Deployment Programme 2015 (DP 2015)

FPA MOVE/E2/2014-717/SESAR FPA
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Work Package B2 – 4.2

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Control

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Executive Summary

What's DP 2015?

Following the timely delivery of DP v1 to the European Commission (EC) by 29th of June 2015, the Programme has been further updated and enhanced in many of its sections, resulting into DP 2015. In accordance with Regulation (EU) No 409/2013, the SJU, the NM and EDA have been associated to the development of this version.

In this respect, whilst DP 2015 main objectives are to factually align with the outcome of the CEF Transport call 2014 and the implementation level of the ATM Master Plan edition 2015, the Programme also brings significant improvements, such as: a performance policy supported by an enriched **performance** view, a tailored assessment and cost benefit analysis methodology[1], updated **standardisation** and **regulation** matrixes[2] **and** an **enhanced gap analysis** that takes into account the outcomes from the CEF Transport Call 2014 and the direct contribution of the operational stakeholders[3]. Furthermore, DP 2015 provides for a **detailed view** on how SDM intends to ensure the **synchronization of the Programme,** introducing a **tailored four-phase methodology**[4].

It is underlined that DP 2015 maintains the same scope of DP v1, which is to provide **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.** Accordingly, DP v1 structure – which turns the 6 ATM functionalities and 20 sub-functionalities contained in the PCP into 44 families of implementation projects – has been reconfirmed, whilst the respective set of information has been further improved.

For each **family of projects**, DP 2015 identifies the **respective projects awarded** through **CEF Transport Call 2014**, and at the same time flags the activities to be performed by which stakeholders, where, and when indicating the optimum time for their execution. **DP 2015 represents the blueprint for the ATM technological investment plans by the operational stakeholders impacted by PCP Regulation.**

Once approved by the EC, **DP 2015 shall constitute the main reference document to specify the priorities in the CEF Calls for Proposals that will be launched by the end of 2015.** DP 2015 shall also be enforced through an amendment to the SESAR Deployment Framework Partnership Agreement (FPA), replacing former PDP v0 as its technical annex.

DP 2015 Consultation

DP 2015 builds on the **contributions from SESAR Joint Undertaking (SESAR JU)**, the **Network Manager (NM)** and the **European Defence Agency (EDA)**, on the consultation with the operational stakeholders, engaged through the **Stakeholders Consultation Platform (SCP)** for performance, CBA, standardisation and regulation

[1] See Section 2.2, Chapter 4 and Annex D
[2] See Annex B
[3] See Chapter 3
[4] See Chapter 5

related matters. EASA, EUROCAE and EASCG have also been consulted by SDM for the finalization of the Standardization and Regulation Matrixes.

DP 2015's overview

DP 2015 is organised into 6 main chapters.

The "Strategic view" 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 readiness for implementation, in the perspective of the CEF Transport and Cohesion Fund Calls for Proposals 2015:**

- **30 high readiness 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;
- **10 medium readiness families:** those families are ready for implementation, although related implementation projects could be less urgent to launch because less critical to timely PCP implementation;
- **4 low readiness families:** those families are not ready for implementation

The "Project view" is at the heart of DP 2015. 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:

- **the implementation projects awarded through 2014 CEF Calls for proposals;**
- **the identified gaps,** i.e. the implementation initiatives still required to ensure the timely implementation of the related family, sub-AF, AF and then overall PCP. **In this perspective, the gap analysis is the tool provided by SDM to 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 EU co-funding** by sequencing in time the implementation initiatives against the co-funding opportunities.

Operational stakeholders' attention is particularly drawn to this gap analysis, as it provides for a clear indication on what is expected to be implemented and by when, helping the stakeholders in ensuring their investment plans are aligned with the Programme.

The "Performance view" has been further enhanced in comparison with DP v1. Still providing for an overview of SDM's role within the SES performance framework, it now introduces the **performance assessment and CBA methodology** that SDM will apply in support to its performance policy and how it builds on and connect with the methodologies used by other SES and SESAR bodies involved into performance. Furthermore, whilst outlining the **funding and financing mechanisms** that could be activated to facilitate

timely PCP implementation by the operational stakeholders and further optimise PCP's benefits, it provides for some **initial findings**, mainly **derived from the costs and expected benefits drawn from the implementation projects awarded as a result from the CEF Transport Call 2014.**

Under the **"Monitoring view"**, there is still no projects within the SESAR Deployment FPA to report on. As a smooth transition towards Deployment Programme realisation, the "Monitoring view" in the DP 2015 reports status of priority implementation activities defined in the former Interim Deployment Programme. The "Monitoring view" also introduces **the methodology for SDM to coordinate and synchronise the implementation projects during DP realisation.** .

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

Finally, **last chapter looks forward the future version of the DP,** which is the DP 2016 Draft by 30th June 2016. It anticipates the further improvements that will appear in DP 2016, which will target the CEF Transport Call 2016 whilst recording the implementation projects submitted in the framework of the CEF Transport Calls 2015 pending final award decisions by INEA. Furthermore, the chapter underlines SDM early start for DP 2016 development in order to provide stakeholders with a significantly extended consultation period.

1. Introduction

DP 2015 has been developed on the basis of the set of principles reported in DP v1, and building on the inputs and contributions received since its release in June 2015.

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 awarded through 2014 CEF Transport Calls 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: it provides for an overview of SDM's role within the SES performance framework, introduces SDM performance assessment and CBA methodology, and outlines funding and financing mechanisms that could be activated to facilitate timely PCP implementation.

Chapter 5 "**Monitoring view**" provides the overview of the current implementation status of the full PCP scope, in particular reporting the IDP Execution Progress Report (IEPR) recommendations and status update, the results of the enhanced gap analysis exercise, and the SDM synchronization and monitoring four-phase methodology.

The development of the above views triggers the identification of risks to PCP implementation and DP 2015 realisation and related potential mitigation actions either under SDM or other stakeholders' remits, both described in chapter 6 "**Risks and Mitigations**".

Chapter 7 "**Towards DP 2016**" concludes DP 2015 looking at the future version of the Programme.

DP 2015 also includes four Annexes, here below listed:

- Annex A Project view – Projects details, updated according to 2014 CEF Transport Calls for Proposals awarding results;
- Annex B - Standardization and Regulation matrixes, updated according to the outputs of the coordination with EASA, EDA, NM, SJU and EUROCAE, and of the consultation with the operational stakeholders;
- Annex C – Updated IP template, developed in full compliance with INEA policy requirements and enhanced according to the lessons learnt during 2014 CEF Transport Calls for Proposals;
- Annex D – Performance Assessment and Cost Benefit Analysis methodology

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" presented in the next section.

In particular, Section 2.1 outlines the main new features in DP 2015 compared to DP v1, which includes: the update of the Programme following the results of INEA evaluation process for CEF Transport Calls for proposals 2014; an enhanced gap analysis thanks to the inputs provided by the operational stakeholders through ad-hoc templates; a detailed view of the approach developed by SDM to synchronise the IPs identified in the DP; the inclusion of two new annexes respectively introducing the IP template (Annex C) and the Performance Assessment and Cost Benefit Analysis Methodology (Annex D).

