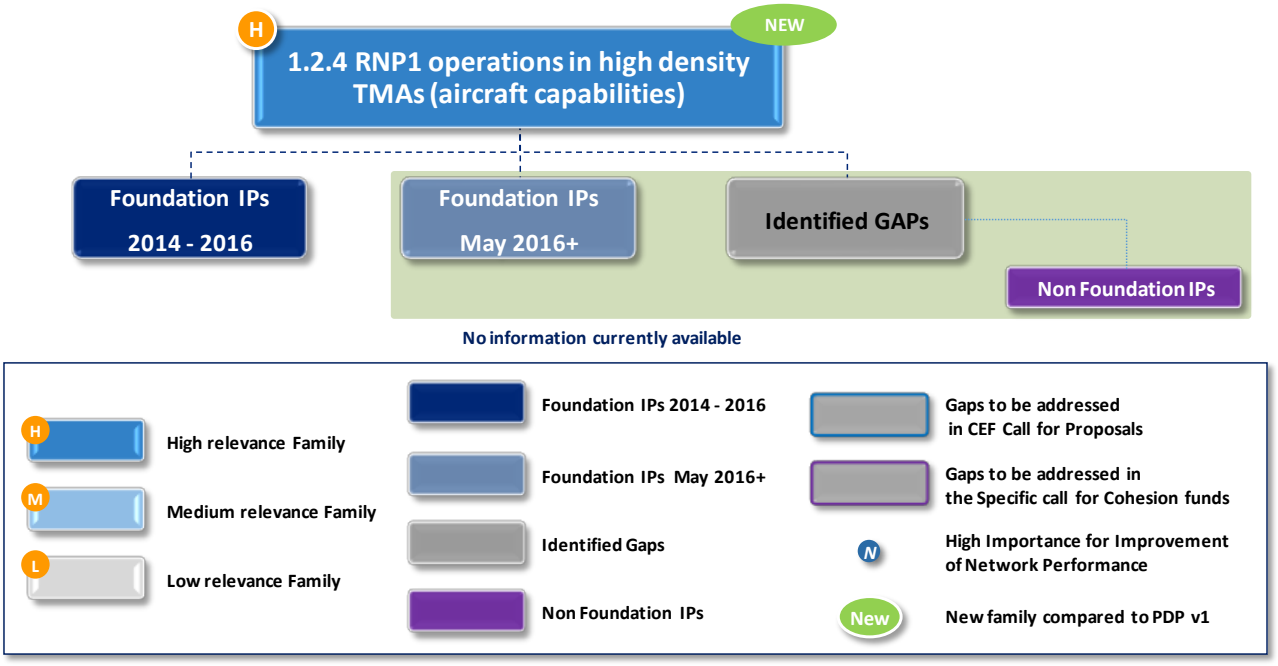


3.1.7 Family 1.2.4 – RNP1 operations in high density TMAs (aircraft capabilities)

Designator	1.2.4
Name	RNP1 operations in high density TMAs (aircraft capabilities)
Main Sub-AF	Enhanced Terminal Airspace using RNP Based Operations
Description and Scope	Implementation of flexible and environmental friendly procedures (noise and GHG emissions) for departure, arrival and initial approach using PBN/RNP in high density TMAs, as specified in RNP 1 specification with the use of the Radius to Fix (RF) path terminator for SIDs, STARs and transitions where benefits are evident for noise exposure, emissions and/or flight efficiency. Required Navigation Performance (RNP) is a type of Performance Based Navigation (PBN) that allows an aircraft to fly a specific path between two 3D-defined points in space. Enhance arrival/departure procedures in high-density TMAs to include RNP defined SIDs, STARs providing higher efficiency and transitions, and where benefits are evident with regards to noise exposure, flight efficiency and/or capacity, with the use of the Radius to Fix (RF) attachment. Provision shall be made for non-equipped aircraft. RNP 1 operations require the lateral and longitudinal Total System Error (TSE) to, be within +/− 1 nautical mile for at least 95 % of flight time and on-board performance monitoring, alerting capability and high integrity navigation databases. RNP 1 capability requires inputs from Global Navigation Satellite System (GNSS). Most new transport aircraft delivered today are PBN/RNP capable, but operational approval requires flight crew training and qualification/authorisation. To gain expected benefits from PBN/RNP procedures, a certain level of equipage/compliance rate is required amongst the majority of aircraft operating in a TMA and at an airport, subject to local considerations. Retrofitting of non RNP 1 capable aircraft might be required or incentivised, subject to positive CBA. For military aircraft, compliance with RNP1 may also be based on alternative technical performance based equivalent means.
Initial Operational Capability	01/01/2015
Full Operational Capability	01/01/2024
References and guidance material	ATM Master Plan Level 2 (Dataset 14): AOM-0603; AOM-0605 ATM Master Plan Level 3 (Edition 2014): None ICAO Doc 9613 (PBN Manual)
Concerned stakeholders	Civil and military airspace users.

Geographical applicability	Airspace user operating in high density TMAs defined in the PCP IR (EU 716/2014) need to adjust aircraft and aircrew capabilities to use RNP 1 procedures.
Synchronization	The deployment of PBN in high density TMAs shall be coordinated due to the potential network performance impact of delayed implementation in the airports referred to in the list. Coordination of deployment of PBN procedures is a local issue and must include all affected parties (ANSPs, airports, AUs and military). From a technical perspective, the adjustment/upgrade of ATM systems and procedural changes shall be synchronized with aircraft capabilities in order to ensure that the performance objectives are timely met. The synchronization of investments shall involve multiple airport operators ANSP and airspace users.
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014
Industry Standards	None
Means of compliance and Certification or community specifications	None
Interdependencies	Capability of ground systems and services should be synchronised with capability of navigation satellites including an augmentation system as required by aircraft and airspace users including military. PBN operations require availability of quality assured and accurate geographical data. See AF1, 1.2.2.
Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	High
Recommendation for the IPs proposal	It is recommended to take into consideration the results of level 4 Gap analysis, as reported in the following Chart and within section 5.1.2

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.

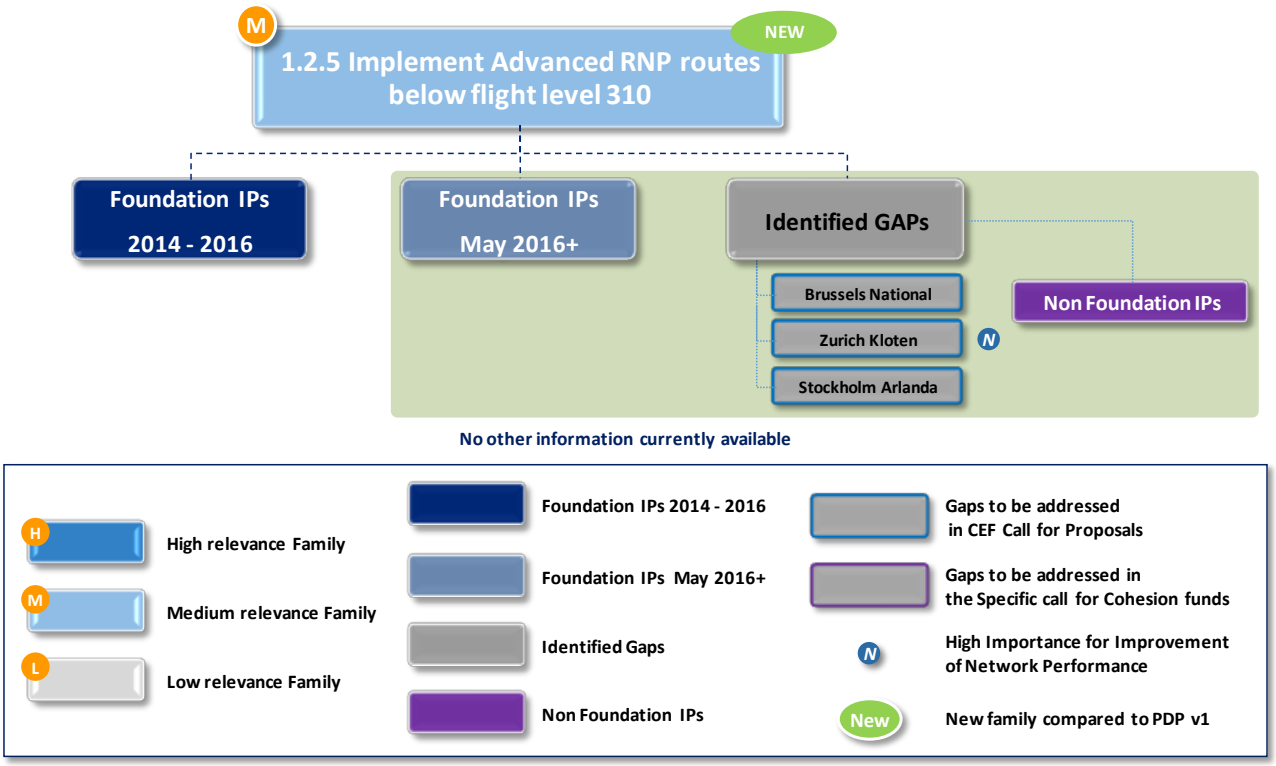


3.1.8 Family 1.2.5 – Implement Advanced RNP routes below FL 310

Designator	1.2.5
Name	Implement Advanced RNP routes below flight level 310
Main Sub-AF	s-AF 1.2 Enhanced TMA using RNP-Based Operations
Description and Scope	Connectivity between Free Route Airspace and TMAs through the implementation of Advanced RNP routes below FL 310. In case implementation of Free route is deemed not possible below flight level 310, Advanced RNP routes implementation can be considered in those areas where it can provide increase of capacity. To implement Advanced RNP, ATM systems upgrades should be considered for conflict detection and management; and aircraft and crew need to be Advanced RNP en-route capable. Aircraft capabilities may require upgrades either as retro-fit or forward fit. Retrofitting of non RNP capable aircraft might be required or incentivised, subject to positive CBA. For military aircraft, compliance with RNP may also be based on alternative technical performance based equivalent means. Aircraft flight management and guidance to Advanced RNP en-route functionality and associated airborne navigation data base is necessary to both this family and Family 1.2.3 and Family 1.2.4, hence optimising benefits out the necessary investment. In a PBN/RNP environment, procedures shall be in place to handle non equipped aircraft.
Initial Operational Capability	01/01/2019
Full Operational Capability	01/01/2024
References and guidance material	ATM Master Plan Level 2 (Dataset 14): AOM-0604 (Baseline); AOM-0603 ATM Master Plan Level 3 (Edition 2014): None ICAO PANS ATM for RNAV/RNP, BTNAV AMC for advanced RNP ICAO Doc 9613 (PBN Manual) ICAO Manual on the use of PBN in Airspace Design (Doc 9992) PANS OPS Doc 8168 ICAO RNP AR Manual Doc 9905
Concerned stakeholders	ANSP, Military, AUs, NM
Geographical applicability	Airspace connected to the 25 TMAs identified in AF1.
Synchronization	Implementation must be coordinated/synchronised between ground (PBN routes, operational procedures and upgrade of ATM systems as necessary), NM and aircraft capabilities to ensure optimum return of investment and realisation of operational benefits.

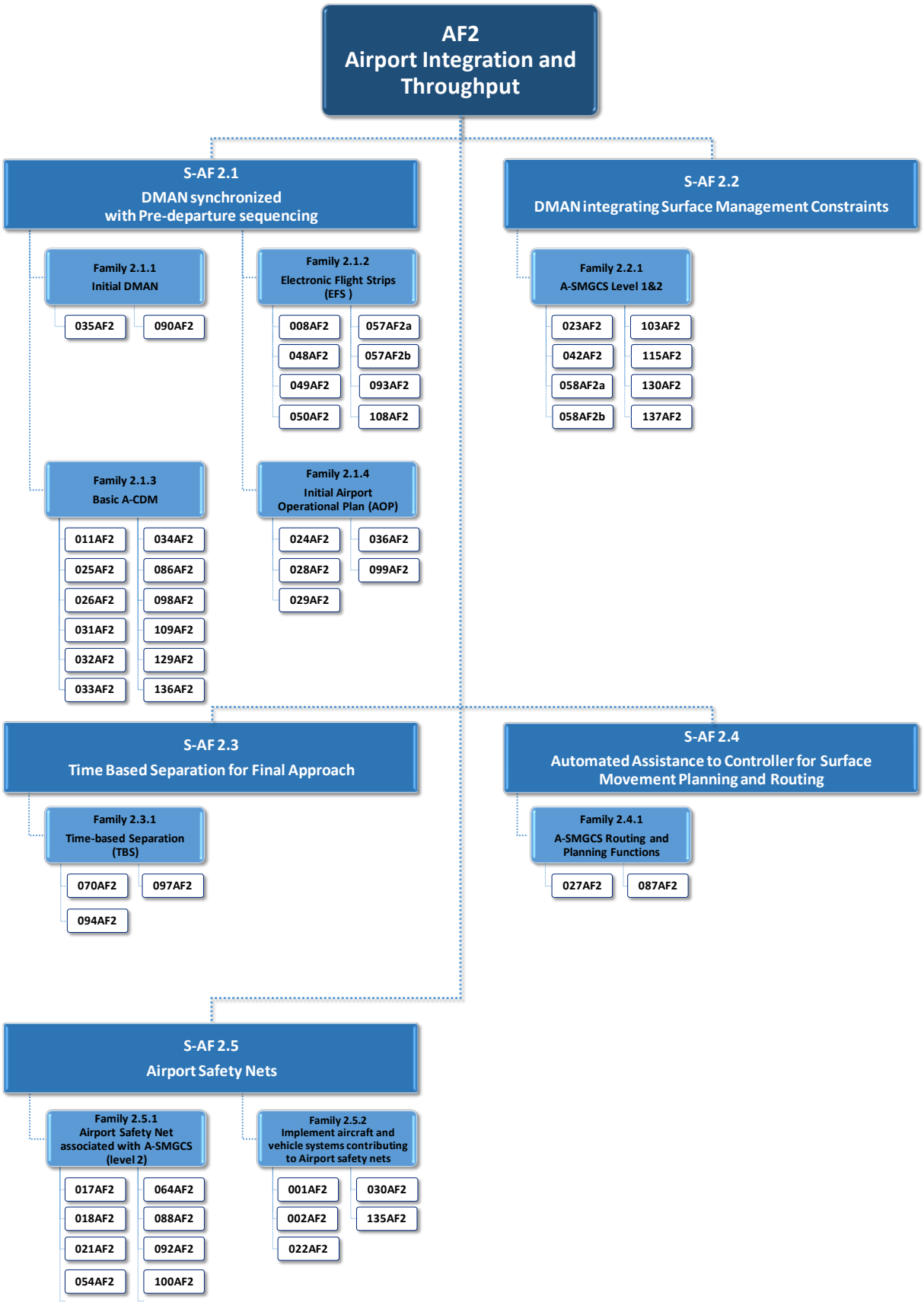
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014
Industry Standards	None
Means of compliance and Certification or community specifications	None
Interdependencies	1.1.2 AMAN upgrade to include Extended Horizon function 1.2.3 RNP 1 Operations in high density TMAs (ground capabilities) 1.2.4 RNP 1 Operations in high density TMAs (aircraft capabilities) 3.2.1 Upgrade of ATM systems (NM, ANSPs, AUs) to support Direct Routings (DCTs) and Free Routing Airspace (FRA) 3.2.4 Free Route Airspace The implementation is subsequent to Family 1.2.3 and 1.2.4
Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	Medium
Recommendation for the IPs proposal	It is recommended to take into consideration the results of level 4 Gap analysis, as reported in the following Chart and within section 5.1.2.

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.



3.2 AF #2 – Airport Integration and Throughput

The following chart highlights all Families and Implementation projects (identified by their Reference Number) related to the AF #2, divided in sub-AFs.



The following table encompasses the list of all projects related to the AF #2. Further details for each Implementation Projects are provided within Annex A.

Reference Number	Title	Foundation	IP description Page Number
001AF2	ROPS on AFR Airbus Fleet	Yes	33
002AF2	Automatic Friction Report	No	35
008AF2	External Gateway System (EGS) implementation	Yes	37
011AF2	Collaborative Decision Management (CDM) fully implemented	Yes	39
017AF2	Upgrade of A-SMGCS system at Brussels Airport	Yes	41
018AF2	Enhancement of Airport Safety Nets for Brussels Airport (EBBR)	Yes	43
021AF2	Elevated stop bar lights	No	45
022AF2	Vehicle Tracking System (VTS)	Yes	47
023AF2	SMAN-Vehicle	Yes	49
024AF2	SAIGA	Yes	50
025AF2	TSAT to the Gate	Yes	52
026AF2	Evolutions CDM-CDG	Yes	54
027AF2	SMAN-Airport	Yes	56
028AF2	Automatic block time detection – option 1: use of radar data	Yes	58
029AF2	Automatic block time detection – option 2: video cameras implementation	Yes	60
030AF2	Equipment of ground vehicles to supply the A-SMGCS	Yes	62
031AF2	Data exchanges with the ANSP	Yes	63
032AF2	Data exchanges with the NMOC	Yes	65
033AF2	Data exchanges with COHOR	Yes	67
034AF2	Data exchanges with airport stakeholders	Yes	69
035AF2	Pre-departure sequence	Yes	71
036AF2	Aeronautical information system upgrade (airport operation database)	Yes	73
042AF2	A-SMGCS Düsseldorf	Yes	75
048AF2	SYSAT@CDG	Yes	77
049AF2	SYSAT@NCE	Yes	79
050AF2	SYSAT@ORY	Yes	81
054AF2	CDG2020 Step1	Yes	83
057AF2a	Fulfilment of the prerequisite EFS for the PCP AF2 Sub Functionality: Airport Integration and	Yes	85

Reference Number	Title	Foundation	IP description Page Number
	Throughput [2014-2016]		
057AF2b	Fulfilment of the prerequisite EFS for the PCP AF2 Sub Functionality: Airport Integration and Throughput [2017-2019]	Yes	87
058AF2a	Fulfilment of the prerequisite A-SMGCS 2for the PCP AF2 Sub Functionality: Airport Integration and Throughput [2014-2016]	Yes	89
058AF2b	Fulfilment of the prerequisite A-SMGCS 2 for the PCP AF2 Sub Functionality: Airport Integration and Throughput[2017-2019]	Yes	91
064AF2	ENAV Airport System upgrade	Yes	93
070AF2	RECAT EU DEPLOYMENT WAKE TOOLS SUPPORT	No	95
086AF2	A-CDM Extension	Yes	98
087AF2a	Apron Controller Working Position	Yes	98
088AF2	Airport Safety Net: Mobile Detection of Air Crash Tenders	Yes	102
090AF2	Departure Management Synchronised with Pre-Departure Sequencing (PDS)	Yes	104
092AF2	Enhanced Departure Management integrating airfield surface assets	Yes	106
093AF2	Electronic Flight Strip System (EFS) deployment	Yes	108
094AF2	Time-Based Separation for Final Approach	Yes	110
097AF2	Time Based Separation	Yes	111
098AF2	T2 SEGS	Yes	113
099AF2	Initial Airport Operational Plan (AOP)	Yes	115
100AF2	Airport Safety Nets associated with A-SMGCS level 2 - Preparation for SMAN	Yes	117
103AF2	Standardization of A-SMGCS	Yes	119
108AF2	Electronic Flight Strips at Schiphol TWR	Yes	121
109AF2	Airport CDM implementation Schiphol	Yes	123
115AF2	Renewal of the Surface Movement Radar (BORA)	Yes	125
129AF2	CDM-Orly	Yes	127
130AF2	BOREAL-Orly	Yes	129
135AF2	Ryanair RAAS Programme	Yes	131
136AF2	A-CDM (Stockholm Arlanda)	Yes	133
137AF2	Enhance of ASN (Stockholm Arlanda)	Yes	135

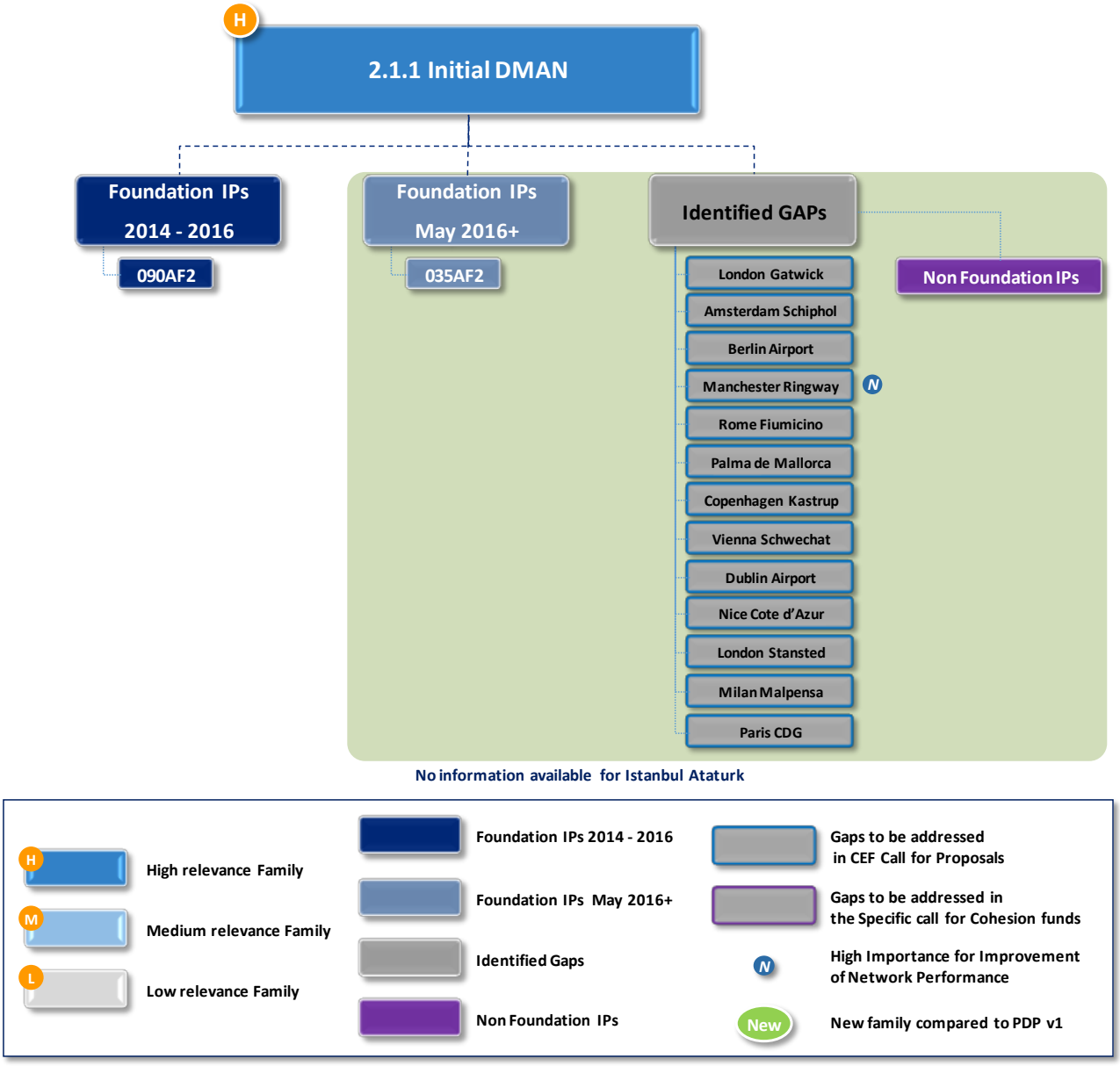
Table 3 – List of AF2 Implementation Projects (IPs)

3.2.1 Family 2.1.1 – Initial DMAN

Designator	2.1.1
Name	Initial DMAN
Main Sub-AF	S-AF2.1: Departure Management Synchronized with Pre departure sequencing
Description and Scope	Operational stakeholders involved in A-CDM shall jointly establish pre-departure sequences, taking into account agreed principles to be applied for specific reasons (such as runway holding time, slot adherence, departure routes, airspace user preferences, night curfew, evacuation of stand/gate for arriving aircraft, adverse conditions including de-icing, actual taxi/runway capacity, current constraints, inbound flights information, etc.). Implement Basic Departure Management (DMAN) functionality to: - ensure an efficient usage of the runway take off capacity by providing an optimum and context dependent queue at the holding points; - improve the departure flows at airports; - increase the predictability; - calculate Target Take Off Times (TTOT) and the Target Start-up Approval Times (TSAT) taking into account multiple constraints and preferences out of the A-CDM processes; - provide a planned departure sequence; - reduce queuing at holding point and distribute the information to various stakeholders at the airport. Ref S-AF2.2 - The departure sequence at the runway shall be optimised according to the real traffic situation reflecting any relevant change off-gate or during taxi to the runway. DMAN systems shall take account of variable and updated taxi times to calculate the TTOT and TSAT. Interfaces between DMAN and A-SMGCS routing shall be developed.
Initial Operational Capability	Before 2014
Full Operational Capability	01/01/2021
References and guidance material	ATM Master Plan Level 2 (Dataset 14): TS-0202; AO-0602 (baseline) ATM Master Plan Level 3 (Edition 2014): None IDP WP3.1
Concerned stakeholders	Civil ANSPs, Military ANSPs (if applicable), AO, NM, AU

Geographical applicability	Geographical scope according to Annex 2.2.1/2.2.2of Commission Implementing Regulation (EU) N°716/2014
Synchronization	From a technical perspective the deployment of targeted system and procedural changes shall be synchronised in order to ensure that the performance objectives are met. An integrated approach multi stakeholders, and multi Family of S-AF 2.1 can be made to reach the goal.
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014
Industry Standards	ED-141 Minimum Technical Specification for the Airport Collaborative Decision Making (Airport-CDM) ED-145 Airport-CDM Interface Specification
Means of compliance and Certification or community specifications	ETSI EN 303 212 (CS on A-CDM)
Interdependencies	There are interdependencies within AF2 with 2.1.2 EFS, 2.1.3 A-CDM, 2.1.4 iAOP, 2.2.1 A-SMGCS level 1-2, and new family A-SMGCS Routing and Planning Functions. The sub-functionalities Departure Management Synchronized with Pre-departure sequencing may be implemented independently from the other sub-functionalities.
Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	High
Recommendation for the IPs proposal	It is recommended to take into consideration the results of level 4 Gap analysis, as reported in the following Chart and within section 5.1.2.

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.

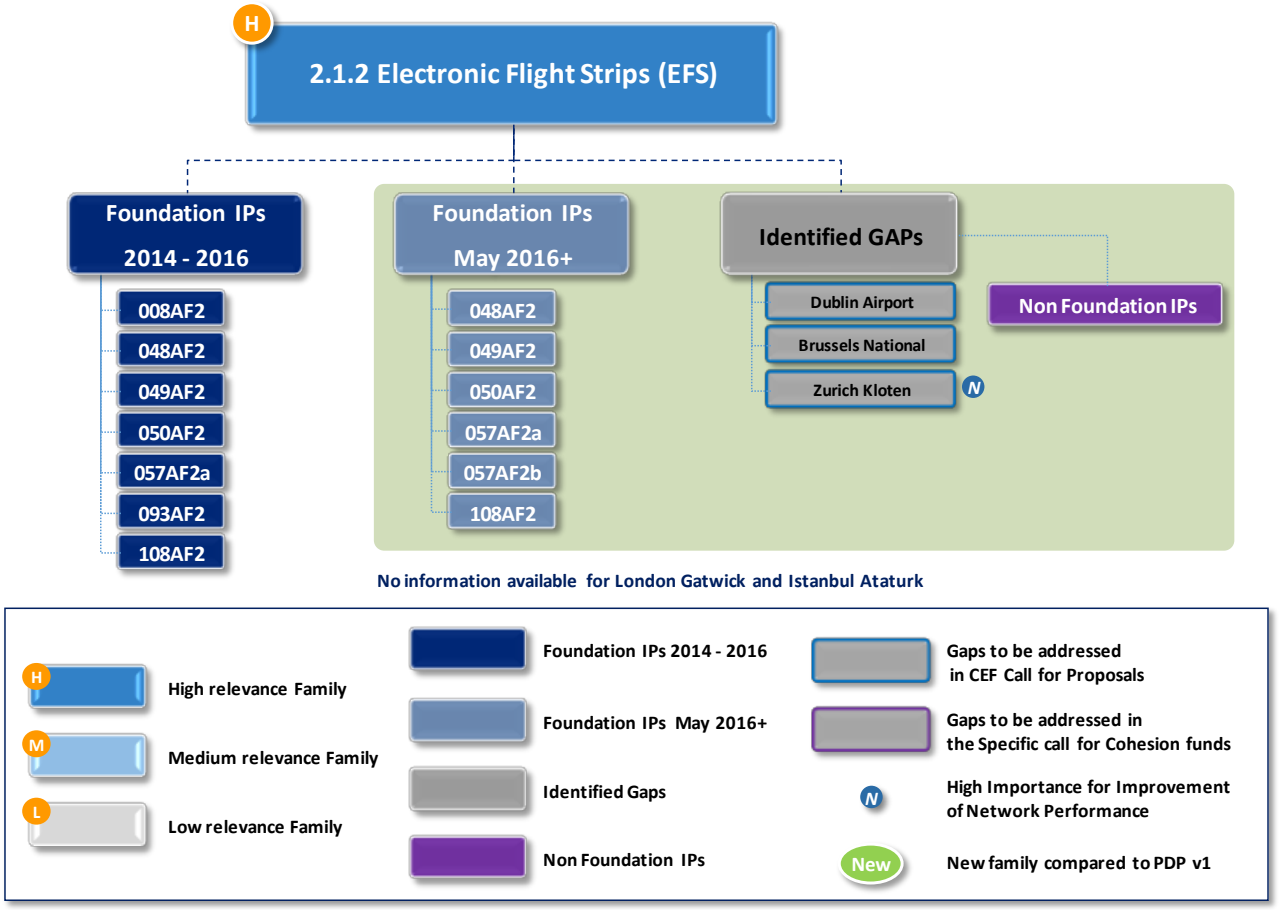


3.2.2 Family 2.1.2 – Electronic Flight Strips (EFS)

Designator	2.1.2
Name	Electronic Flight Strips (EFS)
Main Sub-AF	S-AF2.1: Departure Management Synchronised with Pre-departure sequencing
Description and Scope	The operational context of Electronic Flight Strips (EFS) is the automated assistance to tower controller and where appropriate also approach and ground controller as well as the automated information exchange within and between these units. The system permits controllers to conduct screen to screen coordination within their unit and with "neighbouring" units in the process chain reducing workload associated with coordination, integration and identification tasks. The system supports coordination dialogue between controllers and transfer of flights between units or different locations within one unit (e.g. multiple Ground Control Towers at big airports), and facilitates early resolution of conflicts through automated coordination. Ref. S-AF2.4 The flight data processing system shall be able to receive planned and cleared routes assigned to aircraft and vehicles and manage the status of the route for all concerned aircraft and vehicles. Ref. S-AF2.5 The controller working position shall allow the air traffic controller to manage surface route trajectories. Tower Runway Controller support tools shall provide the detection of Conflicting ATC Clearances and shall be performed by the ATC system based on the knowledge of data such as the clearances given to mobiles by the Tower Runway Controller, the assigned runway and holding point. Working procedures shall ensure that all clearances given to aircraft or vehicles are input in the ATC system by the controller on the Electronic Flight Strip (EFS). ATCOs shall be alerted when mobiles deviate from ATC instructions, procedures or route, potentially placing the mobile at risk. The introduction of Electronic Flight Strips (EFS) means that the instructions given by the ATCO are now available electronically and shall be integrated with other data such as flight plan, surveillance, routing, published rules and procedures. The integration of this data shall allow the system to monitor the information and when inconsistencies are detected, an alert is provided to the ATCO (e.g. No push-back approval). Furthermore, Digital Flight Data Management Systems will help to make consolidated flight data from different sources available to the controller and thus enhance situational awareness by indicating process steps and alerts in connection with AOP functionalities.

Initial Operational Capability	Before 2014
Full Operational Capability	01/01/2021
References and guidance material	European ATM Master Plan Level 2 (Dataset 2014): None European ATM Master Plan Level 3 (Edition 2014): None
Concerned stakeholders	Civil ANSPs, Military ANSPs (if applicable), AO, AU, NM
Geographical applicability	Geographical scope according to Annex 2.2.1/2.2.2 of Commission Implementing Regulation (EU) N°716/2014
Synchronization	From a technical perspective the deployment of targeted system and procedural changes shall be synchronized in order to ensure that the performance objectives are met. This synchronization of investments shall involve multiple airport operators and air navigation service providers. Furthermore synchronization during the related industrialization phase shall take place, in particular among supply industry and standardization bodies
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014
Industry Standards	None
Means of compliance and Certification or community specifications	None
Interdependencies	S-AF2.2 Departure Management integrating Surface Management Constraints S-AF2.3 Time-based separation for final approach S-AF2.4 Automated Assistance to Controller for Surface Movement Planning and Routing S-AF2.5 Airport Safety Nets
Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	High
Recommendation for the IPs proposal	It is recommended to take into consideration the results of level 4 Gap analysis, as reported in the following Chart and within section 5.1.2.

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.



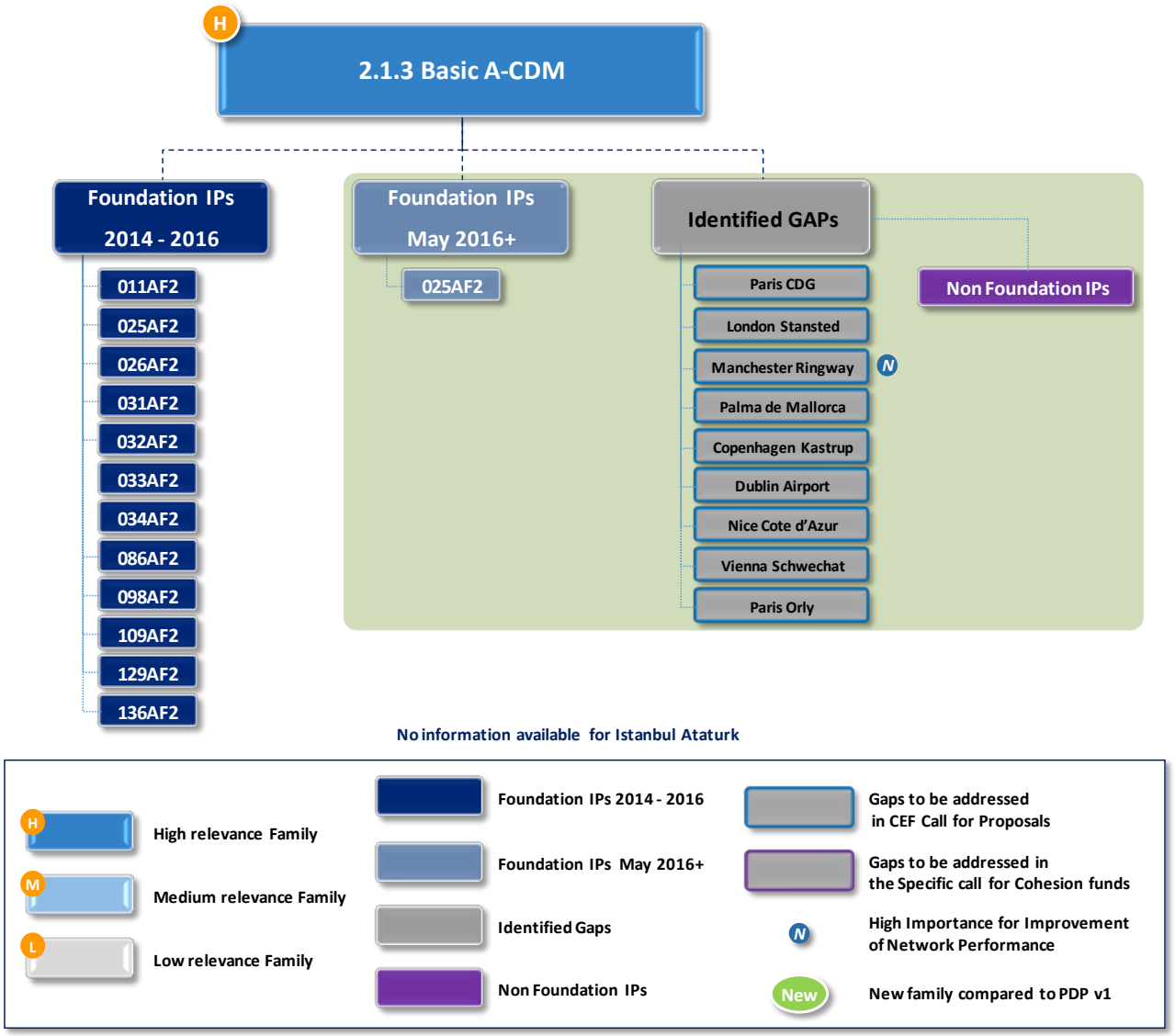
3.2.3 Family 2.1.3 – Basic A-CDM

Designator	2.1.3
Name	Basic A-CDM
Main Sub-AF	S-AF2.1: Departure Management Synchronised with Pre departure sequencing
Description and Scope	A-CDM is the concept, which aims at improving operational efficiency at airports and improves their integration into the Air Traffic Flow and Capacity Management (ATFCM) by increasing information sharing and improving cooperation between all relevant stakeholders (local ANSP, airport operator, aircraft operators, NM, other airport service providers). The Airport CDM concept is built on the following elements: - The foundations for Airport CDM are Information Sharing and the Milestone Approach. They consist in collaborative information sharing and monitoring of the progress of a flight from the initial planning to the take-off. Those two elements allow the airport partners to achieve a common situational awareness and predict the forthcoming events for each flight. - Variable Taxi Time Calculation, Collaborative Pre-Departure Sequencing and CDM in Adverse Conditions allow the airport partners to further improve the local management of airport operations, whatever the situation at the airport. An Initial Airport Operations Centre could be implemented to support these elements and reinforce the collaborative decision making process with all stakeholders. The Initial Airport Operations Centre assesses the global performance of the airport, and facilitates the Demand and Capacity Balancing monitoring. Once A-CDM has been implemented locally, the link with the ATMN can be strengthened through the exchange of flight update messages between the CDM airport and the NM. This last building block of the A-CDM concept facilitates the flow and capacity management, helps reduce uncertainty and increases efficiency at the network level. Systems addressing adverse conditions management could be implemented to improve airport resilience.
Initial Operational Capability	Before 2014
Full Operational Capability	01/01/2021
References and guidance material	ATM Master Plan Level 2 (Dataset 14): AO-0501; AO-0502; AO-0601 and AO-0602 (Baseline) ATM Master Plan Level 3 (Edition 2014): Link to AOP05 IDP WP3.1 and IDP WP 3.2 EUROCONTROL Airport CDM Implementation Manual Version 4

Concerned stakeholders	Civil ANSPs, Military ANSPs (if applicable), AO, NM, AU
Geographical applicability	Geographical scope according to Annex 2.2.1/2.2.2 of Commission Implementing Regulation (EU) N°716/2014
Synchronization	Operational stakeholders involved in A-CDM shall jointly establish pre-departure sequences, taking into account agreed principles to be applied for specific reasons (such as runway holding time, slot adherence, departure routes, airspace user preferences, night curfew, evacuation of stand/gate for arriving aircraft, adverse conditions including de-icing, actual taxi/runway capacity, current constraints, inbound flight information.). The deployment of Airport Integration and Throughput functionality shall be coordinated due to the potential network performance impact of delayed implementation in the targeted airports. From a technical perspective the deployment of targeted system and procedural changes shall be synchronized in order to ensure that the performance objectives are met. This synchronization of investments shall involve multiple airport operators and air navigation service providers. Furthermore, synchronization during the related industrialization phase shall take place, in particular among supply industry and standardization bodies. The concept of A-CDM constitutes the basis for airports to establish predictability in processes related to aircraft turn-around and as such feeds the AOP with essential and critical information concerning capacity issues as well as availability. This information is integrated in the NOP (ref. S-AF4.2 Collaborative NOP). An integrated approach multi stakeholders, and multi Family of S-AF 2.1 can be made to reach the goal.
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014
Industry Standards	ED-141 Minimum Technical Specification for the Airport Collaborative Decision Making (Airport-CDM) ED-145 Airport-CDM Interface Specification
Means of compliance and Certification or community specifications	ETSI EN 303 212 (CS on A-CDM)
Interdependencies	Interdependencies exist between 2.1.3 A-CDM and S-AF4.2: Collaborative NOP (4.2.4AOP/NOP Information Sharing). Within S-AF2.1 dependencies is expected with 2.1.1 Initial DMAN, 2.1.4 Initial AOP and 2.1.2 EFS, and could be expected between S-AF2.2 2.2.1 A-SMGCS L1-2 and AF2.4 2.4.1 A-SMGCS Routing and planning functions.
Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	High

Recommendation for the IPs proposal	It is recommended to take into consideration the results of level 4 Gap analysis, as reported in the following Chart and within section 5.1.2.

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.



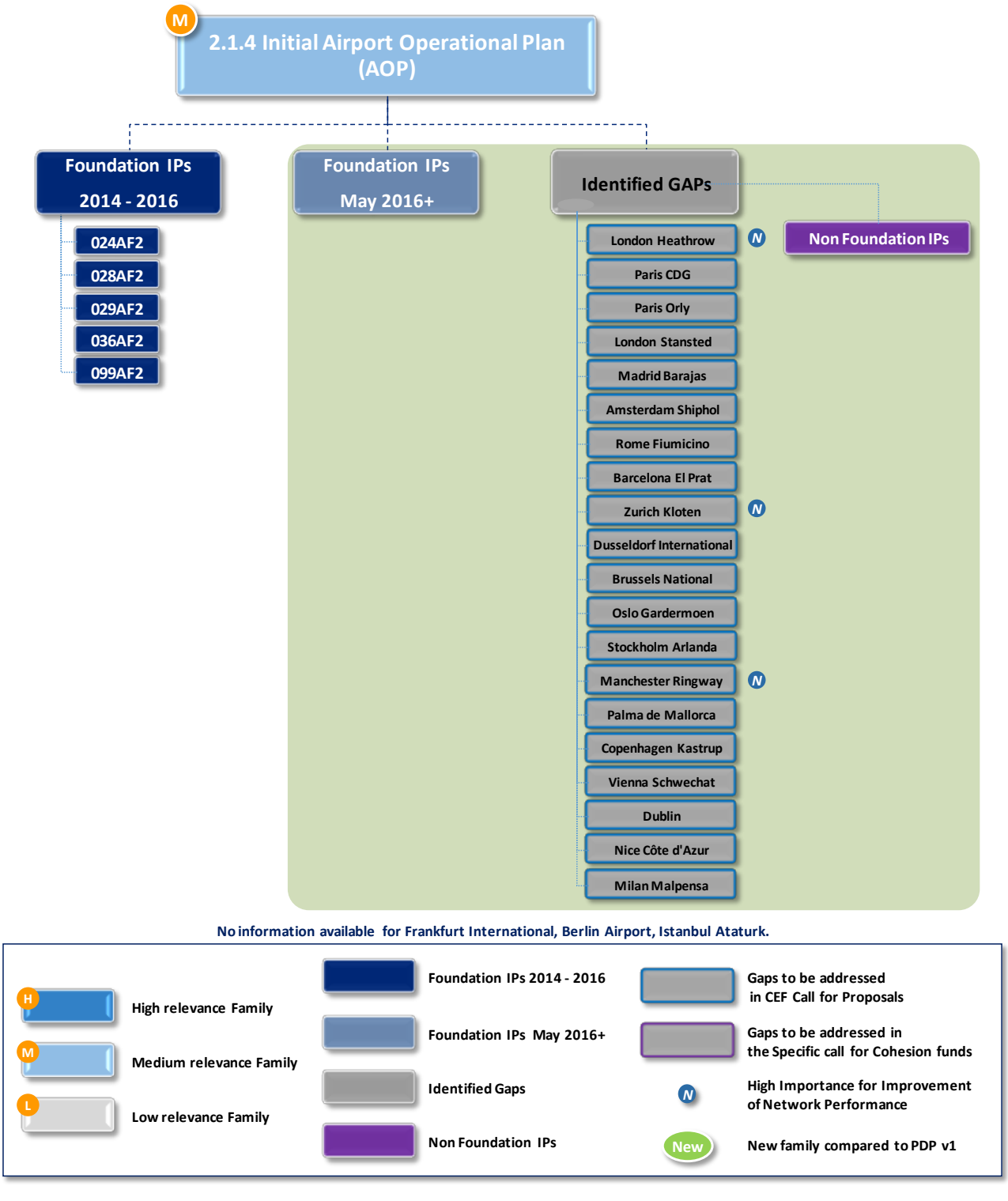
3.2.4 Family 2.1.4 – Initial Airport Operational Plan (AOP)

Designator	2.1.4
Name	Initial Airport Operational Plan (AOP)
Main Sub-AF	S-AF2.1: Departure Management Synchronised with Pre departure sequencing
Description and Scope	The Airport element that reflects the operational status of the Airport and therefore facilitates Demand and Capacity Balancing is the Airport Operations Plan (AOP). The AOP connects the relevant stakeholders, notably the Airspace Users' Flight Operations Centre (FOC). It contains data and information relating to the different status of planning phases and is in the format of a rolling plan, which naturally evolves over time. The AOP is a single, common and collaboratively agreed rolling plan available to all airport stakeholders whose purpose is to provide common situational awareness and to form the basis upon which stakeholder decisions relating to process optimization can be made. The AOP contains elements such as KPI, which allow monitoring and assessing the performance of ACDM operations. Most of the data involved in the AOP implementation is currently shared among local stakeholders and where available, through the A-CDM process. The AOP/NOP collaboration covers different sets of data (see SESAR JU's documentation ANNEX E/OSED OFA 05.01.01 V3. Different types of data have been identified: 1. Airport data exclusively used at local level (AOP only) 2. Airport data sent to the NOP (AOP => NOP) 3. NOP Data sent to AOP (NOP => AOP) The iAOP is the local part of the AOP (part 1 & 2) which refers to the local application not necessarily linked with the NOP it contains data which is not coming from the NOP (part 1), then progressively all data (part 2) described in the output of SESAR JU see OFA … , toward part 3 according to the synchronization with NOP. For the connection to the NOP, synchronization with AF4 "interactive Rolling NOP" is needed. The connection itself shall be established through Family 4.2.4 "AOP/NOP information sharing". There are strong interdependencies with S-AF4.2 Collaborative NOP as well as with S-AF5.5 Cooperative Network Information Exchange. The ATM stakeholders' planning processes and working methods are included in the AOP. The initial AOP is partly integrated in the NOP which provides a rolling picture of the network situation used by stakeholders to prepare their plans and their inputs to the network CDM processes (e.g. negotiation of airspace

	configurations). NM Information will be freely exchanged by Operational stakeholders by means of defined cooperative network information services, using the yellow SWIM TI Profile.
Initial Operational Capability	Before 2014
Full Operational Capability	01/01/2021
References and guidance material	ATM Master Plan Level 2 (Dataset 14): AO-0801-A ATM Master Plan Level 3 (Edition 2014): None
Concerned stakeholders	Civil ANSPs, Military ANSPs (when applicable e.g. Brussels Zaventem, Palma De Mallorca), AO, NM, AU
Geographical applicability	Geographical scope is understood according to Annex 2.2.1/2.2.2 of Commission Implementing Regulation (EU) N°716/2014
Synchronization	The deployment of Network Collaborative Management functionality shall be coordinated and synchronized with the AOP due to the potential network performance impact of delayed implementation. The synchronization of investments shall involve multiple air navigation service providers, airports and the Network Manager. The concept of A-CDM constitutes the basis for airports to establish predictability in processes related to aircraft turn-around and as such feeds the AOP with essential and critical information concerning capacity issues as well as availability. This information is integrated in the NOP (ref. S-AF4.2 Collaborative NOP). Multi stakeholder project: Airport Operator, ANSP, Airlines, NM, and others.
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014
Industry Standards	ED-141 Minimum Technical Specification for the Airport Collaborative Decision Making (Airport-CDM) ED-145 Airport-CDM Interface Specification
Means of compliance and Certification or community specifications	ETSI EN 303 212 (CS on A-CDM)
Interdependencies	S-AF2.1: 2.1.1 Initial DMAN, 2.1.3 Basic A-CDM S-AF4.2: Collaborative NOP (4.2.4 AOP/NOP Information Sharing) S-AF5.5: Cooperative Network Information Exchange (5.5.1 Interface and data Requirements of AF4 NOP)
Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	Medium

Recommendation for the IPs proposal	It is recommended to take into consideration the results of level 4 Gap analysis, as reported in the following Chart and within section 5.1.2.