Section 2.2 then presents SDM's performance policy, developed according to its regulatory framework and in full alignment with its scope and responsibilities, whilst section 2.3 reconfirms DP v1 work breakdown structure and related families Gantt charts.

Finally, section 2.4 concludes with the general orientations proposed to the EC and the INEA, updated according to 2014 CEF Transport Call results, in order to continue timely implementation of PCP through the next CEF Transport Calls for Proposals.

2.1 What's new with DP 2015?

DP 2015 builds on DP v1, itself derived from PDP v1; the table here below summarises the roadmap timetabled by previous PDP v1 and DP v1 releases:

	PDP v1	DP v1	DP 2015
Released	31/03/15	24/06/15	30/09/2015
Consulted	No	Yes	No
Approved	Noted	Noted	November
Strategic view	Yes	Yes (updated)	Yes (updated)
Project view			
L1: AFs	As in PCP	As in PCP	As in PCP
L2: sub-AFs			
L3: families	Fast-tracks only (updated)	44 families	44 families
L4: implementation projects	110 projects submitted to 2014 CEF Call	110 projects submitted to 2014 CEF Call **+ gaps**	Projects awarded in 2014 CEF call + **gaps (updated)**
Performance view	None	Initial	Enhanced
Monitoring view	None	Limited to IDSG's hand over for PCP prerequisites and facilitators, including DLS	IDSG's handover + preliminary view of implementation activities still needed for full PCP implementation

Table 1 – PDP v1, DP v1, DP 2015 Roadmap

Whereas PDP v1 developed an initial project view of the Pilot Common Project (PCP), and DP v1 widened its scope embracing the full PCP, DP 2015 provides a further up-to-date picture of SESAR implementation at both level 3 and level 4.

With regard to level 3, the structure of DP v1 families has been re-confirmed, whilst respective set of information has been further improved: in particular, the "*References and guidance material*", the "*Industry standards*" and the "*Means of compliance and*

certification of community specifications" have been updated according to the outputs of the **Standardization and Regulation matrixes** (S&R) consultation and consolidation process. As detailed in Annex B, DP 2015 has indeed enhanced the S&R matrixes included in DP v1 thanks to the **coordination with EASA, EDA, NM, SJU and EUROCAE**, and the **consultation with the operational stakeholders** whose outputs have been recorded in the matrixes themselves.

With regard to the level 4, DP 2015 has been updated according to the **results** of **2014 CEF Calls for Proposals.** Furthermore, the gap analysis initialized in DP v1 has been significantly enhanced through the direct involvement of the operational stakeholders. The analysis, building on the inputs provided by Airspace Users, ANSPs and airports through ad-hoc templates developed by SDM (see chapter 5), now further details the nature of the gap identified; in particular, with regard to the **ground stakeholders**, **nine categories of implementation status have been identified**, plus a tenth one in case no information is available:

1. Family's scope already fully implemented (*not a gap*);
2. Submitted project(s) for which CEF financing has already been requested; its/their realisation will ensure the full family's implementation coverage (*not a gap*);
3. Submitted project(s) for which CEF financing has already been requested, although the full family's implementation will not be covered;
4. Implementation planned but for which co-financing through CEF Calls have not been requested and/or not awarded;
5. Implementation in progress but for which co-financing through CEF Calls have not been requested and/or not awarded;
6. Partial coverage in terms of scope (not all the necessary functionalities have been implemented;
7. Partial coverage in terms of involved Stakeholders;
8. Complete lack of any implementation initiative;
9. Not Applicable (*not a gap*);
10. No information available

It is worth noting that the current snapshot of ground gaps included in the Programme is the result of the integration of feedbacks gathered from the ANSPs and from the Airport operators' perspective, aiming at providing a "common" perspective of which implementation activities are still to be performed on ground side. Detailed feedback received from both stakeholders' category will however be taken in the upmost consideration during the elaboration of future versions of the Programme, potentially leading to a further expansion and development of the monitoring view.

With regard to the **Airspace users (AUs)**, the gap analysis has been performed through a survey in cooperation with the airspace user associations, targeting those families impacting the AUs. In order to identify where further projects would be needed in order to deliver the PCP and to address the needs of the Airspace User community, two questionnaires have been developed, one on **PCP-related flight planning capabilities**, the other one on **aircraft capabilities** and airspace user's readiness to deploy avionic functionalities already embodied on their aircraft and also the **operational readiness (Operational Approval / Flight Crew Trained)**. This network-centric approach, due the nature of the AU stakeholders, complemented the gap analysis of the ground stakeholders. It is worth noting that the **gap analysis** represents a **living picture** of the

actual status of **SESAR implementation** and, as such, is to be constantly kept updated through SDM synchronization and monitoring of the Programme.

In this respect, DP 2015 introduces **SDM synchronization and monitoring four phases methodology**, as detailed in chapter 5. Starting from the preliminary activities carried out during **DP elaboration** - when common monitoring milestones are identified, and building on the assessment of Indications of Interest and candidate IPs respectively in the **Pre-bid and Bid phases**, the methodology allows a thorough monitoring of the projects implementation during the **execution of the Programme**, ensuring a consistent up-to-date picture of the implementation status.

2.2 Performance Policy

SESAR Deployment Manager (SDM), according to its regulatory framework set by Commission Implementing Regulations (EU) No 409/2013 and No 716/2014, **considers the performance driven deployment of the Pilot Common Project and any subsequent Common Project as a priority.**

SDM commitment is focused on a **constant improvement of the methodology** to assess the consistency with and level of contribution to European Union-wide performance targets[5] provided by technological investments.

Within the scope of its responsibilities, SDM's performance policy is to:

1. Guarantee **compliance to relevant regulations and adherence to the European ATM Master Plan as reference for operational changes** that are essential enablers to achieve the Single European Sky (SES) performance objectives;
2. Guarantee **full coordination with SJU, PRB and NM** on performance assessment;
3. Guarantee the **consultation with the implementing partners on performance analysis** before they are published and within the consultation process defined for the Deployment Program;
4. Provide the **assessment of implementing projects against SES performance targets** namely safety, capacity, environment and cost efficiency as part of the synchronisation effort of the Deployment Program;
5. Provide the **analysis of the costs and expected benefits of the PCP related implementation projects**;
6. Provide **the monitoring and the assessment of impact of implementing projects** on each performance target;
7. Promote the **use of good practices in the field of cost benefit analysis methodologies** and the **adoption of continuous improvement models**;
8. Guarantee that **all involved staff is aware of its role in the achievement of performance driven deployment**;
9. Develop and promote, at management and implementation levels of the SESAR Deployment Governance, a **performance driven culture**.

The "performance view" of the Deployment Programme (chapter 4) further develops the above described performance policy.

[5] 'European Union-wide performance targets' means the targets referred to in Article 9 of Regulation (EU) No 390/2013.

2.3 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 also reported in DP v1, DP 2015 aims at providing the **project view for full PCP implementation**, thus becoming **the blueprint for PCP implementation for all 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**. Fig. 1 shows DP 2015 overall structure with families clustered per AF and labelled according to:

- both its readiness for implementation and time wise urgency to be launched in order to pursue timely PCP implementation:
    - **High Readiness 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.
    - **Medium Readiness 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.
    - **Low Readiness Families**: not ready for implementation families; these families are not yet ready for implementation but will be re-considered when developing the future versions of the Deployment Programme as their readiness for implementation is expected to improve in time.

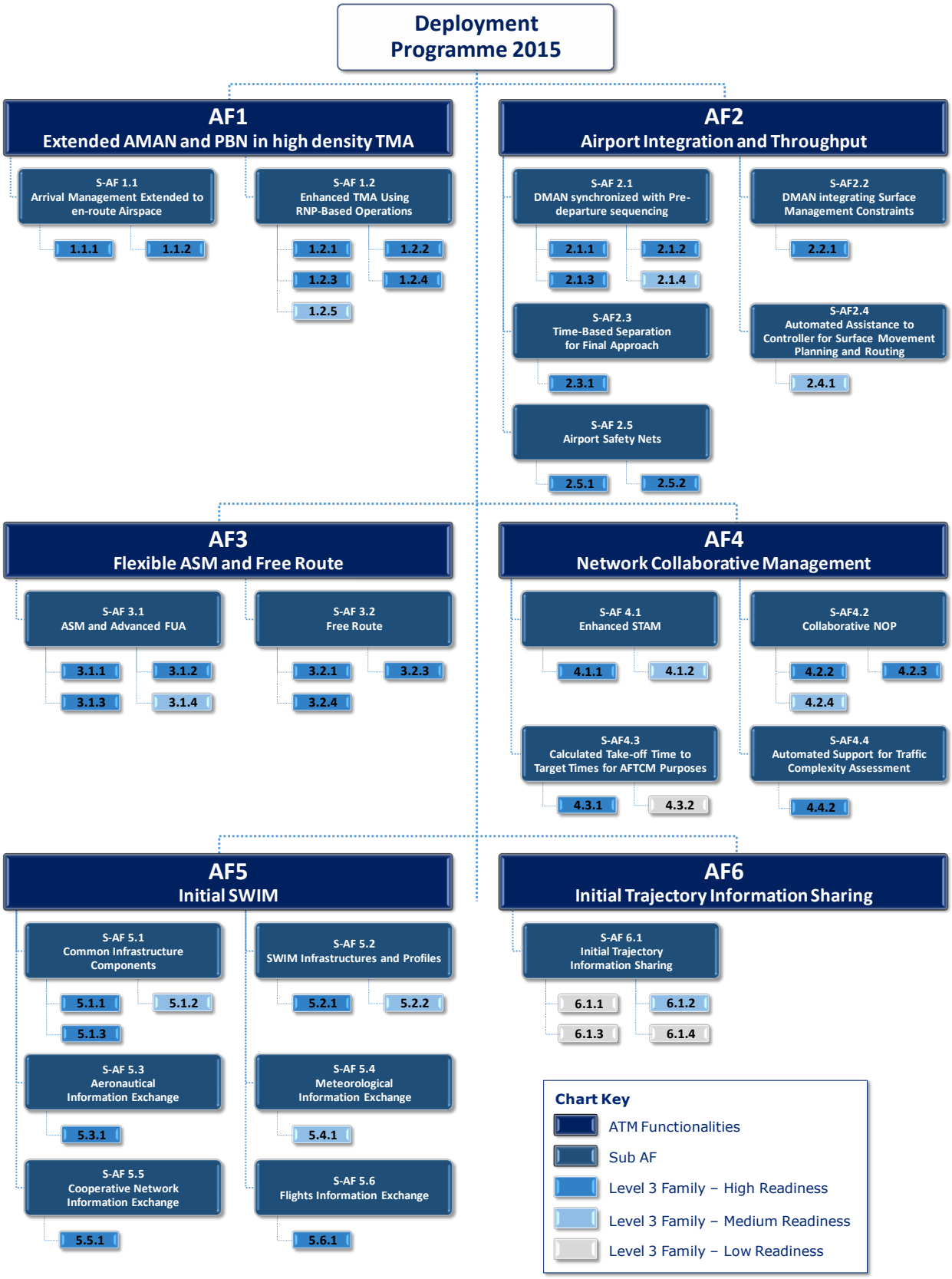
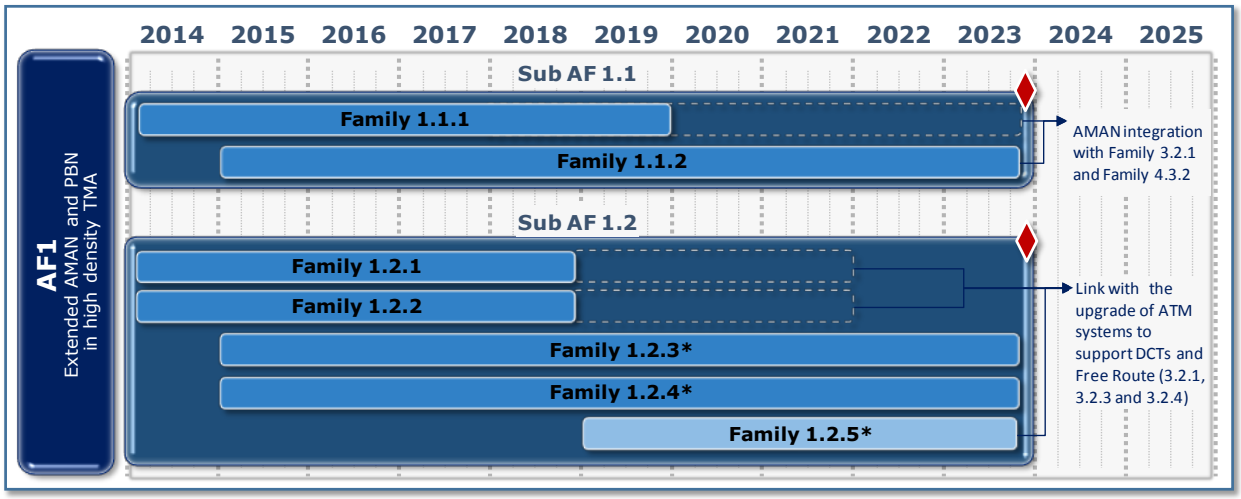


Fig. 1 – Overall DP 2015 Structure

In particular, here below the **full list of 44 DP 2015 families** is reported, along with dedicated GANTT charts which highlight the recommended **roadmap for implementation of each Family**, clustered by ATM Functionality:

2.3.1 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)
- 1.2.5 Implement Advanced RNP routes below Flight Level 310