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.

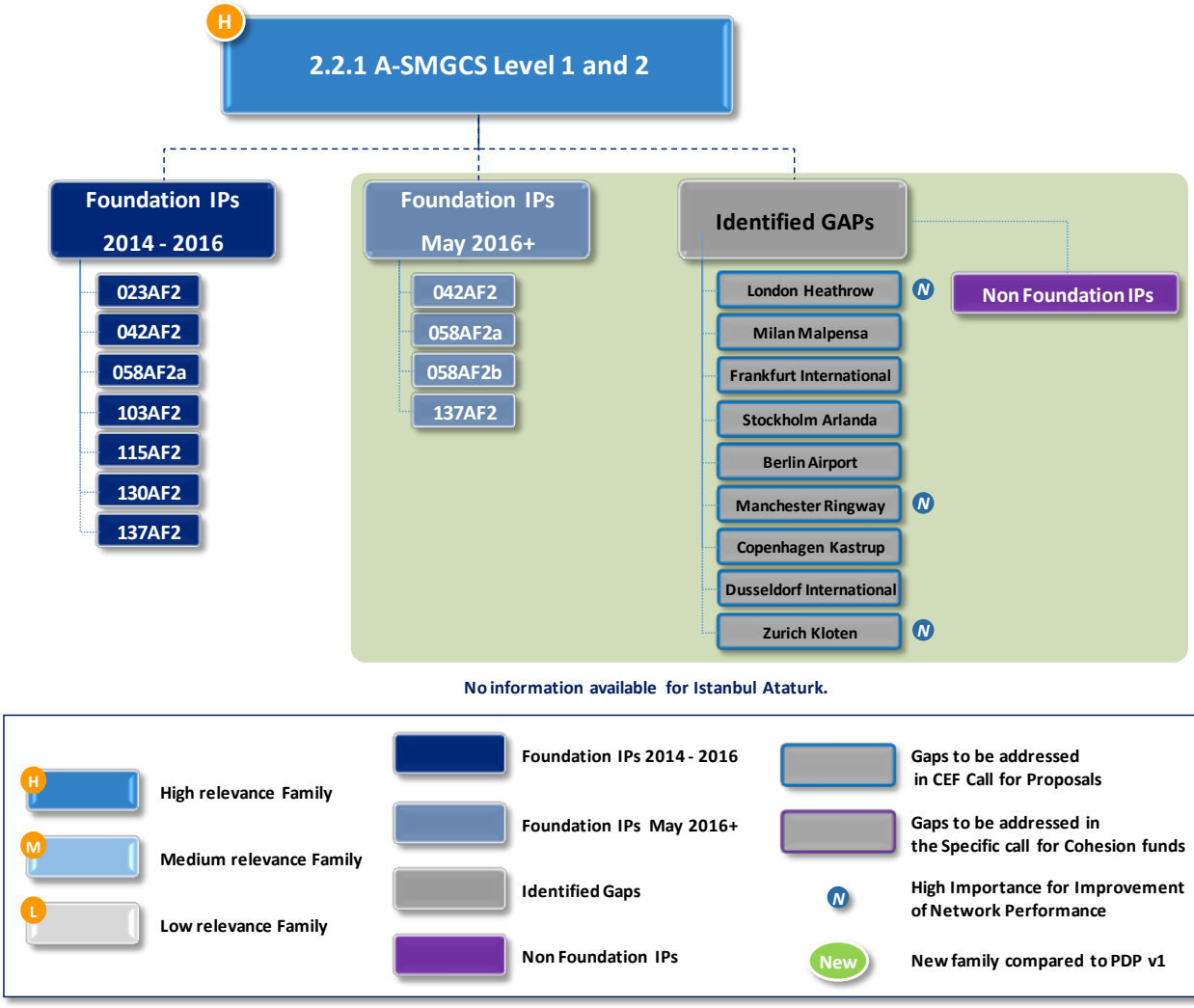


3.2.5 Family 2.2.1 – A-SMGCS level 1&2

Designator	2.2.1
Name	A-SMGCS level 1 & 2
Main Sub-AF	S-AF 2.2: DMAN Integrating Surface Management Constraints
Description and Scope	Advanced Surface Movement Guidance and Control System (A-SMGCS) is a system providing aerodrome surveillance as well as routing and guidance for the control of aircraft and vehicles in order to maintain the declared surface movement rate under all weather conditions within the aerodrome visibility operational level (AVOL) while maintaining the required level of safety. A-SMGCS level 1 provides ATC with the position and identity of: - All relevant aircraft within the movement area; - All relevant vehicles within the manoeuvring area. Traffic will be controlled through the use of appropriate procedures allowing the issuance of information and clearances to traffic on the basis of A-SMGCS level 1 surveillance data. A-SMGCS level 2 is a level 1 system complemented by the A-SMGCS function to detect potential conflicts on runways, taxiways and intrusions into restricted areas and provide the controllers with appropriate alerts. A-SMGCS integrates all surface information sources enhancing situational awareness. A-SMGCS level 1 is a prerequisite for A-SMGCS level 2. Ref S-AF2.2 - DMAN Integrating Surface Management Constraints: DMAN systems shall take account of variable and updated taxi times from A-SMGCS to calculate the TTOT and TSAT. Interfaces between DMAN and A-SMGCS routing shall be developed. Ref S-AF2.4 - A-SMGCS Routing and Planning Function shall provide an optimized taxi-route and improve predictability of take-off times by monitoring of real surface traffic (Family 2.2.1) and by considering updated taxi times in departure management. Ref S-AF2.5 - Airport Conformance Monitoring shall integrate A-SMGCS Surveillance data (Family 2.2.1), Surface Movement Routing and Planning (Family 2.4.1) and controller routing clearances. A-SMGCS shall include the advanced routing and planning function referred to in Sub AF 2.4 to enable conformance monitoring alerts. A-SMGCS shall include a function to generate and distribute the appropriate alerts. These alerts shall be implemented as an additional layer on top of the existing A-SMGCS level 2 alerts and not as a replacement for them. The departure sequence at the runway shall be optimized according to the real traffic situation reflecting any change off-gate or during taxi to the runway. A-SMGCS shall provide optimized taxi-time and improve predictability of take-off times by monitoring of real surface traffic and by considering updated taxi times in departure management regardless of meteorological or other impacting conditions.

Initial Operational Capability	Before 2014
Full Operational Capability	01/01/2021
References and guidance material	ATM Master Plan Level 2 (Dataset 14): TS-0202; AO-0205 ATM Master Plan Level 3 (Edition 2014): Link to AOP4.1 and AOP4.2
Concerned stakeholders	Civil ANSPs, Military ANSPs (if applicable), AO, AU
Geographical applicability	Geographical scope according to Annex 2.2.1/2.2.2of Commission Implementing Regulation (EU) N°716/2014
Synchronization	
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014
Industry Standards	ED-87C MASPS for Advanced Surface Movement Guidance and Control Systems (A-SMGCS) – Levels 1 and 2
Means of compliance and Certification or community specifications	ETSI EN 303 213-1 (CS on A-SMGCS System Level 1) ETSI EN 303 213-2 (CS on A-SMGCS System Level 2)
Interdependencies	S-AF 2.4 and S-AF 2.5, S-AF 2.1
Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	High
Recommendation for the IPs proposal	It is recommended to take into consideration the results of level 4 Gap analysis, as reported in the following Chart and within section 5.1.2.

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.

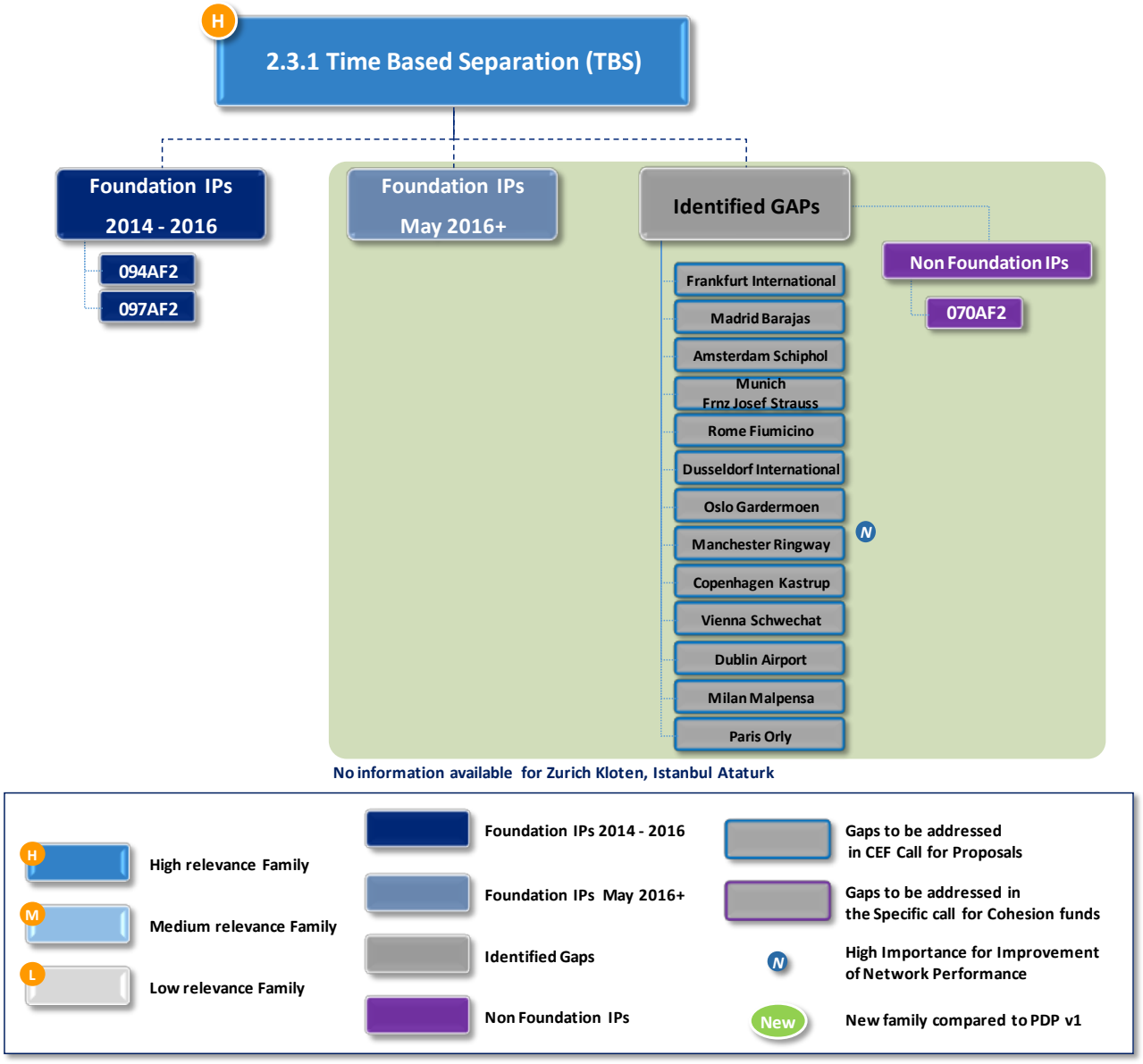


3.2.6 Family 2.3.1 – Time-based Separation (TBS)

Designator	2.3.1
Name	Time-based Separation (TBS)
Main Sub-AF	S-AF2.3 Time-based Separation
Description and Scope	Time-Based Separation (TBS) consists in the separation of aircraft in sequence on the approach to a runway using time intervals instead of distances. It may be applied during final approach by allowing equivalent distance information to be displayed to the controller taking account of prevailing wind conditions. Radar separation minima and Wake Turbulence Separation parameters shall be integrated in a TBS support tool providing guidance to the air traffic controller to enable time-based spacing of aircraft during final approach that considers the effect of the headwind. The TBS support tool shall integrate an automatic monitoring and alerting of separation infringement safety net. The objective is to recover loss in airport arrival capacity currently experienced in headwind conditions on final approach under distance-based wake turbulence radar separation rules. By using time-based parameters, this loss is mitigated, having a positive effect on runway throughput and runway queuing delays. Minimum radar separation is not affected. Whilst TBS operations are not exclusive to a headwind on final approach, the current deployment proposal is specifically targeted at realizing the potential capacity benefits in these currently constraining conditions. Radar separation minimum and new wake-vortex separation standards (such as RECAT) shall be integrated in the Time Based Separation support tool that provide guidance to the controller to achieve the time proposed spacing to counter the effect of the headwind.
Initial Operational Capability	01/01/2015
Full Operational Capability	01/01/2024
References and guidance material	ATM Master Plan Level 2 (Dataset 14): AO-0303 ATM Master Plan Level 3 (Edition 2014): None
Concerned stakeholders	Civil ANSPs, Military ANSPs (if applicable), AU
Geographical applicability	Geographical scope according to Annex 2.2.1/2.2.2of Commission Implementing Regulation (EU) N°716/2014

Synchronization	From a technical perspective the deployment of targeted system and procedural changes shall be synchronized in order to ensure that the performance objectives are met. This synchronization of investments shall involve multiple airport operators and air navigation service providers. Furthermore synchronization during the related industrialization phase shall take place, in particular among supply industry and standardization bodies.
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014
Industry Standards	None
Means of compliance and Certification or community specifications	None
Interdependencies	Interdependencies with 2.5.1 Airport Safety Nets
Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	High
Recommendation for the IPs proposal	It is recommended to take into consideration the results of level 4 Gap analysis, as reported in the following Chart and within section 5.1.2.

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.

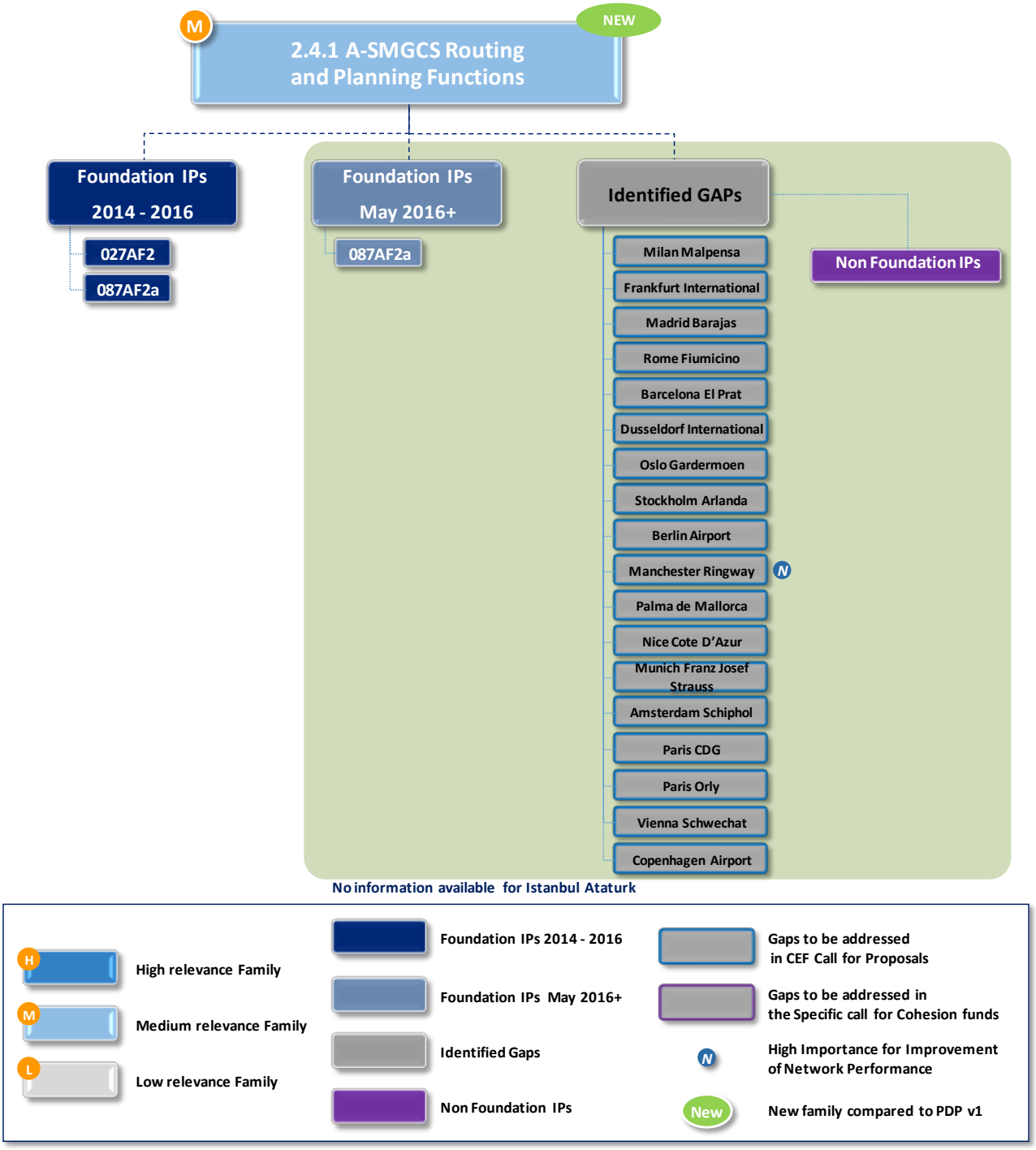


3.2.7 Family 2.4.1 – A-SMGCS Routing and Planning Functions

Designator	2.4.1
Name	A-SMGCS Routing and Planning Functions
Main Sub-AF	S-AF2.4 Automated Assistance to Controller for Surface Movement Planning and Routing
Description and Scope	Advanced Surface Movement Guidance and Control System (A-SMGCS) is a system providing aerodrome surveillance as well as routing and guidance for the control of aircraft and vehicles in order to maintain the declared surface movement rate under all weather conditions within the aerodrome visibility operational level (AVOL) while maintaining the required level of safety. A-SMGCS Routing and Planning Functions provide ATC with: - Optimised route designation for each aircraft or vehicle within the movement area; - The detection of all route conflicts on the movement area as well as improved routing and planning for use by controllers. Traffic will be controlled through the use of appropriate procedures allowing the issuance of information and clearances to traffic. A-SMGCS level 1 is a prerequisite to A-SMGCS Routing and Planning Functions. A-SMGCS Routing and Planning Functions integrate all surface information sources, enhance situational awareness and provide the controllers with appropriate alerts. A-SMGCS Routing and Planning functions will be accessible by a controller working position equipped with EFS (Family 2.1.2) on which the controller can both increase his situation awareness getting information such as route changes, runway changes, routes closed for maintenance, detection of route conflict and perform orders to update the routes, as well as defining route constraints in low visibility operational level.” Ref S-AF2.4 - Advanced Surface Movement Guidance and Control Systems (A-SMGCS) shall provide optimized taxi-time and improve predictability of take-off times by monitoring of real surface traffic and by considering updated taxi times in departure management. The routing and planning function shall calculate the most operationally relevant route as free as possible of conflicts which permits the aircraft to go from stand to runway, from runway to stand or any other surface movement. Ref S-AF2.5 - Airport Conformance Monitoring shall integrate A-SMGCS Surface Movement Routing, surveillance data and controller routing clearances. A-SMGCS shall include the advanced routing and planning function referred to in 2.1.4 to enable conformance monitoring alerts. A-SMGCS shall include a function to generate and distribute the appropriate alerts. These alerts shall be implemented as an additional layer on top of the existing A-SMGCS level 2 alerts and not as a replacement for them. " The implementation of 2.5.2 “Implement vehicle and aircraft systems contributing to airport safety nets” shall contribute to the Routing and Planning functions of A-SMGCS.

Initial Operational Capability	01/01/2016
Full Operational Capability	01/01/2024
References and guidance material	ATM Master Plan Level 2 (Dataset 14): AO-0205 ATM Master Plan Level 3 (Edition 2014): None
Concerned stakeholders	Civil ANSPs, Military ANSPs (if applicable), Airport Operators, Aircraft Operators.
Geographical applicability	Geographical scope according to Annex 2.2.1/2.2.2of Commission Implementing Regulation (EU) N°716/2014
Synchronization	A-SMGCS systems shall take into account A-CDM, DMAN, initial AMAN, AMAN and EFS information. Interfaces between DMAN and A-SMGCS Routing and Planning Functions shall be developed. DMAN integrating A-SMGCS constraints using a digital system, such as Electronic flight Strips (EFS) with an advanced A-SMGCS routing function shall be integrated into flight processing systems for departure sequencing and routing computation.
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014
Industry Standards	ED-87C MASPS for Advanced Surface Movement Guidance and Control Systems (A-SMGCS) – Levels 1 and 2
Means of compliance and Certification or community specifications	ETSI EN 303 213-1 (CS on A-SMGCS System Level 1) ETSI EN 303 213-2 (CS on A-SMGCS System Level 2)
Interdependencies	S-AF 2.2, S-AF 2.5, S-AF2.1
Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	Medium
Recommendation for the IPs proposal	It is recommended to take into consideration the results of level 4 Gap analysis, as reported in the following Chart and within section 5.1.2.

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.

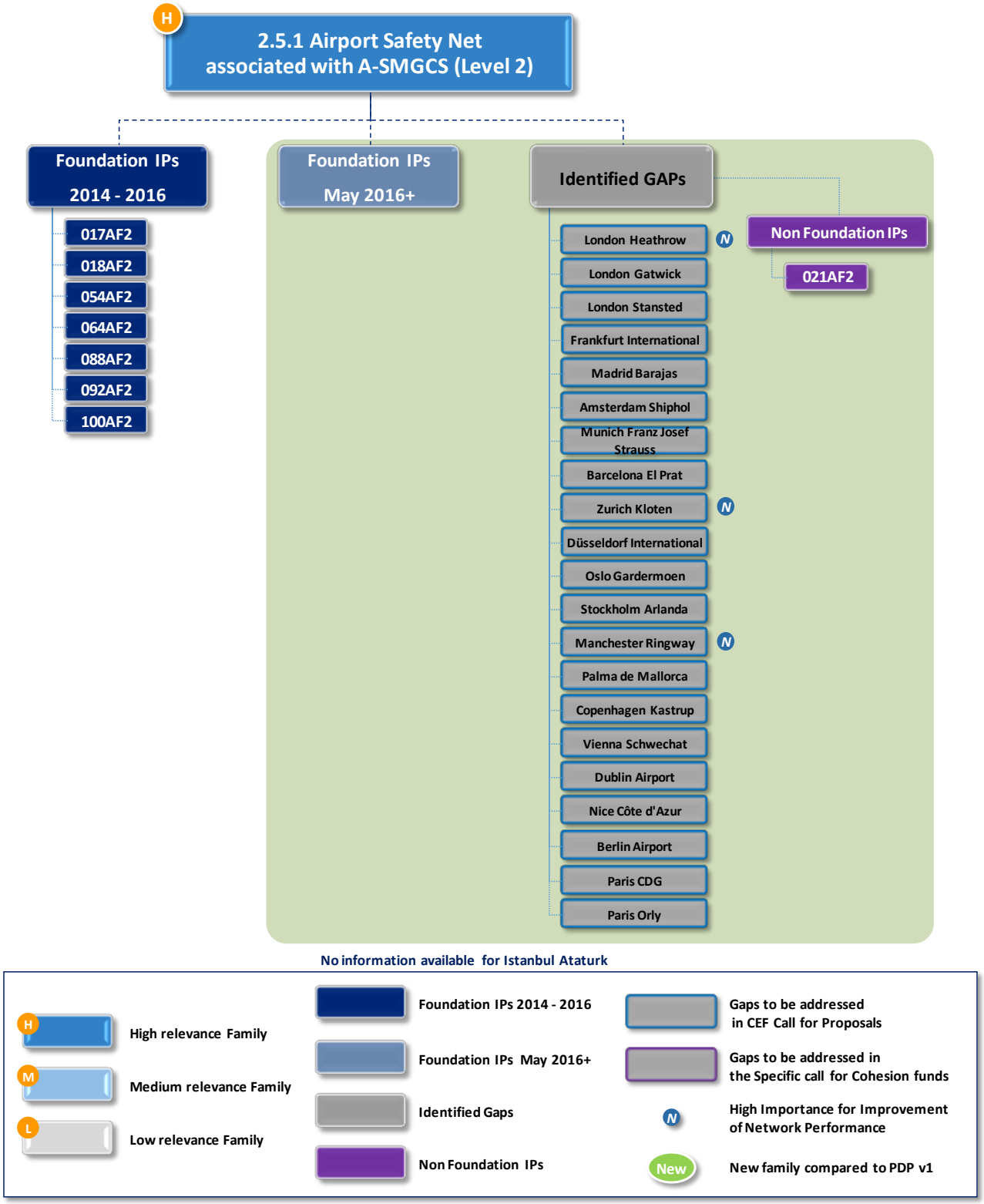


3.2.8 Family 2.5.1 – Airport Safety Nets associated with A-SMGCS level 2

Designator	2.5.1
Name	Airport Safety Nets associated with A-SMGCS level 2
Main Sub-AF	S-AF 2.5 Airport Safety Nets
Description and Scope	Airport safety nets consist of the detection and alerting of conflicting ATC clearances to aircraft and deviation of vehicles and aircraft from their instructions, procedures or routing which may potentially put the vehicles and aircraft at risk of a collision. The scope of this sub-functionality includes the Runway and Airfield Surface Movement area. ATC support tools at the aerodrome shall provide the detection of Conflicting ATC Clearances as well as deviations from ATC instructions, procedures or routes and shall be performed by the ATC system based on the knowledge of data including the clearances given to aircraft and vehicles by the air traffic controller, the assigned runway and holding point. The air traffic controller shall input all clearances given to aircraft or vehicles into the ATC system using a digital system, such as the EFS. Different types of conflicting clearances shall be identified (for example Line-Up vs. Take-Off). Some may only be based on the air traffic controller input; others may in addition use other data such as A-SMGCS surveillance data. Airport Safety Nets tools shall alert air traffic controllers when aircraft and vehicles deviate from ATC instructions, procedures or routes. The detection of Conflicting ATC Clearances shall aim to provide an early prediction of situations that if not corrected would end up in hazardous situations that would be detected in turn by the runway incursion monitoring system (RIMS) if in operation. Airport Safety Nets tools could be linked to equipment for vehicle drivers to improve situational awareness, reduce the risks of runway incursion, runway and taxiway confusions and thus contribute to the overall airport safety net for high-density airports
Initial Operational Capability	Before 2014
Full Operational Capability	01/01/2021
References and guidance material	ATM Master Plan Level 2 (Dataset 14): AO-0104-A ATM Master Plan Level 3 (Edition 2014): None
Concerned stakeholders	Civil ANSPs, Military ANSPs (if applicable), AO, AU
Geographical applicability	Geographical scope according to Annex 2.2.1/2.2.2of Commission Implementing Regulation (EU) N°716/2014

Synchronization	Ref. 2.2.1 A-SMGCS level 1-2, 2.1.2 EFS
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014
Industry Standards	ED-87 C MASPS for Advanced Surface Movement Guidance and Control Systems (A-SMGCS) – Levels 1 and 2
Means of compliance and Certification or community specifications	ETSI EN 303 213-1 (CS on A-SMGCS System Level 1) ETSI EN 303 213-2 (CS on A-SMGCS System Level 2)
Interdependencies	The implementation of the sub-functionality Airport Safety Nets requires the availability of the sub-functionality S-AF2.4 "Automated assistance to controllers for surface movement planning and routing (A-SMGCS level 2+)". Ref. 2.2.1 A-SMGCS level 1-2, and 2.1.2 EFS
Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	High
Recommendation for the IPs proposal	It is recommended to take into consideration the results of level 4 Gap analysis, as reported in the following Chart and within section 5.1.2. Multi stakeholder project proposals are preferred

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.

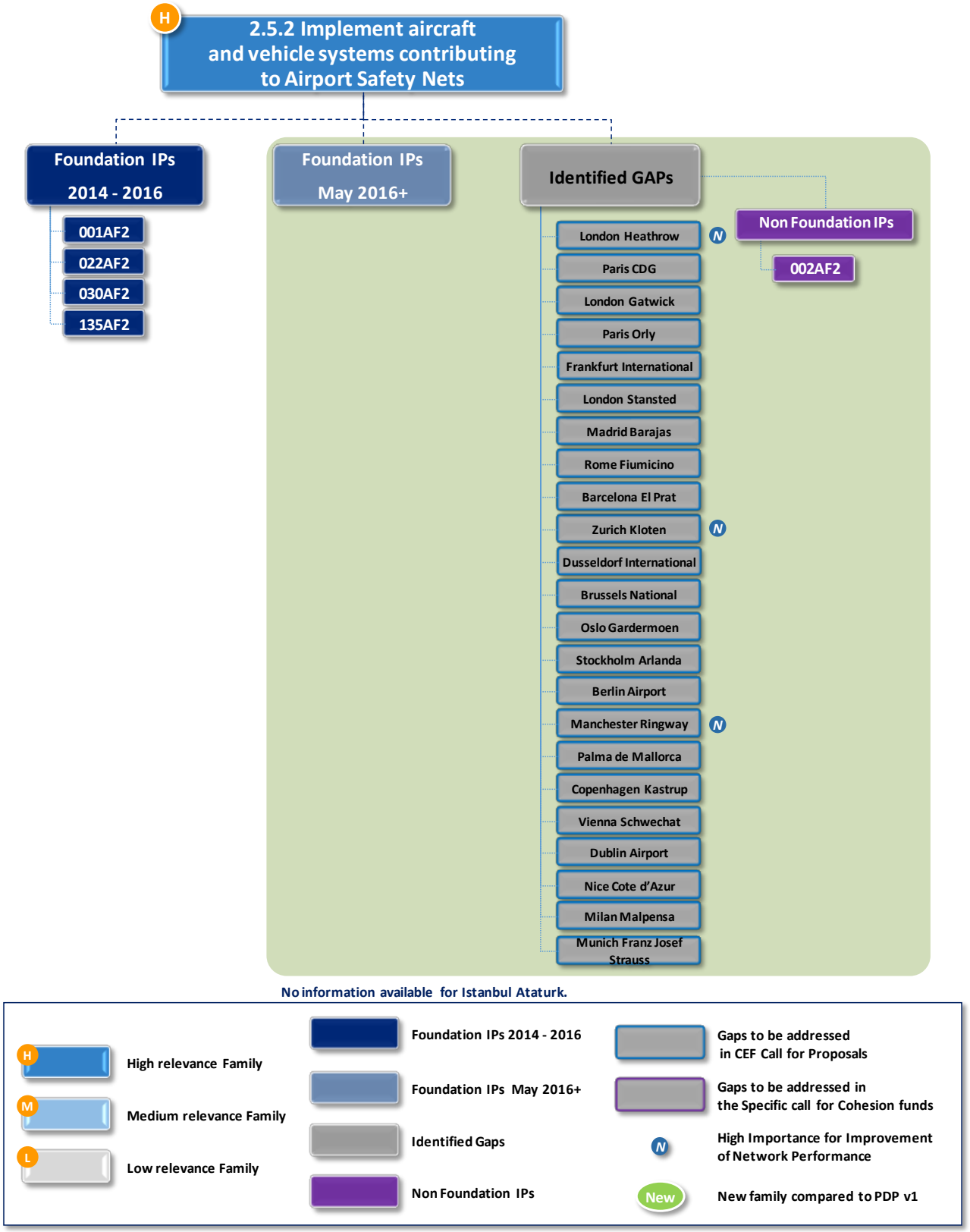


3.2.9 Family 2.5.2 – Implement vehicle and aircraft systems contributing to Airport Safety Nets

Designator	2.5.2
Name	Implement vehicle and aircraft systems contributing to Airport Safety Nets
Main Sub-AF	S-AF 2.5 Airport Safety Nets
Description and Scope	This family represents an enabler and a facilitator to the safety-focused PCP deployment. The objective is to equip 'aircraft' and 'vehicles' operating in the manoeuvring area of airports' with safety related systems to improve situational awareness, reduce the risks of runway incursion, runway confusion and runway excursions and thus contribute to the overall airport safety net for high-density airports. Airport safety nets consist of the detection and alerting of conflicting ATC clearances to aircraft and deviation of vehicles and aircraft from their instructions, procedures or routing which may potentially put the vehicles and aircraft at risk of a collision. The scope of this family/FT includes: - aircraft technology in the scope of avionic or electronic flight bag based systems with the objective to conclude the ground based airport safety net with specific airborne systems and technology; - ground transponder, on-board vehicles displays including on-board vehicles safety nets with the objective to support the ground based airport safety net with specific vehicle systems and technology. This leads to an improved situational awareness and thus improves the quality of the overall safety net. The main benefit is related to the increase of runway usage awareness, and consequently an increase of runway safety and of the whole airport manoeuvring area. On-board 'aircraft and vehicle' 'systems and technology' uses airport data coupled with on-board aircraft sensors to monitor the movement of aircraft and vehicles on the airport surface and provide relevant information to the drivers, the flight crew and the ATC. The on-board aircraft and vehicle systems detect potential and actual risk of collision with other traffic on the manoeuvring area and provide the drivers and the flight crew with the appropriate alert. An aircraft on-board airport safety net will improve safety in runway operations, mostly at airports where no safety net is provided to controllers. It should be noted that not all vehicles may need to be equipped. For instance during snow removal, it would probably be enough to only equip the lead and end vehicle.
Initial Operational Capability	Before 2014
Full Operational Capability	01/01/2021

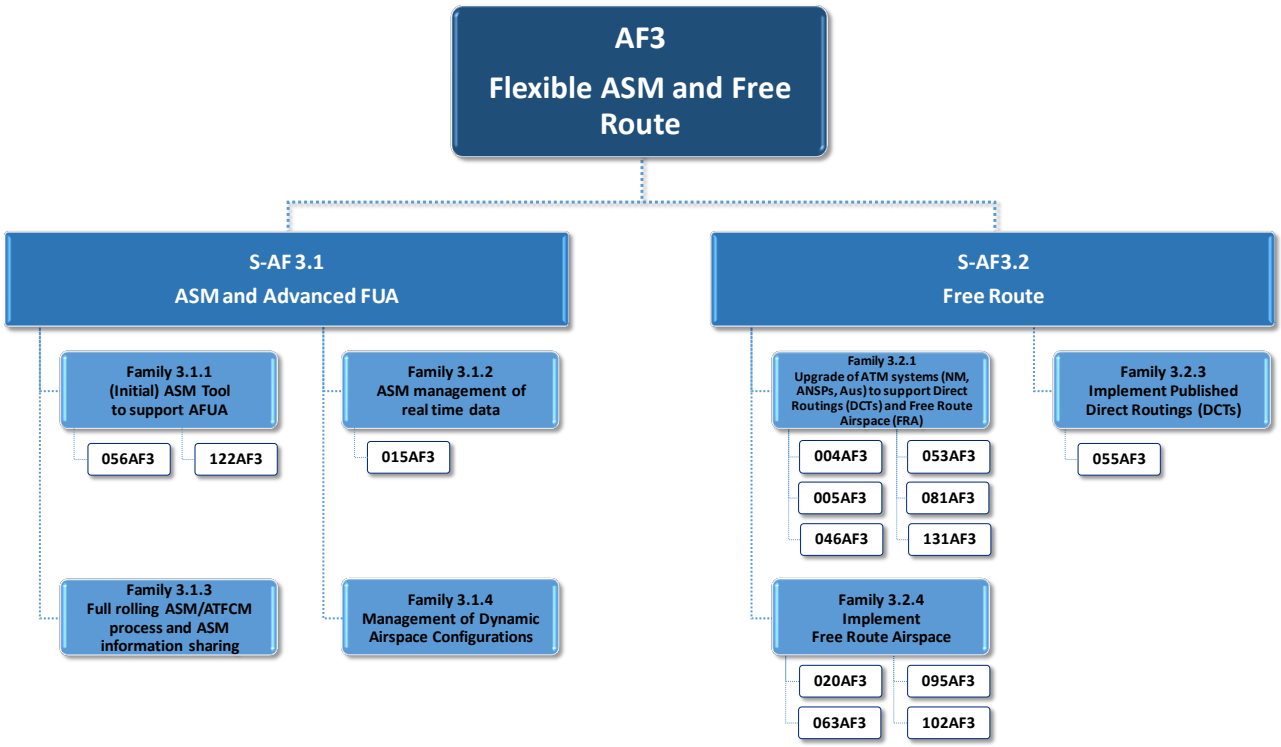
References and guidance material	ATM Master Plan Level 2 (Dataset 14):None ATM Master Plan Level 3 (Edition 2014): Link to AOP04.1 and AOP04.2
Concerned stakeholders	Civil ANSPs, Military ANSPs (if applicable), Airport Operators, Aircraft Operators
Geographical applicability	Geographical scope according to Annex 2.2.1/2.2.2 of Commission Implementing Regulation (EU) N°716/2014
Synchronization	Vehicle systems contributing to airport safety nets systems shall take account of A-SMGCS level 1 and level 2 systems. Vehicle systems contributing to airport safety nets systems shall take account of (NEW FAMILY) 2.4.1 A-SMGCS Routing and Planning Functions. Vehicle systems contributing to airport safety nets shall take account of A-SMGCS constraints using a digital system, such as Electronic flight Strips (EFS). There exists a risk of delay for the aircraft part in case timely industrialisation of on-board equipment related to SURF-IA and Take-off Monitoring/ Take-off Securing function is not taking place.
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014
Industry Standards	None
Means of compliance and Certification or community specifications	None
Interdependencies	S-AF 2.2, S-AF 2.4
Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	High
Recommendation for the IPs proposal	It is recommended to take into consideration the results of level 4 Gap analysis, as reported in the following Chart and within section 5.1.2. Multi Stakeholder project.

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.



3.3 AF #3 – Flexible ASM and Free Route

The following chart highlights all Families and Implementation projects (identified by their Reference Number) related to the AF #3, divided in sub-AFs.



The following table encompasses the list of all projects related to the AF #3. Further details for each Implementation Projects are provided within Annex A.

Reference Number	Title	Foundation	IP description Page Number
004AF3	AZA Traffic Flow Restriction (TFR) – LIDO planning system	No	137
005AF3	AZA FREE FLIGHT- DIRECT OPTIMIZATION	Yes	139
015AF3	LARA integration in CANAC 2: PHASE 1	Yes	141
020AF3	Borealis Free Route Airspace (Part 1)	Yes	143
046AF3	iTEC centre automation system (iCAS)	Yes	145
053AF3	4-Flight deployment in DSNA pilot ACCs	Yes	147
055AF3	FABEC Free Route Airspace project (FABEC FRA)	Yes	149
056AF3	ASM tool Implementation	Yes	151
063AF3	ENAV implementation of flexible ASM and Free Route	Yes	153
081AF3	NM DCT/FRA Implementation and support	Yes	155
095AF3	Implementation of FRA in Greece	Yes	157
102AF3	Free route airspace from the Black Forest to the Black Sea	Yes	159

Reference Number	Title	Foundation	IP description Page Number
122AF3	FT3.1.1 NAV Portugal - Initial ASM tool to support AFUA	Yes	161
131AF3	Upgrade of the P_21 PEGASUS system to support SESAR functionalities and to the iTEC products line	Yes	164

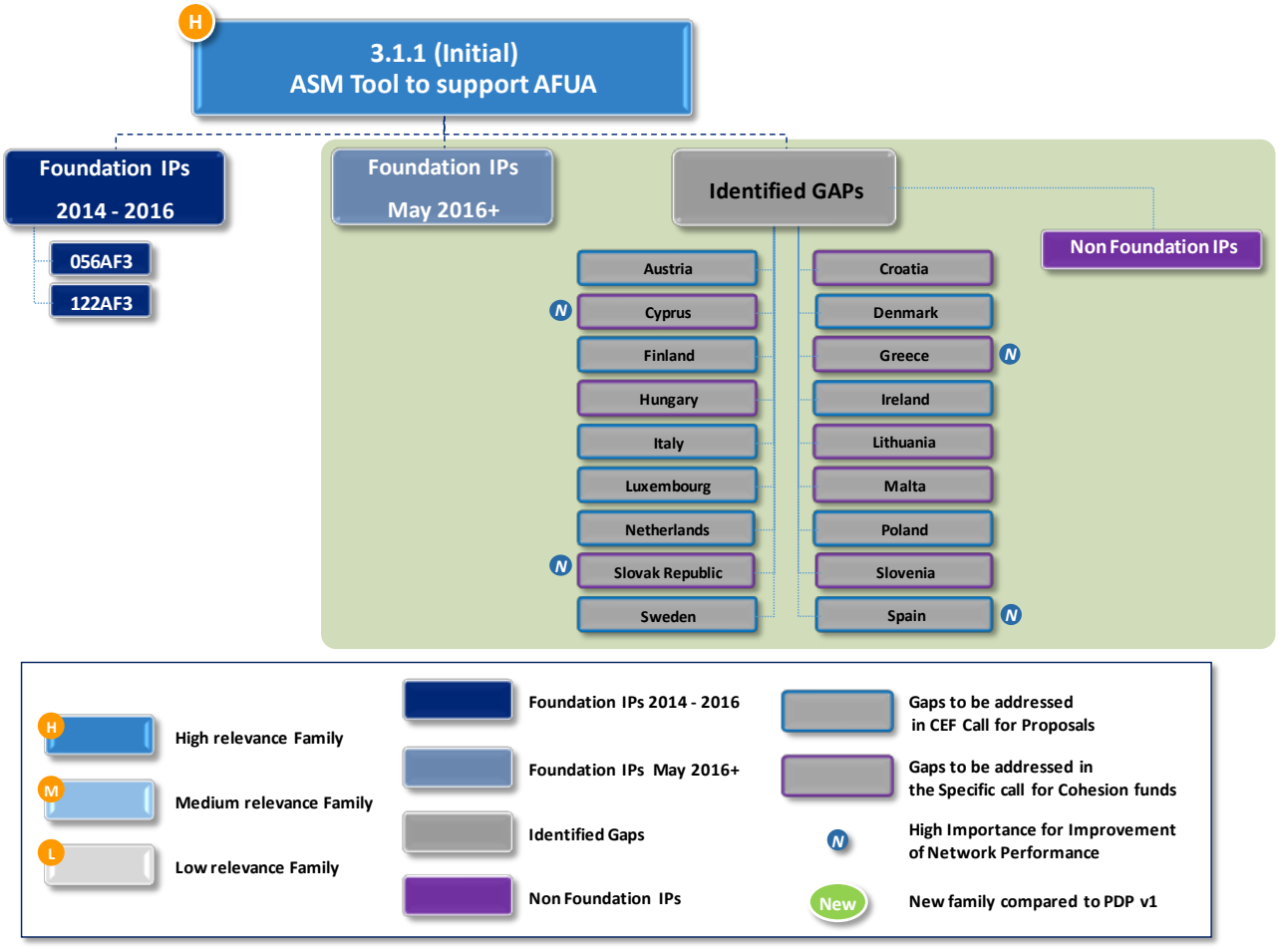
Table 4 – List of AF3 Implementation Projects (IPs)

3.3.1 Family 3.1.1 – (Initial) ASM tool to support AFUA

Designator	3.1.1
Name	(Initial) ASM tool to support AFUA
Main Sub-AF	s-AF 3.1 Airspace Management and Advanced Flexible Use of Airspace
Description and Scope	Deployment of automated ASM civil-military co-ordination systems and their interoperability with NM systems. Automated ASM support system shall: - improve airspace management processes including time horizon specifications by providing mutual visibility on civil and military requirements; - Support a flexible airspace planning according to ANSPs and airspace user requirements; - Address the strategic/long term, pre-tactical and tactical planning; - Be compatible for real time airspace status requirements - Be interoperable with NM systems using AIXM 5.1;
Initial Operational Capability	Before 2014
Full Operational Capability	01/01/2019
References and guidance material	ATM Master Plan Level 2 (Dataset 14): AOM-0202 (Baseline) ATM Master Plan Level 3 (Edition 2014): Link to AOM19, FCM05 NSP: SO 3/2 and SO 3/3 IDP: SWP 2.1.1 Network Manager – ERNIP Part 3 - Handbook for Airspace Management - Guidelines for Airspace Management - Edition Nov-2014
Concerned stakeholders	NM, Civil and Military ANSPs, National AMCs.
Geographical applicability	EU
Synchronization	Synchronisation between NM , National AMCs, Military AUs and Civil-Military ANSPs is required
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014 EU IR 2150/2005, EU IR 677/2011 as last amended by 970/2014
Industry Standards	None
Means of compliance and Certification or community specifications	Community Specifications for the application of the Flexible Use of Airspace (FUA)

Interdependencies	Prerequisite for: Fam. 3.1.2 ASM management of real time airspace data Fam. 3.1.3. Full rolling ASM/ATFCM process and ASM information sharing Interdependency with: S-AF5.3 Aeronautical information exchange S-AF 5.5 Cooperative Network Information Exchange
Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	High
Recommendation for the IPs proposal	This family covers the pre-requisite for 3.1.2 and 3.1.3. It is recommended to take into consideration the results of level 4 Gap analysis, as reported in the following Chart and within section 5.1.2.