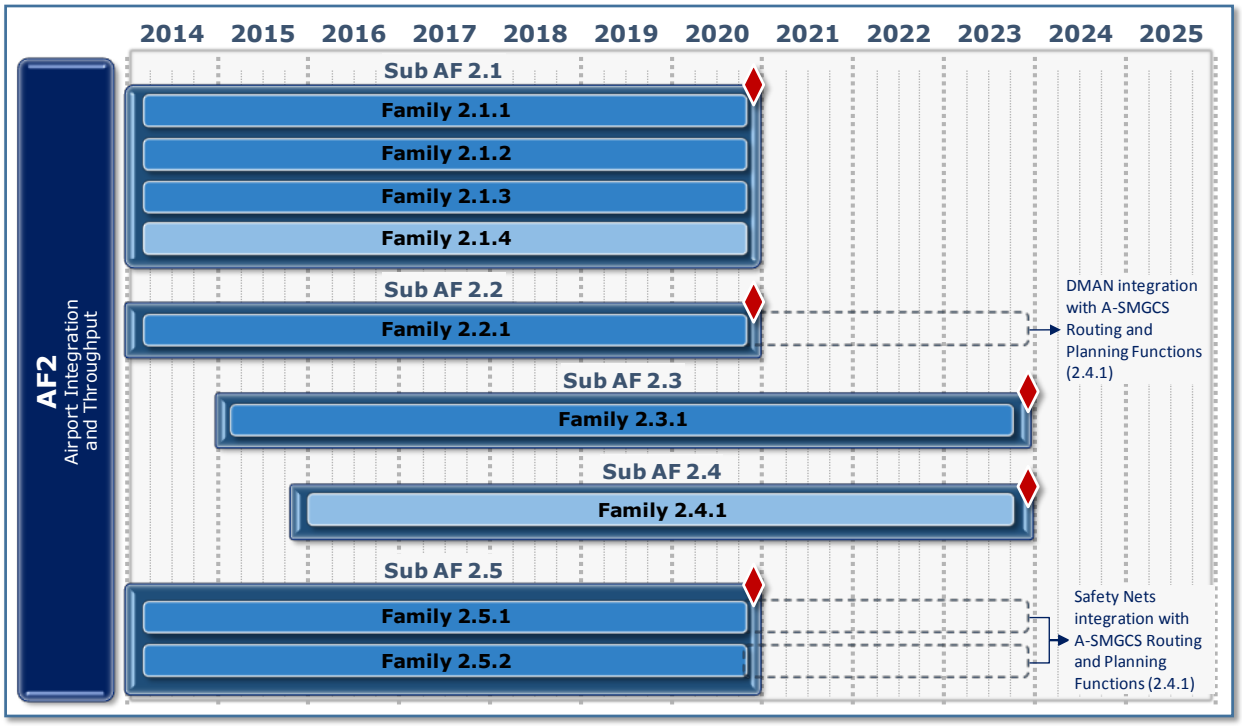
* Potential update of the FOC, pending EASA PBN-NPA Implementing Rule (currently in consultation phase)

NB. The dotted lines indicate where upgrades might be necessary on the basis of integration need with other families

Fig. 2 - AF1 Proposed Roadmap for Implementation

2.3.2 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
- 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

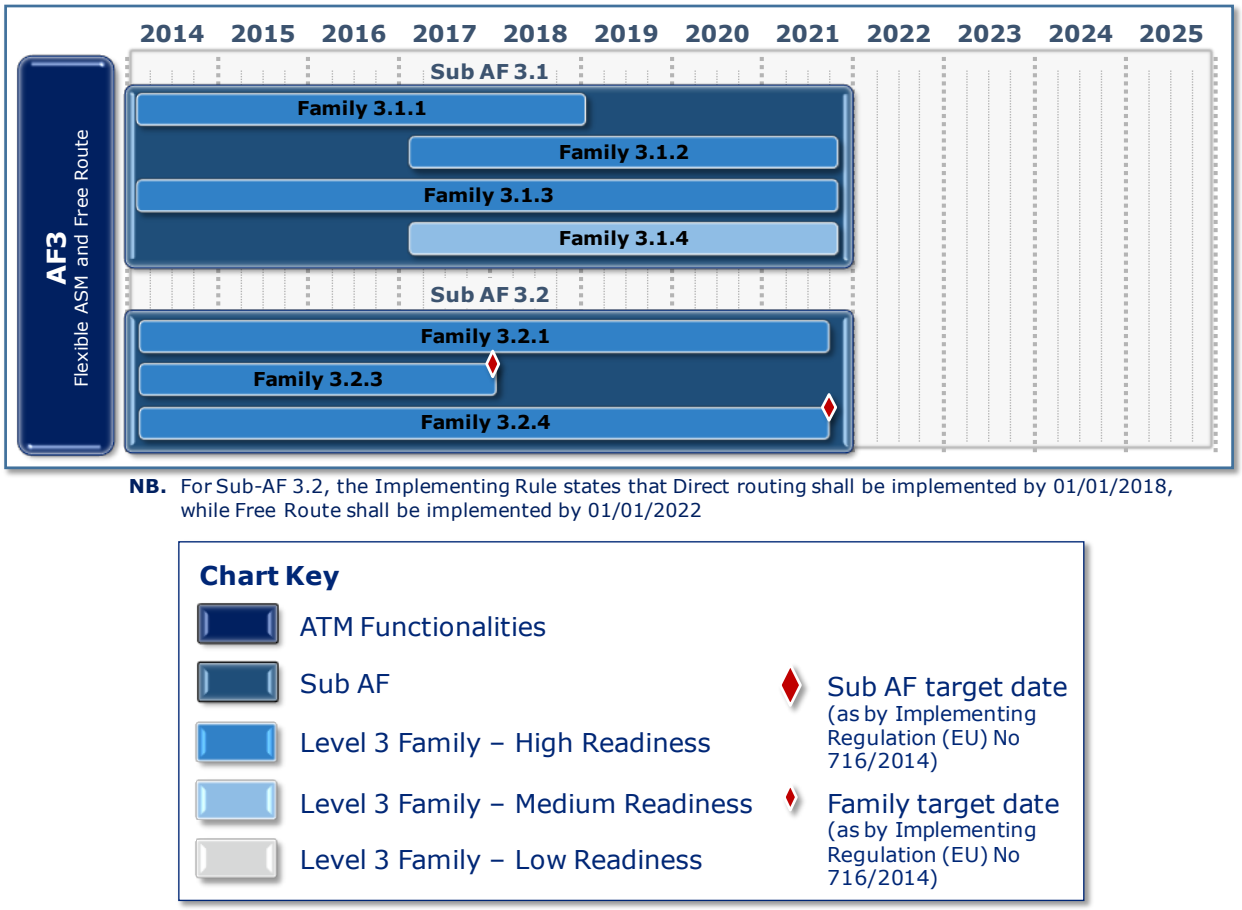


NB. The dotted lines indicate where upgrades might be necessary on the basis of integration need with other families

Fig. 3 - AF2 Proposed Roadmap for Implementation

2.3.3 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
- 3.1.3 Full rolling ASM/ATFCM process and ASM information sharing
- 3.1.4 Management of Dynamic Airspace configurations
- 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)
- 3.2.4 Implement Free Route Airspace



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

2.3.4 AF4 – Network Collaborative Management

- 4.1.1 STAM Phase 1
- 4.1.2 STAM Phase 2
- 4.2.2 Interactive Rolling NOP
- 4.2.3 Interface ATM systems to NM systems
- 4.2.4 AOP/NOP Information Sharing
- 4.3.1 Target times for ATFCM purposes
- 4.3.2 Reconciled Target Times for ATFCM and arrival sequencing
- 4.4.2 Traffic Complexity Tools

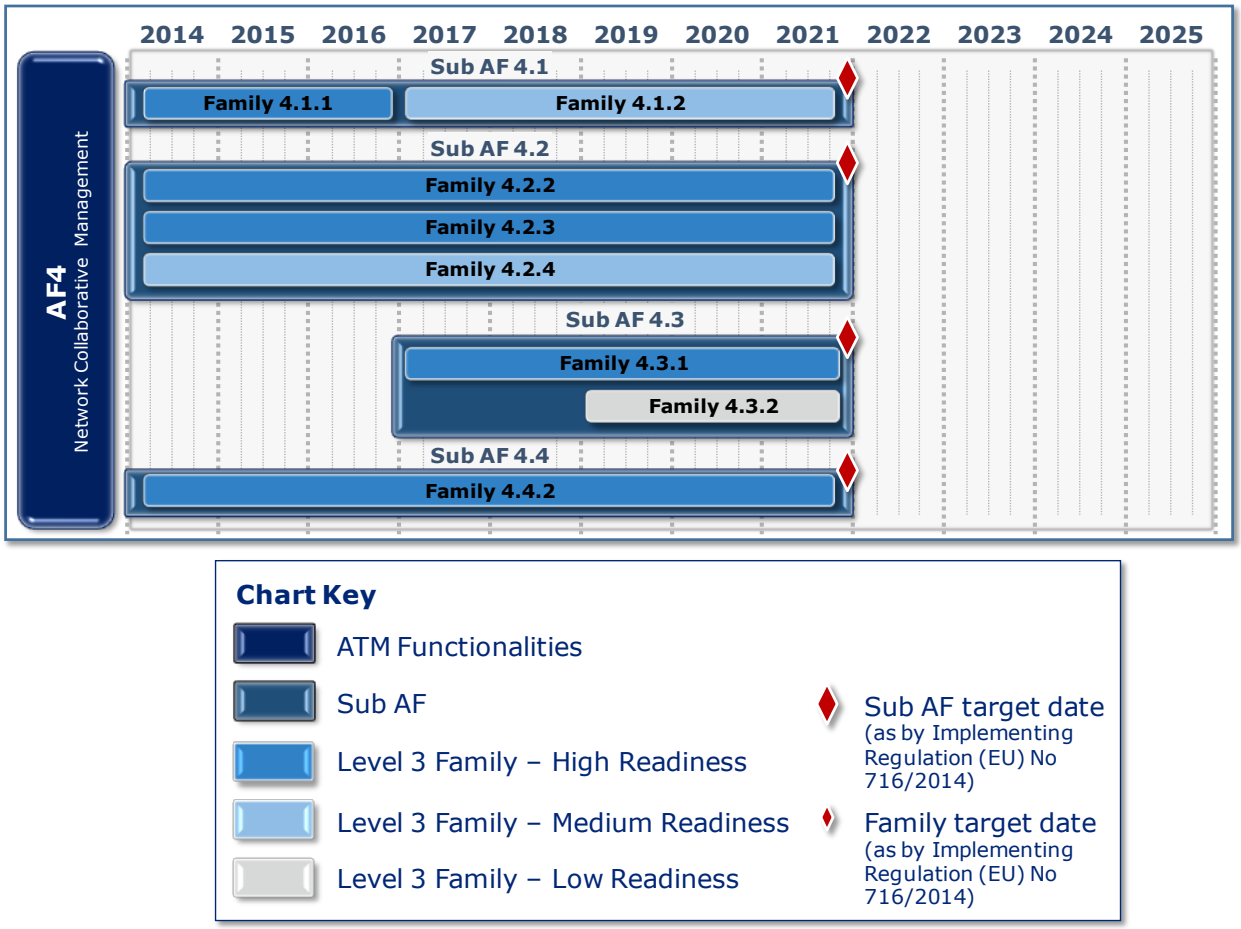
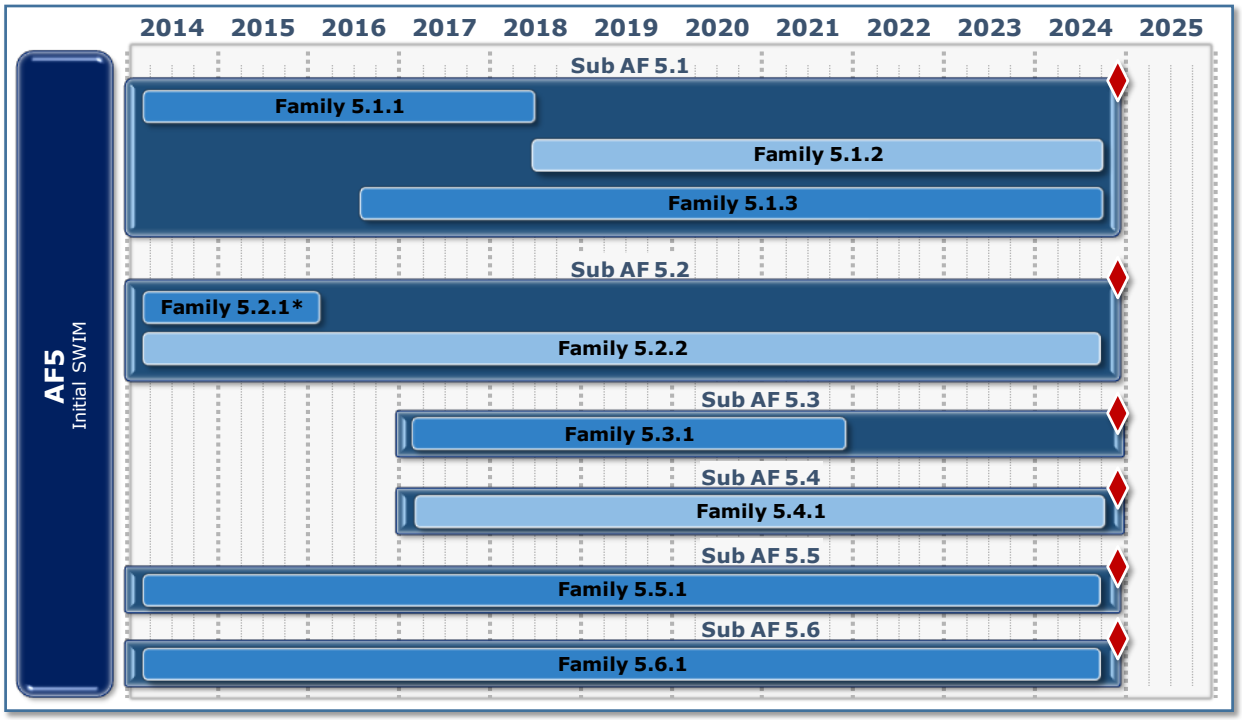