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.

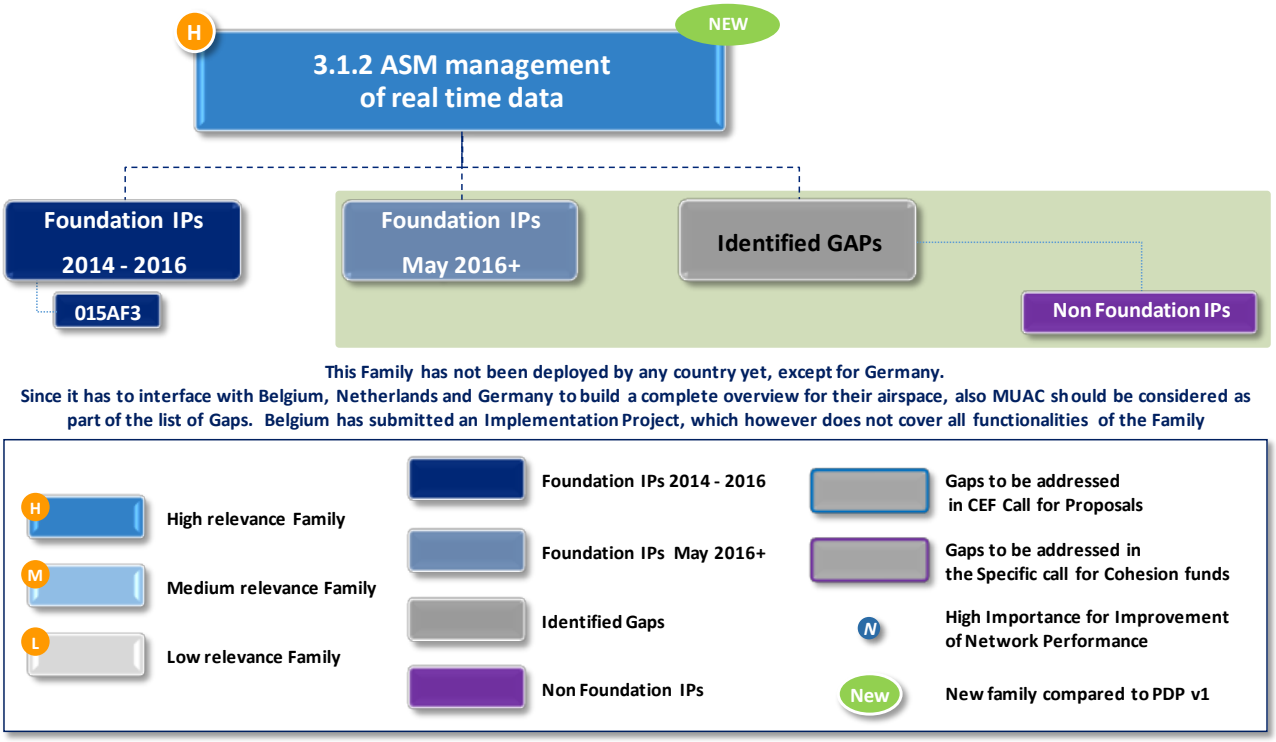


3.3.2 Family 3.1.2 – ASM Management of real time airspace data

Designator	3.1.2
Name	ASM management of real time airspace data
Main Sub-AF	s-AF 3.1 Airspace Management and Advanced Flexible Use of Airspace
Description and Scope	The airspace management (ASM) is enhanced by automated exchange services of ASM data during the tactical execution phases continuously in real time. ASM information (real-time ARES status) are shared between ASM systems, civil and military ATS units/systems and communicated to NM in the tactical and execution phases. This data, consisting of pre-notification of activation, notification of activation, de-activation, modification and release , is collected, saved, processed, is exchanged between ASM stakeholders and made available by the NM system to ATM actors and all airspace users not involved in ASM process but concerned by this data. The scope of this family encompasses: - System changes for exchange of real time airspace status data and integration of ASM data into ANSPs ATM system where required. - Full real time airspace status updates and integration of ASM data into ANSPs ATM system where required, in order to take early advantage of possible opportunities and/or to increase awareness of real-time airspace situation - Deployment of Variable Profiles Areas (VPA) - Interoperability with NM systems and between ASM systems
Initial Operational Capability	01/01/2017
Full Operational Capability	01/01/2022
References and guidance material	ATM Master Plan Level 2 (Dataset 14): AOM-0202-A ATM Master Plan Level 3 (Edition 2014): Link to AOM19, FCM05 NSP: SO 3/2 and SO 3/3 IDP: SWP 2.1.1 DIRECTIONS OF WORK FOR ENHANCING THE ASM/ATFCM/ATS PROCESSES IN THE SHORT TO MEDIUM TERM 2012-2017; Edition 1.0 Edition Date 14/11/11
Concerned stakeholders	NM, Civil and Military ANSPs, National AMCs, Military
Geographical applicability	EU
Synchronization	Synchronisation between NM , National AMCs, Military AUs and Civil-Military ANSPs is required

Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014 EU Implementing Regulation 2150/2005 EU Implementing Regulation 677/2011, as last amended by 970/2014
Industry Standards	None
Means of compliance and Certification or community specifications	Community Specifications for the application of the Flexible Use of Airspace (FUA)
Interdependencies	Pre-requisite for this family is family 3.1.1 - (Initial) ASM tool to support AFUA Other dependencies: Family 3.1.3 - Full rolling ASM/ATFCM process and ASM information sharing S-AF5.3 - Aeronautical information exchange S-AF5.5 - Cooperative Network Information Exchange
Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	High
Recommendation for the IPs proposal	The scope of this family might require changes in ATM systems and NM systems, which need to be undertaken after the deployment of ASM tools. It is recommended to take into consideration the results of level 4 Gap analysis, as reported in the following Chart and within section 5.1.2

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.



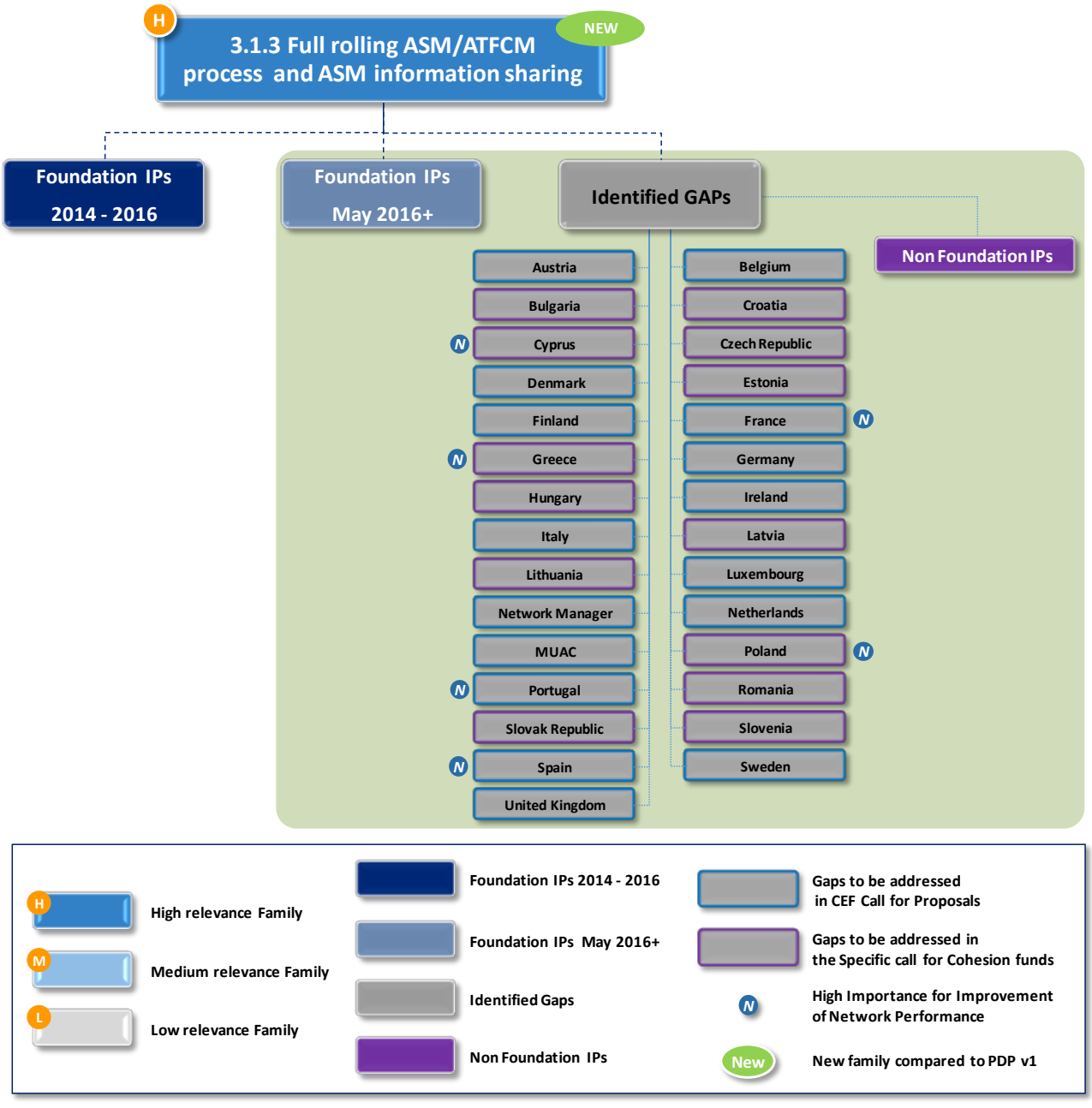
3.3.3 Family 3.1.3 – Full rolling ASM/ATFCM process and ASM information sharing

Designator	3.1.3
Name	Full rolling ASM/ATFCM process and ASM information sharing
Main Sub-AF	S-AF 3.1 Airspace Management and Advanced Flexible Use of Airspace
Description and Scope	This process focuses on airspace planning improvements and to ensure a continuous, seamless and reiterative planning, allocation and operational deployment of optimum airspace configurations, based on airspace request at any time period within both pre-tactical level 2 and tactical level 3. It will result in a rolling process, supporting the enhancement of the daily Network Operations Plan. This will allow airspace users to better take benefit from changes in airspace structures in real-time. This will be supported by the sharing of military airspace data and by continuously updating Airspace Reservation information and other civil demand information among the authorized users and approved agencies in order to enhance the coordination of Cross Border Operations including Cross Border Area, and to optimise the whole network operations based on the richest and most correct information. ASM information sharing addresses the required system support improvements able to ensure a seamless data flow and their management in the frame of the enhanced CDM process. It includes requirements aiming to improve the notification to airspace users based on automation of data exchange. The scope of this family encompasses: - Process/system upgrade supporting a full rolling ASM/ATFCM and dynamic ASM/ATFCM process, although some States with limited airspace booking needs may fully rely on NM system capabilities - Technical changes supporting Rolling AUP - Rolling UUP for procedure 3 - Initial implementation of FUA/EU restriction and FBZ in NM system and local/regional ASM systems - Full implementation of new AUP template - Define AIXM coding for the AUP changes introduced - Process/System changes for full management Airspace structure AUP/UUP - Process/System changes for initial CDM - Process/System changes relevant to CDM for FRA impact assessment on network - Harmonise cross border CDRs notifications - Harmonisation of areas notifications - Implement Graphical display of AUP/UUP on NOP Portal (with lateral/vertical limits indication) - Process/system improvements supporting sharing of information of airspace configuration via AUP/UUP - ASM management and data sharing shall be addressed also to an environment where airspace is managed dynamically

	with no fixed-route network - ASM systems adapted to continuously exchange ASM information. - AU system upgrades for ASM data sharing
Initial Operational Capability	Before 2014
Full Operational Capability	01/01/2022
References and guidance material	ATM Master Plan Level 2 (Dataset 14): AOM-0206-A (very limited to military airspace requirements); AOM-0202-A ATM Master Plan Level 3 (Edition 2014): Link to AOM19 NSP: SO 3/2 and SO 3/3 IDP: SWP 2.1.2 Network Manager ERNIP Part 3 - Handbook for Airspace Management - Guidelines for Airspace Management; Edition 5.1; Edition date: 23/10/2014 NOP User Guide; Edition :19.0-92 Date:25/03/2015
Concerned stakeholders	NM, Civil and Military ANSPs, National AMCs, AUs where applicable
Geographical applicability	EU
Synchronization	Synchronisation between NM, National AMCs, AUs and Civil-Military ANSPs is required
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014 EU Implementing Regulation 2150/2005 EU Implementing Regulation 677/2011, as last amended by 970/2014
Industry Standards	None
Means of compliance and Certification or community specifications	Community Specifications for the application of the Flexible Use of Airspace (FUA)
Interdependencies	Fam. 3.1.1 – (Initial) ASM tool to support AFUA (prerequisite) Fam. 3.1.2 – ASM management of real-time data Fam. 3.1.4 - Management of dynamic airspace configurations S-AF 5.3 - Aeronautical Information Exchange S-AF 5.5 – Cooperative Network Information Exchange Family supports –as stated in the PCP IR – the introduction of DCT and FRA
Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	High

Recommendation for the IPs proposal	This family is a key feature for the European airspace planning process. States that are not providing AUP and/or UUP info to NM should be the first to submit proposals for 2015 CEF call. NM should submit proposal for new AUP/UUP template and full rolling ASM/ATFCM process. It is recommended to take into consideration the results of level 4 Gap analysis, as reported in the following Chart and within section 5.1.2.

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.

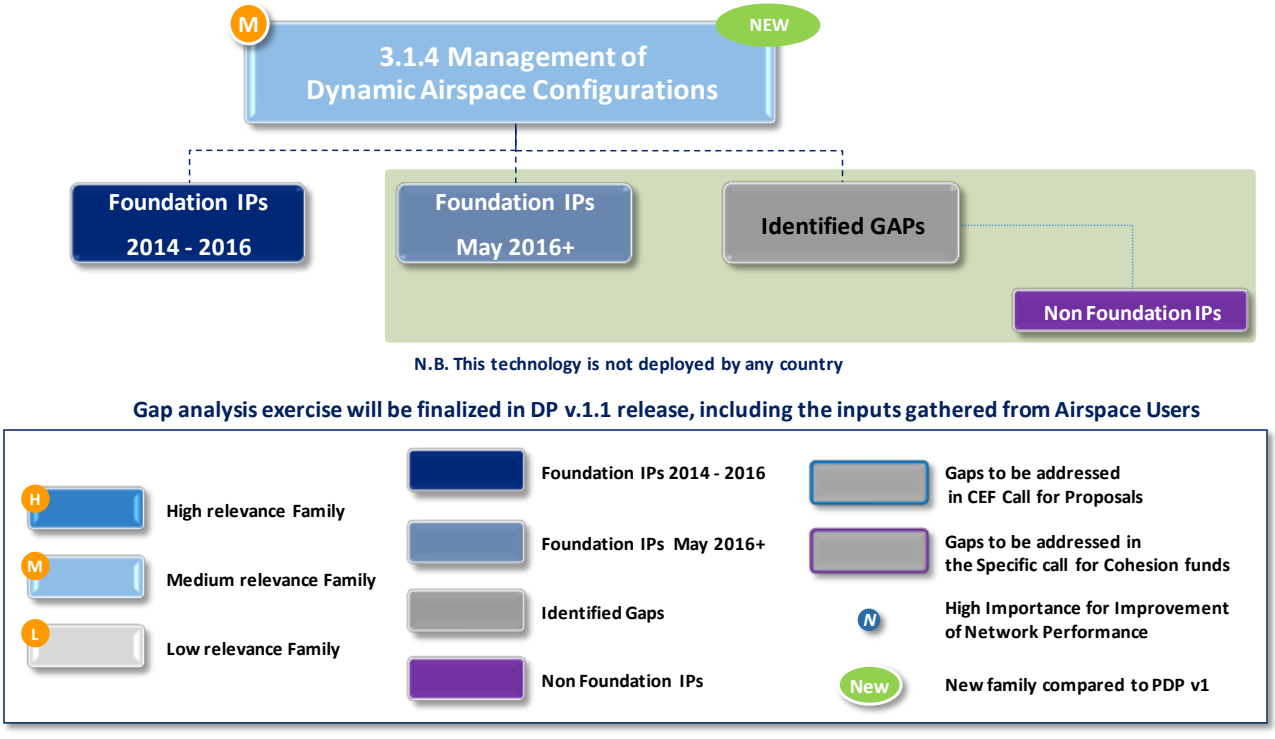


3.3.4 Family 3.1.4 – Management of dynamic airspace configurations

Designator	3.1.4
Name	Management of dynamic airspace configurations
Main Sub-AF	s-AF 3.1 Airspace Management and Advanced Flexible Use of Airspace
Description and Scope	The ASM solutions process is aimed at delivering ASM options that can help alleviating capacity problems identified in any particular area of European airspace as well as improve flight efficiency ensuring synchronised availability of airspace structures according to traffic demand. Dynamic Airspace Configuration focuses on defining a reference Dynamic Airspace Configuration concept, including roles and responsibilities in an advanced CDM process. The ASM performance analysis should assess the flight efficiency gains resulting from the rolling ASM/ATFCM process implementation. The Capacity aspects need also to be addressed. The scope of this family encompasses: - Improved ASM solution process - Process/System changes for predefined airspace configurations including DCTs and FRA - System improvements supporting the management of dynamic airspace configuration including DCTs and FRA - Implement supporting tools for ASM performance analysis
Initial Operational Capability	01/01/2017
Full Operational Capability	01/01/2022
References and guidance material	ATM Master Plan Level 2 (Dataset 14):CM-0102-A ATM Master Plan Level 3 (Edition 2014): None NSP: SO 3/2 and SO 3/3 IDP: SWP 2.1.2
Concerned stakeholders	NM, Civil and Military ANSPs, National AMCs, AUs if applicable
Geographical applicability	EU
Synchronization	Synchronisation between NM, National AMCs, Civil and Military AUs and Civil-Military ANSPs is required.
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014
Industry Standards	None

Means of compliance and Certification or community specifications	None
Interdependencies	Pre-requisite: Fam. 3.1.3 – Full rolling ASM/ATFCM process and ASM information sharing Other dependencies: the rest of AF 3.1 families
Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	Medium
Recommendation for the IPs proposal	The deployment of predefined airspace configuration could start from the beginning of 2017 onwards. IP proposals should be focused on the ASM solutions process while the predefined airspace configuration should be address at the level of concept and studies. It is recommended to take into consideration the results of level 4 Gap analysis, as reported in the following Chart and within section 5.1.2.

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.



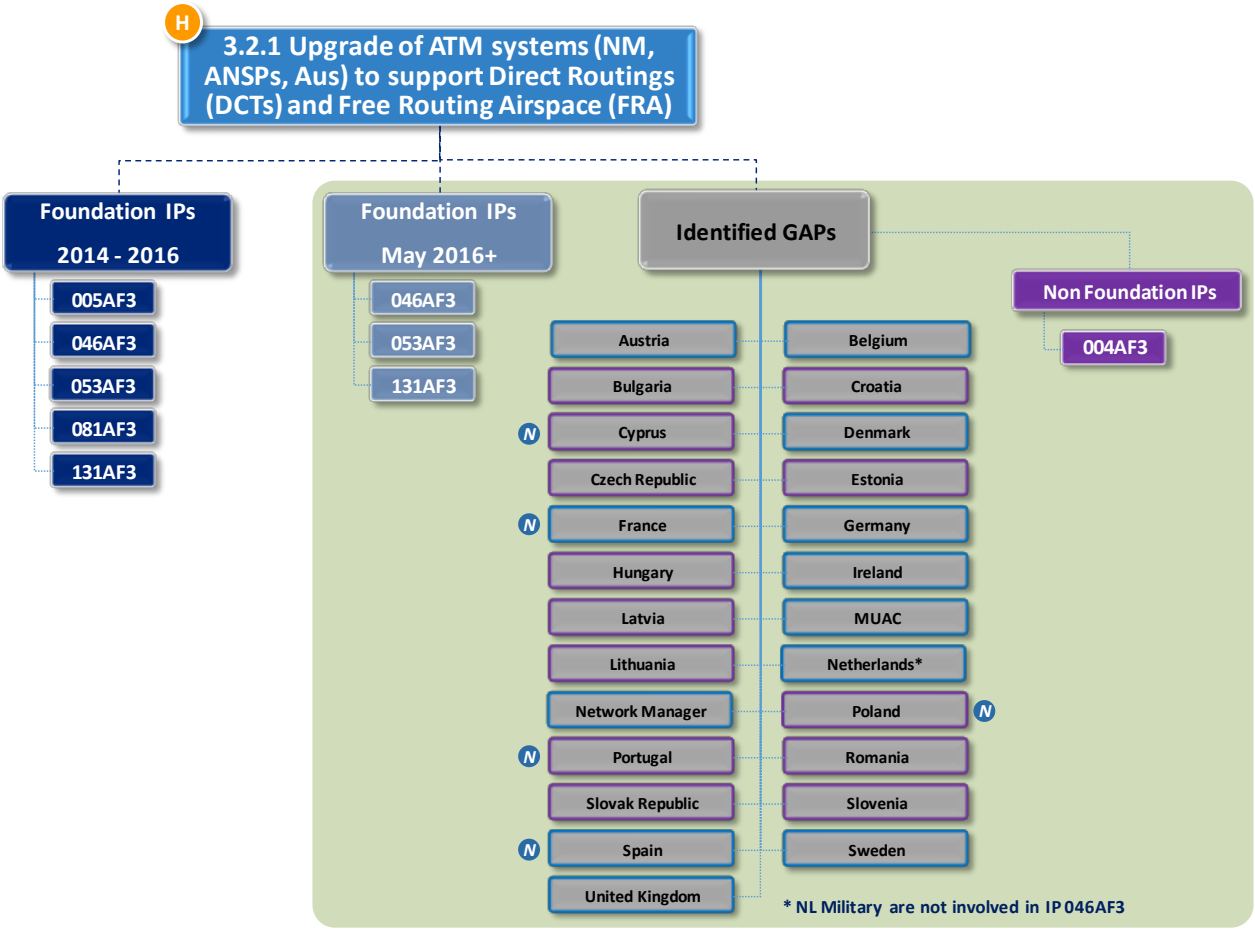
3.3.5 Family 3.2.1 – Upgrade of ATM systems (NM, ANSPs, AUs) to support Direct Routings (DCTs) and Free Routing Airspace (FRA)

Designator	3.2.1
Name	Upgrade of ATM systems (NM, ANSPs, AUs) to support Direct Routings(DCTs) and Free Routing Airspace (FRA)
Main Sub-AF	s-AF 3.2 Free route
Description and Scope	NM systems have been upgraded to support Direct routing operations. Only some corrections and tuning are required for DCTs. For national, regional and Pan-European FRA deployment, the NM System upgrades are required mainly related to: - CACD environmental database - Introduce B2B interoperability - Network Impact assessment in FRA - Specific ASM improvements and/or new functions specific for FRA The NM system upgrades related to dynamic re-routing, ATFCM planning and execution and traffic load management are part of AF 4 families, namely 4.1.2 and 4.4.2. The AU flight plan filing systems should be upgraded (e.g. to support long DCT segments and handling of LAT/LONG, if required). Specific attention should be given to the management of any ASM/ATFCM constraint in a FRA environment, and to the necessary standardisation of free route implementation concerning the flight planning requirements. The ANSP system upgrades include the FDPS, the Controller Working Position (CWP) and the HMI which should support DCTs/FRA with environment and trajectory management. Although these requirements do not make a direct reference to Multi-Sector Planner (MSP) function, the indirect links do exist and MSP deployment in the context of DCTs/FRA should be considered. Upgrades can be clustered in 3 phases: 1) The upgrades of ATM system for cross border DCTs should encompass: - MTCD (detecting conflict between A/C and A/C against the reserved airspace) - MONA (Monitoring Aids) - ATC to ATC Flight Data Exchange (Basic OLDI and SYSCO) - FDP to calculate ground 4D trajectories within AoI - ATC clearances beyond AoR - Dynamic Sectorization and Constraint Management tools 2) The upgrades of ATM system for State /Regional FRA deployment should encompass the cross-border DCT ATM system upgrades plus: - COP management for FRA - Editing function for 4D trajectories including Cross AoR Points - CORA (conflict probe and passive conflict resolution advisor) - Dynamic Area Proximity Warning (APW)- Integration with ASM tools

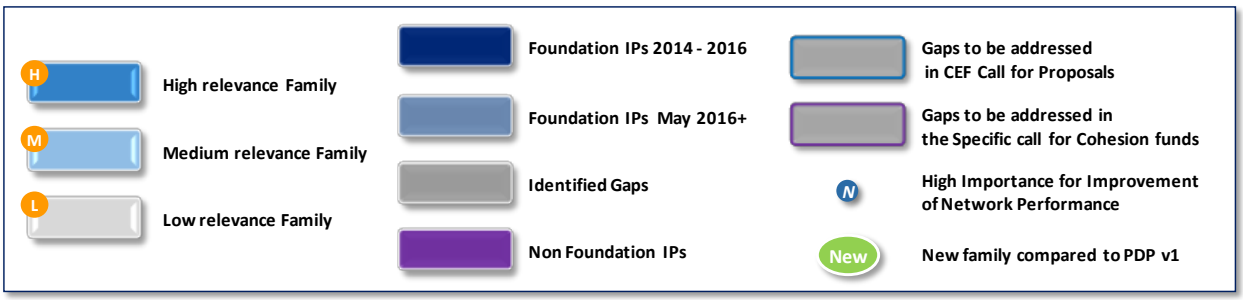
	- Provision/integration of FP and real time data related to the FRA traffic to the Military ATS units - Enhance Conflict Management and Controller HMI functions to support conflict detection and resolution - Tactical Controller Tool (TCT), using the tactical trajectory and managing the clearances along that trajectory 3) The upgrades of ATM system for Pan-European FRA deployment should encompass the cross-border DCT/ National Regional ATM system upgrades plus: - CPDLC handling of LAT/LONG - COP management for FRA supporting Cross Border COP handling - Tactical Controller Tool (TCT), managing the Cross Border clearances
Initial Operational Capability	Before 2014
Full Operational Capability	01/01/2022
References and guidance material	ATM Master Plan Level 2 (Dataset 14): CM-0202 (baseline);CM-0203 (baseline) ATM Master Plan Level 3 (Edition 2014): None NSP: SO 3/1 SO 4/1 IDP WP2.3.1 WP5.2
Concerned stakeholders	NM, civil/military ANSP, civil/military AUs where applicable, AMC where applicable
Geographical applicability	Free Route shall be provided and operated in the airspace in the ICAO EUR region for which the Member States are responsible.
Synchronization	Synchronisation between NM, AU and ANSPs is required. Between ANSP, synchronisation is only needed for cross border operation (Cross border DCTs, Regional and Pan-European FRA).
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014
Industry Standards	None
Means of compliance and Certification or community specifications	Community Specifications for On-Line Data Interchange (OLDI) edition 4.2
Interdependencies	Pre-requisite for: - 3.2.3 – Implement published Direct Routings - 3.2.4 - Implement Free Route Airspace Linked with: - 4.1.2 STAM phase 2 - 4.4.2 Traffic Complexity tools

	For some modifications (including MSP) Linked with - Sub AF 1.1 Arrival management extended to en-route airspace - Sub AF 1.2 Enhanced Terminal Airspace using RNP Based Operations Interdependencies with - G/G data communications as specified in AF5 and - A/G Datalink capability as specified in AF6 are facilitators for the full FRA implementation.
Relevance for 2015 CEF Calls for Proposals	High
Recommendation for the IPs proposal	It is recommendable that ANSPs, NM and AU should submit IPs for procurement/upgrade of their systems for DCT/FRA operations, especially those system upgrades related to cross border DCTs. The stakeholders that deployed the system upgrades related to DCT should be encouraged to consider further upgrades related to the National/Regional and Pan-European FRA deployment. It is recommended to take into consideration the results of level 4 Gap analysis, as reported in the following Chart and within section 5.1.2.

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.



N.B. Belgium and Luxembourg currently do not provide ATS above FL 310. However, Belgocontrol's participation to the FABEC FRA project (055AF3) implies that changes to the Belgocontrol FDP will be necessary, subject of future implementation projects

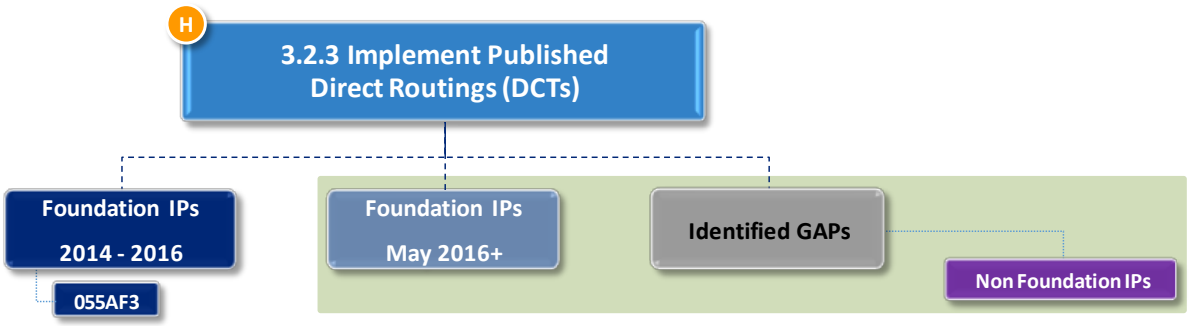


3.3.6 Family 3.2.3 – Implement Published Direct Routings (DCTs)

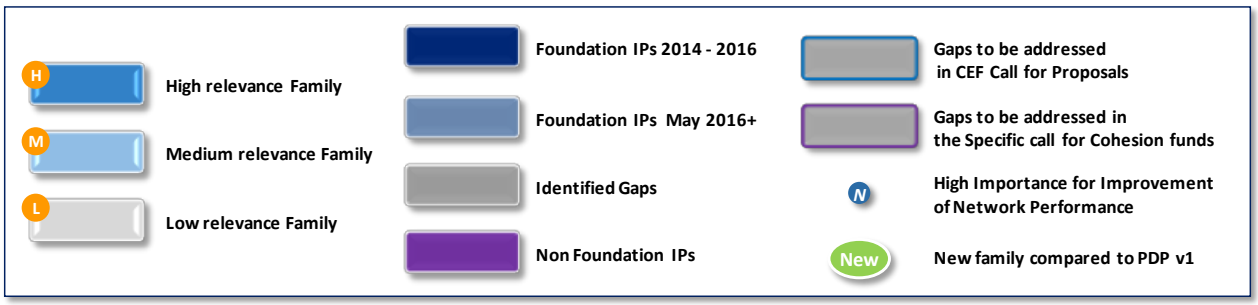
Designator	3.2.3
Name	Implement published Direct Routings (DCTs)
Main Sub-AF	s-AF 3.2 Free Route
Description and Scope	Free Route is an operational concept that enables airspace users to fly as close as possible to what they consider the optimal trajectory without the constraints of fixed route network structure. *"Free Route may be deployed both through the use of Direct Routing Airspace and Free Route Airspace (FRA). Direct Routing Airspace is the airspace defined laterally and vertically with a set of entry/exit conditions where published direct routings are available.* *It will allow airspace users to flight plan on the basis of those published DCTs."* Implementation of Direct Routing Airspace (DCTs) is not mandatory and represents a first step towards Free Route Airspace implementation in a moment where full deployment may not be the best solution in terms of performances. DCTs may be implemented within a State or between States on a cross border basis. Within this airspace, flights remain subject to air traffic control. DCTs shall be published in aeronautical publications as described in the European Route Network Improvement Plan (ERNIP) of the Network Manager. To facilitate early implementation before the target deployment date**,** DCTs could be implemented in a limited way e.g.: - Time constraint (fixed or depending on traffic/availability) - Traffic Constraint (based on flow and/or level of traffic) - Flight level - Lateral Constraints. - Entry/exit conditions
Initial Operational Capability	Before 2014
Full Operational Capability	01/01/2018
References and guidance material	ATM Master Plan Level 2 (Dataset 14): AOM-0500 ATM Master Plan Level 3 (Edition 2014): None NSP: SO 3/1 IDP: WP2.3.1

	Network Manager - European Route Network Improvement Plan (ERNIP) Part 2 - European ATS Route Network -Version 8 (2013-2015); Edition June 2013 Network Manager - European Route Network Improvement Plan (ERNIP) Part 4 - Route Availability Document User's Manual; Edition June 2014
Concerned stakeholders	Civil/military ANSP, Civil/Military AUs, NM
Geographical applicability	DCTs shall be provided and operated in the airspace for which the concerned Member States are responsible at and above flight level 310.
Synchronization	There is the need to coordinate/synchronize efforts (operational procedures) between ANSPs, NM and Airspace users to ensure the return of investment and/or the start of operational benefits. Coordinated activities for cross-border DCT implementation at FAB and inter-FAB level are required. The implementation of DCTs is harmonized through the NM European Route Network Improvement Plan (ERNIP) and the Network Operations Plan following the Strategic Objectives and Targets set in the Network Strategic Plan and in the Network Manager Performance Plan.
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014 EU IR 2150/2005, EU IR 677/2011 as last amended by 970/2014
Industry Standards	None
Means of compliance and Certification or community specifications	None
Interdependencies	The implementation of DCTs is often dependent on airspace design and in particular airspace reservations involving civil/military coordination. S-AF-3.1 ASM and Advanced FUA Fam. 3.2.1 - Upgrade of ATM systems (NM, ANSPs, AUs) to support DCTs and FRA (Prerequisite)
Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	High.
Recommendation for the IPs proposal	DCTs deadline is 1 January 2018. States that fully deployed FRA or planned to deploy FRA should not submit IPs for this family. It is recommended to take into consideration the results of level 4 Gap analysis, as reported in the following Chart and within section 5.1.2.

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.



N.B. H24 DCT has been implemented in Croatia (over FL 325), Czech Republic (over FL 245), Germany, Italy (over FL 365), Poland (part of airspace), Slovenia. All other countries should therefore be considered as Gaps for the Direct Routing implementation, except for those countries that already deployed or have planned to deploy Free Route Airspace

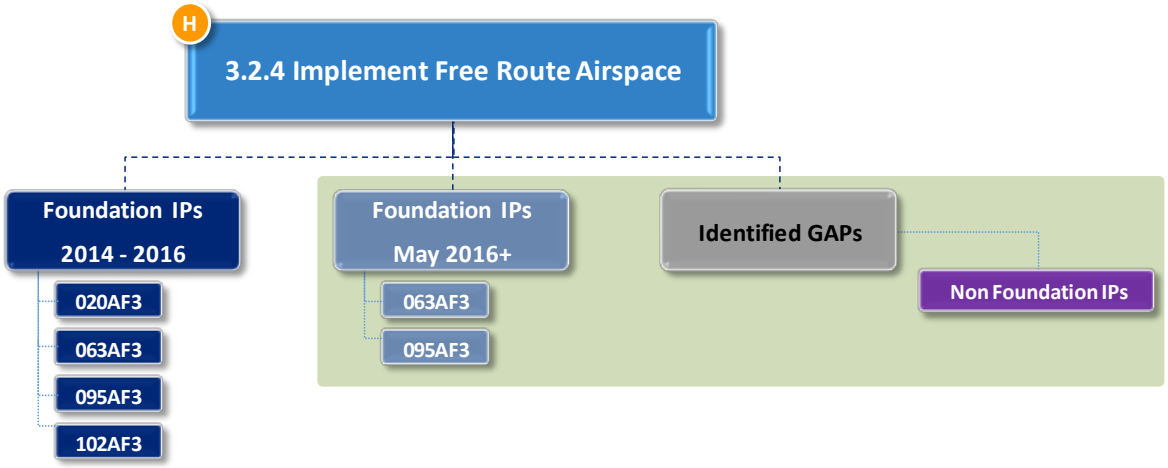


3.3.7 Family 3.2.4 – Implement Free Route Airspace

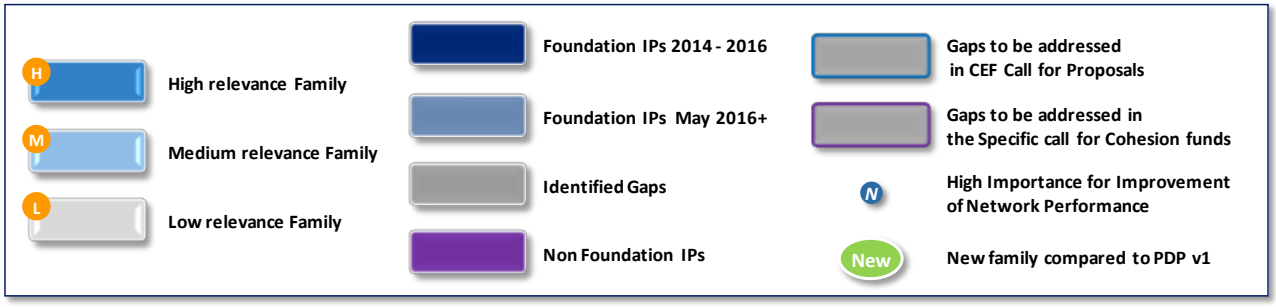
Designator	3.2.4
Name	Implement Free Route Airspace
Main Sub-AF	s-AF3.2 Free Route
Description and Scope	Free Route is an operational concept that enables airspace users to fly as close as possible to what they consider the optimal trajectory without the constraints of fixed route network structure. *"Free Route may be deployed both through the use of Direct Routing Airspace and Free Route Airspace (FRA). "* Free Route Airspace (FRA) is a specified airspace within which users may freely plan a route between a defined entry point and a defined exit point, with the possibility to route via intermediate (published or unpublished) waypoints, without reference to the ATS route network, subject to airspace availability. Within this airspace, flights remain subject to air traffic control. To facilitate an early implementation before the target deployment date, FRA could be implemented in a limited way. This may be done by defining FRA: - laterally and vertically; - during specific periods; - with a set of entry/exit conditions FRA shall be published in aeronautical publications as described in the European Route Network Improvement Plan of the Network Manager. FRA deployment may start at the national level, progressing to FAB Regional finally Pan-European level deployment. The implementation of FRA operations should be based on performance indicators.
Initial Operational Capability	Before 2014
Full Operational Capability	01/01/2022
References and guidance material	ATM Master Plan Level 2 (Dataset 14): AOM-0502; AOM-0501 ATM Master Plan Level 3 (Edition 2014): None NSP: SO 3/1 IDP: WP2.3.1 European Route Network Improvement Plan Part 1; European Airspace Design Methodology - Guidelines; Edition Nov. 2014 Network Manager - European Route Network Improvement Plan (ERNIP) Part 2 - European ATS Route Network -Version 8 (2013-2015); Edition June 2013.

	Network Manager - European Route Network Improvement Plan (ERNIP) Part 4 - Route Availability Document User's Manual; Edition June 2014
Concerned stakeholders	NM, Civil/Military ANSP, civil/military Aus
Geographical applicability	Free Route Airspace shall be provided and operated in the airspace for which the concerned Member States are responsible at and above flight level 310.
Synchronization	There is the need to coordinate/synchronize efforts (operational procedure and aircraft capabilities) between ANSPs, NM, Military and Airspace Users to ensure the return of investment and/or the start of operational benefits. Coordinated activities and implementation at State, FAB, Regional and Pan-European level are required. The implementation of FRA is harmonized through the NM European Route Network Improvement Plan (ERNIP) and the Network Operations Plan following the Strategic Objectives and Targets set in the Network Strategic Plan and in the Network Manager Performance Plan. Free Route implementation strategy is a local decision coordinated at Network, FAB and Regional level.
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014
Industry Standards	None
Means of compliance and Certification or community specifications	None
Interdependencies	The implementation of FRA is dependent on airspace design and in particular airspace reservations involving civil/military coordination. S-AF-3.1 – ASM and Advanced FUA Fam. 3.2.1 - Upgrade of ATM systems (NM, ANSPs, AUs) to support DCTs and FRA (Prerequisite)
Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	High
Recommendation for the IPs proposal	Large scales FRA deployments like the regional ones are recommendable, as it could lead to a Pan-European FRA deployment. It is recommended to take into consideration the results of level 4 Gap analysis, as reported in the following Chart and within section 5.1.2

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.

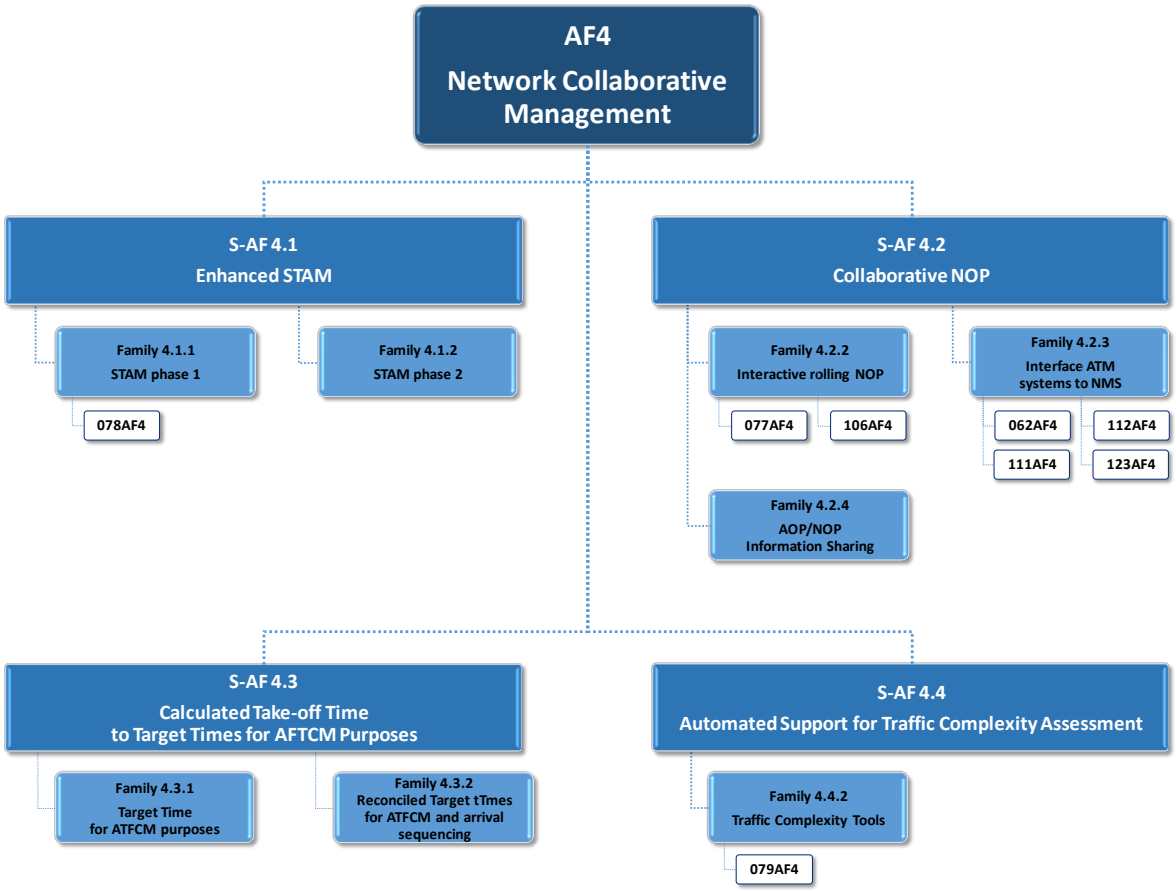


N.B. H24 FRA has been implemented in Hungary, Ireland, Portugal, Spain (only Santiago and Asturias in Madrid FIR), Sweden and Denmark (over FL 285) and is listed for 2015 in Cyprus, as well as in the NEFAB. All other countries should therefore be considered as Gaps in the Free Route Implementation



3.4 AF #4 – Network Collaborative Management

The following chart highlights all Families and Implementation projects (identified by their Reference Number) related to the AF #4, divided in sub-AFs.



The following table encompasses the list of all projects related to the AF #4. Further details for each Implementation Projects are provided within Annex A.

Reference Number	Title	Foundation	IP description Page Number
062AF4	ENAV initiative for the identification of Network Collaborative Management requirements. AF4: Network Collaborative Management	Yes	167
077AF4	Interactive Rolling NOP	Yes	169
078AF4	ATFCM measures (STAM)	Yes	171
079AF4	Trajectory accuracy and traffic complexity	Yes	173
106AF4	Irreg Management Tool (DaRT)	No	175
111AF4	Interactive Rolling NOP	Yes	177
112AF4	Interface to NMS AFP	No	179
123AF4	FT 4.2.3 NAV Portugal Interface to NMS AFP	Yes	181

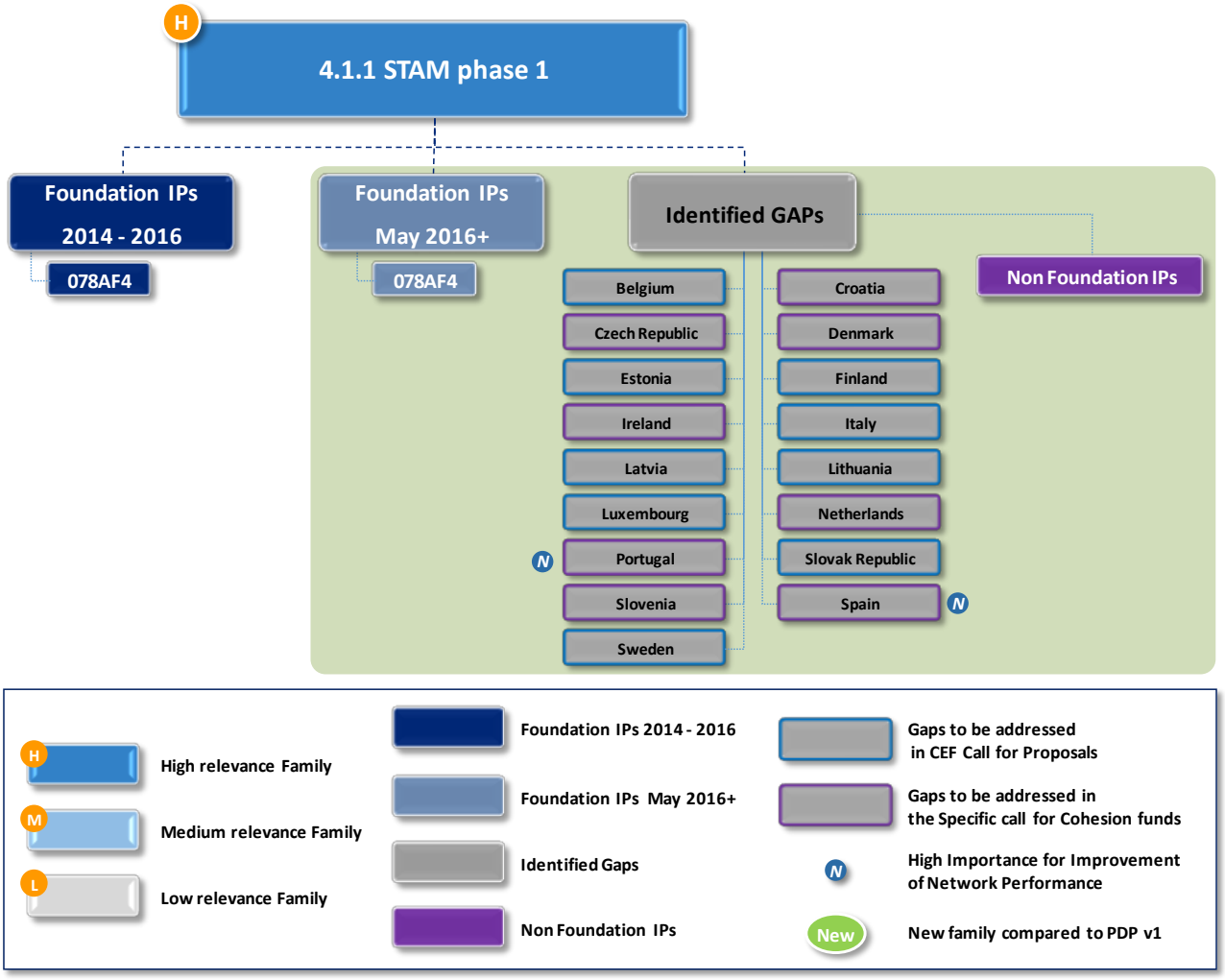
Table 5 – List of AF4 Implementation Projects (IPs)

3.4.1 Family 4.1.1 – STAM phase 1

Designator	4.1.1
Name	STAM Phase 1
Main Sub-AF	S-AF 4.1 Enhanced Short Term ATFCM measures
Description and Scope	The rigid application of ATFM regulations based on standard capacity thresholds as the pre-dominant tactical capacity measure needs to be replaced by a close working relationship between ANSP/FMP, NM and AU, which would monitor both the real demand, the effective capacity of sectors and their dynamic management by mean of different suitable configurations having taken into account the complexity of expected traffic situation. In order to close the gap between ATC and ATFCM, local operational procedures need to be developed. The aim is to improve the efficiency of the system using flow management techniques close to the real time operations with direct impact on tactical capacity management, occupancy counts and tactical action on traffic. The target of the Short Term ATFCM Measures (STAM) phase 1 is to replace En Route CASA regulations for situations when imbalances are manageable via STAM phase 1. STAM phase 1 is mainly procedural implementation using the occupancy counts instead of entry counts for a better evaluation of overload, hot spot detection, limitation a need for regulations and implementation of STAM measure at local level. Each FMP needs to develop the STAM FCM procedure. Additional tasks relevant to the STAM phase 1 scope shall encompass: - development of consolidated STAM phase 1 concept of operation - development of operational guidance documentation - development of training package - development of harmonised operational procedures
Initial Operational Capability	Before 2014
Full Operational Capability	01/01/2017
References and guidance material	ATM Master Plan Level 2 (Dataset 14): DBC-0205 (baseline) ATM Master Plan Level 3 (Edition 2014): Link to FCM-04 NSP: SO 4/3 SO 5/4
Concerned stakeholders	NM, ANSP, AU if applicable
Geographical applicability	As per ESSIP objective FCM-04, there is no need that STAM phase 1 to be deployed at the ECAC level.
Synchronization	Completed from NM side, STAM phase 1 is available to all FMPs via CHMI.

Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014
Industry Standards	None
Means of compliance and Certification or community specifications	None
Interdependencies	STAM phase 1 is a predecessor of STAM phase 2, but the deployment of STAM phase 1 is not a mandatory task due to the fact that STAM phase 2 focuses on network workflow procedures and STAM phase 1 is more locally focussed. Fam. 4.4.2 - Traffic Complexity tools
Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	High
Recommendation for the IPs proposal	STAM Phase 1 would deliver additional capacity just relying on better utilisation of the available resources by moving from the hourly sector capacity rates to the occupancy counts. It is recommended to take into consideration the results of level 4 Gap analysis, as reported in the following Chart and within section 5.1.2.

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.

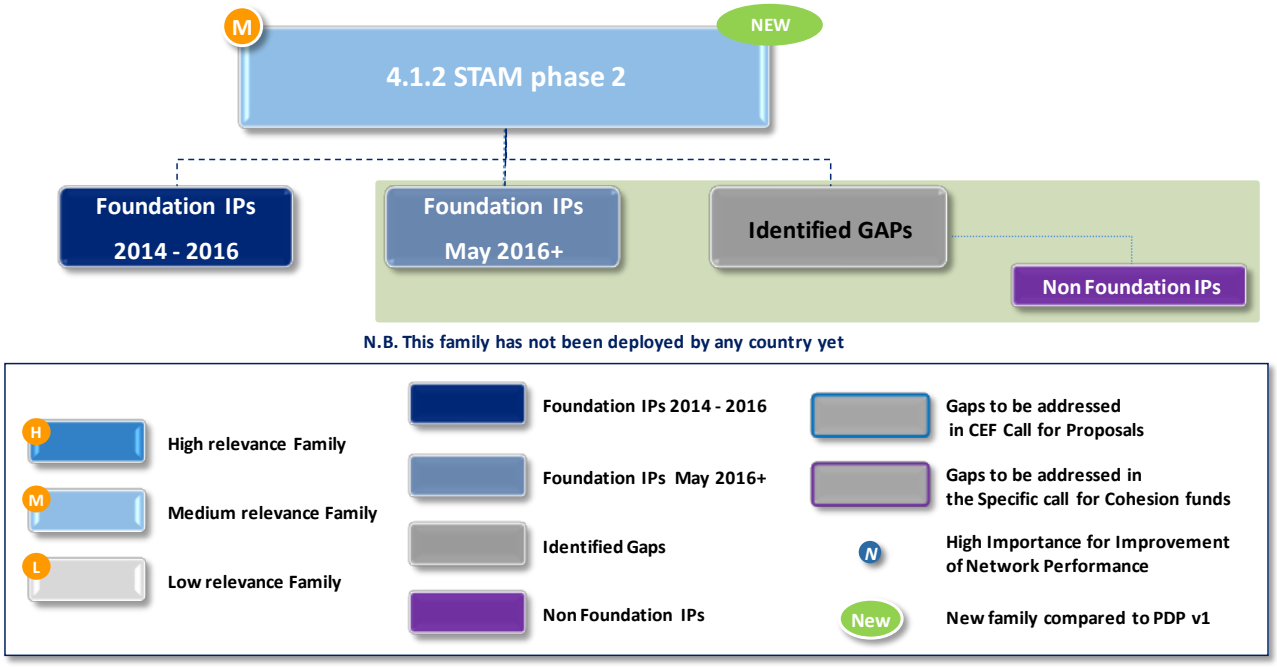


3.4.2 Family 4.1.2 – STAM Phase 2

Designator	4.1.2
Name	STAM Phase 2
Main Sub-AF	s-AF 4.1 Enhanced Short Term ATFCM measures
Description and Scope	Tactical capacity management using STAM phase 2 requires the deployment of additional tool and procedures in order to ensure a close and efficient working relationship between NM, FMP and airspace users. STAM phase 2 tool should include occupancy traffic monitoring values (OTMV), hotspot detection and coordination tool. The enhancements shall mainly focus on: - Enhanced monitoring techniques (including hotspot management and complexity indicators) - Coordination systems (including B2B with local tools) - What-if function (local measures, flight based, flow based and multiple measure alternative) - Network impact assessment Additional tasks relevant to the STAM Phase 2 scope shall encompass: - Development of consolidated STAM phase 2 concept of operation; - Development of operational guidance documentation; - development of training package; - development of harmonised operational procedures ANSPs and AUs shall deploy - interface between local STAM support systems (including AU trajectory optimisation) and the NM systems - and/or the STAM phase 2 application and services developed by NM - apply harmonised operational procedures, taking into account the STAM Phase 2 pre-requisites such as the traffic information and flight predictability.
Initial Operational Capability	01/01/2017
Full Operational Capability	01/01/2022
References and guidance material	ATM Master Plan Level 2 (Dataset 14):DCB-0308 ATM Master Plan Level 3 (Edition 2014): None NSP: SO 4/3; SO 5/4
Concerned stakeholders	NM, ANSP, AUs if applicable
Geographical applicability	EU

Synchronization	Upgrade of NM systems is required for STAM phase 2 Synchronisation is necessary between neighbouring ACCs.
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014
Industry Standards	None
Means of compliance and Certification or community specifications	None
Interdependencies	NM system readiness is a prerequisite for ANSP/AUs STAM phase 2 deployment. STAM phase 1 is a predecessor of STAM phase 2, but the deployment of STAM phase 1 is not a mandatory task due to the fact that STAM phase 2 focuses on the network STAM workflow procedures where STAM phase 1 focuses on local STAM procedures. Fam. 3.2.1 Upgrade of ATM systems (NM, ANSPs, AUs) to support DCT and Free Route
Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	Medium
Recommendation for the IPs proposal	The proposal should refer to the further NM development for STAM phase 2, ANSP and eventually AUs should consider submitting proposals for STAM phase 2 deployments (local tool and/or NM tool). It is recommended to take into consideration the results of level 4 Gap analysis, as reported in the following Chart and within section 5.1.2.

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.

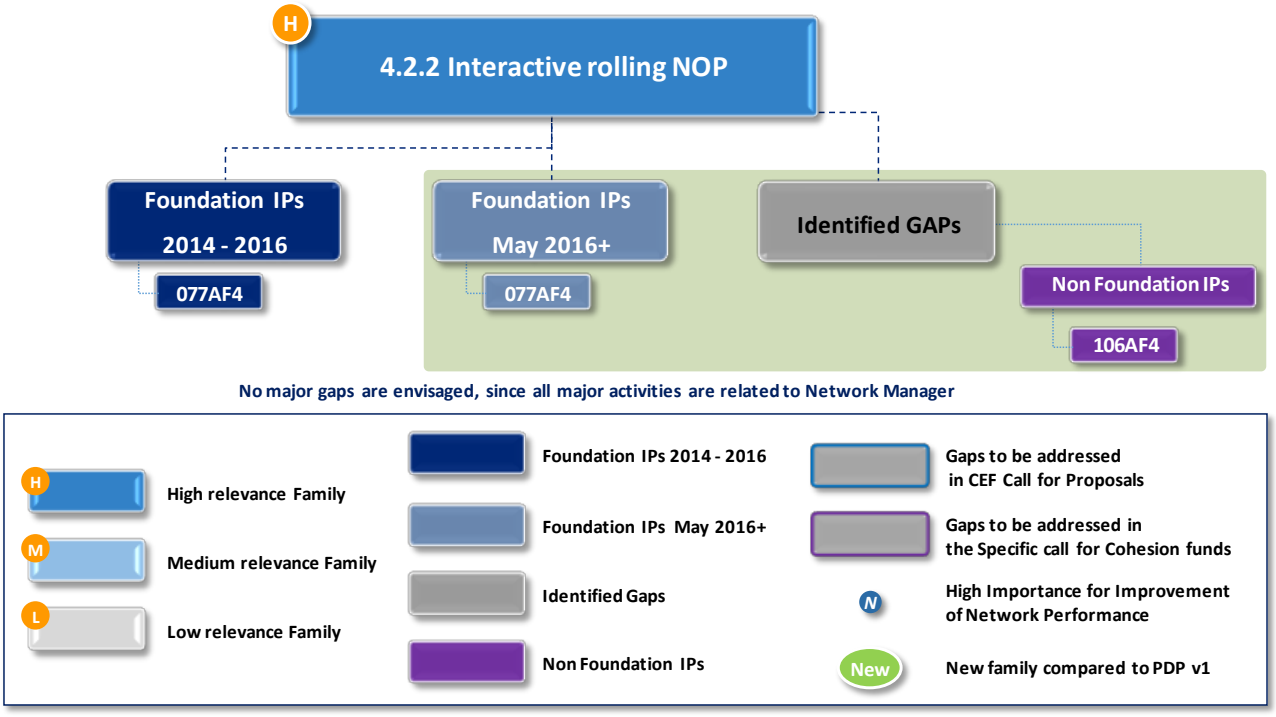


3.4.3 Family 4.2.2 – Interactive Rolling NOP

Designator	4.2.2
Name	Interactive Rolling NOP
Main Sub-AF	Sub AF 4.2 – Collaborative NOP
Description and Scope	Network operations are driven by enhanced stakeholders' participation in a rolling cooperative process (Civil & Military airspace users, ANSPs, Airports, NM, outside EUR interfaces). By continuously sharing latest flight intentions resulting in demand and available capacity, defining measures in the network operations plan, realising the plan as a target by all actors taking into account operational updates, evaluating operations against performance targets and updating the plan. This rolling view of the network situation (rolling NOP) and the support to the collaborative processes is based on an information management platform, accessible online by all stakeholders for consultation,(not only passive but including dialogue opportunities for sharing of evaluations and issues) and update as and when needed, in a secure and tailored way. An initial implementation of the Interactive Rolling NOP was achieved through the deployment of the NOP Portal, providing a limited initial view of the Network Situation, with very limited collaboration and tailoring capabilities. The scope of this family consists in the implementation of a platform that uses the state-of-the-art technologies for creation of a Virtual Operations Room for the physically distributed European ATM Network Operations, in support of the Collaborative NOP. This platform supports the network collaborative rolling processes from strategic to real-time operations, including capabilities for online performance monitoring integrated and feeding back into the collaborative network planning. Also, the platform provides access to post-operational data for offline analysis and performance reporting. The platform shall provide SLA management capabilities, based on a holistic view of the users and their organisations, their interaction with the system and on the monitoring of the SLA adherence by the different parties. The platform will provide both a workplace tool, as well as B2B interfaces following SWIM standards, to allow integration in the stakeholders' own systems. Information and dialogue tools shall be accessed anytime, anywhere via an ATM Information Portal. Access to information is done in a secure way, tailored according the stakeholders needs and subject to access control rules, so that only those who have an operational need to access particular information are able to do so.

Initial Operational Capability	Before 2014
Full Operational Capability	01/01/2022
References and guidance material	ATM Master Plan Level 2 (Dataset 14): DCB-0103-A ATM Master Plan Level 3 (Edition 2014): Link to FCM-05 NSP: SO 2/1 SO 2/2 SO 2/3 and SO 2/4 NOP User Guide; Edition :19.0-92 Date:25/03/2015
Concerned stakeholders	ANSP, Airport, AU, NM, Military
Geographical applicability	EU
Synchronization	The deployment of Network Collaborative Management functionality shall be coordinated due to the potential network performance impact of delayed implementation in a wide geographical scope involving a number of stakeholders. From a technical perspective the deployment of targeted system and procedural changes shall be synchronized to ensure that the performance objectives are met. This synchronization of investments shall involve multiple air navigation service providers and the Network Manager.
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014
Industry Standards	None
Means of compliance and Certification or community specifications	None
Interdependencies	NM Functionalities provided via other AFs are to be delivered via this platform. Family 4.2.4 AOP/NOP information sharing Dependency on AF5 for the SWIM infrastructure and SWIM interfaces
Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	High
Recommendation for the IPs proposal	It will be a basic platform for info sharing between all stakeholders. IPs proposals are expected by NM (as provider of the platform) but in terms of deployment the different stakeholders are impacted, as processes need to be put in place locally to use the platform. It is recommended to take into consideration the results of level 4 Gap analysis, as reported in the following Chart and within section 5.1.2.

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.

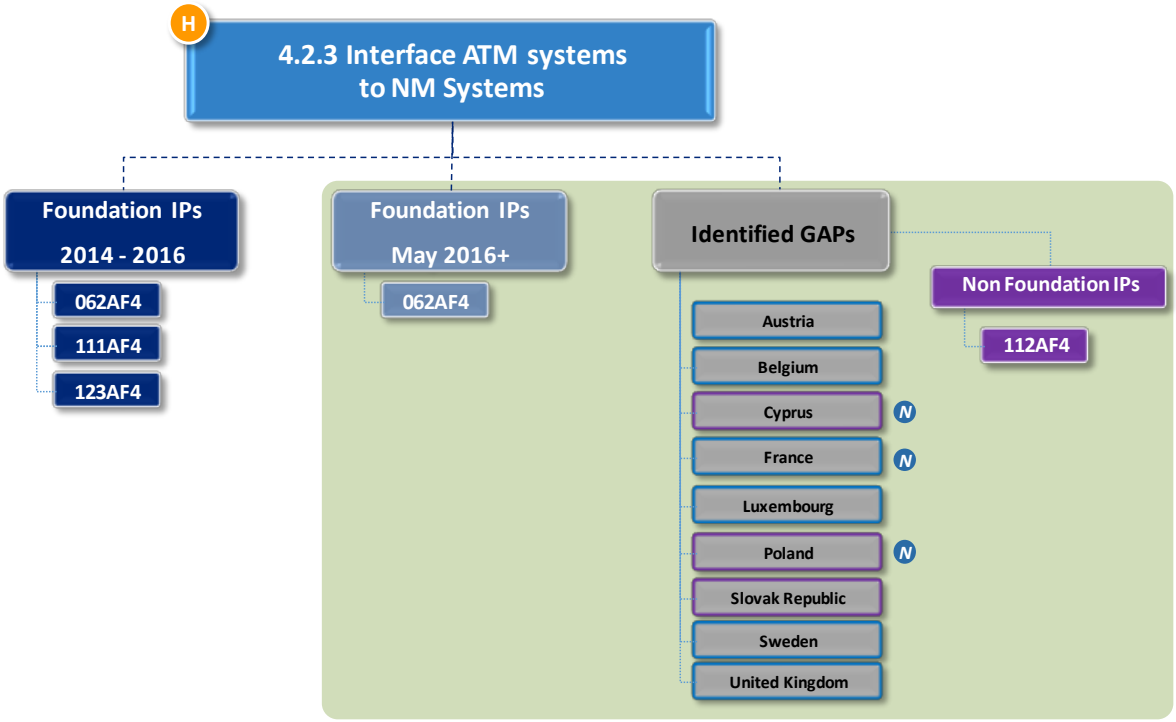


3.4.4 Family 4.2.3 – Interface ATM systems to NM systems

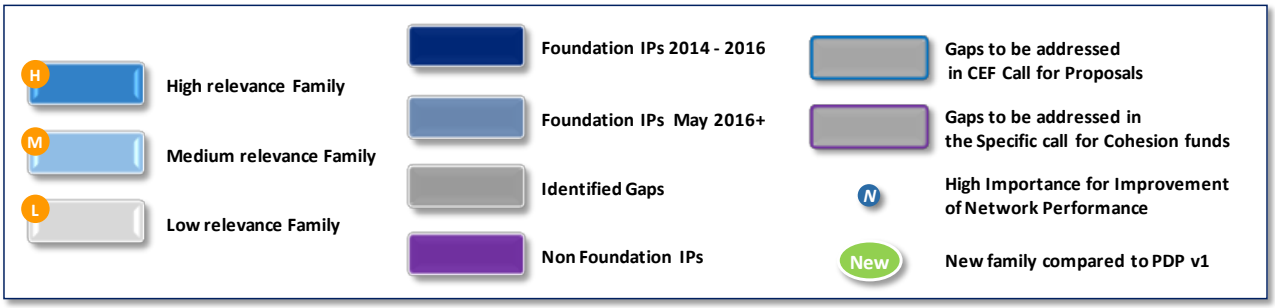
Designator	4.2.3
Name	Interface ATM system to NMS
Main Sub-AF	4.2 Collaborative NOP
Description and Scope	This family addresses the message exchange between NM systems, ANSPs ATM system and AU/FOC /WOC flight plan fling systems in respect of collaborative flight planning, improving flight plan distribution and enhanced tactical flow management. The exchanges of following messages between NM, ATM and AU/FOC systems are addressed by this family as: - ATC Flight plan Proposal (AFP) - ATC flight plan CHange message (ACH) - ATC flight PLan message (APL) - First System Activation (FSA) - Correlated Position Report (CPR) - Extended Flight Plan (EFPL) - Improved OAT Flight Plan The EFPL will include the planned 4D trajectory of the flight as well as flight performance data in addition to ICAO 2012 FPL data. The first phase that will be implemented should address only the exchange of EFPL information between AUs and NM. The transmission of EFPL data to ANSP (flight plan distribution) will be implemented when transition to FF-ICE provisions is achieved. ANSPs automatically provide AFP message to NM for following events: - Missing flight plan - Change of route - Diversion - Change of flight rules or flight type - Change of requested cruising level - Change of aircraft type - Change of aircraft equipment The local ATM system shall be capable to process APL and ACH messages sent by IFPS in order to exploit the full benefits of AFP distribution to NM. NM needs to integrate the received AFP within NM systems. ANSPs need also to provide CPR and FSA messages to NM system (only few pending ANSPs). EFPL will be processed by AU flight planning systems and sent to IFPS. Initially the EFPL exchange will be implemented using the flight data model developed by the NM for B2B and that is currently used for operations. Subsequently, as the FIXM version corresponding to FF-ICE/1 becomes available, the EFPL will be migrated to FIXM. Improved OAT Flight Plan will be processed by AU flight Plan planning systems, ANSPs FDPSs and IFPS.
Initial Operational Capability	Before 2014

Full Operational Capability	01/01/2022
References and guidance material	ATM Master Plan Level 2 (Dataset 14): IS-0102 (baseline); AUO-0203-A ATM Master Plan Level 3 (Edition 2014): Link to FCM01, FCM03 NSP: SO 4/2 and SO 5/1 NM Flight Progress Messages Document; Edition No. 2.1; 19 March 2015
Concerned stakeholders	NM, Civil/military (ANSP, Airport, AU) where applicable
Geographical applicability	EU
Synchronization	Synchronisation is required for AFP between NM and ANSPs. For EFPL deployment, the synchronisation between NM, AU and ANSP is required for the development and deployment phase.
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014
Industry Standards	None
Means of compliance and Certification or community specifications	Community Specification for the Initial Flight Plan
Interdependencies	Fam. 4.4.2 - Traffic Complexity tools Dependency on AF5 for the SWIM Infrastructure and SWIM interfaces. Link with AF6 (EPP)
Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	High
Recommendation for the IPs proposal	The exchanges of collaborative flight planning messages are essential for improving the Pan-European flight predictability. It should be considered to prime importance to address the existing gaps for the provision of CPRs, AFP and FSA messages to NM. ANSPs which not yet provide these messages to NM should consider submitting IP proposal. AUs and NM should consider submitting IP proposal for EFPL and OAT flight plan. It is recommended to take into consideration the results of level 4 Gap analysis, as reported in the following Chart and within section 5.1.2.

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.



AFP Deployed but not integrated for the following countries: Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Finland, Germany, Hungary, Ireland, Latvia, Malta, MUAC, Norway, Romania, Serbia, Slovenia.

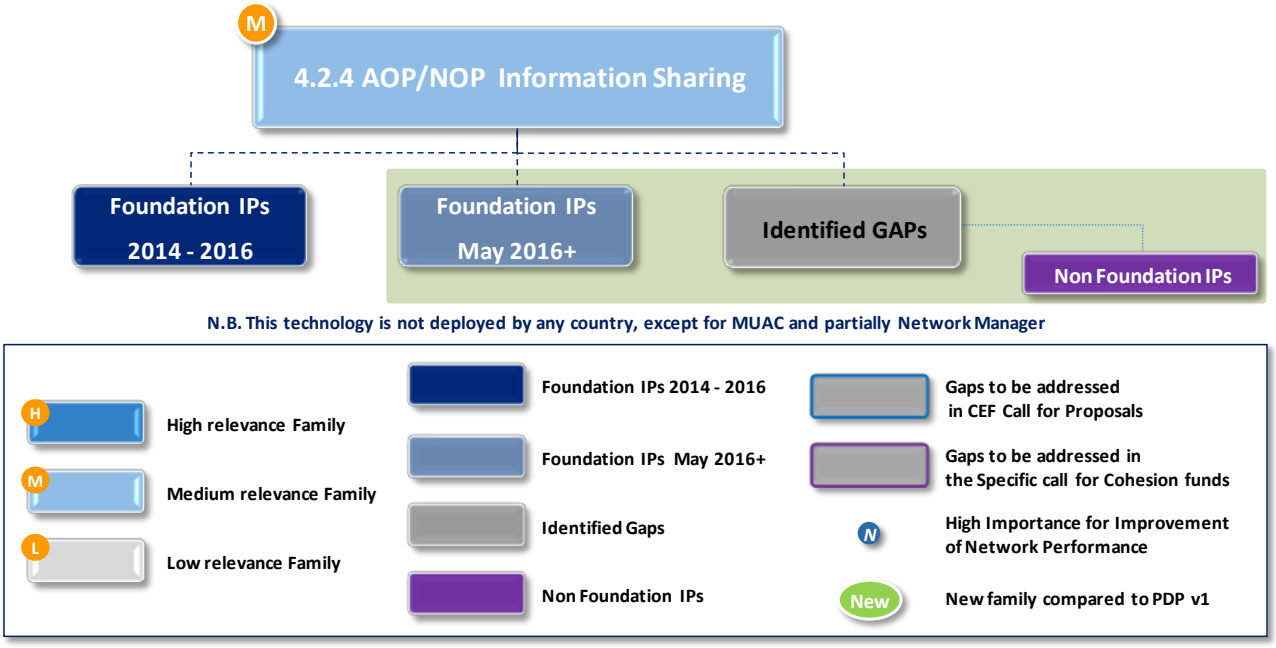


3.4.5 Family 4.2.4 – AOP/NOP information sharing

Designator	4.2.4
Name	AOP/NOP information sharing
Main Sub-AF	Sub-AF 4.2 Collaborative NOP
Description and Scope	The Airport element that reflects the operational status of the Airport and therefore facilitates Demand and Capacity Balancing is the Airport Operations Plan (AOP), described in family 2.1.4. The AOP connects the relevant stakeholders, notably the Airspace Users' Flight Operations Centre (FOC) and Wing Operations Centers (WOC). It contains data and information relating to the different status of planning phases and is in the format of a rolling plan, which naturally evolves over time. The AOP is a single, common and collaboratively agreed rolling plan available to all airport stakeholders whose purpose is to provide common situational awareness and to form the basis upon which stakeholder decisions relating to process optimization can be made. In order to improve the European ATM network performance, notably capacity and flight efficiency through exchange, modification and management of trajectory information there is a clear need for information sharing between the AOP and the NOP (Network Operation Plan). As such the collaborative NOP will be fully integrated in ATM stakeholders' planning processes and working methods. The creation and maintenance of the AOP as well as the integration and the consistency with the NOP involves a large number of stakeholders, with different roles and responsibilities: the airspace users including the flight crews and the AU FOC/WOC, the Airport Operators, the Air Navigation Service Providers, the Network Manager and the MET services. The AOP/NOP information sharing is the technical data layer on the collaborative NOP. The output of SESAR is relatively mature and further refinement ongoing driven by NM. Web-service for data exchange are under development, current exchange is done vie AFTN, which is to be replaced over time. SWIM yellow profile should initially apply. Details have to be defined in collaboration between the NM and the DM partners.
Initial Operational Capability	Before 2014
Full Operational Capability	01/01/2022
References and guidance material	ATM Master Plan Level 2 (Dataset 14): DCB-0103-A; AO-0801-B ATM Master Plan Level 3 (Edition 2014): Link to FCM05 NSP: SO 4/3 SO 06/2; and SO 6/4

Concerned stakeholders	(civil/military where appropriate) Airport Operators, ANSPs (TWR & FMP); Airspace Users, Ground Handlers, Airport Coordinators, Network Manager
Geographical applicability	EU
Synchronization	4.2.4 is to be synchronised with all AF4 functions, AF1 (extended AMAN), AF2, AF5 and AF6, where relevant.
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014
Industry Standards	None
Means of compliance and Certification or community specifications	None
Interdependencies	AF4.2.2; AF1 (extended AMAN), AF2, AF3, AF5 and AF6, where relevant.
Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	Medium
Recommendation for the IPs proposal	The AOP/NOP integration could only start after the development of NM interfaces. It is recommended to take into consideration the results of level 4 Gap analysis, as reported in the following Chart and within section 5.1.2.

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.

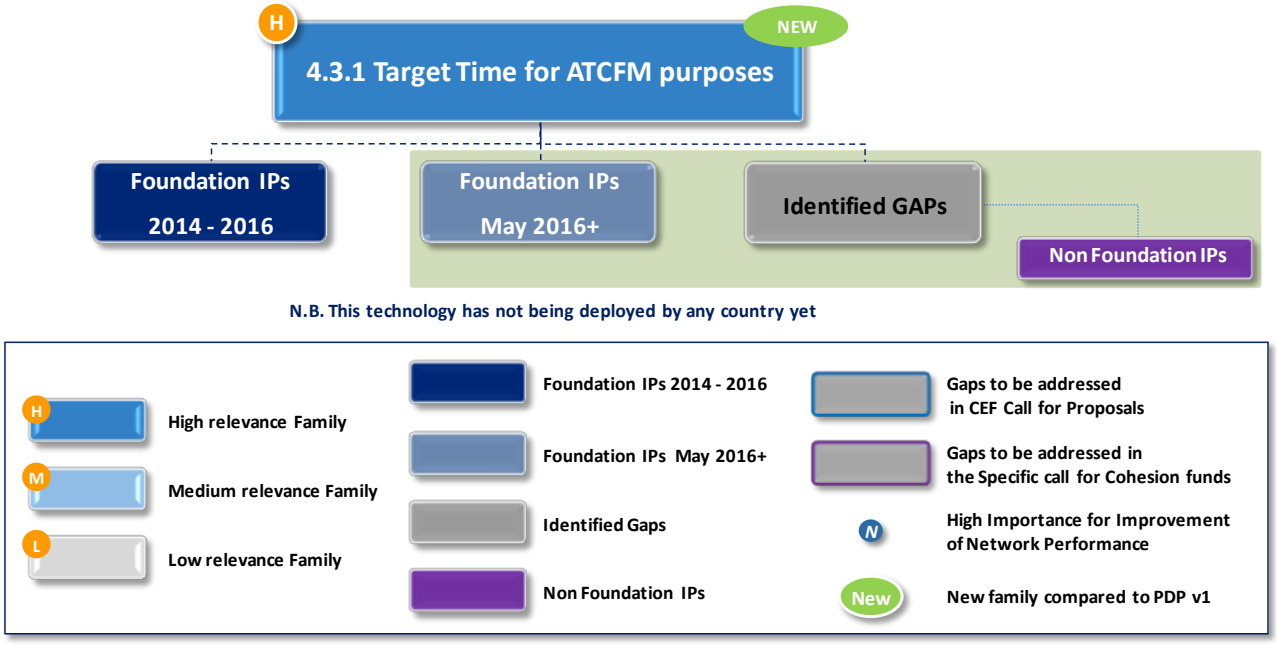


3.4.6 Family 4.3.1 – Target Time for ATFCM purposes

Designator	4.3.1
Name	Target Time for ATFCM purposes
Main Sub-AF	s-AF4.3 CTOT to Target Time for ATFCM purposes
Description and Scope	NM system should transmit calculated target time at the most penalising regulation reference point in addition to CTOT to all concerned users of CTOT. Those users should be able to manage this new feature and potential system upgrades should be foreseen.
Initial Operational Capability	01/01/2017
Full Operational Capability	01/01/2022
References and guidance material	ATM Master Plan Level 2 (Dataset 14): DCB-0208 ATM Master Plan Level 3 (Edition 2014): None NSP: SO 4/3 SO 5/4
Concerned stakeholders	NM, AUs, Airport, ANSP, where applicable
Geographical applicability	EU
Synchronization	
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014
Industry Standards	None
Means of compliance and Certification or community specifications	None
Interdependencies	Fam. 4.3.2 - Reconciled target times for ATFCM and arrival sequencing
Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	High

Recommendation for the IPs proposal	This covers a core development described in ATM Master Plan, NSP and PCP IR, constituting a key change in ATFCM, and building step towards further time based operations. All Stakeholders should consider submitting IP's proposal for the deployment of this family, in case of identified system and procedural upgrades for Target Times. The IP proposals for concept/studies should be considered as well. It is recommended to take into consideration the results of level 4 Gap analysis, as reported in the following Chart and within section 5.1.2.

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.

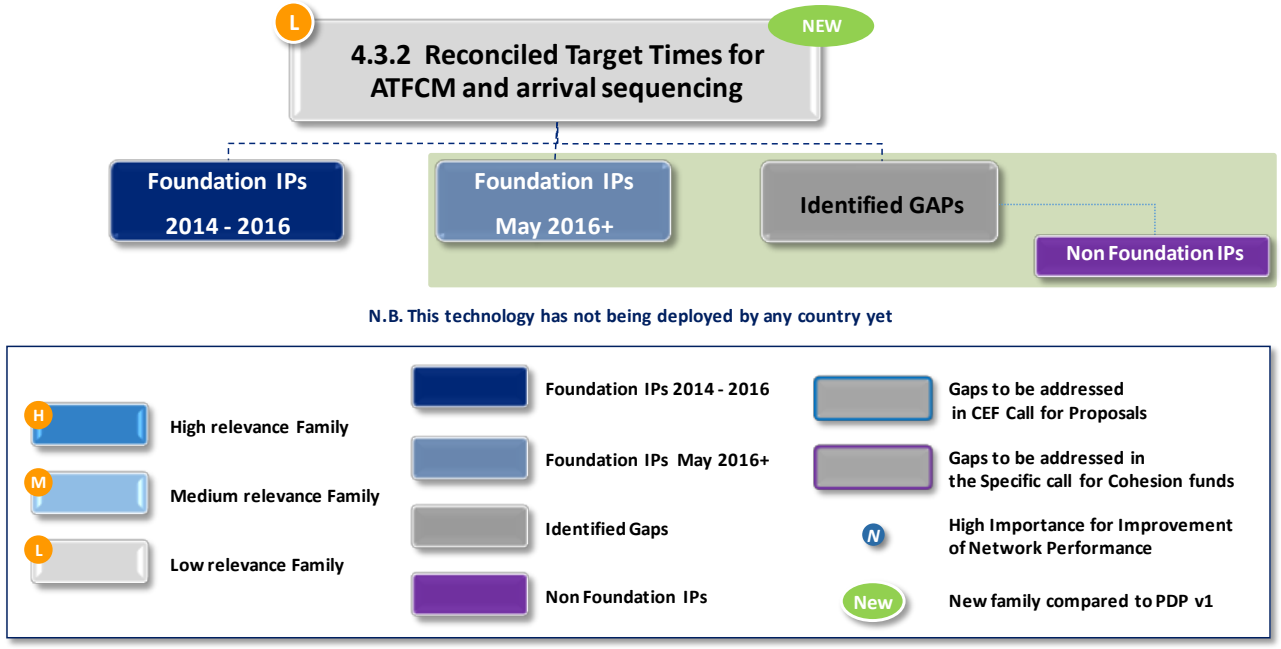


3.4.7 Family 4.3.2 – Reconciled target times for ATFCM and arrival sequencing

Designator	4.3.2
Name	Reconciled target times for ATFCM and arrival sequencing
Main Sub-AF	s-AF4.3 CTOT to Target Time for ATFCM purposes
Description and Scope	Establish processes and system changes to ensure that target times on flights for (extended) sequencing purposes are reconciled with possible ATFCM related target times for those same flights, to ensure that optimal solutions are established for both sequencing and ATFCM. The scope of this family contains the process, procedure and system upgrades related to the reconciliation of multiple local Target Time constraints. To this end, the potential solution will be coordinated and disseminated to the different stakeholders (supported by the Network CDM Information Platform and within the context of the NOP) at the Local and Network levels. Once coherence and agreement is achieved, the implementation will be initiated. The actions that the specific measure requires will be promulgated to the appropriate actors and the implementation is finally achieved.
Initial Operational Capability	01/01/2019
Full Operational Capability	01/01/2022
References and guidance material	ATM Master Plan Level 2 (Dataset 14):DCB-0208 ATM Master Plan Level 3 (Edition 2014): None NSP: SO 4/3, SO 5/4, SO 6/5
Concerned stakeholders	NM, AUs, ANSP
Geographical applicability	EU
Synchronization	Synchronisation required with: - Target Time operations in support of Extended AMAN (AF1) and arrival sequencing (AF4 NOP/AOP integration) and - CTOT to Target Time for ATFCM purposes (AF4)
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014
Industry Standards	None
Means of compliance and Certification or community specifications	None

Interdependencies	AF1 (extended AMAN), AF2 Fam. 4.3.1 - Target Time for ATFCM purposes
Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	Low
Recommendation for the IPs proposal	Considering the current status of development work, for CEF call 2015, IP proposals should only be focused on concept/feasibility study items.

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.

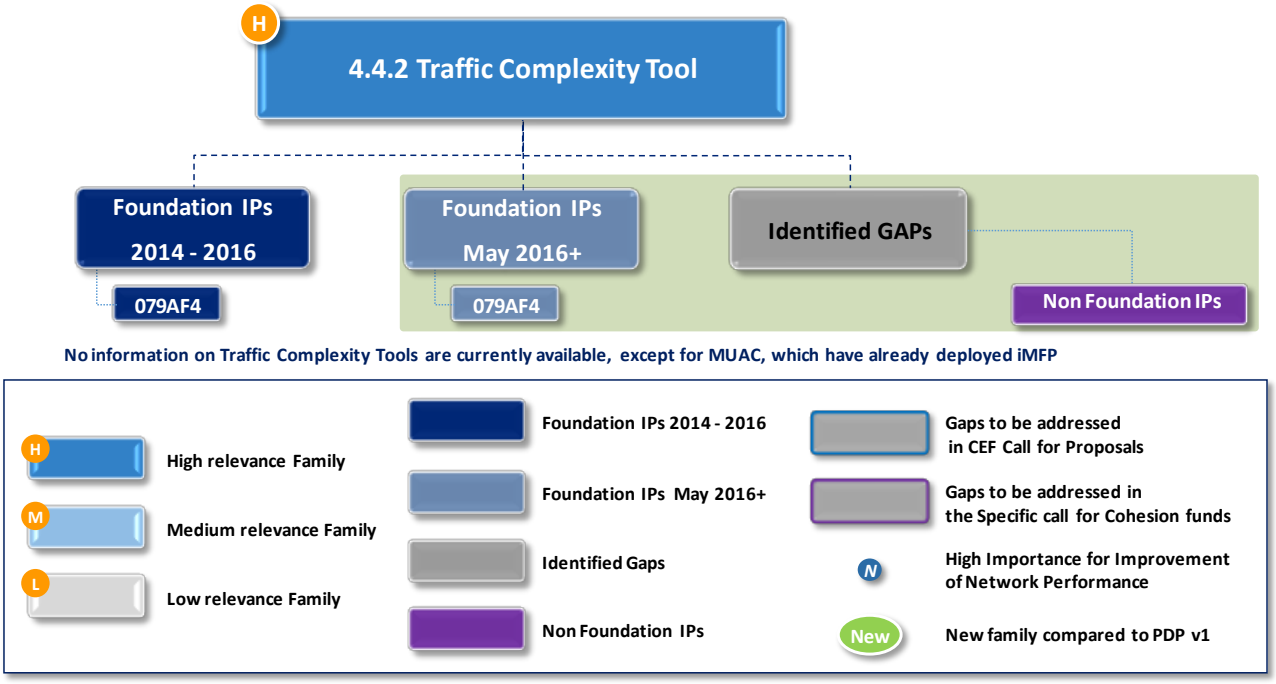


3.4.8 Family 4.4.2 – Traffic Complexity tools

Designator	4.4.2
Name	Traffic Complexity tools
Main Sub-AF	s-AF 4.4 Automated support for traffic complexity assessment
Description and Scope	The traffic complexity tools continuously monitor sector demand and evaluate traffic complexity (by applying predefined complexity metrics) according to a predetermined qualitative scale. The predicted complexity coupled with traffic demand enables ATFCM to take timely action to adjust capacity, or request the traffic profile changes in coordination with ATC and airspace users. The rigid application of ATFCM regulations based on standard capacity thresholds as the pre-dominant tactical capacity measure needs to be replaced by a close working relationship between ANSPs and Network Manager, which would monitor both the real demand, the effective capacity of sectors and their dynamic management by mean of different suitable configurations having taken into account the complexity of expected traffic situation. The scope of this family shall include: - ANSP to implement Local Traffic Complexity tools and procedures. The Traffic Complexity tool continuously monitor and evaluate current and expected traffic loads and estimated controller's workload . It provides a support in the determination of solutions in order to plan airspace, sectors and staff to handle the predicted traffic. It is suggested that ANSPs develop concept for the complexity tools utilisation before considering the procurement/upgrades of ATM systems with this functionality - Provision by NM of EFD to ANSPs; - The local complexity tools need to receive process and integrate EFD provided by NM. This is needed in order to supplement the local traffic counts with the flight plan data from ETFMS; - The NM systems adaptation activities deal with improving the quality of the planned trajectory (processing of ATC information part of 4.2.3 family, processing of EFPL and improved OAT FPL information part of 4.2.3 family, support to mixed mode operations, Implementation of traffic count methodologies that do not impact trajectory calculation) thus enhancing NM complexity assessment. Implementation of scenario management tools in support of traffic complexity. It will rely on the planned trajectory and allows simulating options optimising the use of available capacity. It will help NM operations identify possible mitigation strategies to be applied at network or local level, in coordination with FMPs and airspace users.
Initial Operational Capability	Before 2014

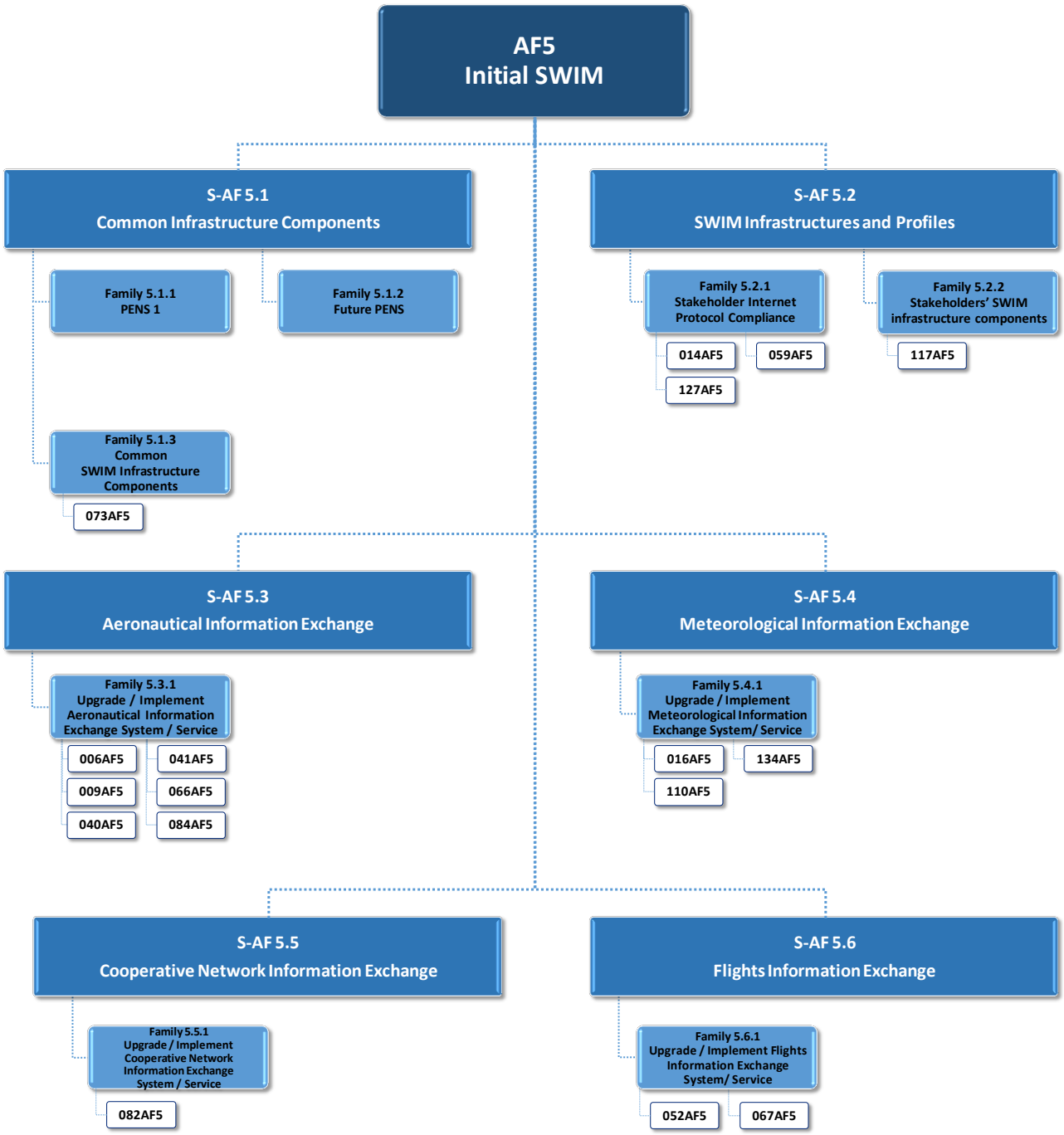
Full Operational Capability	01/01/2022
References and guidance material	ATM Master Plan Level 2 (Dataset 14):CM-0103-A ATM Master Plan Level 3 (Edition 2014): None NSP: SO 4/3 and SO 5/4 NM Flight Progress Messages Document; Edition No. 2.1; 19 March 2015
Concerned stakeholders	Civil/military ANSP where appropriate, NM
Geographical applicability	EU
Synchronization	Synchronisation between NM and ANSPs is required
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014
Industry Standards	None
Means of compliance and Certification or community specifications	None
Interdependencies	Fam. 4.1.1 - STAM Phase 1 Fam. 4.1.2 - STAM Phase 2 Fam. 4.2.3 - Interface ATM system to NMS Fam.3.2.1 Upgrade of ATM systems (NM, ANSPs, AUs) to support DCT and Free Route
Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	High
Recommendation for the IPs proposal	Taking into account a need that complexity tools to be deployed in collaboration between ANSPs and NM, IP proposal should be mainly focused on ANSPs and NM system upgrades. It is recommended to take into consideration the results of level 4 Gap analysis, as reported in the following Chart and within section 5.1.2.