Fig. 5 – AF4 Proposed Roadmap for Implementation

2.3.5 AF5 – Initial System Wide Information Management

- 5.1.1 PENS 1 – Pan-European Network Service v. 1
- 5.1.2 Future PENS – Future Pan-European Network Service
- 5.1.3 Common SWIM Infrastructure Components
- 5.2.1 Stakeholders Internet Protocol Compliance
- 5.2.2 Stakeholders SWIM Infrastructure components 5.3.1 Upgrade / Implement Aeronautical Information Exchange System / Service
- 5.4.1 Upgrade / Implement Meteorological Information Exchange System / Service
- 5.5.1 Upgrade / Implement Cooperative Network Information Exchange System / Service
- 5.6.1 Upgrade / Implement Flight Information Exchange System / Service

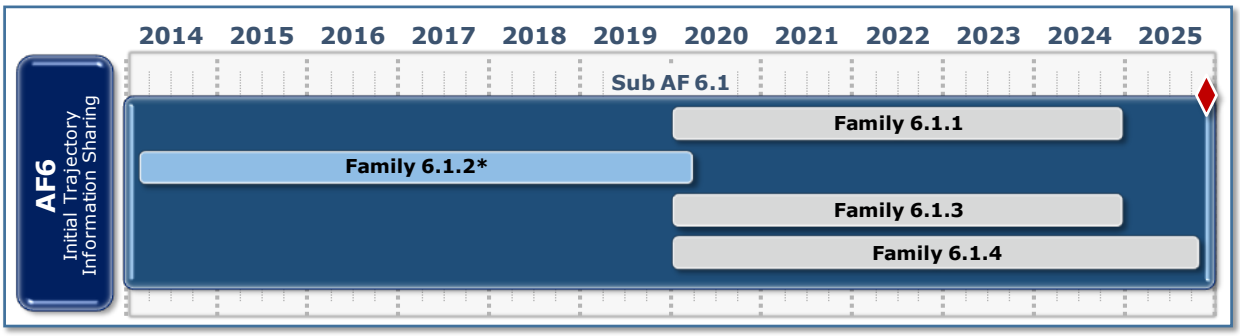


* Considering the FMTP Implementing Regulation (EC) No 633/2007

Fig. 6 – AF5 Proposed Roadmap for Implementation

2.3.6 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
- 6.1.4 Aircraft Equipage in preparation of exchange *of* aircraft flight data prediction



***** 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 readiness could be changed in future versions of DP, since specific study from SJU results are expected by mid-2016

Fig. 7 – AF6 Proposed R*oad*map for Implementation

2.4 Priorities for 2015 CEF Calls for proposals

Whereas the above section 2.3 provides an overview for full PCP implementation until the current financial perspective ends, this section 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 awarded through 2014 CEF Calls for proposals,** *(dark blue box on the left end side of figure 8 below)*;
2. **the identified gaps,** i.e. the implementation initiatives deemed necessary 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). **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 explained in chapter 5 "Monitoring view", SDM has developed the gap analysis in full cooperation with the Network Manager, and on the basis of ad-hoc surveys distributed to the operational stakeholders. **The consultation of the operational stakeholders has been therefore taken as an opportunity to further consolidate the gap analysis**.

Fig. 8 shows the generic work breakdown structure (WBS) of a family. This generic WBS is developed for each family in the chapter 3 "Project view" below:

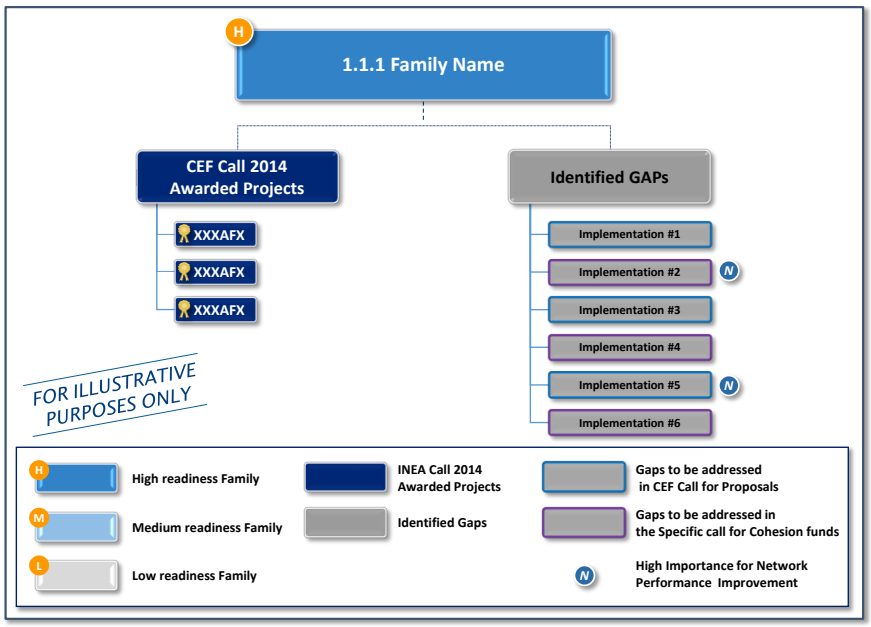


Fig. 8 – Family WBS

As detailed in the legend, 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 **family related implementation projects (or part of) awarded through the 2014 CEF Transport Call**;
- 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 seven different cases**:
    - Submitted project(s) for which CEF financing has already been requested, although the full family's implementation will not be covered;
    - Implementation planned but for which co-financing through CEF Calls have not been requested and/or not awarded;
    - Implementation in progress but for which co-financing through CEF Calls have not been requested and/or not awarded;
    - Partial coverage in terms of scope (not all the necessary functionalities have been implemented;
    - Partial coverage in terms of involved Stakeholders;
    - Complete lack of any implementation initiative;
    - No information available

  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; moreover, for the relevant families, it has been explicitly mentioned whether **potential upgrades and enhancements of Airspace Users Computer Flight Planning Systems and/or aircraft capabilities** are envisaged.
- The indication whether each implementation project/initiative, according to its geographical scope, should be **co-funded through CEF Transport Calls for Proposals or CEF Cohesion fund Calls for Proposals**.

The full list of priorities is reported within Chapter 5.