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.



3.5 AF #5 – Initial SWIM

The following chart highlights all Families and Implementation projects (identified by their Reference Number) related to the AF #5, divided in sub-AFs.



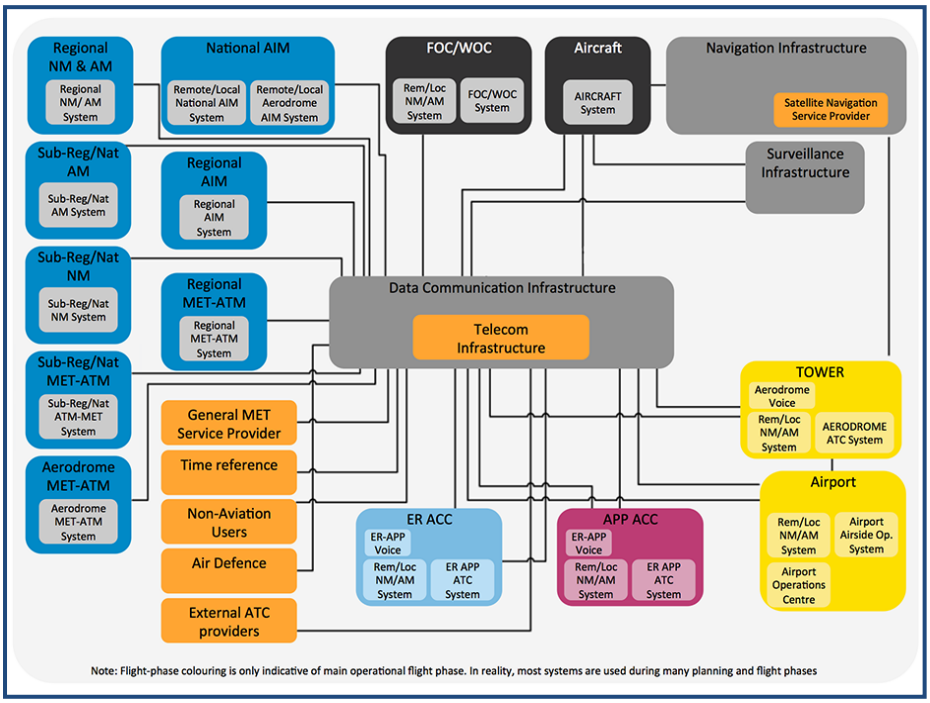
The following table encompasses the list of all projects related to the AF #5. Further details for each Implementation Projects are provided within Annex A.

Reference Number	Title	Foundation	IP description Page Number
006AF5	ATM Data Quality	No	183
009AF5	Integrated Briefing System New (IBSN)	No	185
014AF5	MPLS WAN Project	Yes	188
016AF5	Initial WXXM Implementation on Belgocontrol Systems	Yes	190
040AF5	ADQ – Aeronautical Data Quality	No	192
041AF5	EASI – EAD AIM Systems Integration	Yes	194
052AF5	Coflight as a service	No	196
059AF5	Implementation and operation of an IP-based G/G data communication network in ENAIRE	Yes	198
066AF5	ENAV AIS system upgrade to support AIXM5.1	Yes	200
067AF5	Coflight e-FDP System Development	Yes	202
073AF5	SWIM Common Components	Yes	204
082AF5	SWIM compliance of NM systems	Yes	206
084AF5	Implementation of Prerequisites for the Provision of Aerodrome Mapping Data and Airport Maps as Data Originator (Aeronautical Information Exchange)	No	208
110AF5	Meteorological Information Exchange by MET ANSP KNMI	Yes	210
117AF5	Implementation of Initial SWIM Capability (AF5) across NATS	Yes	212
127AF5	Implementation Project X.X: National WAN Infrastructure (CANDI-IP)	Yes	214
134AF5	PILOT PLATFORM for access services to OPMET (worldwide/ECAC) data(METAR, TAF, SIGMET) in WXXM format	Yes	216

Table 6 – List of AF5 Implementation Projects (IPs)

3.5.1 Family 5.1.1 – PENS 1: Pan-European Network Service version 1

Designator	5.1.1
Name	PENS 1: Pan-European Network Service version 1
Main Sub-AF	S-AF 5.1 Common Infrastructure Components
Description and Scope	SWIM Infrastructure is part of the Data Communication Infrastructure defined in the SESAR EATM Architecture



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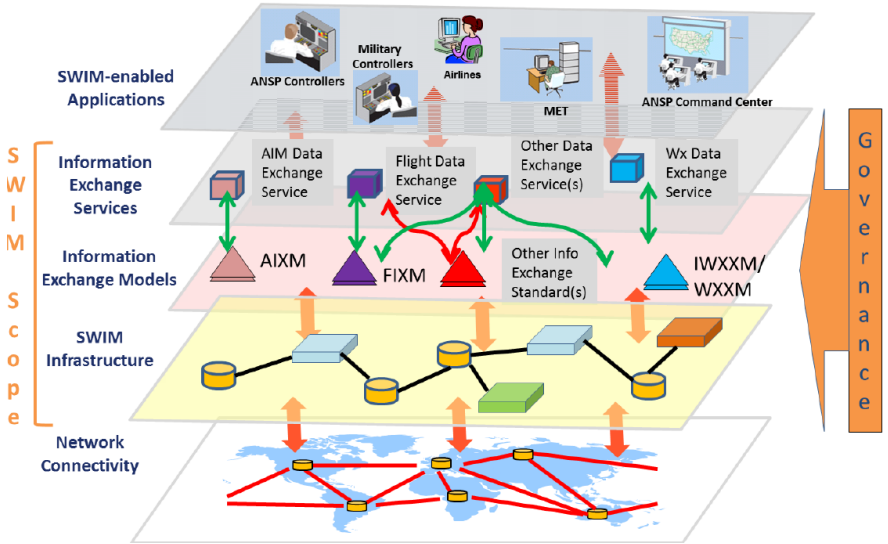
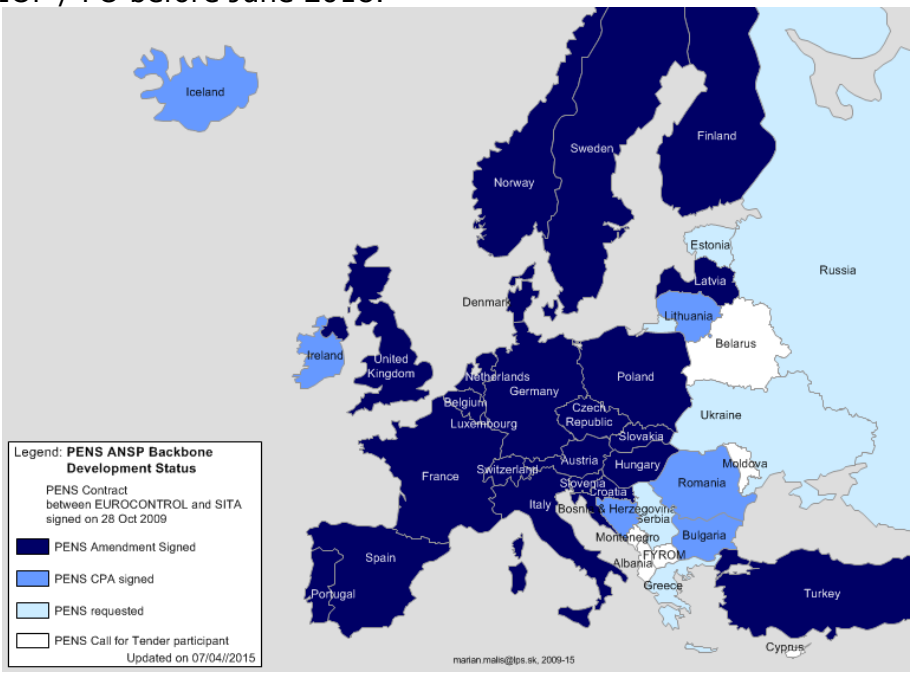
More precisely the following picture shows the place of the SWIM Infrastructure within the SWIM scope.



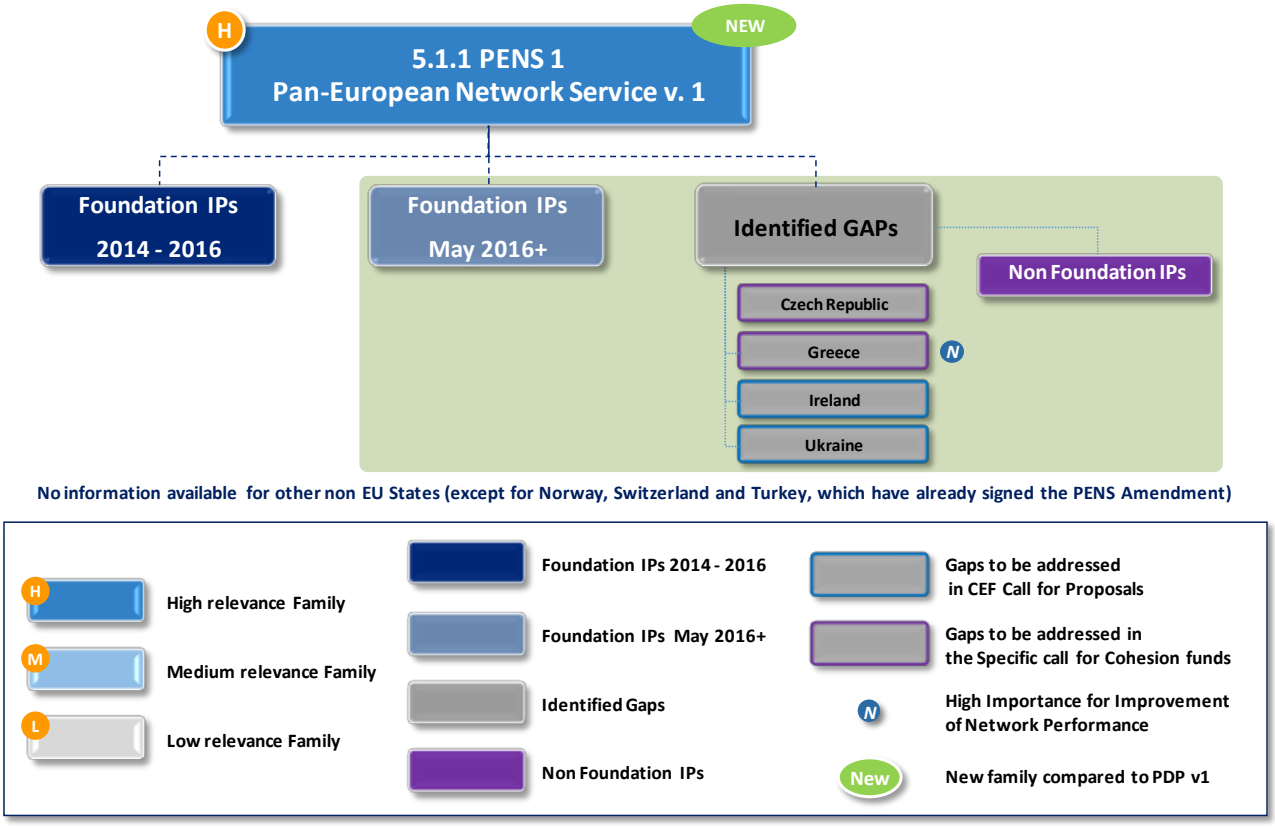
An Internet Protocol (version 6)Network connectivity is necessary to support the SWIM Exchanges

The current PENS (Pan European Network Service), called PENS1, supports the exchanges of the current ATM information based on Internet Protocol (version 4 and 6).

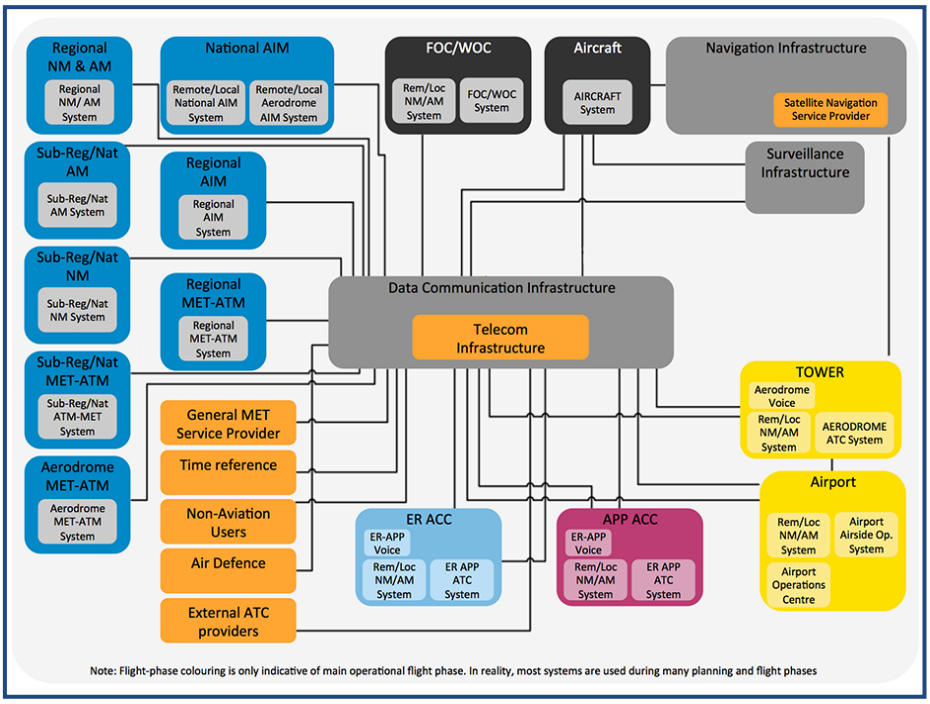
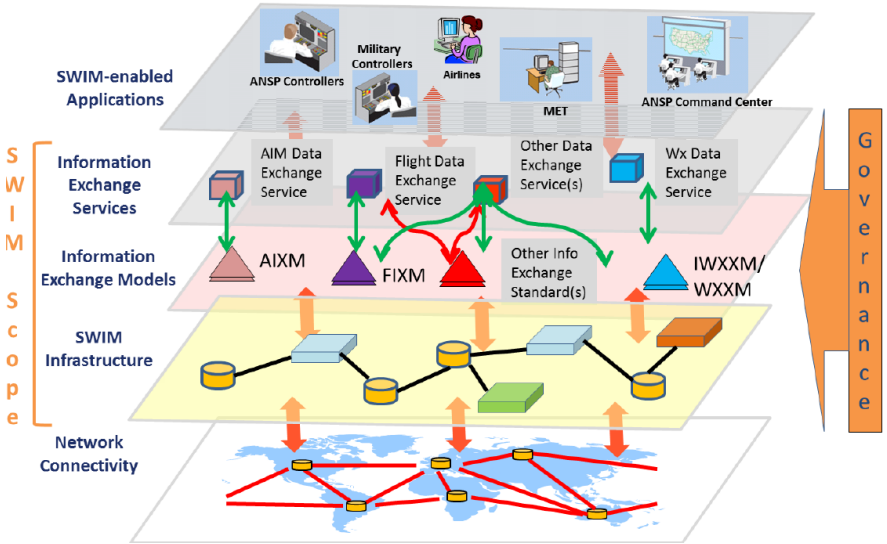
	PENS1, provided by SITA, will terminate in June 2018, but a new PENS is planned to be deployed from beginning 2017 to replace PENS1 with a transition period (2017-mid 2018) to guarantee the continuity of operations. The PCP stipulates *"To support the blue SWIM TI Profile (for Flight Object), very high and high capacity centres shall be connected to Pan-European Network Services (PENS)".* So ANSPs, planning to implement IOP FO, have to be or become PENS user. The scope of this Projects Family aims at implementing projects for ANSPs not yet PENS1 user and having planned to implement IOP / FO before June 2018.  PENS User Status in April 2015 Till April 2015 the following ANSPs are become PENS1 users: 1. DHMI (Turkey) 2. ISAVIA (Iceland) 3. ANS-CR (Czech Republic) 4. IAA (Ireland): The following ANSPs are on the process to become PENS1 users: - EANS (Estonia) - SMATSA (Serbia) - IAA (Israel) - HCAA (Greece) - Azerbaijan
Initial Operational Capability	Before 2014: PENS1 has been deployed from 2009 by NM and ANSPs
Full Operational Capability	30/06/2018: PENS1 is expected to end in June 2018 before to be replaced by the future PENS (new PENS)

References and guidance material	None
Concerned stakeholders	NM and stakeholders managing the Area Control Centres & TMAs identified in the IR 716/2014 Appendix. Other ATC and military controlling units could be interested in particular to implement the FMTP IR.
Geographical applicability	NM, Area Control Centres & TMAs identified in the Commission Implementing Regulation (EU) No 716/2014 Appendix.
Synchronization	The synchronization and coordination is performed by the PSSG (PENS Steering Group) and the PMU (PENS Management Unit), the main bodies of the PENS1 Governance. Any PENS user has, when entering PENS by signing the PENS CPA (Common Procurement Agreement) and the dedicated Amendment, a representative in PSSG.
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014
Industry Standards	Available Internet Protocol version 6 for unicast and multicast
Means of compliance and Certification or community specifications	No specific needs
Interdependencies	5.1.2 (future PENS) to guarantee the transition from PENS1 to the future PENS 5.6.1 (Flights Information Exchanges) PENS1 shall be able to manage ATM VoIP communications proposed in Family 3.1.4
Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	High for ANSPs planning to implement IOP / FO before June 2018
Recommendation for the IPs proposal	All PCP ANSPs not already PENS1 user and planning to implement IOP FO before mid-2018, are invited to present a project to become a PENS1 user. Such projects shall include, if necessary, the upgrade of PENS1 to meet the related QoS and Security FO requirements. It is recommended to take into consideration the results of level 4 Gap analysis, as reported in the following Chart and within section 5.1.2.

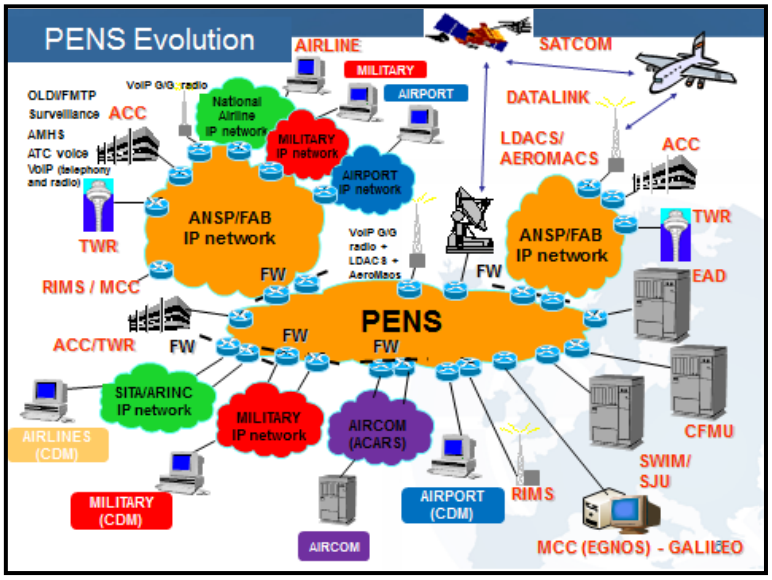
The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.



3.5.2 Family 5.1.2 – Future PENS: Future Pan-European Network Service

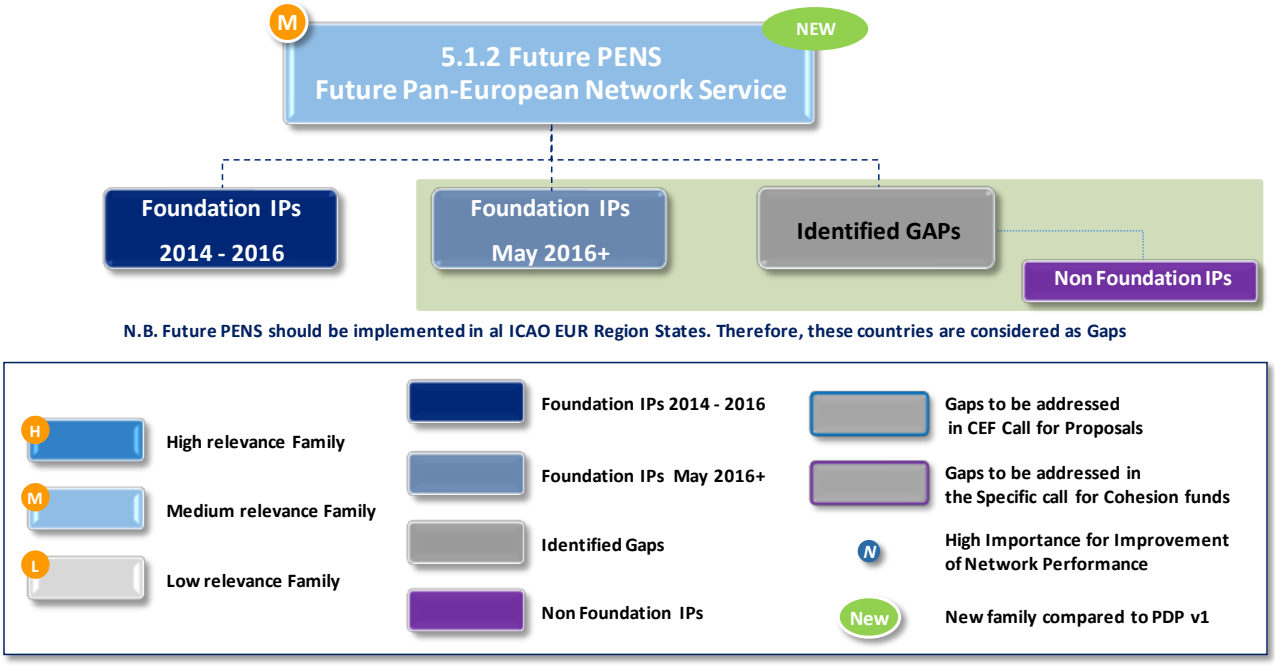
Designator	5.1.2
Name	Future PENS: Future Pan-European Network Service
Main Sub-AF	S-AF 5.1 Common Infrastructure Components
Description and Scope	SWIM Infrastructure is part of the Data Communication Infrastructure defined in the SESAR EATM Architecture  SESAR EATM Architecture More precisely the following picture shows the place of the SWIM Infrastructure within the SWIM scope.  An Internet Protocol (version6) Network connectivity is necessary to support the SWIM Exchanges. The future PENS (Pan European Network Service) is expected to exchange information based on Internet Protocol. The future PENS will replace PENS1 terminating in June 2018.

	The PCP stipulates "To support the blue SWIM TI Profile (for Flight Object), very high and high capacity centres shall be connected to Pan-European Network Services (PENS)". So civil and military ANSPs, planning to implement IOP FO, have to be or become PENS user. We may notice that Yellow Profile, less QoS demanding than Blue Profile, could be supported by PENS instead of Public Internet. It will be up to Stakeholders, according to their requirements, to select the Public Internet Protocol Network or PENS. The scope of this Projects Family aims at implementing projects for ANSP and NM to become future PENS user to be able to support IOP FO. PENS is also able to support other Information Exchanges and could become the main Internet Protocol Network in the ICAO EUR/NAT Region to support all SWIM Information Exchanges as proposed in the PENS evolution vision elaborated by the current PENS1 Users : - **By the end of the current PENS contract (mid 2018)**, PENSv1 will be operationally used by ANSPs/FABs to support their international Internet Protocol ground/ground voice and data communications within ICAO EUR/NAT Region and to/from other ICAO regions. Some regional network communications may continue to be supported on the existing network infrastructure where PENS connectivity is not suitable or available. - **By 2020, an Enhanced PENSv2** will provide Internet Protocol services to ANSPs/FABs and other civil and military ATM stakeholders to support any international and optionally internal ANSP/FAB ground/ground communication (including SWIM) within ICAO EUR/NAT Region and to/from other ICAO Regions. PENS should be provided by more than one Network Service Provider and include alternative means to meet some specific safety critical ATM requirements such as Voice services. As civil and military stakeholders have to be interconnected, PENS will meet adequate Security requirements.

	
Initial Operational Capability	01/01/2017
Full Operational Capability	01/01/2025
References and guidance material	ATM Master Plan Level 2 (Dataset 14):IS-0901-A ATM Master Plan Level 3 (Edition 2014): None
Concerned stakeholders	NM, Area Control Centres & TMAs identified in the Commission Implementing Regulation (EU) No 716/2014 Appendix for FO. All the ATM Stakeholders connected directly or indirectly (gateways) will be concerned.
Geographical applicability	NM, Area Control Centres & TMAs identified in the PCP Appendix with a possible extension to the ICAO EUR/NAT Region if PENS become the main IP network for all the ATM data and voice communications.
Synchronization	The synchronization and coordination is performed by the future PENS Governance bodies expected to be set-up by ANSPs and NM. Any PENS user has, when entering PENS by signing the PENS CPA (Common Procurement Agreement) and the dedicated Amendment, a representative in PENS Governance bodies.
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014
Industry Standards	Available Internet Protocol version 4 and 6 for Unicast and multicast
Means of compliance and Certification or community specifications	None

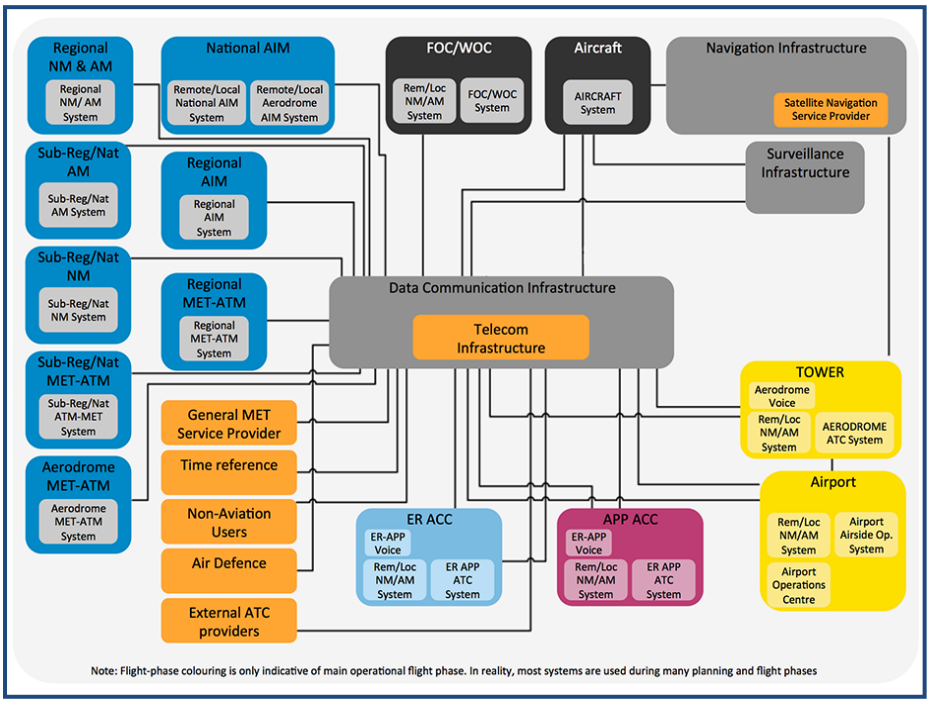
Interdependencies	With 5.1.1 (PENS1) and 5.6.1 (Flights Information Exchanges) and possible interdependencies with all the projects families dealing with ATM Information exchanges. Future PENS shall be also able to manage ATM VoIP communications proposed in Family 3.1.4.
Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	High for ANSPs and NM planning to implement IOP FO in short term. Medium for the others. The future PENS is also able to support all the ATM information exchanges even if the IR 716/2014 is requiring PENS only for the Blue Profile required for Flight Object.
Recommendation for the IPs proposal	All PCP ANSPs and NM planning to implement IOP FO are invited to present a project to become a future PENS user. Coordinated projects between several stakeholders should be privileged. A particular concern as ATM becomes increasingly interconnected across Europe is cyber security; therefore, projects should include appropriate cyber security measures. The future PENS is also able to support all the ATM information exchanges even if the IR 716/2014 is requiring PENS only for the Blue Profile required for Flight Object.

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.



3.5.3 Family 5.1.3 – Common SWIM Infrastructure components

Designator	5.1.3
Name	Common SWIM Infrastructure components
Main Sub-AF	S-AF 5.1 Common Infrastructure Components
Description and Scope	SWIM Infrastructure is part of the Data Communication Infrastructure defined in the SESAR EATM Architecture



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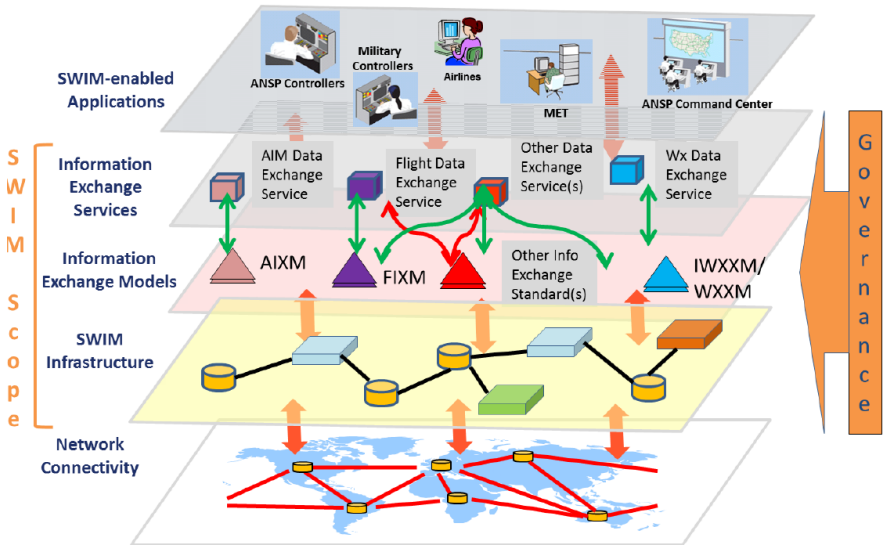
More precisely the following picture shows the place of the SWIM Infrastructure within the SWIM scope.

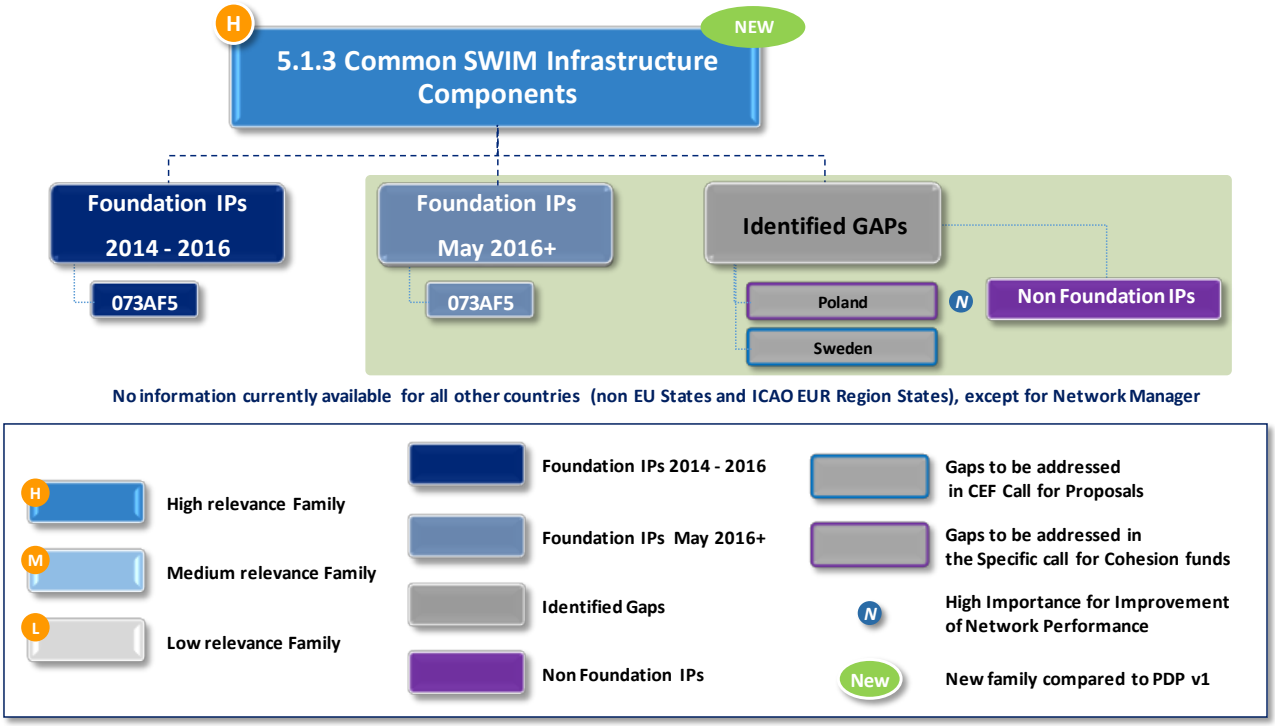


Within the IR 716/2014 the SWIM Infrastructure has been split in two parts:

	- The common components § 5.1.1. Common infrastructure components - The stakeholders' components § 5.1.2. SWIM Technical Infrastructure and Profiles According to IR 716/2014 § 5.1.1. Common infrastructure components the **Common SWIM infrastructure components** are: — ***The registry**, which shall be used for publication and discovery of information regarding service consumers and providers, the logical service and information models, SWIM enabled services (Service Implementations), business, technical, and policy information* — ***Public Key Infrastructure** (PKI), which shall be used for signing, emitting and maintaining certificates and revocation lists; The PKI ensures that information can be securely transferred* PCP stipulates also that *SWIM comprises standards, infrastructure and **governance** enabling the management of information and its exchange between operational stakeholders via interoperable services*. The current family is dealing with the **common** components when the family "Stakeholder SWIM Infrastructure Components" (5.2.2) is dealing with the **dedicated** stakeholders components. The scope of this Projects Family aims at implementing the following SWIM common components: - A SWIM Governance Structure and Processes, including civil and military stakeholders, governing and managing the common components and the processes for the provision and the consumption of the SWIM services - A SWIM registry managed by the SWIM Governance bodies and dealing with the service catalogue and its content (AIRM, ISRM, Profiles, Service Implementations, Security measures (including PKI aspects), compliance criteria…) - Any other common components necessary for SWIM implementation (such as SWIM Compliance Capabilities, Incident and Problem Management, Change Management, Configuration Management, …) It shall support users from all civil and military stakeholders. This family has also to address the common transition issues from existing legacy protocol (AFTN, AMHS, FMTP,) to SWIM environment.
Initial Operational Capability	06/2016 for starting the SWIM Governance Structure and Processes and SWIM Registry building on ad-hoc arrangements set-up within SESAR1 (WP8)
Full Operational Capability	01/01/2025
References and guidance material	ATM Master Plan Level 2 (Dataset 14):IS-0901-A ATM Master Plan Level 3 (Edition 2014): None
Concerned stakeholders	All the stakeholders Airspace Users, Airport Operators, Civil and Military ANSPs, Network Manager, MET, AIS providers are concerned

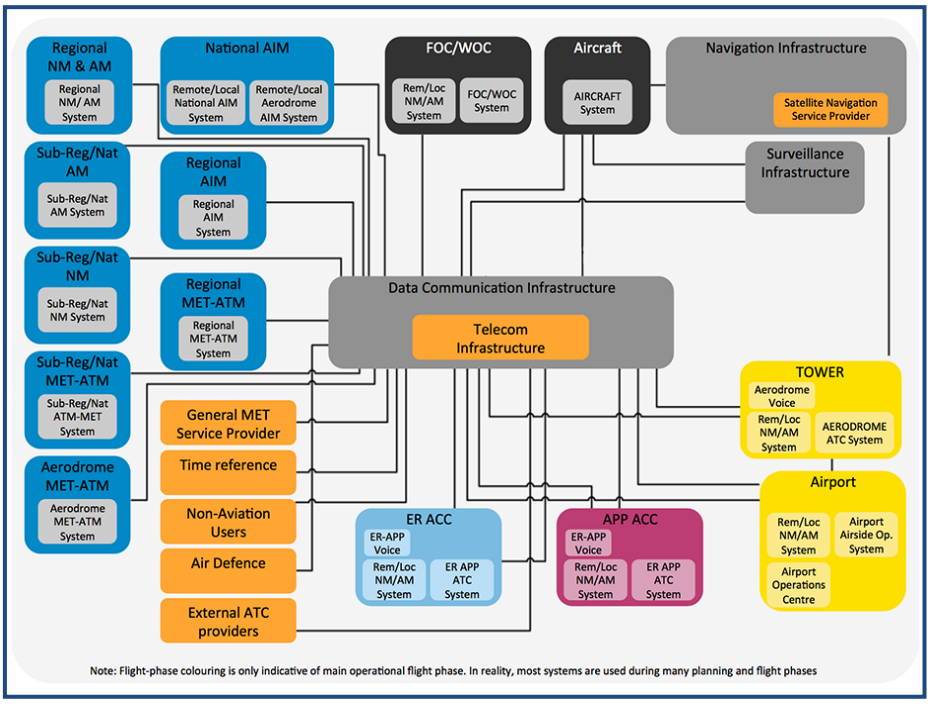
Geographical applicability	As stated in Commission Implementing Regulation (EU) No 716/2014
Synchronization	Strong coordination is necessary between all stakeholders (at least pioneers) to set-up first implementation of common components through a Governance structure and processes.
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014
Industry Standards	Standardization developments are needed for the SWIM Registry content (AIRM, ISRM, XXXM, Profiles, compliance criteria, service implementations, security measures, …) Such standardization has to be developed at European level in a close coordination with ICAO to guarantee international interoperability.
Means of compliance and Certification or community specifications	None
Interdependencies	With all AF5 Families With project 073AF5
Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	High It is urgent to launch a project meeting pioneers stakeholders (NM, ANSPs …) to set-up a first SWIM Governance to be able to manage as soon as possible the SWIM Registry and its content allowing the start of SWIM implementation.
Recommendation for the IPs proposal	It is recommended that pioneers stakeholders (NM, ANSPs …) launch an Implementing Project to set-up a first SWIM Governance to be able to manage as soon as possible the SWIM Registry, its content, the evolution of SWIM elements required during deployment, SWIM compliance assessment, all together allowing the start of SWIM implementation.

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.



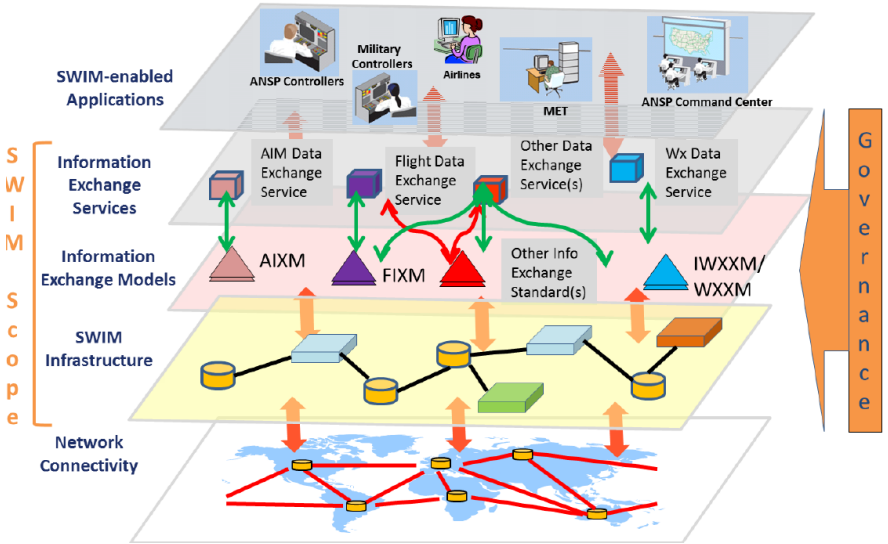
3.5.4 Family 5.2.1 – Stakeholder Internet Protocol Compliance

Designator	5.2.1
Name	Stakeholder Internet Protocol Compliance
Main Sub-AF	S-AF 5.2 SWIM Infrastructure and profiles
Description and Scope	SWIM Infrastructure is part of the Data Communication Infrastructure defined in the SESAR EATM Architecture



SESAR EATM Architecture

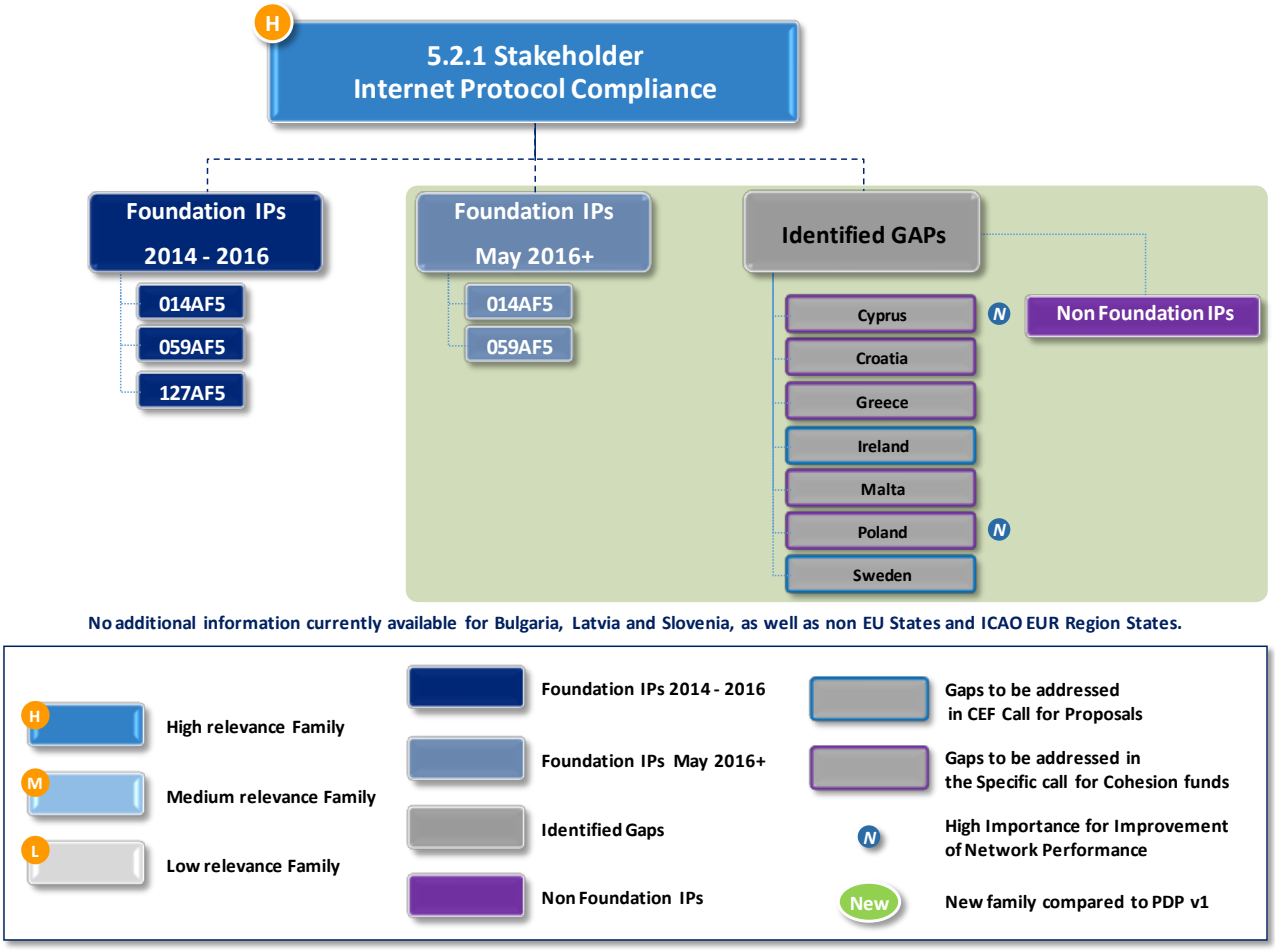
More precisely the following picture shows the place of the SWIM Infrastructure within the SWIM scope.



The IR 716/2014 stipulates *"Initial System Wide Information Management (iSWIM) supports information exchanges that are built on standards and delivered through an internet protocol (IP)-based network by SWIM enabled systems"*.
So a strong SWIM prerequisite is to be IP-compliant.

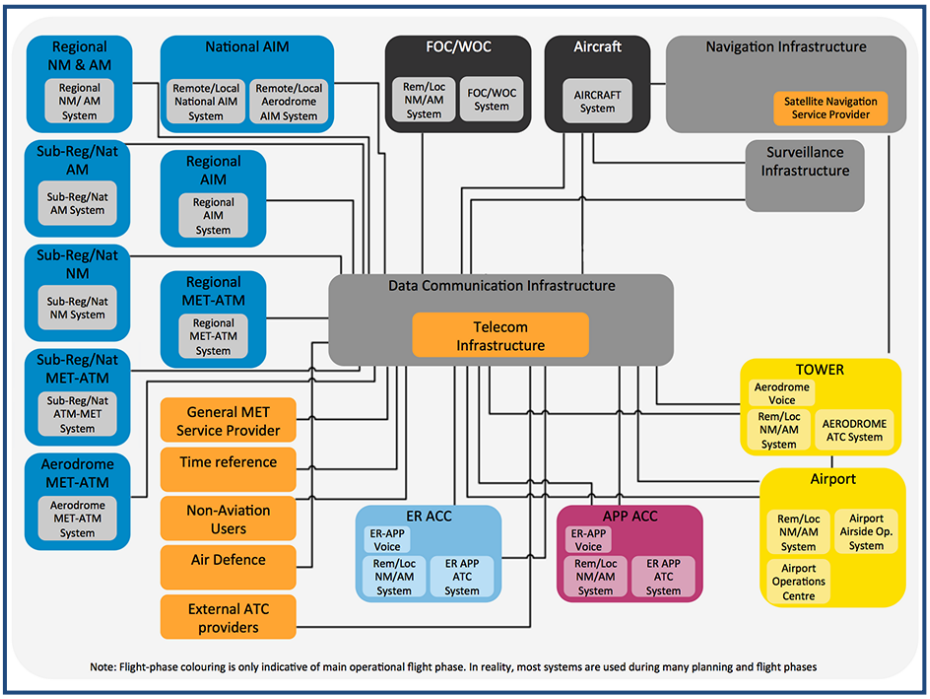
	This family is dealing with the necessary Internet Protocol compliance for each civil and military stakeholder to be able to support future SWIM information exchanges through SWIM profiles based on Internet Protocol. The scope of this Projects Family aims mainly at implementing on civil and military stakeholder side Internet Protocol Network connectivity to be able to exchange ATM information. OLDI/FMTP implementation could be considered in this family even if not in the IR 716/2014 scope.
Initial Operational Capability	Before 2014:several Stakeholders have started to deploy Internet Protocol Networks and to implement OLDI/FMTP in 2000s
Full Operational Capability	01/01/2016: for OLDI/FMTP ANSPs and NM shall be Internet Protocol compliant before end 2015.
References and guidance material	ATM Master Plan Level 2 (Dataset 14):IS-0901-A; CM-0201-A ATM Master Plan Level 3 (Edition 2014): None
Concerned stakeholders	All the PCP stakeholders not yet IP-compliant
Geographical applicability	Commission Implementing Regulation (EU) No 716/2014
Synchronization	Each civil and military stakeholder not yet Internet Protocol compliant should plan to transition to Internet Protocol version 6 connectivity in order to be in a position to exchange information with other stakeholder in the near future through SWIM Network.
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014 Commission Implementing Regulation (EU) No 633/2007
Industry Standards	Internet Protocol version 6 and 4 for Unicast and multicast communications.
Means of compliance and Certification or community specifications	None
Interdependencies	All AF5 Families
Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	High for stakeholders not yet Internet Protocol compliant for data exchanges (including for civil-military coordination as envisaged in the OLDI/FMTP IR).
Recommendation for the IPs proposal	Stakeholders not yet compliant are highly invited to present IP compliance. It is recommended to take into consideration the results of level 4 Gap analysis, as reported in the following Chart and within section 5.1.2.

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.



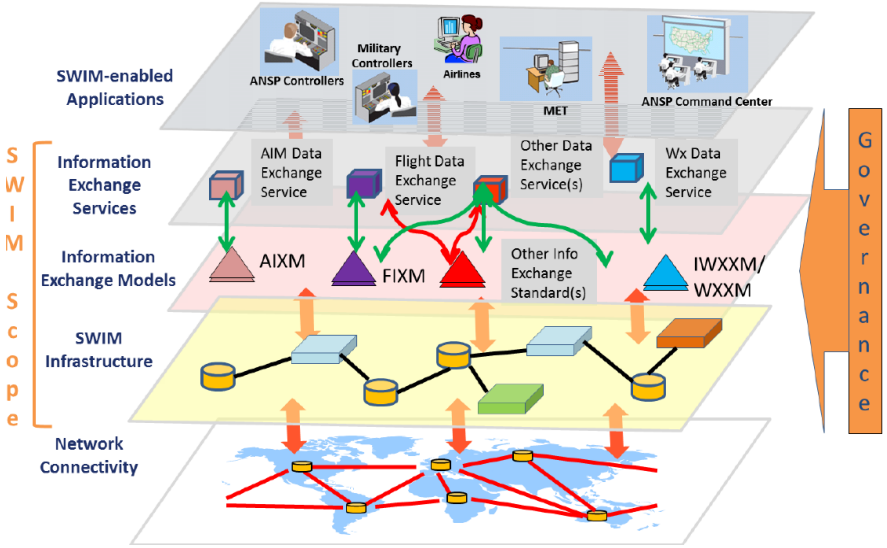
3.5.5 Family 5.2.2 – Stakeholder SWIM Infrastructures Components

Designator	5.2.2
Name	Stakeholder SWIM Infrastructure Components
Main Sub-AF	S-AF 5.2 SWIM Infrastructure and profiles
Description and Scope	SWIM Infrastructure is part of the Data Communication Infrastructure defined in the SESAR EATM Architecture



SESAR EATM Architecture

More precisely the following picture shows the place of the SWIM Infrastructure within the SWIM scope.



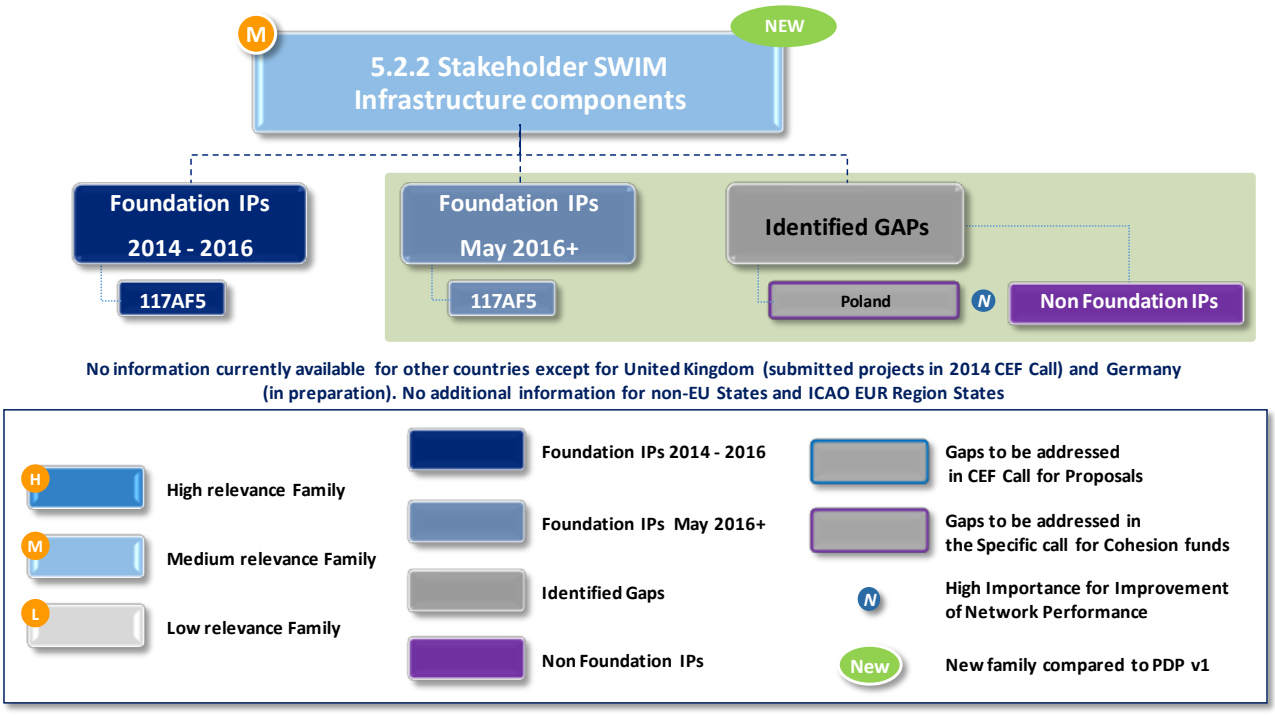
Within the IR 716/2014 the SWIM Infrastructure has been split in two parts:

- The common components § *5.1.1. Common infrastructure*

	components - The stakeholders' components § *5.1.2. SWIM Technical Infrastructure and Profiles* According to PCP §*5.1.2. SWIM Technical Infrastructure and Profiles* of ATM stakeholders shall be driven by the following requirements: *A SWIM Technical Infrastructure (TI) Profile implementation shall be based on standards and interoperable products and services. Information exchange services shall be implemented on one of the following profiles:* *— Blue SWIM TI Profile, which shall be used for exchanging flight information between ATC centres and between ATC and Network Manager* *— Yellow SWIM TI Profile, which shall be used for any other ATM data (aeronautical, meteorological, airport, etc.)* This family is dealing with the **Stakeholders SWIM Infrastructure components** when the family "Common SWIM Infrastructure Components" (5.1.3) is dealing with the common SWIM components. The scope of this Projects Family aims at implementing in each civil or military Stakeholder the following SWIM components: - Blue Profile - Yellow Profile - Any other components necessary for stakeholder SWIM implementation (Supervision, Security, …) This family has also to address the Stakeholder transition issues from legacy protocol (AFTN, AMHS, FMTP,) to SWIM environment.
Initial Operational Capability	Before 2014: even if the common SWIM Infrastructure is not yet formally set-up, some Stakeholders have already started the implementation of SWIM by using the first deliverables of SESAR1.
Full Operational Capability	01/01/2025
References and guidance material	ATM Master Plan Level 2 (Dataset 14):IS-0901-A ATM Master Plan Level 3 (Edition 2014): None
Concerned stakeholders	All the civil or military Airspace Users, Airport Operators, Civil and Military ANSPs, Network Manager, MET, AIS providers are concerned
Geographical applicability	Commission Implementing Regulation (EU) No 716/2014
Synchronization	It is essential that appropriate SWIM Governance Structure and Processes are established to develop and monitor an agreed SWIM implementation roadmap. Strong coordination and synchronisation is necessary between all stakeholders (including military) to implement their SWIM infrastructure according to the agreed SWIM roadmap.

Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014
Industry Standards	None
Means of compliance and Certification or community specifications	None
Interdependencies	5.1.3, 5.3.1, 5.4.1, 5.5.1,5.6.1
Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	Low if not linked to precise Information Exchanges implementation. Medium/high if linked to precise Information Exchanges implementation plan (5.3.1, 5.4.1, 5.5.1, 5.6.1).
Recommendation for the IPs proposal	According to their SWIM implementation planning, stakeholders are invited to propose IPs to implement their SWIM infrastructure. Such IPs should be linked to implementation planning of ATM Information Exchanges of the PCP (Aeronautical, Meteorological, Cooperative Network, Flights)

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.



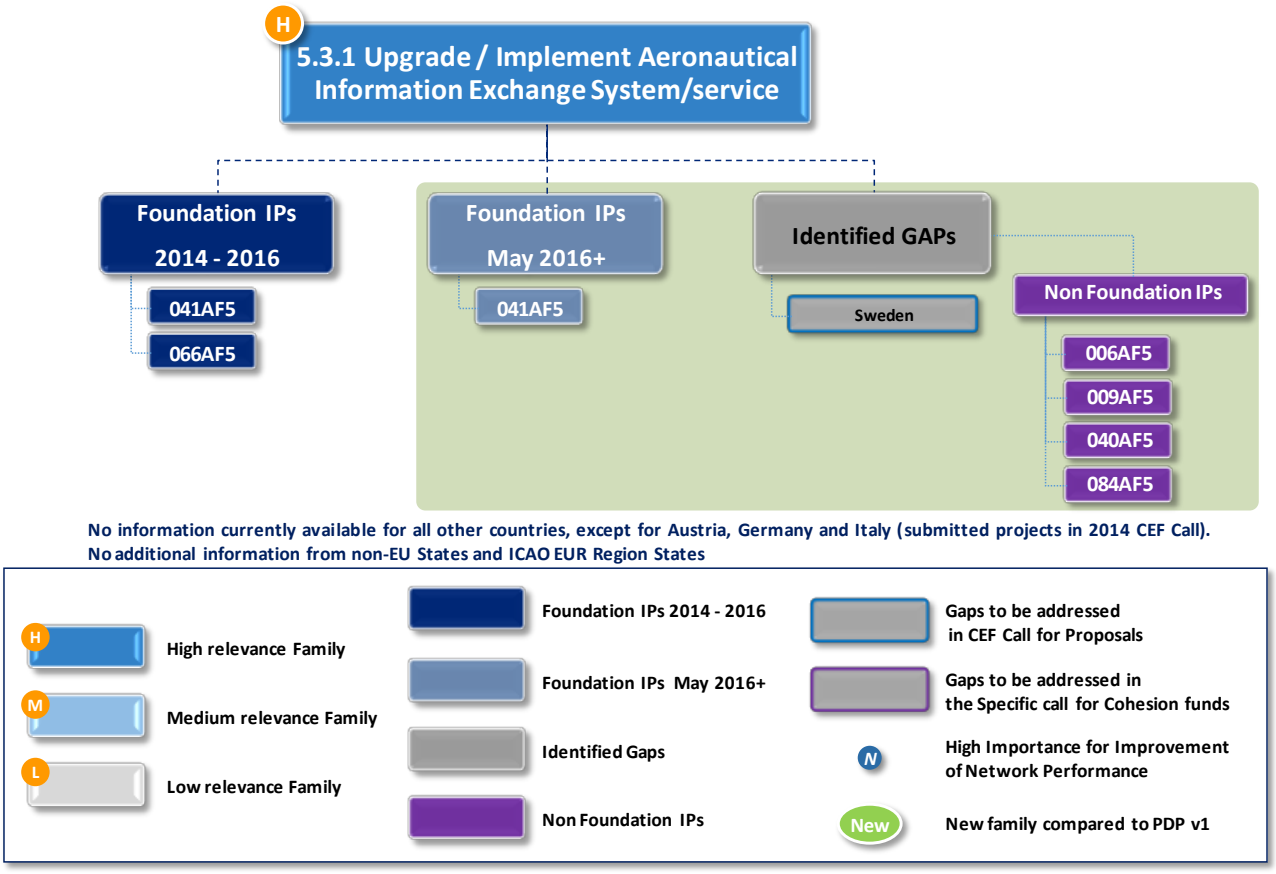
3.5.6 Family 5.3.1 – Upgrade / Implement Aeronautical Information Exchange system / service

Designator	5.3.1
Name	Upgrade / Implement Aeronautical Information Exchange system / service
Main Sub-AF	S-AF 5.3 SWIM Aeronautical Information Exchange
Description and Scope	*PCP content:* *Operational stakeholders shall implement services which support the exchange of the following aeronautical information using the yellow SWIM TI Profile:* — *Notification of the activation of an Airspace Reservation/Restriction (ARES)* — *Notification of the de-activation of an Airspace Reservation/Restriction (ARES)* — *Pre-notification of the activation of an Airspace Reservation/Restriction (ARES)* — *Notification of the release of an Airspace Reservation/Restriction (ARES)* — *Aeronautical information feature on request. Filtering possible by feature type, name and an advanced filter with spatial, temporal and logical operators.* — *Query Airspace Reservation/Restriction (ARES) information* — *Provide Aerodrome mapping data and Airport Maps* (including eTOD: electronic Terrain and Obstacle Data) — *Airspace Usage Plans (AUP, UUP) — ASM level 1, 2 and 3* — *D-NOTAMs* *Service implementations shall be compliant with the applicable version of Aeronautical Information Reference Model (AIRM), the AIRM Foundation Material and the Information Service Reference Model (ISRM) Foundation Material.* The related ISRM services, defined in the Registry managed by the SWIM Governance Structure and Processes, have to be implemented according to the Registry content. This projects family aims at Upgrading / Implementing Aeronautical Information Exchange system / service in accordance with SWIM principles The related ATM systems shall be able to use the Aeronautical information exchange services. The systems shall be upgraded or implemented to support the Aeronautical Information exchange in compliance with the yellow SWIM TI Profile, either through the Public Internet or over PENS. The different communications paradigms of this profile shall be adapted for supporting the different levels of technical compliance of the stakeholders. The Service implementations shall be compliant with the applicable version of AIRM, the AIRM Foundation Material and the

	ISRM Foundation Material as SDD (Service Design Document), when adopted as standards by the relevant bodies (SWIM Governance Bodies with the support of ESOs, as EUROCAE). The Stakeholders systems shall be adapted to support simultaneously the legacy messaging exchanges (e.g. AFTN, AMHS …) and the yellow SWIM profile information exchange, allowing a smooth migration of the stakeholders to SWIM. Security and availability shall be upgraded to support the strong dependencies caused by the system to system interactions. Stakeholder security shall be improved by conducting a risk assessment and by establishing security monitoring and management tools and procedures.
Initial Operational Capability	01/01/2017
Full Operational Capability	01/01/2022 (due to close linkage with implementation of FRA s-AF3.2)
References and guidance material	ATM Master Plan Level 2 (Dataset 14):IS-0901-A ATM Master Plan Level 3 (Edition 2014): None IDP: SWP 2.1.1 and WP 2.4 For interoperability with NM: NM B2B technical documentation
Concerned stakeholders	Airspace Users, Airport Operators, Civil and Military ANSPs, Network Manager, AIS providers
Geographical applicability	AOC system providers, Network Manager, Airport Operators - as specified in Appendix to Annex 1, Civil and Military ANSPs - as specified in Appendix to Annex 1
Synchronization	Synchronization is needed before full implementation of S-AF 3.3
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014
Industry Standards	None
Means of compliance and Certification or community specifications	None
Interdependencies	Interdependencies with S-AF 3.1 Airspace Management and Advanced Flexible Use of Airspace
Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	High

Recommendation for the IPs proposal	Multiple stakeholders Implementing Projects could be relevant.

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.



3.5.7 Family 5.4.1 – Upgrade / Implement Meteorological Information Exchange system / service

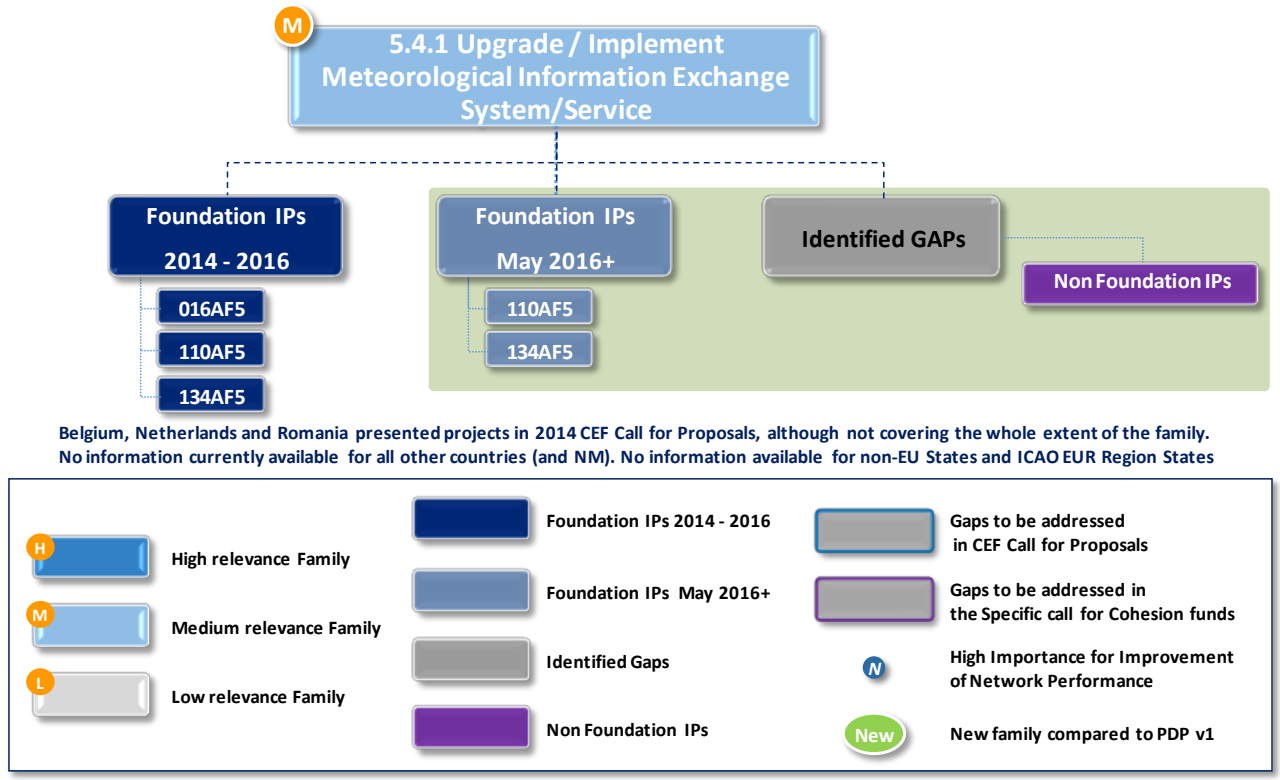
Designator	5.4.1
Name	Upgrade / Implement Meteorological Information Exchange system / service
Main Sub-AF	S-AF 5.4 SWIM Meteorological Information Exchange

Description and Scope	*PCP content:*
	Operational stakeholders shall implement services which support the exchange of the following meteorological information using the yellow SWIM TI Profile:
	- *Meteorological prediction of the weather at the airport concerned, at a small interval in the future:*
	  o *wind speed and direction*
	  o *the air temperature*
	  o *the altimeter pressure setting*
	  o *the runway visual range (RVR)*
	- *Provide Volcanic Ash Mass Concentration*
	- *Specific MET info feature service*
	- *Winds aloft information service*
	- *Meteorological information supporting Aerodrome ATC & Airport Landside process or aids involving the relevant MET information, translation processes to derive constraints for weather and converting this information in an ATM impact; the system capability mainly targets a 'time to decision' horizon between 20 minutes and 7 days.*
	- *Meteorological information supporting En Route/Approach ATC process or aids involving the relevant MET information, translation processes to derive constraints for weather and converting this information in an ATM impact; the system capability mainly targets a 'time to decision' horizon between 20 minutes and 7 days*
	- *Meteorological information supporting Network Information Management process or aids involving the relevant MET information, translation processes to derive constraints for weather and converting this information in an ATM impact* (by making use of probabilistic models to aid decision support*); the system capability mainly targets a 'time to decision' horizon between 20 minutes and 7 days*
	
	This family of implementation projects aims at upgrading / Implementing Meteorological Information Exchange system / service / data standards according to SWIM principles.
	ATM stakeholders systems shall be able to use the MET information exchange services
	
	The systems shall be upgraded or implemented to support the exchange of Meteorological Information in WXXM/iWXXM formats in compliance with the yellow SWIM TI Profile, either through the Public Internet or over PENS. The different communications paradigms of this profile shall be adapted for supporting the different levels of technical compliance of the stakeholders.
	The Service implementations shall be compliant with the

	applicable version of AIRM, the AIRM Foundation Material and the ISRM Foundation Material, when adopted as standards by the relevant bodies (SWIM Governance Bodies with the support of ESOs, as EUROCAE). The Stakeholders systems shall be adapted to support simultaneously the legacy messaging exchanges and the yellow SWIM profile information exchange, allowing a smooth migration of the stakeholders to SWIM. Security and availability shall be upgraded to support the strong dependencies caused by the system to system interactions. Stakeholder security shall be improved by conducting a risk assessment and by establishing security monitoring and management tools and procedures.
Initial Operational Capability	01/01/2017
Full Operational Capability	01/01/2025
References and guidance material	ATM Master Plan Level 2 (Dataset 14): MET-0101 ATM Master Plan Level 3 (Edition 2014): None
Concerned stakeholders	Civil and military Met service providers, civil and military ANSPs, AOP, AUs, NM
Geographical applicability	ANSPs, AOP as specified in PCP Appendix to Annex 1
Synchronization	Although individual ANSPs may be connected at different times, the benefits are gained once a critical mass of ANSPs are using WXXM format. Synchronization with AU/AOP/NM could be relevant. Body responsible for synchronization and coordination to be considered.
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014
Industry Standards	EUROCONTROL Standard for ground sharing of Weather Data (WXXM)
Means of compliance and Certification or community specifications	None
Interdependencies	No discrete interdependencies to other S-AFs. However, improved exchange of MET information will have positive effects of the entire EATMN system.
Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	Medium

Recommendation for the IPs proposal	Multiple stakeholders Implementing Projects could be relevant.

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.



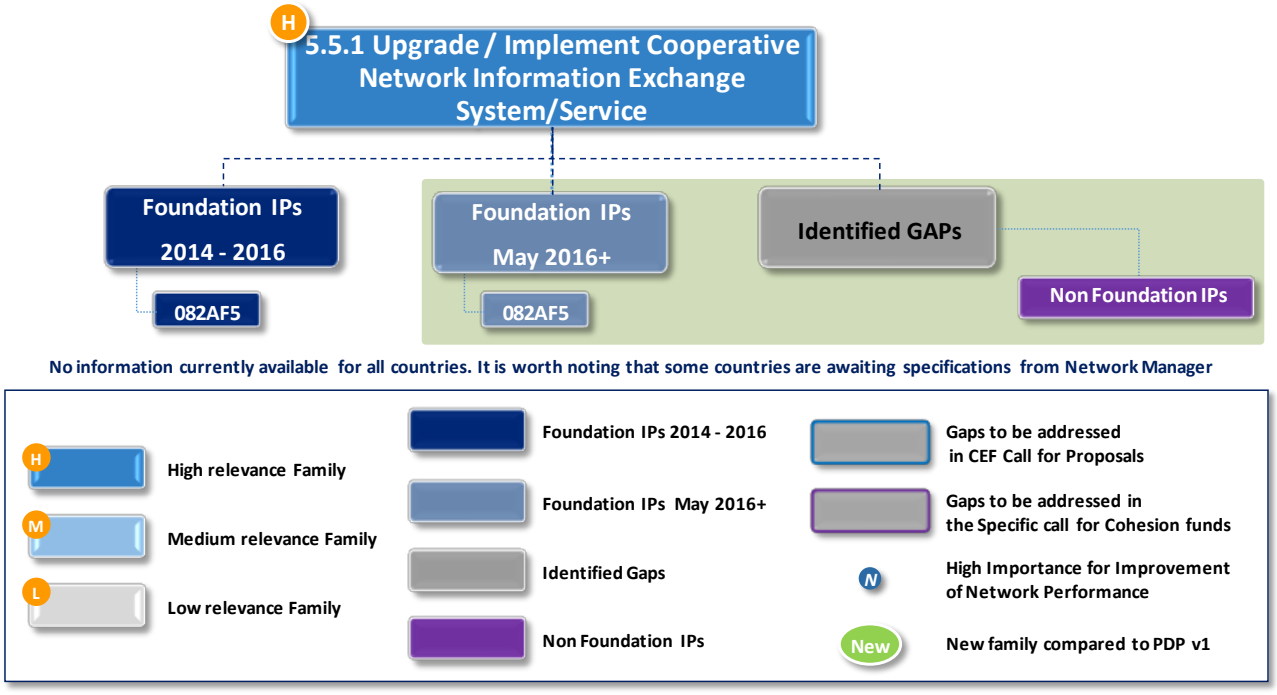
3.5.8 Family 5.5.1 – Upgrade / Implement Cooperative Network Information Exchange system/service

Designator	5.5.1
Name	Upgrade/Implement Cooperative Network Information exchange system/service
Main Sub-AF	Sub-AF 5.5 Cooperative Network Information Exchange
Description and Scope	The Network Information will be freely exchanged between the systems of the Operational stakeholders by means of defined cooperative network information B2B services, using the yellow SWIM TI Profile. The scope of the projects family is the implementation by the Operational stakeholders of the B2B services which support the exchange of the cooperative network information using the yellow SWIM TI Profile for the sake Air Traffic Flow and Capacity Management. The information to be exchanged covering the PCP ones are: - Maximum airport capacity based on current and near term weather conditions, - Synchronization of Network Operations Plan and all Airport Operations Plans, - Departure and arrival planning information, - ATFCM pre-tactical and tactical plans (regulations, re-routings, sector configurations, runway updates, monitoring values, capacities, traffic volume activations, scenarios, etc.), - Short term ATFCM measures, - ATFCM congestion points, - Network events, - Rerouting opportunities, - Restrictions, - Traffic counts information, - Demand data (civil, military), - Flow and Flight message exchange (flight exchanges are meant for ATFCM purpose), - Airspace structure, availability and utilisation, - Network and En-Route/Approach Operation Plans, - Network impact assessment, - Service availability information, - General information messages (ATFCM Information Messages and headline news), - … The systems shall be upgraded to support the B2B exchange of information in compliance with the yellow SWIM TI Profile, either through the Public Internet or over PENS. The different communications paradigms of this profile shall be provided by the Network Manager, supporting the different levels of technical compliance of the stakeholders. The list of SWIM services developed by NM and already available in operations that are in scope of 5.5.1 is the following.

	- Airspace structure, availability and utilisation: ▪ Download of complete AIXM 5.1 datasets with the following entities: AS, PT, RT, UT, AD, AZ, TV, TZ, RL, FW, RS ▪ Incremental AIXM 5.1 data sets ▪ Creation and update of Airspace Use Plan service for AMCs ▪ Publication of the European Airspace Use Plan - ATFCM pre-tactical and tactical plans ▪ Retrieve regulation list and details, sector configuration plans, runways configuration plan, monitoring values, capacity plan, traffic volume activations ▪ Create and update regulations, sector configurations plan, runways configuration plan, monitoring values, capacity plan, traffic volume activations - Restrictions ▪ Part of the airspace structure service - Traffic counts information ▪ Traffic counts (entry or occupancy, where relevant) by AO, by AD, by AZ, by AS, by PT, by TV - General Information Messages ▪ Retrieve ATFCM Information messages - Flow and Flight message exchange (flight exchanges are meant for ATFCM purposes) ▪ Retrieve flight lists by AO, AD, PT, AS, TV, AZ ▪ Retrieve flight details The Service implementations shall be compliant with the applicable version of AIRM, the AIRM Foundation Material and the ISRM Foundation Material as SDD (Service Design Document), when adopted as standards by the relevant bodies (SWIM Governance Bodies with the support of ESOs, as EUROCAE). The Network Manager systems shall be adapted to support simultaneously the legacy messaging exchanges and the yellow SWIM profile information exchange, allowing for a progressive migration of the stakeholders to SWIM. Security and availability shall be upgraded to support the strong dependencies caused by the system to system interactions. Network security shall be improved by conducting a risk assessment of the network management functions and by establishing security monitoring and management tools and procedures.
Initial Operational Capability	Before 2014
Full Operational Capability	01/01/2025, required by the IR The Network Operation Plan plans a completion of this family by end of 2019 as the Cooperative Network Information exchanges are based on mature technologies and services.

References and guidance material	ATM Master Plan Level 2 (Dataset 14):IS-0901-A ATM Master Plan Level 3 (Edition 2014): Link to AOM-19, FCM-03, FCM-05 NSP: SO 2/2, SO 2/4, SO 5/2, SO5/4, SO5/5, SO6, SO7/6 ICAO Global Air Navigation Plan: B1-NOPS and B1-SWIM For interoperability with NM: NM B2B technical documentation
Concerned stakeholders	ANSP, Airport, AU, NM, Military
Geographical applicability	PCP AF5 Geographical Area
Synchronization	The deployment of the information exchange via SWIM shall be coordinated with the relevant stakeholders. NM shall coordinate and support the stakeholders for the deployments of the NM services.
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014
Industry Standards	None
Means of compliance and Certification or community specifications	None
Interdependencies	System-to–system interfaces for access to Network Information in other AFs (Families 4.1.2, 4.1.4, 4.2.2, 4.2.3) are dependent on this AF. Dependencies with Sub-AF3.1 and with family 2.1.4 need to be analysed. Infrastructure dependencies exist with Sub-AF 5.1 (SWIM Common Components and PENS) and Sub-AF 5.2 (Stakeholder compliance to Internet Protocol).
Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	High for the whole scope as the proposed technologies are mature.
Recommendation for the IPs proposal	It is a multi-stakeholders initiative (NM and various Network users). Stakeholders' initiatives should be synchronised to foster benefits. NM shall coordinate and support the stakeholders for the deployments of the NM services but does not recommend to package deployments in a unique project.

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.



3.5.9 Family 5.6.1 – Upgrade / Implement Flights Information Exchange system / service

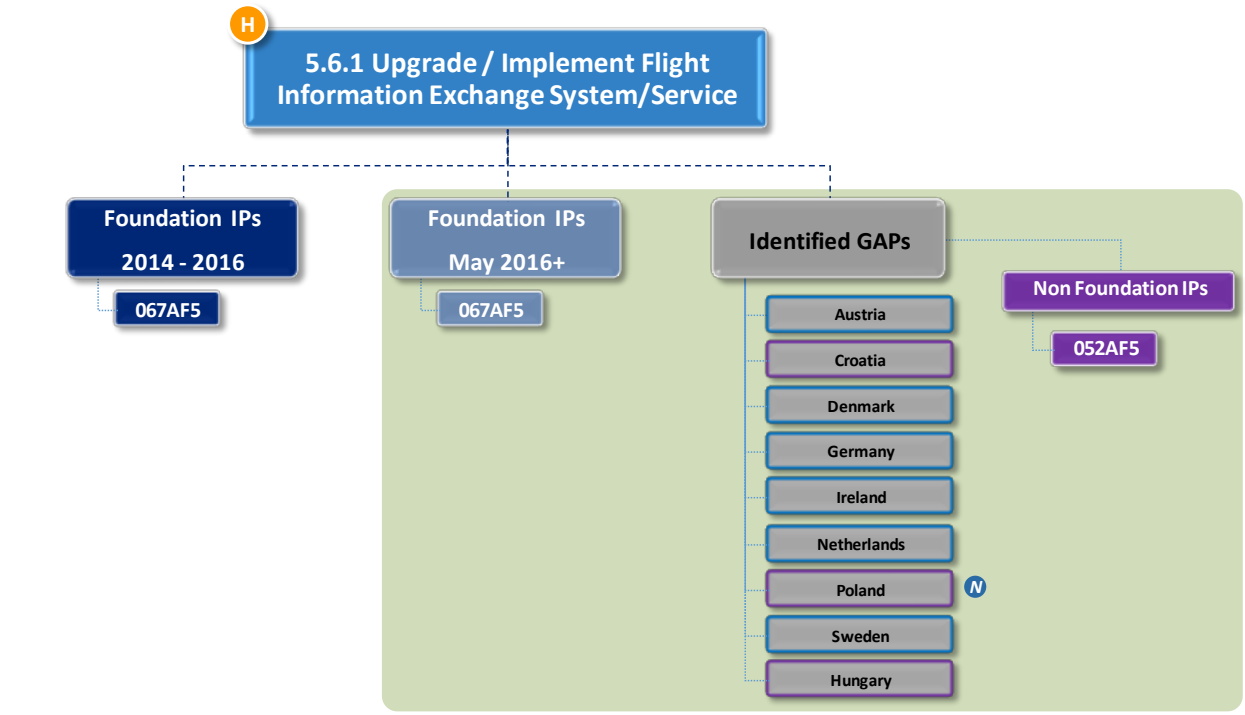
Designator	5.6.1
Name	Upgrade / Implement Flights Information Exchange system / service
Main Sub-AF	S-AF 5.6 SWIM Flights Information Exchange
Description and Scope	*PCP content:* *Flight information shall be exchanged during the pre-tactical and tactical phases by ATC systems and Network Manager.* *Operational stakeholders shall implement services which support the exchange of the following flight information as indicated in the table below using the blue SWIM TI Profile:* *- Various operations on a flight object: Acknowledge reception, Acknowledge agreement to FO, End subscription of a FO distribution, Subscribe to FO distribution, Modify FO constraints, Modify route, Set arrival runway, Update coordination related information, Modify SSR code, Set STAR, Skip ATSU in coordination dialogue* *- Share Flight Object information. Flight Object includes the flight script composed of the ATC constraints and the 4D trajectory* *Operational stakeholders shall implement the following services for exchange of flight information using the yellow SWIM TI Profile:* *- Validate flight plan and routes* *- Flight plans, 4D trajectory, flight performance data, flight status* *- Flights lists and detailed flight data* *- Flight update message related (departure information)* *Service implementations shall be compliant with the applicable version of AIRM, the AIRM Foundation Material and the ISRM Foundation Material.* *System requirements* *- ATC systems shall make use of the flight information exchange services* So two kinds of flight information exchange has to be considered: 1. The first one is dealing with Flight Object (Share Flight Object and various operations on a flight object) between ACC and TMA (identified in the Appendix of the PCP) and NM supported by the blue profile. 2. The second is dealing with various exchanges of Flight Information between operational stakeholders supported by the yellow profile. The list of SWIM services developed by NM already available in operations that are in scope of this second kind of Flight information is the following:

	- Validate flight plans and routes
	  ▪ Flight plan validation
	  ▪ Route generation
	- Flight plans, 4D trajectory, flight performance data, flight status
	  ▪ Flight plan filing and management: create, update, cancel, delay, departure, arrival, status request
	  ▪ Retrieve flight lists by AO, AD, PT, AS, TV, AZ
	  ▪ Retrieve flight details
	
	This projects family aims at implementing the exchange of Flight information in a SWIM framework.
	The civil systems shall be upgraded or implemented to support the Flights Information exchange in compliance with the yellow / blue SWIM TI Profiles, either through the Public Internet or over PENS. PENS shall be used for Flight Object Information using blue Profile.
	The different communications paradigms of these profiles shall be adapted for supporting the different levels of technical compliance of the civil stakeholders.
	
	The Service implementations shall be compliant with the applicable version of AIRM, the AIRM Foundation Material and the ISRM Foundation Material as SDD (Service Design Document), when adopted as standards by the relevant bodies (SWIM Governance Bodies with the support of ESOs, as EUROCAE).
	
	The civil Stakeholders systems shall be adapted to support simultaneously the legacy messaging exchanges and the yellow / blue SWIM profiles information exchange, allowing a smooth migration of the stakeholders to SWIM.
	Security and availability shall be upgraded to support the strong dependencies caused by the system to system interactions. Stakeholder security shall be improved by conducting a risk assessment and by establishing security monitoring and management tools and procedures.
	Particular needs from the military must be considered, especially where for operational security reasons the information cannot and will not be shared.
	AF5 (initial SWIM) is limited to Ground-Ground Information Exchanges. Otherwise, according the PCP (AF5 and AF6) only down-linked trajectory information (not MET and not Aeronautical) from airborne has to be exchanged on ground between some ACCs, some TMAs and NM.
	
	AF6 stipulates that:
	- *"Equipped aircraft shall down-link trajectory information using ADS-C Extended projected Profile (EPP)"*
	- *"FDP and NM systems shall make use of downlink trajectories".*
	
	None is specified on how the down-link trajectory information shall be made available on ground for SWIM.
	A prerequisite joint AF5/AF6 architecture work is necessary to solve such an issue.

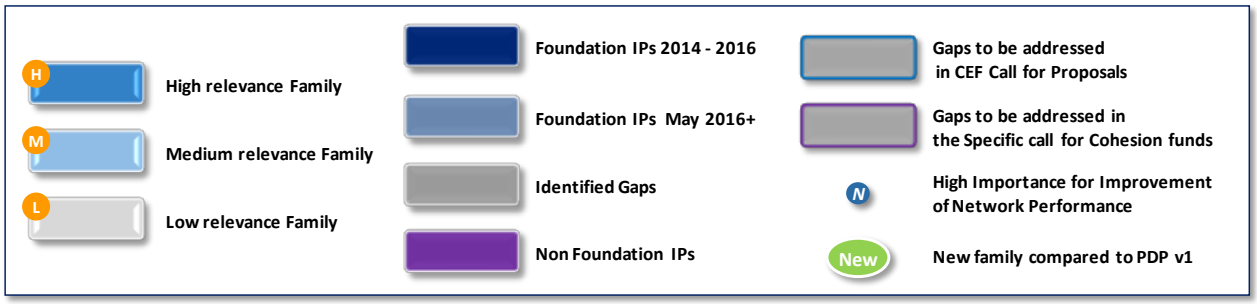
Initial Operational Capability	Before 2014 for other Flight Information 01/01/2018 for Flight Object
Full Operational Capability	01/01/2025
References and guidance material	ATM Master Plan Level 2 (Dataset 14):IS-0901-A; CM-0201-A ATM Master Plan Level 3 (Edition 2014): None For interoperability with NM: NM B2B technical documentation
Concerned stakeholders	Civil and military ANSPs and NM for FO All operational stakeholders and NM for other Flight info
Geographical applicability	Commission Implementing Regulation (EU) No 716/2014
Synchronization	The implementation of the Flight Object distribution and consumption shall be synchronized and coordinated at least by big area like FAB or neighbouring ANSPs. To implement Flight Object only in one ANSP has a limited interest. It could be relevant that a cluster of ANSPs presents IP to implement FO in their Airspace, especially synchronized with e.g. Free Route implementation. For the other Flight information the coordination could be performed by the NM
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014
Industry Standards	None
Means of compliance and Certification or community specifications	None
Interdependencies	Interdependencies with families 5.1.1/5.1.2 (PENS), 5.1.3 (Common Components), 5.2.1 (Stakeholder IP network) and 5.2.2 (Blue and Yellow Profile). SWIM services related to FO enable flight data processing systems to flight data processing systems exchange of down-linked trajectory information between ATS units required by Initial Trajectory Information Sharing functionality referred in AF6. Interdependencies with AF3 and AF4.
Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	Medium for FO High for other Flight Information
Recommendation for the IPs proposal	Stakeholders are expected to submit IPs for the exchange of flight information via the SWIM Yellow Profile, either proposals that include the use of the NM B2B Flight Services or proposals for the provision of services in this domain.

	It could be relevant that a cluster of ANSPs, a FAB or neighbouring ANSPs, present Implementing Projects to implement FO in their Airspace especially synchronized with Free Route implementation.

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.

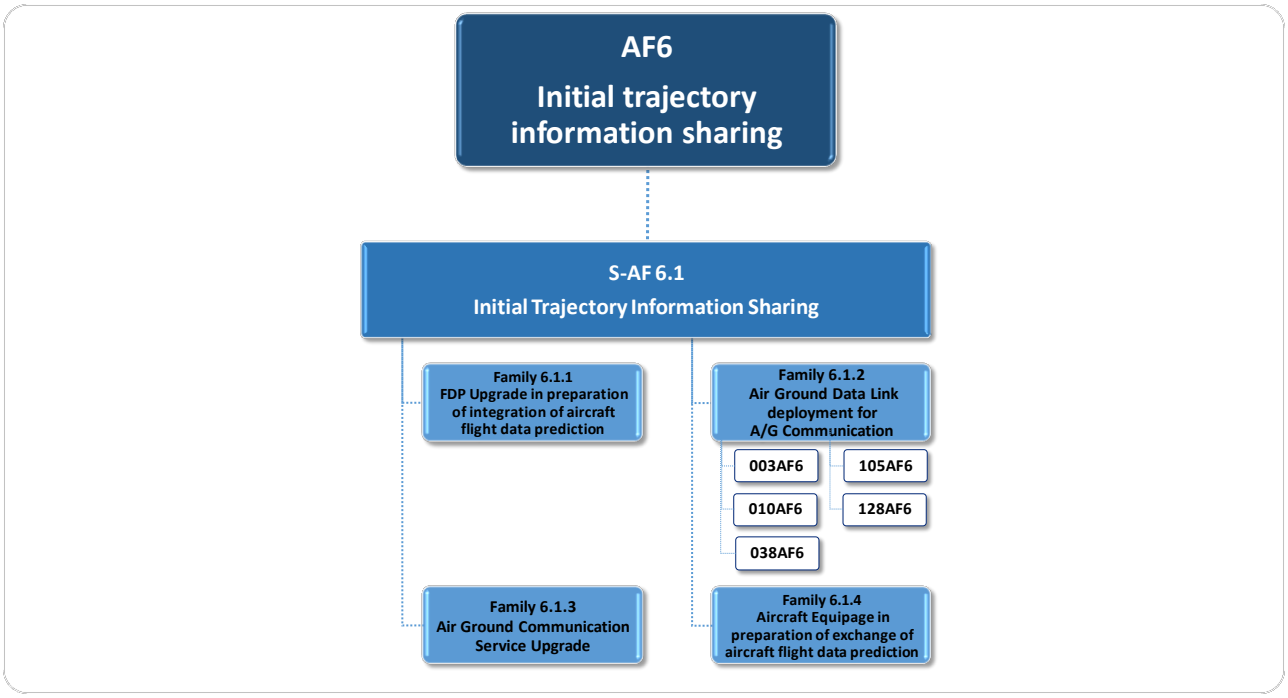


No information currently available for Belgium, Bulgaria, Cyprus, Czech Republic, Estonia, Finland, Greece, Latvia, Lithuania, Luxembourg, Portugal, Romania, Slovak Republic, Slovenia, Spain, United Kingdom, MUAC and NM. No information from non-EU States and from other ICAO EUR Region States



3.6 AF #6 – Initial Trajectory Information Sharing

The following chart highlights all Families and Implementation projects (identified by their Reference Number) related to the AF #6, divided in sub-AFs.



The following table encompasses the list of all projects related to the AF #6. Further details for each Implementation Projects are provided within Annex A.