3. Project view

With regard to the project view, on top of the detailed descriptions of the Programme families addressing the full PCP, DP 2015 includes **an updated view of the Level 4**, which encompasses the full list of **all Implementation Projects awarded within the 2014 CEF Transport Calls for Proposals**, as well as the **list of the implementation priorities that need to be fulfilled in order to guarantee timely and synchronized implementation of the PCP**. A more in-depth description of the IPs is included within Annex A of the Programme.

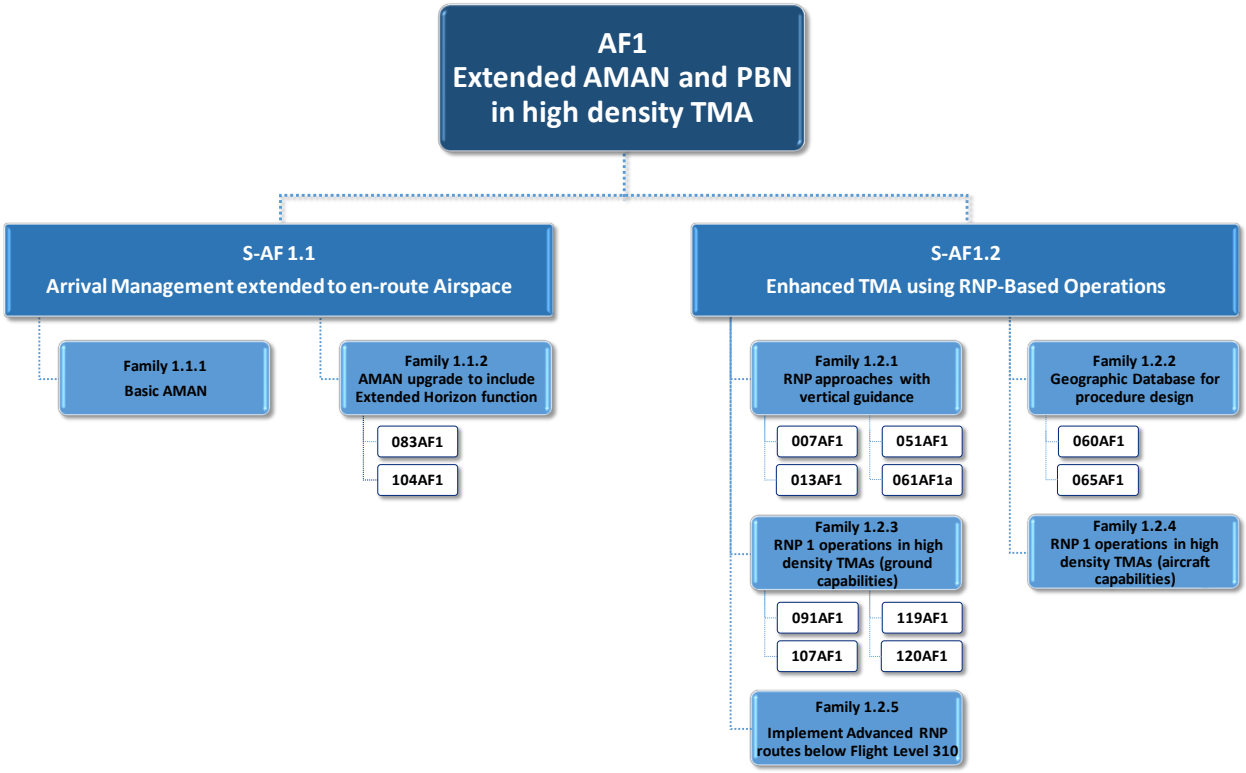
Accordingly, this chapter is structured as follows:

- **Overview of the first 4 levels of the PCP structure**, re-organized in line with the **identification of the 44 families**, while also including the Implementation Projects awarded during CEF Transport Call 2014;
- Detailed **descriptions of all DP 2015 families**;
- Dedicated **Work Breakdown Structures (WBS)**, as illustrated in Chapter 2, encompassing both the projects awarded during CEF Transport Call 2014 and the implementation initiatives not yet fully addressed (Gaps);

It is worth noting that the **DP 2015 Gap Analysis**, reported in detail Chapter 5, has been further enhanced through the collection of additional monitoring data, provided by both ground and air stakeholders, and through the direct coordination with the Network Manager. In this respect, the SDM considers the results of this analysis as a living picture that will be constantly updated and improved during the years.

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

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 that have been awarded by 2014 CEF Transport Call. Further details for each Implementation Projects are provided within Annex A.

Reference Number	Title	IP description Page Number (Annex A)
007AF1	Performance Based Navigation (PBN) implementation in Vienna (LOWW)	3
013AF1	Implementation of RNP Approaches with Vertical Guidance at the Belgian civil aerodromes within the Brussels TMA	4
051AF1	Required Navigation Performance Approaches at CDG Airport with vertical guidance	5
060AF1	ENAIRE reference geographic database (Family 1.2.2)	6
061AF1a	Required Navigation Performance Approach Implementation in Palma de Mallorca	7
065AF1	ENAV Geographic DB for Procedure Design	8
083AF1	AMAN extended to en-route	9
091AF1	Enhanced Terminal Airspace (TMA) using Required Navigation Performance based Operations	10

Reference Number	Title	IP description Page Number (Annex A)
104AF1	Lower Airspace optimization	11
107AF1	First phase of RNAV1 and RNP-APCH approaches Amsterdam Schiphol (EHAM)	12
119AF1	Manchester TMA Redevelopment	13
120AF1	London Airspace Management Programme (LAMP)	**15**