Reference Number	Title	Foundation	IP description Page Number
003AF6	Deploy Datalink Service EC 29/2009 on aircraft	No	218
010AF6	Ground System Data Link Services	No	220
038AF6	CPDLC - Supply, installation and integration of AGDL system for CPDLC service in CCL	No	222
105AF6	Retrofit of Lufthansa Group Airbus A319 and A320 fleet for Controller Pilot Data Link Communications	No	224
128AF6	NAVIAIR Implementation of Air-ground System Data Link Services	No	226

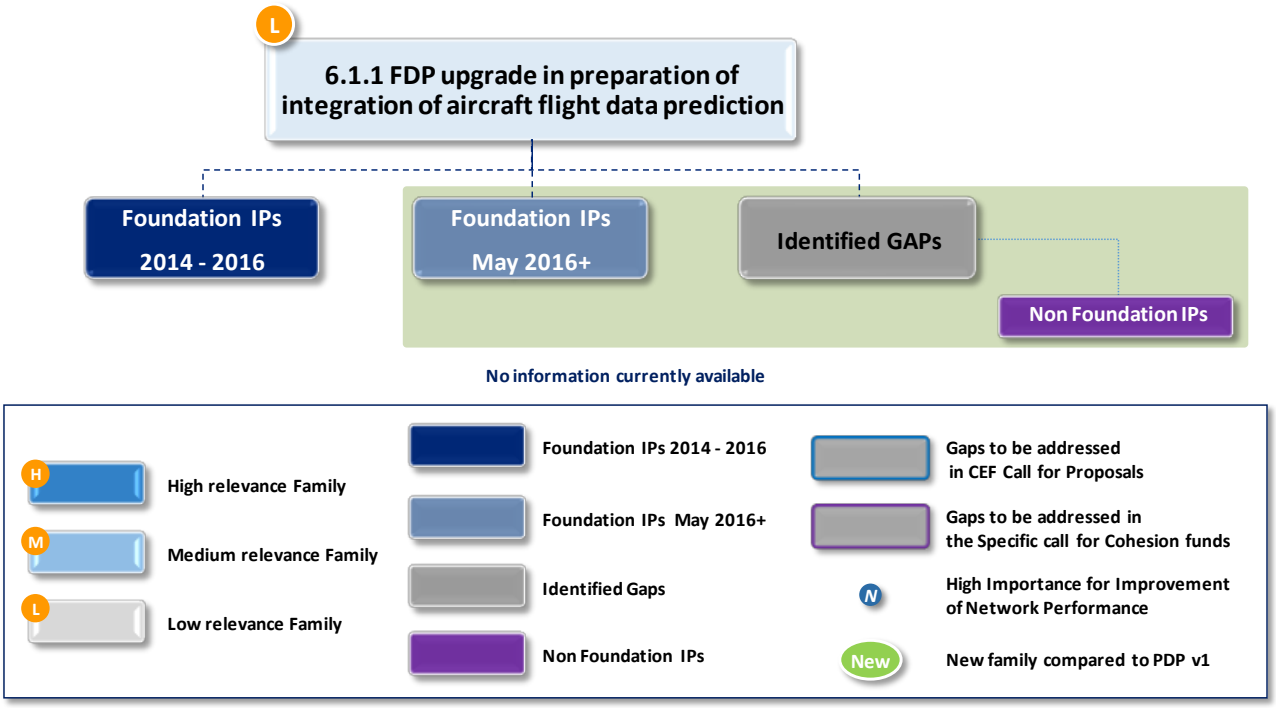
Table 7 – List of AF6 Implementation Projects (IPs)

3.6.1 Family 6.1.1 - FDP upgrade in preparation of integration of aircraft flight data prediction

Designator	6.1.1
Name	FDP upgrade in preparation of integration of aircraft flight data prediction
Main Sub-AF	S AF 6.1 Initial trajectory information sharing
Description and Scope	Adapt FDP to process the air derived flight data provided through ADS-C EPP service. This includes potential interface with the datalink system (to access to the aircraft flight data) and the adaptation of the Trajectory Prediction sub system to integrate such additional information. The following are main system improvements for ground FDP systems: – Inclusion of aircraft FMS 4D trajectory within FDP – Trajectory exchange shall be done via Flight Object exchange – HMI in CWP must also be adjusted accordingly. – Front end processor for ADS-C contracts management (demand/event/periodic.) – NM system need also to be upgraded to process EPP The validation of trajectory information sharing is ongoing and not considered as mature, specifically concerning the implementation of ADS-C EPP in Continental Europe.
Initial Operational Capability	01/01/2020
Full Operational Capability	01/01/2025
References and guidance material	ATM Master Plan Level 2 (Dataset 14):IS-0303-A ATM Master Plan Level 3 (Edition 2014): None NSP SO 5.1, SO 5.5 and SO 8.3
Concerned stakeholders	NM, Civil ANSPs, military ANSP when relevant
Geographical applicability	EU
Synchronization	The integration of such functionality within FDP as proposed must be considered as an opportunity (associated with the FDP evolution strategies of the ANSPs) rather than a synchronised objective because it remains a preparatory activity. Should be synchronised with procedural changes for ATC- operations.
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014
Industry Standards	None

Means of compliance and Certification or community specifications	None
Interdependencies	Availability of a data link capability covered by 6.1.2 is a prerequisite for AF6 including both ATN B1 (required through DLS IR) and the subsequent ATN B2. Interdependencies with AF5, AF3 and AF4.
Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	Low
Recommendation for the IPs proposal	Taking into account the readiness for deployment as the sequencing of this family indicates 2020 as IOC date, for CEF call 2015, IP proposals should be focused on concept/feasibility study items.

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.

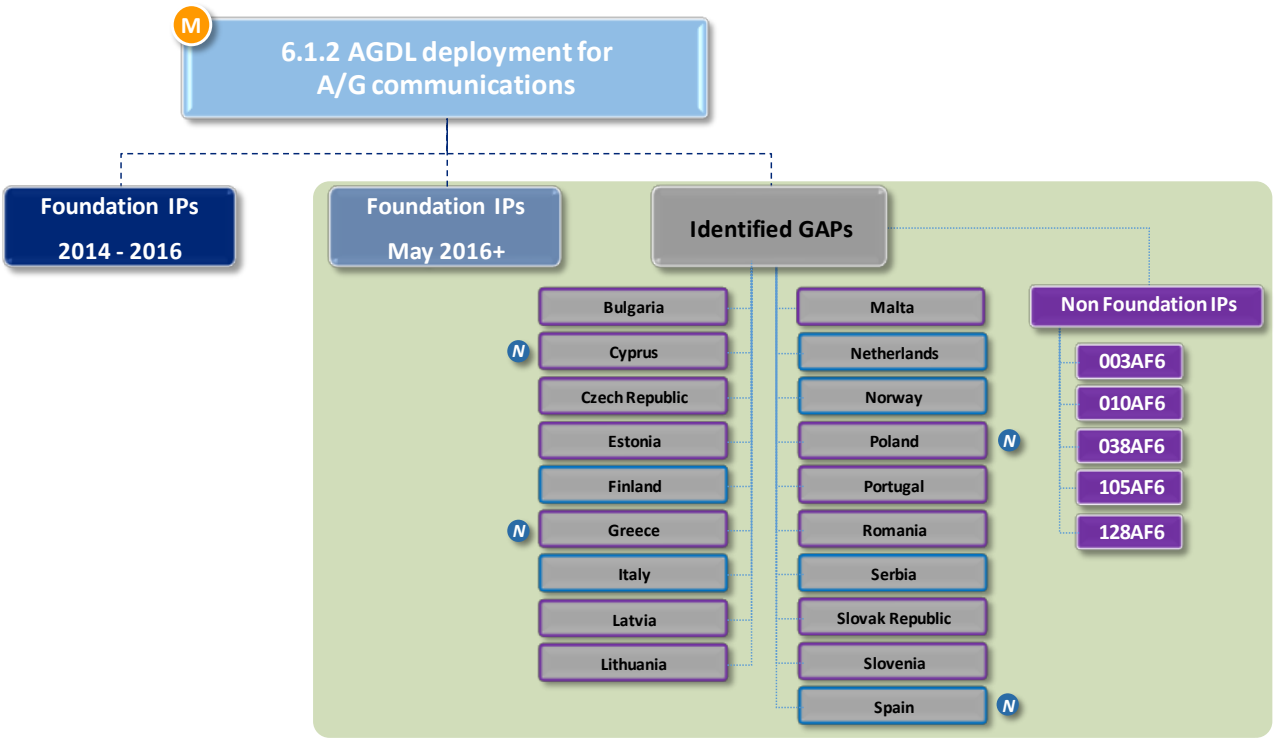


3.6.2 Family 6.1.2 – Air Ground Data Link deployment for Air & Ground Communication

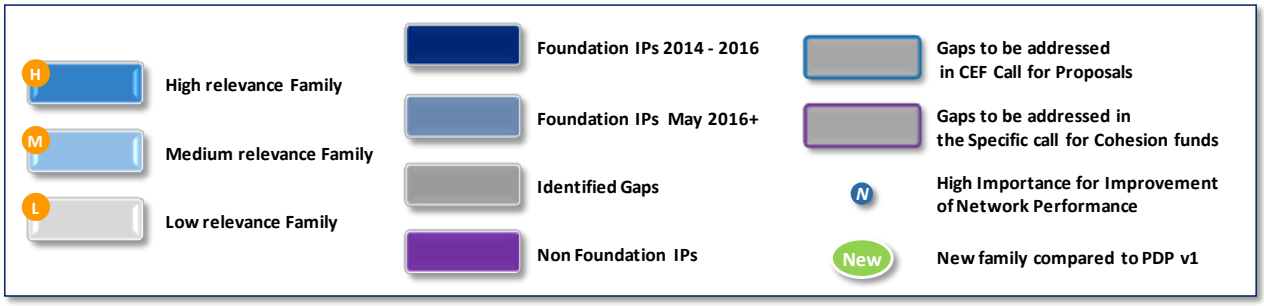
Designator	6.1.2
Name	Initial Air Ground Data Link network deployment for Air & Ground Communication
Main Sub-AF	S AF 6.1 Initial Trajectory Information Sharing
Description and Scope	Air Ground Data Link capability according to Commission Regulation (EC) No 29/2009 on data link services is an essential prerequisite for Initial Trajectory Information Sharing This regulation has been updated by EC regulation n°310/2015. This Family encompass: – Aircraft equipage (civil, military in a voluntary basis) – ATM systems upgrade (front end processor, FDP and HMI) – VDL mode2 for Air Ground communication (task for CSP (Communication Service Providers) – ATC and AUs procedures – ATCO and pilot training One possible solution studied by SJU is the aircraft equipage with multi-frequency. It should be possible for AUs to propose projects to equip aircraft with corresponding equipment, subject to SJU validation.
Initial Operational Capability	Before 2014
Full Operational Capability	According to Commission Implementing Regulation (EU) 2015/310: Ground: 5 February 2018 (airspace of all EU countries above FL285) Aircraft: 5 February 2020 (but not for exempted aircrafts)
References and guidance material	ATM Master Plan Level 2 (Dataset 14): AUO-0301 (baseline) ATM Master Plan Level 3 (Edition 2014): ITY-AGDL NSP: SO 8.3 IDP: AA4
Concerned stakeholders	Civil AU, ANSP, military AU/ANSP when relevant
Geographical applicability	EU
Synchronization	Synchronisation between ANSP and AUs
Regulatory Requirements	Commission regulation (EC) No 29/2009, Commission Implementing Regulation (EU) No 2015/310 Commission Implementing Regulation (EU) No 716/2014
Industry Standards	Standard on DL ATN B2 (ICAO/ESO/EUROCAE)

Means of compliance and Certification or community specifications	Update CS on DL (ETSI-EN-303-214) (ESO)
Interdependencies	Prerequisite for initial trajectory sharing
Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	Medium
Recommendation for the IPs proposal	Nota Bene: A specific study is conducted by SESAR JU to confirm the capability of the foreseen technology. Results are awaited for mid-2016. The conclusion of this study could lead to another modification of the regulation.

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.



NB. Air Ground Datalink has been partially implemented in Sweden, although functionalities/capabilities are still to be investigated

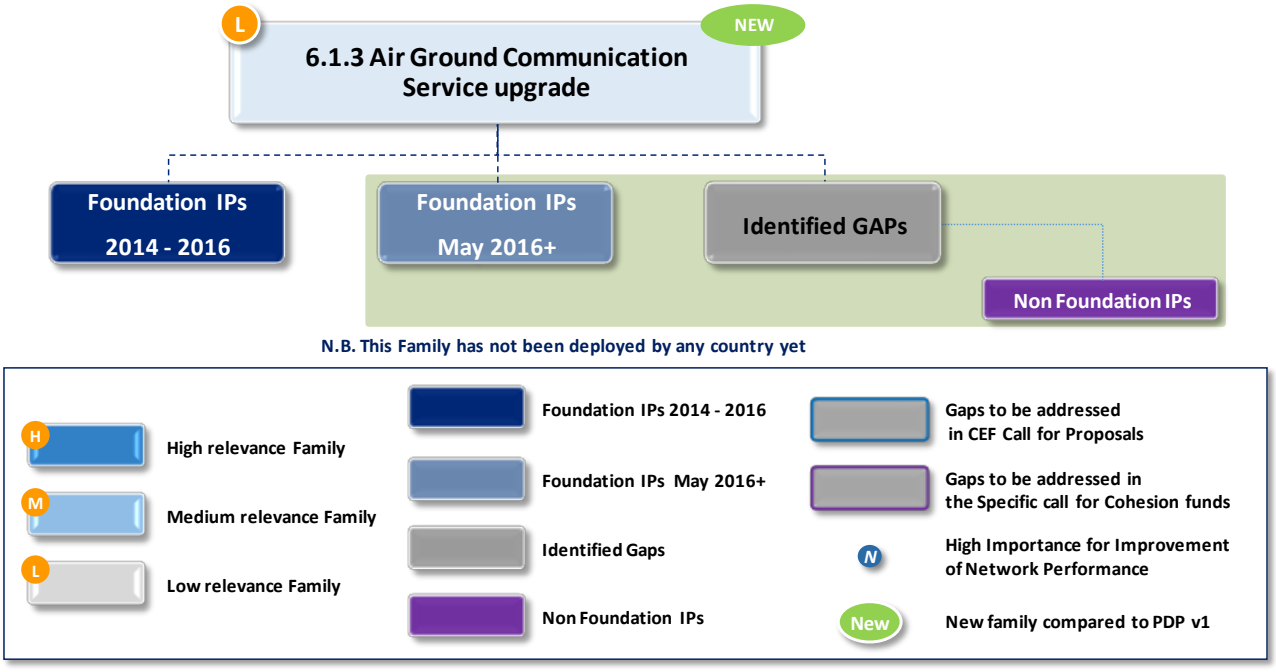


3.6.3 Family 6.1.3 – Air Ground Communication Service Upgrade

Designator	6.1.3
Name	Air Ground communication service upgrade
Main Sub-AF	S AF 6.1 Initial trajectory information sharing
Description and Scope	Air Ground communication service need to be upgraded to allow an increased capacity for new foreseen exchanges. It is foreseen that the implementation of the exchange of complete trajectory will need an increased capacity of the A/G communication not affordable without an upgrade of the A/G communication service. The way this has to be done need to be carefully studied and is considered as still not validated.
Initial Operational Capability	01/01/2020
Full Operational Capability	01/01/2025
References and guidance material	ATM Master Plan Level 2 (Dataset 14): IS-0303-A ATM Master Plan Level 3 (Edition 2014): None NSP: SO 8.3 and SO 8.4
Concerned stakeholders	ANSPs
Geographical applicability	EU
Synchronization	Prerequisite for 6.1.1.
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014
Industry Standards	None
Means of compliance and Certification or community specifications	None
Interdependencies	Availability of a data link capability covered by 6.1.2 is a prerequisite for AF6 including both ATN B1 (required through DLSIR) and the subsequent ATN B2.
Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	Low

Recommendation for the IPs proposal	Taking into account the readiness for deployment as the sequencing of this family indicates 2020 as IOC date, for CEF call 2015, IP proposals should be focused on concept/feasibility study items.

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.

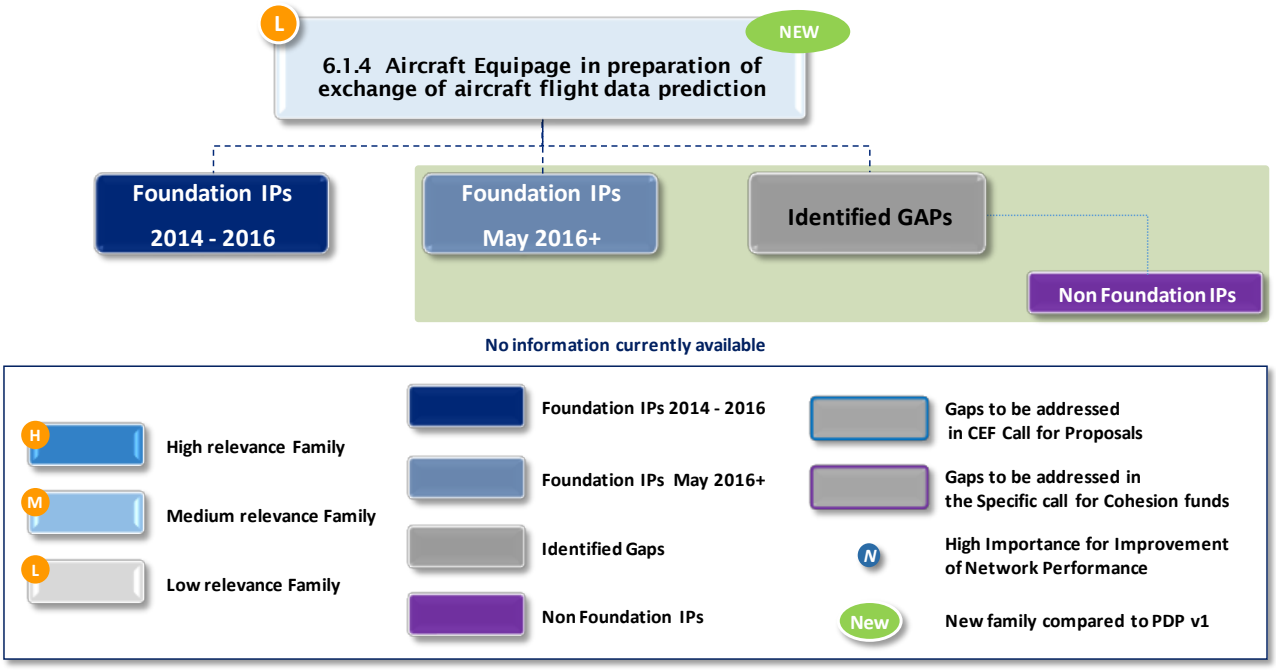


3.6.4 Family 6.1.4 – Aircraft Equipage in preparation of exchange of aircraft flight data prediction

Designator	6.1.4
Name	Aircraft Equipage in preparation of exchange of aircraft flight data prediction
Main Sub-AF	S AF 6.1 Initial trajectory information sharing
Description and Scope	Aircraft Systems shall be able to down-link FMS 4D Trajectory information using the ADS-C Extended Project Profile (EPP) as part of ATN B2 services including CPDLC. Airborne System needs to be updated for: – ADS-C standard for Continental Europe implementation ▪ Aircraft equipage ▪ Procedure and training The validation of trajectory information sharing is ongoing and not considered as mature, specifically concerning the implementation of ADS-C EPP in Continental Europe and because we need to ensure timely industrialisation of ATN B2 ADS-C and CPDLC on-board equipment.
Initial Operational Capability	01/01/2020
Full Operational Capability	01/01/2026
References and guidance material	ATM Master Plan Level 2 (Dataset 14):IS-0303-A ATM Master Plan Level 3 (Edition 2014): None Information derived from on-board FMS and CPDLC information will be transferred over A/G datalink to ATC systems on ground
Concerned stakeholders	Civil /military AUs when relevant
Geographical applicability	EU
Synchronization	The synchronisation between ground and airborne system is needed to have any benefit.
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014
Industry Standards	None Actual standard for ADS-C in FANS is not convenient for ADS C-EPP in Continental Europe
Means of compliance and Certification or community specifications	None
Interdependencies	Availability of a data link capability covered by 6.1.2 is a prerequisite for AF6 including both ATN B1 (required through DLS IR) and the subsequent ATN B2.

Relevance for CEF Transport and Cohesion Fund Calls for Proposals 2015	Low, taking into account the readiness for deployment as the sequencing of this family indicates 2020 as IOC date.
Recommendation for the IPs proposal	Taking into account the readiness for deployment as the sequencing of this family indicates 2020 as IOC date, for CEF call 2015, IP proposals should be focused on concept/feasibility study items.

The following chart reports the list of implementation priorities for the timely implementation of PCP, including both IPs already presented in 2014 CEF Call (highlighting also projects to be "secured" for 2015 CEF Call), if any, and the results of the L4 Gap Analysis.



4. Performance view

As explained in chapter 2.4, this chapter illustrates practicalities that will drive the SDM to propose an initial Performance view in DP v1.1.

Based on the input from the Implementation Project Managers of the 2014 CEF Call for Proposals, the Network Manager (NM) and the SESAR Deployment Manager's Experts (SDM) reviewed the assessments of a sample of Implementation Projects.

On the total of 110 projects, 67 questionnaires were completed (~70% coverage).

The assessment is done with the same "rules" given previously to the Project Leaders.

The assessment methodology of the performance view aims at:

- Evaluating the contribution of both separate IPs locally and the IPs collectively to SES performance target (Safety, capacity, environment, flight efficiency)
- Ensuring consistency between IPs in the same thread;
- Pointing out the link between IPs, interdependency and reference to Network Operation Plan where applicable;
- Avoiding multi-counted benefits;

The result will be completed by September 2015 to give a more complete overview in DPv1.1 (see chapter 7).

The full performance assessment will also comprise the local benefits, which make it even more reasonable to invest in such technologies.

An additional question which will rise in the future will be the correct assumptions of exchange rates, or other relevant factors, where these will have a big impact on the whole business case (i.e. ratio of $ vs. €). In order to recognize such difficulties, the SDM will recommend that all costs are calculated in Euro and the taken exchange rates are mentioned as additional information.

To conclude these preliminary considerations about the Performance View, it is worth recalling the general context.

"The Single European Sky (SES) initiative aims to achieve "more sustainable and performing aviation" in Europe. The SES High level Goals are political targets set by the European Commission with the support of the Single Sky Committee. The purpose of these High-level Goals is to set the optimal ATM performance levels to be reached in the European Air Traffic Management (ATM) network and to drive efforts to achieve them. The vision and High-level Goals for the SES were set in 2005 by the Commission:

- Enable a 3-fold increase in ATM capacity , to be deployed where needed, reducing delays both on the ground and in the air,
- Improve safety by a factor of 10,
- Enable a 10 % reduction in the effects flights have on the environment and,
- Provide ATM services at a unit cost, to the airspace users, which is at least 50% less.

With the introduction of the SES Performance Scheme in 2010, European ATM now operates a formal and explicit performance-driven approach, which adopts performance indicators – fit for setting binding regulatory targets on specific stakeholders accountable for delivering measurable performance outcomes.

The DPV1, being the project view of the PCP regulation 716/2014 is designed to fully meet the intended performance improvements of the ATM system as stated in the regulation 716/2014. The planning of DPV1 as well as the monitoring and reporting parts of the implementation projects aim to full transparency. Within the given legal and regulatory framework, data information to the PRB on DP implementation projects costs and benefits is envisaged by SDM to ensure transparency on ATM investments in Europe. Cooperation with PRB by SDM will be part of DP execution monitoring and reporting.

The performance view of the future DP evolutions is intended to develop clear evidence of the actual contributions of implementing projects to the SES high level goals. This will include but not limited to evaluating the contribution of both separate IPs locally and the IPs collectively to SES performance targets.

The SES performance-driven approach focuses on the four Key Performance Areas (KPAs) of environment, cost-efficiency, safety and capacity, reflecting the SES high-level goals.

The CBA assessment of the implementation projects, as indicated above in the performance methodology, will be finally compared to the initial PCP CBA. However, the methodology still needs to be developed. Reference in the performance assessment will be made to the costs and benefits of projects being implemented versus the initially expected outcome of the projects.

In this context, the Projects responding to the INEA Calls in line with the specifications of DP v1 aim at developing the new-generation air traffic management system capable of ensuring improved safety and efficiency of air transport throughout the ECAC area.

5. Monitoring view

An effective and efficient monitoring of the Implementation projects, submitted and selected within the frame of CEF Transport Call for proposals 2014 and upcoming calls is pivotal to ensure a **timely implementation** of the **Deployment Programme.** Indeed, only a structured monitoring process will enable the **achievement** of the **expected performance benefits** at **Programme level,** taking into account the **interdependencies** among projects, as well as the **prompt identification** of **major risks** which might impact the Programme, together with the most suitable **mitigation actions.**

In particular, the SDM aims at monitoring the **progress** of the **Implementation Projects** in order to have a clear and timely understanding of the overall **progress** at **Deployment Programme level.**

Due to the tight timeframe in which DP v1 is embedded, and taking into account the parallel evaluation of the implementation projects submitted to CEF Transport Call for Proposals 2014, the monitoring process activated by the SDM for this first version of the Programme, described in paragraph 5.1, has been tailored accordingly, and represents an intermediate working arrangement towards the definitive SDM monitoring process, reported in paragraph 5.2.

5.1 DP v1 monitoring view

The ad-hoc process setup for the development of DP v1 monitoring view has been based on two main aspects:

- **DP v1 level 4 Gap analysis**: such analysis has been performed in order to identify, per each Family, those implementation initiatives not covered by the 110 implementation projects submitted to 2014 CEF;
- **IDP Execution Progress Report (IEPR):** the monitoring of the IDP Activity Areas and/or Work Packages addressing PCP prerequisites and facilitators has been performed by the SDM with the full consideration of the recommendations included in the IEPR released in February 2015;

Both streams have been addressed consulting to the maximum extent possible the interested operational stakeholder: such involvement has been sought with the aim to provide an up-to-date implementation status of the Programme by either confirming the results of such preliminary analysis or, in case of existing planned activities, to modify it accordingly.

It is to be noted that, once in operation, the SDM monitoring process will replace such intermediate arrangement.

5.1.1 DP v1 level 4 Gap Analysis

The tables in the following pages illustrate both the 38 IPs derived from the split recommended by the SDM in PDP v1 (to be protected in DP v1) and the sites for which an implementation Gap has been identified. It is to be noted that the gaps identified per each relevant family address four different cases:

- the complete lack of any implementation initiative (excluding relevant projects already implemented)
- initiatives which are planned and/or are in progress of implementation but for which co-financing through CEF Calls have not been requested so far;
- the partial coverage in terms of scope (not all the necessary functionalities have been implemented);
- the partial coverage in terms of involved stakeholders

It is worth noting that the DP v1's Gap Analysis has been enhanced through the additional monitoring data collected through the consultation. In this respect, the SDM will further improve such picture by processing any other implementation status report from civil and military operational stakeholders, in particular Airspace Users, which will be reflected in DP v1.1, to be released in September 2015.

AF 1 – Extended Arrival Management and Performance Based Navigation in the High Density TMAs

Family	Foundation IPs May 2016+	Gaps Overview	
		Identified Gaps	Non Foundation IPs
1.1.1 Basic AMAN		- Vienna Schwechat - Milan Malpensa - Rome Fiumicino - Palma de Mallorca - Dusseldorf International - London Stansted - Manchester Ringway - Stockholm Arlanda - Copenhagen Kastrup No available information for: Istanbul Ataturk	
1.1.2 AMAN Upgrade to include Extended Horizon function	- 045AF1	- Vienna Schwechat - Copenhagen Kastrup - Dusseldorf International - Berlin Airport - Dublin Airport - Oslo Gardermoen - Madrid Barajas - Barcelona El Prat - Palma de Mallorca - Rome Fiumicino - Milan Malpensa - Paris CDG - Paris Orly - Nice Cote d'Azur No available information for: London Gatwick, London Stansted, Manchester Ringway, Istanbul Ataturk	

Family	Foundation IPs May 2016+	Gaps Overview	
		Identified Gaps	Non Foundation IPs
1.2.1 RNP Approaches with vertical guidance	- 013AF1 - 044AF1 - 051AF1 - 061AF1a - 061AF1b	- Copenhagen Kastrup - Dublin Airport - Stockholm Arlanda - Zurich Kloten - Amsterdam Schiphol - Brussels National No available information for: Istanbul Ataturk, London Heathrow, London Gatwick, London Stansted, Manchester Ringway	
1.2.2 Geographic Database for Procedure Design	- 065AF1	- Copenhagen Kastrup - Dublin Airport - Stockholm Arlanda - Zurich Kloten - Paris CDG - Paris Orly - Milan Malpensa No available information for: Brussels National, Oslo Gardermoen, Istanbul Ataturk	
1.2.3 RNP1 operations in high density TMAs (ground capabilities)	- 119AF1	- Vienna Schwechat - Copenhagen Kastrup - Dublin Airport - Milan Malpensa - Rome Fiumicino - Barcelona El Prat - Palma de Mallorca - Stockholm Arlanda - Zurich Kloten - Brussels National - Paris CDG - Paris Orly - Nice Cote d'Azur - Madrid Barajas	

Family	Foundation IPs May 2016+	Gaps Overview	
		Identified Gaps	Non Foundation IPs
		- Amsterdam Schiphol No available information for: Oslo Gardermoen, Istanbul Ataturk	
1.2.4 RNP1 operations in high density TMAs (aircraft capabilities)		No available information	
1.2.5 Implement Advanced RNP Routes below flight level 310		- Brussels National - Zurich Kloten - Stockholm Arlanda No other information currently available	

Table 8 – List of AF1 Priorities for 2015 Call

AF 2 – Airport Integration and Throughput

Family	Foundation IPs May 2016+	Gaps Overview	
		Identified Gaps	Non Foundation IPs
2.1.1 Initial DMAN	- 035AF2	- London Gatwick - London Stansted - Amsterdam Shiphol - Berlin Airport - Manchester Ringway - Rome Fiumicino - Palma de Mallorca - Copenhagen Kastrup - Vienna Schwechat - Dublin Airport - Nice Cote d'Azur - Milan Malpensa - Paris CDG No available information for Istanbul Ataturk	
2.1.2 Electronic Flight Strips (EFS)	- 048AF2 - 049AF2 - 050AF2 - 057AF2a - 057AF2b - 108AF2	- Dublin Airport - Brussels National - Zurich Kloten No available information for London Gatwick and Istanbul Ataturk	
2.1.3 Basic A-CDM	- 025AF2	- Paris CDG - London Stansted - Manchester Ringway - Palma de Mallorca - Copenhagen Kastrup - Dublin Airport - Nice Cote d'Azur - Vienna Schwechat - Paris Orly No available information for Istanbul Ataturk	

Family	Foundation IPs May 2016+	Gaps Overview	
		Identified Gaps	Non Foundation IPs
2.1.4 Initial Airport Operational Plan (AOP)		- London Heathrow - Paris CDG - Paris Orly - London Stansted - Madrid Barajas - Amsterdam Shiphol - Rome Fiumicino - Barcelona El Prat - Zurich Kloten - Dusseldorf International - Brussels National - Oslo Gardermoen - Stockholm Arlanda - Manchester Ringway - Palma de Mallorca - Copenhagen Kastrup - Vienna Schwechat - Dublin Airport - Nice Cote d'Azur - Milan Malpensa	
2.2.1 A-SMGCS Level 1 and 2	- 042AF2 - 058AF2a - 058AF2b - 137AF2	- London Heathrow - Milan Malpensa - Frankfurt International - Stockholm Arlanda - Berlin Airport - Manchester Ringway - Copenhagen Kastrup - Dusseldorf International - Zurich Kloten No available information for Istanbul Ataturk	

Family	Foundation IPs May 2016+	Gaps Overview	
		Identified Gaps	Non Foundation IPs
2.3.1 Time Based Separation (TBS)		- Frankfurt International - Madrid Barajas - Amsterdam Schiphol - Munich Franz Josef Strauss - Rome Fiumicino - Dusseldorf International - Oslo Gardermoen - Manchester Ringway - Copenhagen Kastrup - Vienna Schwechat - Dublin Airport - Milan Malpensa - Paris Orly No available information for: Zurich Kloten, Istanbul Ataturk	- 070AF2
2.4.1 A-SMGCS Routing and Planning Functions	- 087AF2a	- Milan Malpensa - Frankfurt International - Madrid Barajas - Rome Fiumicino - Barcelona El Prat - Dusseldorf International - Oslo Gardermoen - Stockholm Arlanda - Berlin Airport - Manchester Ringway - Palma de Mallorca - Nice Cote d'Azur - Munich Franz Josef Strauss - Amsterdam Schiphol - Paris CDG - Paris Orly - Vienna Schwechat - Copenhagen Airport No information available for Istanbul Ataturk	

Family	Foundation IPs May 2016+	Gaps Overview	
		Identified Gaps	Non Foundation IPs
2.5.1 Airport Safety Net associated with A-SMGCS (Level 2)		- London Heathrow - London Gatwick - London Stansted - Frankfurt International - Madrid Barajas - Amsterdam Schiphol - Munich Franz Josef Strauss - Barcelona El Prat - Zurich Kloten - Dusseldorf International - Oslo Gardermoen - Stockholm Arlanda - Manchester Ringway - Palma de Mallorca - Copenhagen Kastrup - Vienna Schwechat - Dublin Airport - Nice Cote d'Azur - Berlin Airport - Paris Orly - Paris CDG No available information for Istanbul Ataturk	- 021AF2
2.5.2 Implement aircraft and vehicle systems contributing to Airport Safety Nets		- London Heathrow - Paris CDG - London Gatwick - Paris Orly - Frankfurt International - London Stansted - Madrid Barajas - Rome Fiumicino - Barcelona El Prat - Zurich Kloten - Dusseldorf International	- 002AF2

Family	Foundation IPs May 2016+	Gaps Overview	
		Identified Gaps	Non Foundation IPs
		- Brussels National - Oslo Gardermoen - Stockholm Arlanda - Berlin Airport - Manchester Ringway - Palma de Mallorca - Copenhagen Kastrup - Vienna Schwechat - Dublin Airport - Nice Cote d'Azur - Milan Malpensa - Munich Franz Josef Strauss No available information for Istanbul Ataturk	

Table 9 – List of AF2 Priorities for 2015 Call

AF3 – Flexible Airspace Management and Free Route

Family	Foundation IPs May 2016+	Gaps Overview	
		Identified Gaps	Non Foundation IPs
3.1.1 (Initial) ASM Tool to support AFUA		- Austria - Croatia - Cyprus - Denmark - Finland - Greece - Hungary - Ireland - Italy - Lithuania - Luxembourg - Malta - Netherlands - Poland - Slovak Republic - Slovenia - Sweden - Spain	
3.1.2 ASM management of real time data		This family has not been deployed by any country yet except for Germany. Since it has to interface with Belgium, Netherlands and Germany to build a complete overview of the airspace, also MUAC should be considered as part of the list of gaps. Belgium has submitted an implementation project witch however does not cover all functionalities of the family.	
3.1.3 Full rolling ASM/ATFCM process and ASM information sharing		- Austria - Belgium - Bulgaria - Croatia - Cyprus	

Family	Foundation IPs May 2016+	Gaps Overview	
		Identified Gaps	**Non Foundation IPs**
		- Czech Republic - Denmark - Estonia - Finland - France - Germany - Hungary - Ireland - Italy - Latvia - Lithuania - Luxembourg - Network Manager - Netherlands - MUAC - Poland - Portugal - Romania - Slovak Republic - Slovenia - Spain - Sweden - United Kingdom	
3.1.4 Management of Dynamic Airspace Configurations		This technology is not deployed by any country	
3.2.1 Upgrade of ATM systems (NM, ANSPs, Aus) to support Direct Routings (DCTs) and Free Routing Airspace (FRA)	- 046AF3 - 053AF3 - 131AF3	- Austria - Belgium - Bulgaria - Croatia - Cyprus - Czech Republic - Estonia	- 004AF3

Family	Foundation IPs May 2016+	Gaps Overview	
		Identified Gaps	Non Foundation IPs
		- France - Germany - Hungary - Ireland - Latvia - MUAC - Lithuania - Netherlands - Network Manager - Poland - Portugal - Romania - Slovak Republic - Slovenia - Spain - Sweden - United Kingdom	
3.2.3 Implement Published Direct Routings (DCTs)		H24 DCT has been implemented in Croatia (over FL 325), Czech Republic (over FL 245), Germany, Italy (over FL 365), Poland (part of airspace), and Slovenia. All other countries should therefore be considered as Gaps for the Direct Routing implementation, except for those countries that already deployed or have planned to deploy Free Route Airspace.	
3.2.4 Implement Free Route Airspace	- 063AF3 - 095AF3	H24 FRA has been implemented in Hungary, Ireland, Portugal, Spain (only Santiago and Asturias in Madrid FIR), Sweden and Denmark (over FL 285) and is listed for 2015 in Cyprus, as well as in the NEFAB. All other countries should therefore be considered as Gaps in the Free Route Implementation.	

Table 10 – List of AF3 Priorities for 2015 Call

AF4 – Network Collaborative Management

Family	Foundation IPs May 2016+	Gaps Overview	
		Identified Gaps	Non Foundation IPs
4.1.1 STAM phase 1	- 078AF4	- Belgium - Croatia - Czech Republic - Denmark - Estonia - Finland - Ireland - Italy - Latvia - Lithuania - Luxembourg - Netherlands - Portugal - Slovak Republic - Slovenia - Spain - Sweden	
4.1.2 STAM Phase 2		This family has not been deployed by any country yet	
4.2.2 Interactive rolling NOP	- 077AF4	No major gaps are envisaged, since all major activities are related to Network Manager.	- 106AF4
4.2.3 Interface ATM systems to NM Systems	- 062AF4	- Austria - Belgium - Cyprus - France - Luxembourg - Poland - Slovak Republic - Sweden - United Kingdom	- 112AF4

Family	Foundation IPs May 2016+	Gaps Overview	
		Identified Gaps	Non Foundation IPs
		AFP Deployed but not integrated for the following countries: Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Finland, Germany, Hungary, Ireland, Latvia, Malta, MUAC, Norway, Romania, Serbia, Slovenia.	
4.2.4 AOP/NOP Information Sharing		This technology is not deployed by any country, except for MUAC and partially Network Manager	
4.3.1 Target Time for ATCFM purposes		This technology has not been deployed by any country yet	
4.3.2 Reconciled Target Times for ATFCM and arrival sequencing		This technology has not been deployed by any country yet	
4.4.2 Traffic Complexity Tool	- 079AF4	No information on Traffic Complexity Tools are currently available, except for MUAC, which have already deployed iMFP	

Table 11 – List of AF4 Priorities for 2015 Call

AF5 – Initial SWIM

Family	Foundation IPs May 2016+	Gaps Overview	
		Identified Gaps	Non Foundations IP
5.1.1 PENS 1 Pan-European Network Service v. 1		- Czech Republic - Greece - Ireland - Ukraine No information available for other non EU States (except for Norway, Switzerland, Turkey, which have already signed the PENS Amendment)	
5.1.2 Future PENS Future Pan-European Network Service		Future PENS should be implemented in al ICAO EUR Region States. Therefore, these countries are considered as Gaps	
5.1.3 Common SWIM Infrastructure Components	- 073AF5	- Poland - Sweden No information currently available for all countries (including non EU States and ICAO EUR Region States), except for Network Manager	
5.2.1 Stakeholder Internet Protocol Compliance	- 014AF5 - 059AF5	- Croatia - Ireland - Malta - Poland - Sweden No additional information currently available for Bulgaria, Cyprus, Greece, Hungary, Latvia and Slovenia as well as non EU States and ICAO EUR Region States.	

5.2.2 Stakeholder SWIM Infrastructure components	- 117AF5	No information currently available for other countries except for United Kingdom (submitted projects in 2014 CEF Call) and Germany (in preparation). No additional information for non EU States and ICAO EUR Region States	
5.3.1 Upgrade / Implement Aeronautical Information Exchange System/service	- 041AF5	- Sweden No information currently available for all other countries, except for Austria, Germany and Italy (submitted projects in 2014 CEF Call). No additional information from non-EU States and ICAO EUR Region States	- 006AF5 - 009AF5 - 040AF5 - 084AF5
5.4.1 Upgrade / Implement Meteorological Information Exchange System/Service	- 110AF5 - 134AF5	Belgium, Netherlands and Romania presented projects in 2014 CEF Call for Proposals, although not covering the whole extent of the family. No information currently available for all other countries (and NM). No information available for non-EU States and ICAO EUR Region States	
5.5.1 Upgrade / Implement Cooperative Network Information Exchange System/Service	- 082AF5	No information currently available for all countries. It is worth noting that some countries are awaiting specifications from Network Manager	
5.6.1 Upgrade / Implement Flight Information Exchange System/Service	- 067AF5	- Austria - Croatia - Denmark - Germany - Ireland - Netherlands - Poland - Sweden - Hungary No information currently available for Belgium,	- 052AF5

		Bulgaria, Cyprus, Czech Republic, Estonia, Finland, Greece, Latvia, Lithuania, Luxembourg, Portugal, Romania, Slovakia, Slovenia, Spain, United Kingdom, MUAC and NM. No information from non EU States and from other ICAO EUR Region States	

Table 12 – List of AF5 Priorities for 2015 Call

AF6 – Initial Trajectory Information Sharing

Family	Foundation IPs May 2016+	Gaps Overview	
		Identified Gaps	Non Foundation IPs
6.1.1 FDP upgrade in preparation of integration of aircraft flight data prediction		No information currently available	
6.1.2 AGDL deployment for A/G communications		- Bulgaria - Cyprus - Czech Republic - Estonia - Finland - Greece - Italy - Latvia - Lithuania - Malta - Netherlands - Norway - Poland - Portugal - Romania - Serbia - Slovak Republic - Slovenia - Spain	- 003AF6 - 010AF6 - 038AF6 - 105AF6 - 128AF6
6.1.3 Air Ground Communication Service Upgrade		This Family has not been deployed by any country yet	
6.1.4 Aircraft Equipage in preparation of exchange of aircraft flight data prediction		No information currently available	

Table 13 – List of AF6 Priorities for 2015 Call

5.1.2 IDP Execution Progress Report (IEPR) Recommendations and Status Update

IDP Activity Areas' (AA) recommendations were taken on board by SDM as follows:

Interim Deployment Programme Work Package	AA1 Work Package 1.1 – AFP automatically generated

The related IDSG recommendations have been taken into account and included as part of the description of Family 4.2.3 (see also chapter 3.4.4), therefore SDM will continue its monitoring accordingly.

The following information was gathered by SDM in cooperation with the Network Manager, while also consulting, to the maximum extent possible, the impacted operational stakeholders, in order to get an up-to-date picture of the implementation status. Operational stakeholders had the chance to provide updated information also during the Stakeholder Consultation campaign.

Status Update	
Austria	System change fully implemented in 2017. Automated AFP messages partly available end 2015. (Approved tests by NM) Planned update by end 2017, details not yet clear, awaiting NM workshop end June 2015 in Brussels. Requirements not fully clear, final implementation 2018
Belgium	AFP not deployed, FSA not deployed
Bulgaria	AFP Deployed but not integrated
Croatia	AFP Deployed but not integrated; no change depend on COOPANS Platform
Cyprus	AFP not deployed;
Czech Republic	AFP Deployed but not integrated
Denmark	FSA deployed in operational use Automated AFP messages being implemented May 2015 (Approved tests by NM) Planned update by end 2017, details not yet clear, awaiting NM workshop end June 2015 in Brussels. Requirements not fully clear, and COOPANS/Top Sky might need a Concept update. Study has to be performed for implementation 2020
Estonia	Deployed but not integrated;
Finland	AFP Deployed but not integrated

France	AFP not deployed
Germany	AFP Deployed but not integrated
Greece	AFP Deployed and fully integrated
Hungary	AFP Deployed but not integrated
Ireland	System change fully implemented in 2017 Automated AFP messages partly available end 2015. (Approved tests by NM) Planned update by end 2017, details not yet clear, awaiting NM workshop end June 2015 in Brussels. Requirements not fully clear, final implementation 2018
Italy	Full implementation of AFP message in ADEXP format by 30/06/2015
Latvia	AFP Deployed but not integrated
Lithuania	AFP Deployed and fully integrated
Luxembourg	AFP not deployed
Malta	AFP deployed but not fully integrated
MUAC	AFP has been tentatively implemented, but is not yet integrated in the NM operational system (target date end 2015)
Network Manager	AFP CPR FSA Fully deployed / EFPL and OAT FPL not deployed
Netherlands	AFP Deployed and fully integrated
Norway	AFP Deployed but not integrated
Poland	CPR, FSA, ACH and APL messages are deployed and used operationally. AFP is implemented in the ATM system but not integrated with NM systems - further modifications required by system manufacturer
Portugal	Deployed and fully integrated; Submitted projects in 2014 CEF Call;
Romania	AFP Deployed but not integrated
Slovakia	AFP not deployed
Slovenia	AFP Deployed but not integrated

Spain	AFP Fully deployed and integrated
Sweden	Automated AFP messages partly available end 2015. (Approved tests by NM) Planned update by end 2017, details not yet clear, awaiting NM workshop end June 2015 in Brussels. Requirements not fully clear, and COOPANS/Top Sky might need a Concept update. Study has to be performed for implementation 2020
Switzerland	AFP Deployed and fully integrated
United Kingdom	AFP not deployed

Interim Deployment Programme Work Package	AA1 Work Package 1.2 – STAM Phase 1

The related recommendations have been taken into account and included as part of the description of Family 4.1.1 (see also chapter 3.4.1), therefore SDM will continue its monitoring.

The following information was gathered by SDM in cooperation with the Network Manager, while also consulting, to the maximum extent possible, the impacted operational stakeholders, in order to get an up-to-date picture of the implementation status. Operational stakeholders had the chance to provide updated information also during the Stakeholder Consultation campaign.

Status Update	
Austria	90% deployed (2017)
Belgium	Planned to deploy occupancy counts in Brussels FMP in 2015
Bulgaria	STAM Phase 1 not planned for Bulgaria;
Croatia	Planned to deploy STAM by Zagreb FMP within 2015-2019
Cyprus	Planned to deploy STAM by Nicosia FMP within 2015-2019
Czech Republic	Planned to deploy STAM by Prague FMP within 2015-2019
Denmark	Not applicable
Estonia	No plans submitted
Finland	Partially deployed (use of occupancy counts, Civil/MIL flexible ASM)
France	Fully deployed
Germany	As other stakeholder already reported (France, MUAC, Austria), DFS centres currently already use "Occupancy Counts" as well as STAM measures in the tactical ATFCM on a bilateral basis by phone
Greece	Planned to deploy STAM by Athens FMPs within 2015-2019
Hungary	No plans submitted
Ireland	90% deployed (2017)
Italy	STAM Phase 1 implemented by 31/12/2015

Latvia	No plans submitted
Lithuania	No plans submitted
Luxembourg	No plans submitted
Malta	No plans submitted
MUAC	Fully deployed
Network Manager	Fully deployed
Netherlands	No plans submitted
Norway	No plans submitted
Poland	STAM Phase 1 selected elements and measures have been implemented in 2014. Additional STAM elements will be put into operations after vertical split off ACC sectors (2016-2019).
Portugal	Planned to deploy STAM by Lisbon FMPs within 2015-2019
Romania	No plans submitted
Serbia	No plans submitted
Slovakia	Planned to deploy STAM by Bratislava FMPs within 2015-2019
Slovenia	Planned to deploy STAM by Ljubljana FMPs within 2015-2019
Spain	According to LSSIP 2014 (FCM04), not planned yet. STAM phase 1 trial is being tested in Barcelona ACC. Although the first outcomes from the trial are satisfactory, the used occupancy parameters still need some refinement. Therefore the implementation is still pending final decision.
Sweden	No plan, not applicable to Sweden. Civil-Military operation integrated
Switzerland	Fully deployed
United Kingdom	Fully deployed (London FMP); Planned to deploy STAM by Prestwick FMP within 2015-2019

Interim Deployment Programme Work Package	AA2 Work Package 2.1 – Rolling ASM / ATFCM processes

The related recommendations have been taken into account and included as part of the description of Family 3.1.3 (see also chapter 3.3.3), therefore SDM will continue its monitoring.

The following information was gathered by SDM in cooperation with the Network Manager, while also consulting, to the maximum extent possible, the impacted operational stakeholders, in order to get an up-to-date picture of the implementation status. Operational stakeholders had the chance to provide updated information also during the Stakeholder Consultation campaign.

	Status Update	
	ASM / ATFCM Processes	**ASM Tools Deployment**
Austria	Partial implementation (AUP to NM)	ASM tool deployment planned in NOP
Belgium	Partial implementation (AUP to NM; at least 1 UUP)	Fully deployed
Bulgaria	Partial implementation (AUP to NM; at least 1 UUP)	Fully deployed
Croatia	Partial implementation (AUP to NM; at least 1 UUP)	LARA deployment in progress
Cyprus	Partial implementation (AUP to NM; at least 1 UUP)	LARA deployment in progress
Czech Republic	Partial implementation (AUP to NM; at least 1 UUP)	Fully deployed
Denmark	Partial implementation (AUP to NM; at least 1 UUP)	ASM tool deployment not planned
Estonia	no AUP/UUP to NM	Submitted Projects in 2014 CEF Call
Finland	Partial implementation (AUP to NM; at least 1 UUP)	Own Civil Military ASM system deployed, LARA deployment in progress
France	Partial implementation (AUP to NM; at least 1 UUP)	Fully deployed
Germany	Partial implementation (AUP to NM)	Fully deployed
Greece	Partial implementation (AUP to NM; at least 1 UUP)	ASM tools deployment not planned
Hungary	Partial implementation (AUP to NM; at least 1 UUP)	LARA deployment in progress
Ireland	No AUP to NM	LARA deployment in progress

Italy	Rolling ASM/ATFCM implementation is ongoing. Full implementation is foreseen by 31/12/2021	ASM tools deployment not planned
Latvia	No AUP to NM	Fully deployed
Lithuania	Partial implementation (AUP to NM)	LARA deployment in progress
Luxembourg	no AUP/UUP to NM	ASM tools deployment not planned
Malta	no AUP/UUP to NM	ASM tools deployment not planned
MUAC	Deployed for Belgium, in preparation for Netherlands (planned for end 2015), under discussion for Germany	Fully deployed
Network Manager	Full Rolling ASM/ATFCM process not fully deployed	Fully deployed
Netherlands	Partial implementation (AUP to NM; at least 1 UUP)	Installation of ASM system at Dutch Air Forces is scheduled for 2015 at MUAC and 2016 in MoD
Norway	Partial implementation (AUP to NM)	LARA deployment in progress
Poland	Partial implementation (AUP to NM; at least 1 UUP)	Fully deployed; Upgrade to be included into the INEA Call 2015
Portugal	Partial implementation (AUP to NM)	Submitted Projects in 2014 CEF Call
Romania	Partial implementation (AUP to NM; at least 1 UUP)	Fully deployed
Slovakia	Partial implementation (AUP to NM; at least 1 UUP)	ASM tools deployment not planned
Slovenia	No AUP to NM	ASM tools deployment not planned
Spain	Partial implementation (AUP to NM; at least 1 UUP)	ASM tools deployment not planned
Sweden	Partial implementation (AUP to NM; at least 1 UUP)	ASM tools deployment not planned
Switzerland	Partial implementation (AUP to NM)	Fully deployed
United Kingdom	Partial implementation (AUP to NM; at least 1 UUP)	Fully deployed

Interim Deployment Programme Work Package	AA2 Work Package 2.3 – Free Route

The related recommendations have been taken into account and included as part of the description of Family 3.2.4 (see also chapter 3.3.7), therefore SDM will continue its monitoring.

The following information was gathered by SDM in cooperation with the Network Manager, while also consulting, to the maximum extent possible, the impacted operational stakeholders, in order to get an up-to-date picture of the implementation status. Operational stakeholders had the chance to provide updated information also during the Stakeholder Consultation campaign.

Status Update	
Austria	Final implementation depends on study, 2020
Belgium	Not applicable (do not provide ATS over FL 310)
Bulgaria	FRA Night Deployed
Croatia	FRA Night Deployed (airspace controlled by Zagreb and Belgrade ACCs); Some improvements in ATM system necessary. Final implementation depend on study - 2020
Cyprus	FRA H24 Nicosia FIR listed in NOP for 2015
Czech Republic	H24 DCT above FL245 deployed; FRA study project for FABCE; FRA list in NOP from 2015 onwards
Denmark	FRA H24 above FL 285 deployed; Submitted projects in 2014 CEF Call (Borealis)
Estonia	Submitted projects in 2014 CEF Call (Borealis)
Finland	FRA Night Deployed; Submitted projects in 2014 CEF Call (Borealis); NEFAB and DK-SE FAB in process to implement FRA in November 2015, continue to integration with UK/IR FAB 2018
France	Within FABEC free route project (INEA funding requested)
Germany	Within FABEC free route project (INEA funding requested)
Greece	Submitted projects in 2014 CEF Call
Hungary	FRA H24 deployed; FRA study project for FABCE
Ireland	FRA H24 deployed; 2020: Borealis FRA planned

Italy	Implementation of full Free Route Airspace above FL365 is foreseen in the second half 2016
Latvia	Submitted projects in 2014 CEF Call (Borealis)
Lithuania	FRA plan listed in NOP (2016)
Luxembourg	Not applicable (do not provide ATS over FL 310)
Malta	FRA plan listed in NOP (2016)
MUAC	FRA-DCT deployed H24, more FR will be added in the coming years via FABEC Free Route project
Network Manager	N/A as not ATS provider
Netherlands	Not applicable (do not provide ATS over FL 310)
Norway	Submitted projects in 2014 CEF Call (Borealis)
Poland	FRA Planned from 2017 onwards
Portugal	FRA H24 deployed
Romania	FRA Night Deployed
Slovakia	FRA study project for FABCE; FRA plan listed in NOP (2016)
Slovenia	FRA study project for FABCE; FRA plan listed (2015-2019)
Spain	DCT night deployed; H24 DCTs deployed in Madrid; ACC Santiago (SAN) and Asturias (ASI) sectors, FL245 - FL460
Sweden	DK-SE FAB implemented and integration with NEFAB in process to implement November 2015, continue to integration with UK/IR FAB 2018
Switzerland	FRA plan listed in NOP (2019)
United Kingdom	Submitted projects in 2014 CEF Call (Borealis)

Interim Deployment Programme Activity Area	AA 3 – Airport CDM

The related recommendations have been taken into account and included as part of the description of Family 2.1.3 (see also chapter 3.2.3), therefore SDM will continue its monitoring.

The following information was gathered by SDM in cooperation with the Network Manager, while also consulting, to the maximum extent possible, the impacted operational stakeholders, in order to get an up-to-date picture of the implementation status. Operational stakeholders had the chance to provide updated information also during the Stakeholder Consultation campaign.

Status Update	
London Heathrow	Implemented
Paris CDG	Implemented
London Gatwick	Implemented
Paris Orly	On-going (2016)
London Stansted	On-going (2015 according to NM)
Milan Malpensa	Implemented
Frankfurt International	Implemented
Madrid Barajas	In operation since July 2014
Amsterdam Shiphol	On-going (2016)
Munich Franz Josef Strauss	Implemented
Rome Fiumicino	Implemented
Barcelona El Prat	To be implemented in June 2015
Zurich Kloten	Implemented
Düsseldorf International	Implemented
Brussels National	Implemented
Oslo Gardemoen	Implemented
Stockholm Arlanda	Not fully implemented and certified (Dependent on initial DMAN to be fully certified)
Berlin Brandenburg Airport	Implemented at SXF for current airport configuration; to be updated at BER in future
Manchester Ringway	On-going (2016)

Palma De Mallorca Son San Juan	Planned December 2016
Copenhagen Kastrup	On-going
Vienna Schwechat	Locally implemented since June 2014, full implementation planned by mid-2016
Dublin	On-going (Q4 2016)
Nice Côte d'Azur	On-going (2018)
Istanbul Ataturk Airport	No information available

Interim Deployment Programme Activity Area	AA4 – Data Link

The related recommendations have been taken into account and included as part of the description of Family 6.1.2 (see also chapter 3.6.2). Data link is a mandatory prerequisite to AF6. However, at this stage, there is still uncertainty regarding the most appropriate airborne and ground based technologies to be implemented to enable the functionality. Furthermore, the results of the SESAR-JU validation in 2016 could be not available in time to allow the stakeholders to submit new Datalink projects for the INEA-CEF-call 2016.

The following information was gathered by SDM in cooperation with the Network Manager, while also consulting, to the maximum extent possible, the impacted operational stakeholders, in order to get an up-to-date picture of the implementation status. Operational stakeholders had the chance to provide updated information also during the Stakeholder Consultation campaign.

Status Update	
Austria	Deployed (Vienna ACC)
Belgium	Not applicable (not provide ATS above FL 310)
Bulgaria	No plans in NOP
Croatia	Submitted projects in 2014 CEF Call
Cyprus	planned in NOP 2016
Czech Republic	Planned in 2016 (NOP)
Denmark	Deployed (Copenhagen ACC); Submitted projects in 2014 CEF Call
Estonia	Planned in 2017 (NOP)
Finland	Planned in 2018 (NOP)
France	Submitted projects in 2014 CEF Call (4-Flight), including AGDL components for Reims and Marseille ACCs. Plan in NOP (Bordeaux and Brest ACCs 2018, Paris ACC 2017); Air France submitted projects for the DL deployment on Aircraft
Germany	Deployment already done in accordance to (EC) Regulation No 29/2009 of 16 January 2009 Lufthansa submitted projects for the retrofit of Airbus A319 and A320 fleet (105AF6)

Greece	No plans in NOP
Hungary	Deployed. Operations to start in November 2015
Ireland	Deployed (Shannon ACC)
Italy	Planned in 2015/2016
Latvia	No plans in NOP
Lithuania	Planned in 2018 (NOP)
Luxembourg	Not applicable (does not provide ATS above FL 310)
Malta	Planned in 2016 (NOP)
MUAC	Deployed
Network Manager	N/A (no ATS service)
Netherlands	Not applicable (does not provide ATS above FL 285)
Norway	Planned in 2018 (NOP)
Poland	Planned in 2016/17 (NOP)
Portugal	Planned in 2018 (NOP)
Romania	No plans in NOP
Serbia	Planned in 2018 (NOP)
Slovakia	Planned in 2016 (NOP)
Slovenia	Planned in 2016 (NOP)
Spain	Planned in 2016 (NOP)
Sweden	Implemented: functionality/capability to be investigated- performance and capacity oriented
Switzerland	Deployed (Geneva and Zurich ACCs)
United Kingdom	Deployed (Swanwick and Prestwick)

Interim Deployment Programme Work Package	AA5 Work Package 5.1 – OLDI Migration from X25 to IP

The related recommendations have been taken into account and included as part of the description of Family 5.2.1 (see also chapter 3.5.4), therefore SDM will continue its monitoring.

The following information was gathered by SDM in cooperation with the Network Manager, while also consulting, to the maximum extent possible, the impacted operational stakeholders, in order to get an up-to-date picture of the implementation status. Operational stakeholders had the chance to provide updated information also during the Stakeholder Consultation campaign.

	Status Update	
	FMTP	IP Services
Austria	FMTP finished	finished 95% Investment foreseen for PENS-2 and X-Bone upgrade
Belgium	No additional information	Submitted projects in 2014 CEF Call
Bulgaria	No additional information	No additional information
Croatia	02/2015 FMTP implemented with all neighbouring units (5xIPv6, 2xIPv4)	Currently PENS-1 and X-Bone used. Investment foreseen for PENS-2 and X-Bone upgrade
Cyprus	No additional information	No additional information
Czech Republic	FMTP implementation to be finished by end 2015	No additional information
Denmark	OLDI over IP v6 and V4 operationally deployed. Some radar data deployed over IP as well	Submitted projects in 2014 CEF Call
Estonia	FMTP implementation to be finished by mid-2015	No additional information
Finland	FMTP implementation to be finished by mid-2015	No additional information
France	FMTP implementation to be finished by Q1 2015	IP readiness
Germany	In preparation – Blue profile in ICAS 2020	IP readiness; in preparation - Blue profile in ICAS 2020

Greece	No additional information	No additional information
Hungary	No additional information	No additional information
Ireland	In process, expected completion end 2016	This is expected to be completed by end 2016
Italy	Complete migration to IPV6 is foreseen by 30/06/2015	Complete migration to IPV6 is foreseen by 30/06/2015
Latvia	No additional information	No additional information
Lithuania	No additional information	No additional information
Luxembourg	No additional information	IP readiness
Malta	FMTP implementation to be finished by end 2015	Upgrade planned
MUAC	FMTP implementation to be finished by end 2015	IP readiness
Network Manager	No additional information	IP readiness
Netherlands	No additional information	IP readiness
Norway	No additional information	No additional information
Poland	ATM system and telecommunication infrastructure are ready for FMTP. Ongoing FMTP migration will be finished by the end of 2015.	IP readiness
Portugal	FMTP implementation to be finished by end 2015	IP readiness
Romania	No additional information	IP readiness
Serbia	No additional information	No additional information
Slovakia	No additional information	IP readiness
Slovenia	No additional information	No additional information
Spain	FMTP in operational service in the following links: * Madrid ACC - Lisbon ACC * Seville ACC - Lisbon ACC * Canarias ACC - Lisbon ACC FMTP deployed and ready for use in the rest of	Confirmed plan, as expressed in INEA-call 2014

	OLDI links with neighbouring ACCs (Porto, Brest, Bordeaux, Marseille, Shanwick), awaiting for their readiness	
Sweden	COOPANS/TopSky is FMTP compliant	COOPANS/TopSky exploits OLDI over IP. LFV are and will continue to invest in ATN IP networks, for capacity, resilience and redundancy reasons, service related.
Switzerland	No additional information	No additional information
United Kingdom	No additional information	IP readiness

Interim Deployment Programme Activity Area	AA6 – RNP Approach

The related recommendations have been taken into account and included as part of the description of Family 1.2.1 (see also chapter 3.1.4), therefore SDM will continue its monitoring, also in line with EASA PBN IR currently under consultation phase.

The following information was gathered by SDM in cooperation with the Network Manager, while also consulting, to the maximum extent possible, the impacted operational stakeholders, in order to get an up-to-date picture of the implementation status. Operational stakeholders had the chance to provide updated information also during the Stakeholder Consultation campaign.

Status Update	
London Heathrow	No additional information
Paris CDG	Project submitted in 2014 INEA Call (051AF1)
London Gatwick	No additional information
Paris Orly	No additional information
London Stansted	No additional information
Milan Malpensa	No additional information
Frankfurt International	RWY 07 +18 is covered by the project presented in 2014 CEF Call (044AF1). This project merely addresses departures and not arrivals The rest within next Call
Madrid Barajas	Confirmed RNP APCH plan for Madrid, as expressed in INEA-call 2014 061AF1b, with dateline October 2020
Amsterdam Shiphol	A first step on one runway has been included in a project submitted in 2014 CEF Call
Munich Franz Josef Strauss	Included in the first version of project 044AF1 in 2014 CEF Call, deferred to next Calls because of timeline. NM-NOP analysis states full deployment at Munich.
Rome Fiumicino	No additional information
Barcelona El Prat	Confirmed RNP APCH plan for Barcelona, as expressed in INEA-call 2014 061AF1b, with dateline January 2019
Zurich Kloten	NM-NOP analysis states partial deployment in Zürich.

Düsseldorf International	Included in the first version of project 044AF1, should go with next call because of timeline
Brussels National	Project submitted in 2014 INEA Call (013AF1)
Oslo Gardemoen	NM-NOP analysis states full deployment in Oslo.
Stockholm Arlanda	2 RNP approach procedures implemented to 2 runways at Arlanda. Ambitions to implement RNP based approach-procedure to other runways in the future. Operational implementation planned end 2022
Berlin Brandenburg Airport	Was included in the first version of project 044AF1 in 2014 CEF Call, but deferred to next Calls because of timeline.
Manchester Ringway	No additional information
Palma De Mallorca Son San Juan	Confirmed RNP APCH plan for Palma, as expressed in INEA-call 2014 061AF1a, with dateline July 2017
Copenhagen Kastrup	No actual plan, study ongoing with CPH airport authority and depending on the PBN IR. COOPANS Platform Roadmap (NAVIAIR) to support concept by end 2020
Vienna Schwechat	In roll out face according to EASA PBN Implementing Rule. Many RNP Approaches Implemented in Austria (SBAS, BARO-VNAV, RNP-AR) operational implementation planned on COOPANS Platform end 2022
Dublin	LNAV/VNAV implemented in Dublin operational implementation planned end 2022
Nice Côte d'Azur	No additional information
Istanbul Ataturk Airport	No additional information

Interim Deployment Programme Work Package	AA7 Work Package 7.1 – CDO/CCO Applications

This activity has not included in the analysis, considering that it is not related to PCP AFs.

5.2 SDM monitoring process

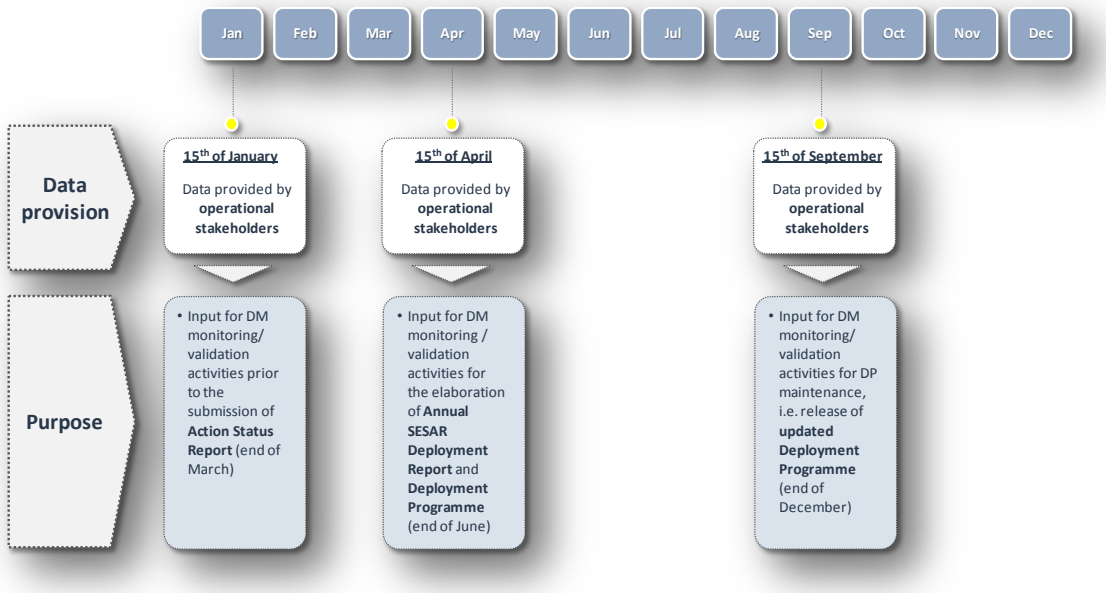
Due to the IPs width of the Programme, SDM will identify DP **major milestones** and **key deliverables,** in full alignment with INEA monitoring cycles (Action Status Reports - ASR) and building on the necessary cooperation with the interested Implementing partners. In particular, the SDM will monitor:

- Key milestones and deliverables
- Additional milestones aimed at monitoring the activities in the implementation phase:
    - start of training
    - end of training
    - parallel operations/operational trials
    - cutover-SW ready and successfully tested
    - cutover and fall back period completed

The mechanism to ensure the monitoring will be as simple as possible in order to minimize the impact on the operational stakeholders in terms of effort (i.e. no additional burden) and to avoid any duplication vis-à-vis INEA monitoring policy.

Monitoring process for all projects will be conducted three times a year. In particular, it has been envisaged that, starting from 2016, **operational stakeholders** are kindly required to provide data/information/documents according to the following dates, which have been set to support the elaboration of respectively the Action Status Report, the Annual SESAR Deployment Report, and the update of the Deployment Programme:

- 15th of January
- 15th of April
- 15th of September



With regard to 2015, only 1 monitoring cycle is envisaged and operational stakeholders are kindly requested to provide the relevant data/information/documents by the 15th of November

- The relevant data/information/documents will be provided by operational stakeholders through a dedicated tool/template made available by the SDM

- It is very important, that data/information/documents during the implementation phase are provided in due time in order to enable the SDM the prompt evaluation of the impacts on the affected projects, in order to ensure the synchronized execution of the Deployment Programme.

6. Risks and Mitigations

The following table has been developed by SDM in order to identify the most relevant risks that might arise in the following months, in strict respect to the Deployment Programme development and the overall PCP implementation. Such table aims at highlighting the major objectives that might be impacted by the identified risks and at depicting the related main consequences and impacts. Moreover, the table also identifies the main mitigation actions that might be implemented, highlighting both initiatives to be undertaken by the SESAR Deployment Manager and other activities to be initiated by other relevant players.

Risk	Objectives affected by the risks	Consequences /impacts	Mitigation actions	
			Actions by SESAR Deployment Manager	Proposed Actions by other Stakeholders
1 Implementation Delay	Timely PCP implementation, associated benefits	The gap analysis showed that there are DPv1 families that are not implemented or just partially implemented in the PCP geographical scope. The impact of the late implementation of the Families identified as high relevance could lead to a potential delay of the overall PCP implementation.	- Strong promotion of the Deployment Programme; - Prepare and distribute an information package to the operational stakeholders to support/facilitate the submission of the IPs both at technical and financial/administrative level; - Facilitation of stronger local partnership between the operational stakeholders in preparation to the upcoming CEF calls; - Request demonstration of local coordination with other relevant stakeholders by projects leaders prior to projects submission to CEF calls; - Enhancement of the transversal approach and buy in among airspace users, airports and ANSPs to highlight that in some cases the late or missed investment could have a negative impact on other stakeholders; - Synchronisation / coordination by SDM;	

Risk	Objectives affected by the risks	Consequences /impacts	Mitigation actions	
			Actions by SESAR Deployment Manager	**Proposed Actions by other Stakeholders**
			- Close correlation between requests for payment by the implementation projects to SDM and their effective transmission to INEA by SDM.	
2 PCP implementation out of SESAR deployment FPA	PCP benefits	Within its current mandate, SDM is legitimate to monitor the progress of implementation only for those projects awarded through SESAR deployment FPA. Should a significant part of PCP be implemented outside SESAR deployment FPA, this could lead to incomplete picture of PCP's implementation status.		EC to consider extending SDM's monitoring scope as a specific service by SDM.
3 Failure to adequately achieve full military involvement	Timely PCP implementation, associated benefits	In PDP v1 there are no projects submitted by the military authorities (ANSP, airspace user, airport operator) for the 2014 CEF Transport calls for proposals and that there is no evidence that the civil projects submitted went through a consultation process with the local military authorities when potentially affecting them. This could lead to an insufficient buy in of the PDP v1 and future DP v1 by the military stakeholders and to a "backlog" concerning necessary investments in modern technology to cope with the deployment of new ATM-functionalities and release all PCP benefits	- Demonstrate local civil-military coordination prior to projects submission to the next INEA calls and provide military assessment as part of the proposal whenever relevant; - Cooperation with the EDA to further facilitate local coordination between the local civil stakeholders (level 3) and the military authorities; - Promotion of the PCP amongst military authorities; - Introduction of a single communication channel between SDM and EDA to facilitate and accelerate dialog with the military authorities; - Recommendation of military projects in context of DP v1 and subsequent versions; - Support the civil and military	

Risk	Objectives affected by the risks	Consequences /impacts	Mitigation actions	
			Actions by SESAR Deployment Manager	**Proposed Actions by other Stakeholders**
			implementing partners with proposed processes enabling the local civil/military coordination; - Establishment of a Liaison Officer for military stakeholders.	
4 Failure to have required standards and regulations timely available	Timely PCP implementation and associated benefits	Many of the families necessary for the full PCP implementation are not ready yet for deployment as indicated by their planned completion date of V3-phase (Pre-Industrial Development & Integration of E-OCVM – European Operational Concept Validation Methodology). Consequently the standards and/or regulations (if needed) are developed at a later stage. This could lead to a not harmonized deployment, to integration problems and consequently to necessary reinvestments at a later stage to upgrade the deployed solutions to the required standards. Ultimately, this could lead to impossibility to go operational and deliver the expected benefits.	Reinforce the synergies with: - SESAR JU for the prioritization of the validation exercises and the Large Scale Demonstrations; - EASA, EUROCAE and European Standardization Organizations to align their work programmes with the deployment priorities; - Manufacturing industry in order to seek their assistance in contributing to the timely development of the necessary standards and marketing of the necessary hardware and software. Indeed, SDM intends to work closely with the SJU, EASA and EUROCAE in order to keep an alignment of their work programmes with the Deployment Programme needs and avoid implementation delays. SDM will also strengthen the cooperation with the operational stakeholders via the SCP, involving and updating them on the monitoring of the delivery-status and progress of SDM's mitigation actions. Connect key players in specific working groups and workshops etc. to overcome issues linked to industrialisation.	Relevant stakeholders to refer to and use existing standards and regulatory material and/or update material to the most possible extent to avoid new rulemaking and/or standardisation tasks. Relevant stakeholders to ensure that sufficient expertise is available for standardisation and regulatory work. EC to ensure stronger commitment by key players for timely delivery. EC to ensure necessary funding is available to bodies involved in critical development of standards and regulation to secure necessary resources.

Risk	Objectives affected by the risks	Consequences /impacts	Mitigation actions	
			Actions by SESAR Deployment Manager	Proposed Actions by other Stakeholders
5 Failure to ensure global interoperability	Timely and harmonized PCP implementation and associated benefits	The consequence of lacking global interoperability is the potential misalignment for avionics and ground systems (e.g. SESAR / NextGen as the leading systems guiding for ICAO worldwide harmonization). The potential impact could be: - Civil and military Airspace users having to carry multiple systems; - Increased costs and workload for civil and military airspace users, airports and ANPSs; - Delayed operational benefits and efficiencies. This risk is strongly linked to the Risk n. 4.	SDM will reinforce its coordination with SJU and its support to EC on this specific topic to ensure adequate consideration and action far earlier than at implementation stage. SDM will address the interoperability issues as essential part of DM's synchronisation and coordination tasks through a closer and timely coordination with SJU and FAA/NextGen and ICAO. Furthermore SDM will seek assistance of the manufacturing industry (especially airborne manufacturers) on the issue of global interoperability and alignment of industrialization and deployment roadmaps.	
6 Misalignment between CEF co-funding profile and readiness for implementation	PCP implementation and associated benefits	Given the uncertainty regarding CEF co-funding availability beyond the CEF call in 2016, the CEF calls in 2015 and 2016 may have to cover the full time horizon of the PCP (up to 2025). However, there is significant probability that in 2016, for some families in the DP, the related technological solutions will still lack readiness for implementation, thus preventing the operational stakeholders to apply for projects addressing those solutions. The conjunction of both constraints could lead to a significant time gap in	Option 1 is to adapt to the financial constraint and relax the notion of readiness for implementation in such a way that a project could be submitted and awarded even if it includes technological solutions not ready for implementation but implemented at a later stage. It is for SDM to explore this option. In addition to options 1 and 2 above, SDM will identify alternative funding and financing mechanisms through which implementation could continue in the critical period 2017-2020.	Option 2 is to adapt co-funding profile to foreseeable evolution of families' readiness for implementation, ensuring smooth implementation of PCP throughout the whole CEF period. This option would require EC to take action to secure part of the SESAR deployment co-funding beyond CEF midterm review in 2017.

Risk	Objectives affected by the risks	Consequences /impacts	Mitigation actions	
			Actions by SESAR Deployment Manager	Proposed Actions by other Stakeholders
		PCP implementation due to the need to wait, after 2016, until next financial period (2021- 2027) to resume PCP implementation.		
7 Misalignment between DP and operational stakeholders' investment plans	PCP implementation and associated benefits	Investment plans of operational stakeholders will not be aligned with DP v1/PCP needs. As a consequence, lack of needed IPs submitted to INEA under SDM coordination to ensure full and timely PCP implementation.	To engage implementation partners at executive level to raise their awareness on importance of DP realisation and opportunity to access CEF co-funding to facilitate their compliance with PCP Regulation.	
8 Late definition/ failure to establish SWIM governance	Full PCP implementation and associated benefits	Implementation of SWIM-technology could be delayed significantly because there is no SWIM-governance in place. Consequently, there is significant probability that no SWIM projects will be submitted in the framework of the upcoming CEF calls 2015 and not all benefits of the PCP can be released.		A clear governance for SWIM has to be established, similarly to the approach followed for the early phase of PENS. Therefore SDM proposes to EC to launch a study on the subject as a specific service by SDM to EC. The study should take on board also the cyber security dimension.
9 Datalink implementation	Timely PCP implementation and associated benefits	Datalink is a mandatory prerequisite to AF6. However, at this stage, there is still uncertainty regarding the most appropriate airborne and ground based technologies to be implemented to enable the functionality. To address this, SESAR JU is conducting a validation which will be completed in June 2016.	In comparison to draft DP v1 of 15 May the family 6.1.2 "Air Ground Data-Link deployment for Air and Ground Communication" was raised to a medium relevance category. The change reflects SDM conclusion that there is an acceptable technical risk to continue moving forward with the implementation of this family, in particular with the airborne side.	SJU - SDM to reinforce their cooperation specifically on datalink to share and align validation results with related implementation projects.

Risk	Objectives affected by the risks	Consequences /impacts	Mitigation actions	
			Actions by SESAR Deployment Manager	Proposed Actions by other Stakeholders
		An additional aspect could be that the results of the SESAR-JU validation in 2016 are not available in time to allow the stakeholders to submit new Datalink projects for the INEA-CEF-call 2016.	On the basis of the output of the close cooperation with SJU, the SDM will properly address and subsequently further prioritize Data Link implementation projects in the next updates of Deployment Programme. Furthermore the SDM will update the future DPs in order to guide the implementation with the most appropriate technology. SDM will share early results with the operational stakeholders in the respective SCP consultations during the DP update campaigns.	

7. Towards DP v1.1 and DP v2

This **chapter aims at looking forward the future versions of the DP.** Indeed, in the next 12 months, one minor and one major updates are foreseen.

The minor update is the DP v1.1 to be delivered to EC by 30th September 2015. It is qualified as a minor update because it will remain close to DP v1 whilst integrating either **factual elements** driven by external events such as:

- Comments from EC on DP v1 prior to its approval;
- Final decision to award projects as result from the call 2014 and subsequent update of the project view;
- Dates of next calls in 2015 and associated financial envelopes;
- Additional inputs from the operational stakeholders to further consolidate the monitoring view.

or **additional information based on SDM's expertise**, such as:

- Recommended new template to be used by INEA for next CEF calls; and
- Further consolidation of the performance view, in particular through the provision of examples of threads of projects;
- Assessment of the state of play regarding standardisation and regulation, translation in terms of risks to PCP implementation, development of associated mitigation actions to be performed in cooperation with EASCG members, in particular EUROCAE and EASA.

As a minor update, **DP v1.1 will be shared with the stakeholders** to ensure transparency and common awareness but not fully consulted. Only consolidation for the performance view and the standardisation and regulatory roadmap will be consulted.

The major update is the DP v2 by 30th June 2016. It is expected by June 2016, targeting the call 2016 whilst recording the implementation projects submitted in the framework of the calls 2015 pending final award decisions by INEA. **SDM will guarantee an early start for DP v2 development in order to provide stakeholders with a significantly longer consultation period.**

The following table summarizes the key features for each upcoming version of the DP.

	DP v1	DP v1.1	DP v2
Timeline			
Released	24/06/15	30/09/15	30/06/16
Consulted	Yes	No	Yes
Approved	September 2015	October 2015	September 2016
Contents			
Strategic view	Yes (updated)	Yes Updated from DP v1 to reflect Call 2014 award	Yes Updated from DP v1.1 to reflect calls 2015 submissions
Project view			
L1: AFs	As in PCP	As in PCP	As in PCP (unless PCP review or new CP definition launches at EC's initiative meanwhile)
L2: sub-AFs			
L3: families	All families	Same as in DP v1	All families (updated)
L4: implementation projects	110 projects submitted call 2014 **+ activities still to be launched**	XXX projects awarded call 2014 **+ activities still to be launched**	XXX projects awarded call 2014 + YYY projects submitted calls 2015 **+ activities still to be launched**
Performance view	Initial	Consolidate the methodology on performance assessment and monitoring + global/local CBA development + examples of threads	Updated from DP v1.1 to reflect calls 2015 submissions + extended to activities envisaged through call 2016 Include expected performance contributions per thread and associated CBAs
Monitoring view	Limited to IDSG's hand over for PCP prerequisites and facilitators, including DLS	Consolidated through additional inputs from the operational stakeholders	Continued consolidation + extended to include monitoring for projects awarded as result from INEA call 2014

Table 14 – PDP v1, DP v1.1, DP v2 Roadmap

8. List of Acronyms

Acronym	Meaning
A-CDM	Airport-Collaborative Decision Making
AA	Activity Areas
ACC	Area Control Center
ACG	Austro Control
ACH	ATC flight plan Change message
ACSP	Air Communication Service Provider
ADIDS	Aeronautical Data Information Display System
ADP	Aéroport de Paris
ADQ	Aeronautical Data Quality
ADS-B	Automatic Dependent Surveillance – Broadcast
ADS-C	Automatic Dependent Surveillance – Contract
ADV	German Airports Association
AERODB	Aeronautical Database
AF	ATM Functionalities
AFP	ATC Flight plan Proposal
AFR	Air France
AFUA	Advanced Flexible Use of Airspace
AGDL	Air Ground Data Link
AIDA	Aeronautical Information Data-handling-system Austria
AIM	Aeronautical Information Management
AIRM	Aeronautical Information Reference Model
AIS	Aeronautical Information System
AIX	Aeronautical Information Exchange
AIXM	Aeronautical Information Exchange Model
AMAN	Arrival MANager
AMC	Acceptable Means of Compliance
AMHS	ATS Messages Handling System
ANS-CR	Air Navigation Services of Czech Republic
ANSP	Air Navigation Service Provider
AO	Aircraft Operator
AOBT	Actual Off-Block Time
AOC	Airline Operations Communication
AoI	Area of Interest
AOP	Airport Operational Plan
AoR	Area of Responsibility
APCH	Approach
APL	ATC flight PLan message
APOC	Airport Operations Centre
APP	Approach Control
APV	Accuracy Position & Velocity
APW	Area Proximity Warning
ARES	Airspace Reservation/Restriction
ARINC	Aeronautical Radio Inc.
ARO	Air Traffic Services Reporting Office
ASM	AirSpace Management
ASMA	Arrival Sequencing and Metering Area
A-SMGCS	Advanced Surface Movement Guidance and Control Systems
ASR	Action Status Reports
ATC	Air Traffic Control

Acronym	Meaning
ATCO	Air Traffic Control Officer
ATFCM	Air Traffic Flow and Capacity Management
ATFM	Air Traffic Flow Management
ATM	Air Traffic Management
ATMN	Air Traffic Management Network
ATN	Aeronautical Telecommunication Network
ATS	Air Traffic Services
AU	Airspace User
AUP	Airspace Usage Plans
AUR	Acceptable Use Regulation
AVOL	Aerodrome Visibility Operational Level
B2B	Business to Business
BAF	Bundesaufsichtsamt für Flugsicherung (German National Supervisory Authority)
BF	Briefing Facility
BHANSA	Bosnia and Herzegovina Air Navigation Services Agency
CAA	Civil Aviation Authority
CANAC	Belgocontrol Air Traffic Control Center
CASA	Civil Aviation Safety Authority
CAUTRA	Coordinateur Automatique de Trafic Aérien/ French Legacy Automated Computer System for Air Traffic
CBA	Cost And Benefit Analysis
CCD	Continuous Climb Departures
CCL	Croatia Control
CCO	Continuous Climb Operations
CDA	Continuous Descent Approaches
CDG	Paris-Charles De Gaulle
CDM	Collaborative Decision Making/Management
CDO	Continuous Descent Operations
CDR	Conditional Route
CDT	Conflict Detection Tools
CEF	Connecting Europe Facility
CFMU	Central Flow Management Unit
CHMI	Collaboration Human Machine Interface
COHOR	Association pour la coordination des horaires (French Airport Slot Allocator)
COOPANS	COOPeration between Air Navigation Service providers
CORA	Conflict Resolution Assistant
CPA	Common Procurement Agreement
CPDLC	Controller-Pilot Data-Link Communications
CPH	Copenhagen Airport Code
CPR	Correlated Position Report/Correlative Position Radar
CSP	Communication Service Providers
CTOT	Calculated Take-Off time
CWP	Controller Working Position
DCB	Demand Capacity Balancing
DCT	Direct Routings
DEP	Departure/Depart/Departure message
DFS	Deutsche Flugsicherung GmbH
DHMI	Devlet Hava Meydanlari Isletmesi
DK-SE	Denmark-Sweden Functional Airspace Block
DLS	Data Link Services

Acronym	Meaning
DLSIR	Data Link Services Implementing Rule
DMAN	Departure Manager
D-NOTAM	Digital Notification To Airman
DP	Deployment Programme
DPI	Departure Planning Information
DSNA	Direction de Services de la Navigation Aérienne -
EAD	European Aeronautical Database
EANS	Estonian Air Navigation Services
EASA	European Aviation Safety Agency
EASCG	European ATM Standardisation Coordination Group
EASI	EAD AIM Systems Integration
EATM	European Air Traffic Management
EC	European Commission
ECAC	European Civil Aviation Conference
ECIT	EAD Connection Interface Terminal
EDA	European Defence Agency
EDDF	Frankfurt am Main International Airport Code
EDDL	Düsseldorf International Airport Code
EFD	ETFMS Flight Data
EFPL	Extended Flight Plan
EFS	Electronic Flight Strips
EGS	External Gateway System
EHAM	Amsterdam Schiphol Airport Code
EIB	European Investment Bank
ENAV	Ente Nazionale Assistenza al Volo – Italian ANSP
E-OCVM	European Operational Concept Validation Methodology
EPP	Extended Project Profile
ERATO	En Route Air Traffic Organizer
ERNIP	European Route Network Improvement Plan
ESSIP	European Single Sky Implementation Plan
ETFMS	Enhanced Traffic Flow Management System
eTOD	Electronic Terrain and Obstacle Database
EUR/NAT	European/North Atlantic
EUROCAE	European Organization for Civil Aviation Equipment
FAA	Federal Aviation Administration
FAB	Functional Airspace Block
FABEC	Functional Airspace Block Europe Central
FAT	Factory Acceptance Test
FBZ	Flight Plan Buffer Zones
FDP	Flight Data Processing
FDPS	Flight Data Processing System
FF ICE	Flight and Flow Information for a Collaborative Environment
FIR	Flight Information Region
FIXM	Flight Information Exchange Model
FMS	Flight Management System
FMTP	Flight Message Transfer Protocol
FOC	Full Operational Capability
FPA	Framework Partnership Agreement
FPL	Flight Plan
FRA	Free Route Airspace
FSA	First System Activation

Acronym	Meaning
FT	Fast Track
FUA	Flexible Use of Airspace
FUM	Flight Update Message
G/G	Ground/Ground
GBAS	Ground Based Augmentation System
GHG	Green House Gas
GMCS	Ground Maneuver Camera System
GNSS	Global Navigation Satellite System
HCAA	Hellenic Civil Aviation Authority – Greek ANSP
HMI	Human Machine Interface
IAA	Irish Aviation Authority
iAOP	Initial Airport Operational Plan
IBS	Integrated Briefing System
ICAO	International Civil Aviation Organization
iCAS	iTEC centre automation system
IDP	Interim Deployment Program
IDSG	Interim Deployment Steering Group
IEPR	IDP Execution Progress Report
IFPS	Integrated Initial Flight Plan Processing System
IFR	Instrument Flight Rules
ILS	Instrument Landing System
INEA	Innovative Network and Energy Agency
IOP	Interoperability
IP	Implementation Projects
IR	Ice On Runway
IRMP	Integrated Roadmap
ISRM	Information Service Reference Model
iSWIM	Initial System Wide Information Management
iTEC	Interoperability Through European Collaboration
ITY	Interoperability
IWXXM	ICAO Meteorological Information Exchange Model
KNMI	Koninklijk Nederlands Meteorologisch Instituut - Royal Netherlands Meteorological Institute
KPI	Key Performance Indicator
LAMP	London Airspace Management Program
LAT	Latitude
LEBL	Barcelona International Airport Code
LEMD	Barajas International Airport Code
LEPA	Son Sant Joan Airport Code
LFV	Luftfatsverket – Swedish ANSP
LGS	Latvijas Gaisa Satiksme – Latvian ANSP
LH	Lufthansa
LIDO	Lufthansa Integrated Dispatch Operation
LIMC	Milano-Malpensa Airport Code
LIRF	Roma-Fiumicino Airport Code
LPV	Localizer Performance with Vertical guidance
LSSIP	Local Single Sky Implementation Plan
LVNL	Luchtverkeersleiding Nederland (Netherland ANSP)
MDI	Minimum Departure Intervals
METAR	Aviation routine weather report
METCE	Modèle pour l'Échange des informations sur le Temps, le Climat et l'Eau
MLAT	Multilateration system

Acronym	Meaning
MoC	Means of Compliance
MONA	MONitoring Aids
MPLS	MultiProtocol Label Switching
MSP	Multi-Sector Planner
MTCD	Medium Term Conflict Detection
MUAC	Maastricht Upper Area Control Centre
NATS	National Air Traffic Services (UK ANSP)
NAV Portugal	Navegação Aérea de Portugal (Portuguese ANSP)
NAVIAIR	Navigation Via Air
NCE	Nice Côte d'Azur Airport
NEFAB	Northern Europe Functional Airspace Block
NG-AATMS	Next Generation Austrian Air Traffic Management System
NM	Network Manager
NMOC	Network Manager Operation Center
NMS	Network Manager Systems
NOP	Network Operation Plan
NOTAM	Notification To Airman
NPA	Non Precision Approach
NSA	National Supervisory Authority
NSP	Network Strategy Plan
OAT	Operational Air Traffic/ Outside Air Temperature
ODS	Operational input and Display System
OLDI	On-Line Data Interchange
OPMET	Operational Meteorological
ORY	Paris Orly International Airport
OTMV	Occupancy Traffic Monitoring Values
PBN	Performance Based Navigation
PCP	Pilot Common Project
PD	Project Definition
PDP	Preliminary Deployment Programme
PDS	Pre-Departure Sequencing
PENS	Pan European Network Service
PIREP	Pilot Reports
PKI	Public Key Infrastructure
PMU	PENS Management Unit
PSSG	PENS Steering Group
QoS	Quality of Service
RAAS	Runway Awareness and Advisory Systems
RAD	Route Availability Document
RF	Radius to Fix
RIMS	Runway Incursion Monitoring System
RNP	Required Navigation Performance
ROMATSA	Romanian Air Traffic Services Agency
ROPS	Runway Overrun Prevention System
RVR	Runway Visual Range
RWY	Runway
SAT	Site Acceptance Test
SBAS	Satellite Based Augmentation System
SCP	Stakeholders Consultation Platform
SDH	Synchronous Digital Hierarchy
SDM	SESAR Deployment Manager

Acronym	Meaning
SES	Single European Sky
SESAR	Single European Sky ATM Research
SID	Standard Instrument Departure
SITA	Société Internationale Télécommunication Aérienne
SJU	Single European Sky ATM Research Joint Undertaking
SLA	Service Level Agreement
SMAN	Surface manager
SMGCS	Surface Movement Guidance and Control Systems
SMR	Surface Movement Radar
SSR	Secondary Surveillance Radar
STAM	Short Term ATFCM Measures
STAR	Standard Arrival Route/ Standard instrument arrival
STCA	Short Term Conflict Alert
SWIM	System Wide Information Management
SYSCO	System Supported Coordination
TA	Transition Altitude
TAF	Aerodrome Forecast
TAWS	Terrain Avoidance and Warning System
TBS	Time Based Separation
TCT	Tactical Controller Tool
TFR	Traffic Flow Restriction
TI	Technical Infrastructure
TMA	Terminal Control Area
TSAT	Target Start-up Approval Times
TSE	Total System Error
TTG	Time To Gain
TTL	Time To Lose
TTOT	Target Take Off Times
TWR	Tower
UAC	Upper Area Control Centre
UDPP	User Driven Prioritisation Process
UIR	Upper Flight Information Region
UUP	Updated Airspace Use Plan
VDGS	Visual Display Guidance System
VDL	VHF Digital Link
VGS	VHF Ground Stations
VHF	Very high frequency
VNAV	Vertical Navigation
VPA	Variable Profiles Areas
VTS	Vehicle Tracking System
WAN	Wide Area Network
WBS	Work Breakdown Structure
WBT	Web Based Training
WIP	Work in progress
WMO	World Meteorological Organisation
WOC	Wing Operations Centre
WP	Work Package
WSDL	Web Service Definition Language
WXCM	Weather Exchange Conceptual Model
WXXM	Weather Information Exchange Model
WXXS	Weather Information Exchange Schema
XMAN	Arrival MANager with Extended Horizon

9. Notes