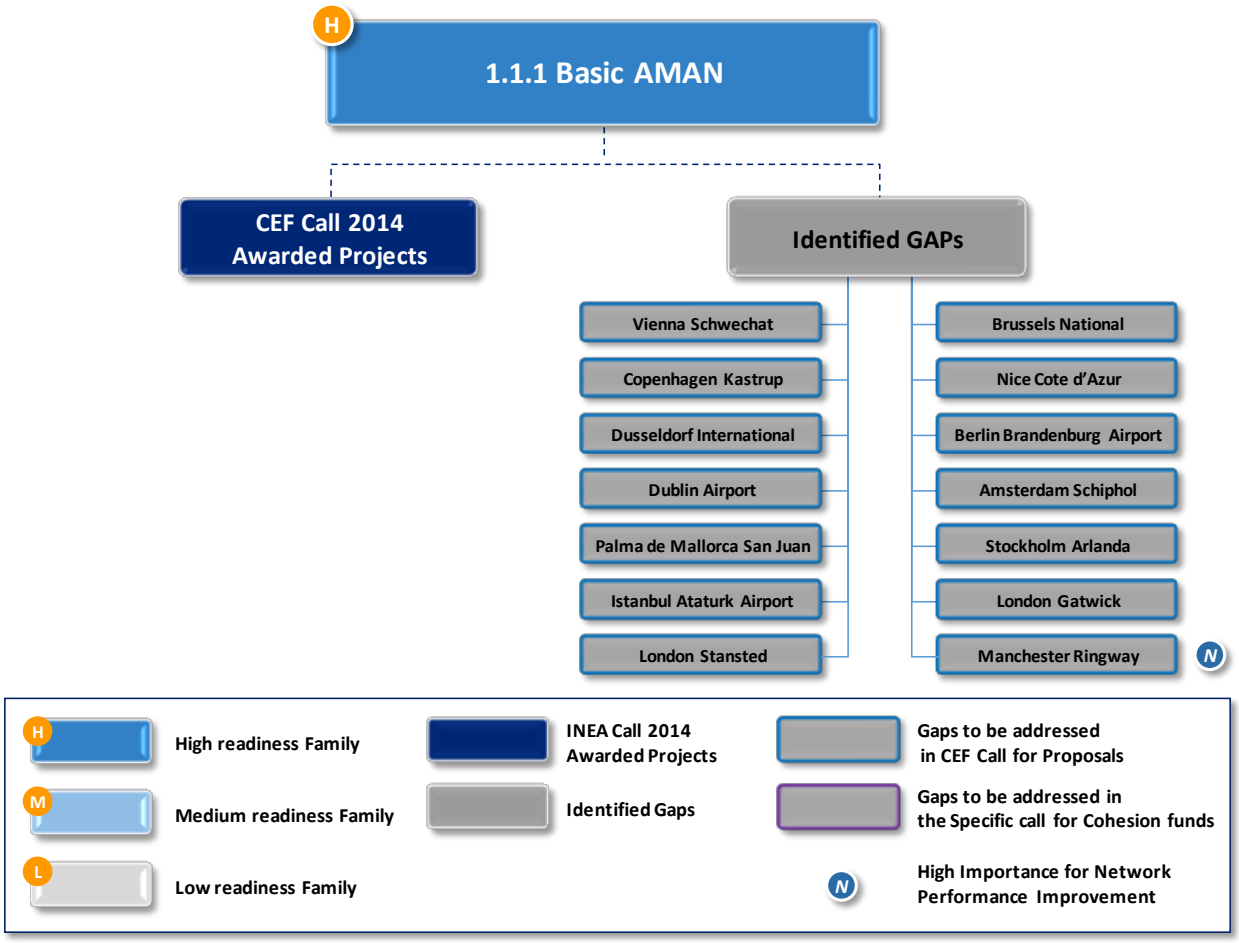
Table 2 – List of AF1 Implementation Projects (IPs)

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 2015): 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 and Cohesion Fund Calls for Proposals 2015	High
Recommendation for the IPs proposal	It is recommended to take into consideration the results of Gap Analysis, as reported in the following Chart and within section 5.1.1

The following chart reports the list of all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.

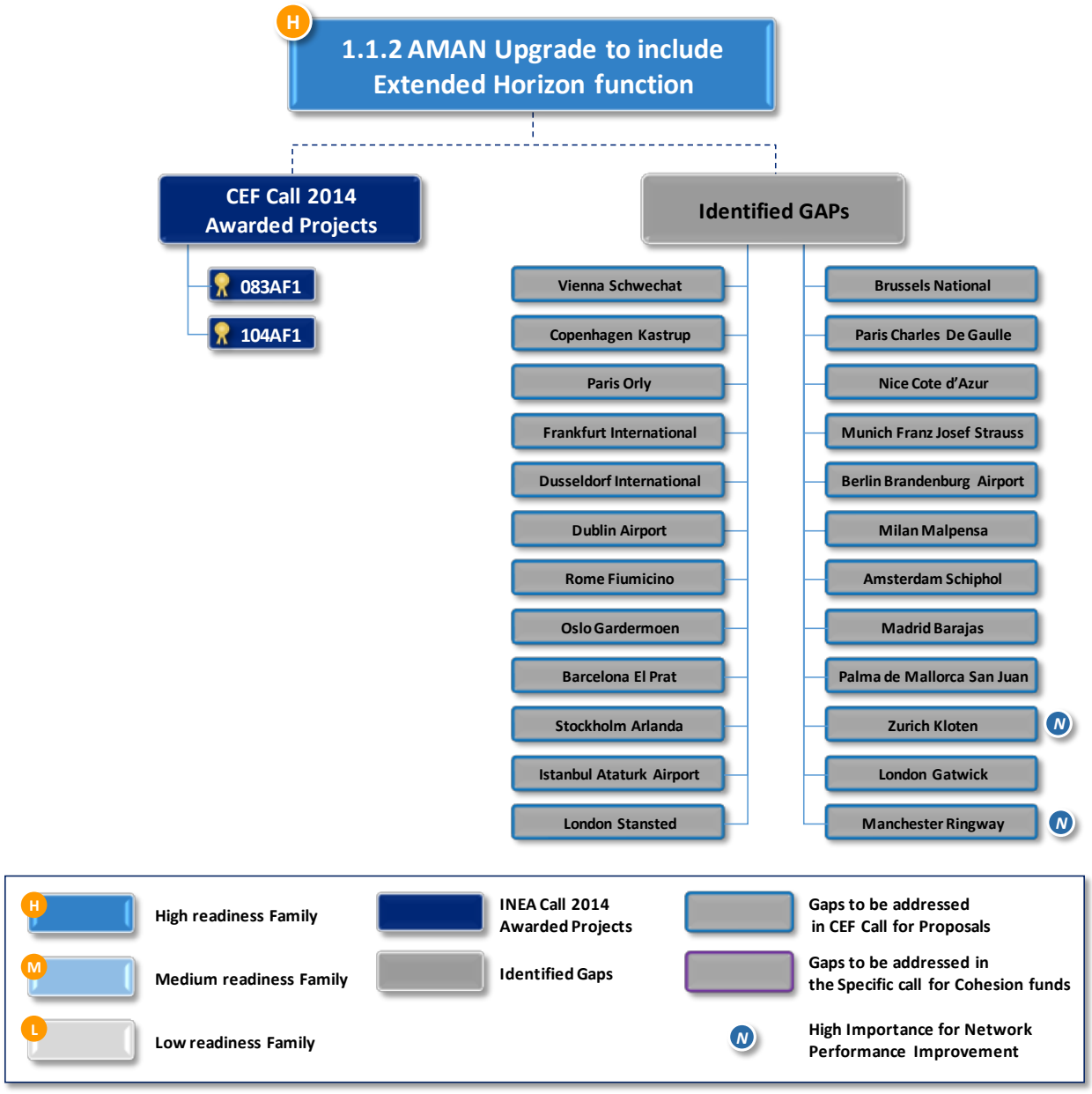


Family 1.1.2 – AMAN upgrade to include Extended Horizon function

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 2015): 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 and Cohesion Fund Calls for Proposals 2015	High
Recommendation for the IPs proposal	It is recommended to take into consideration the results of Gap Analysis, as reported in the following Chart and within section 5.1.1

The following chart reports the list of all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.

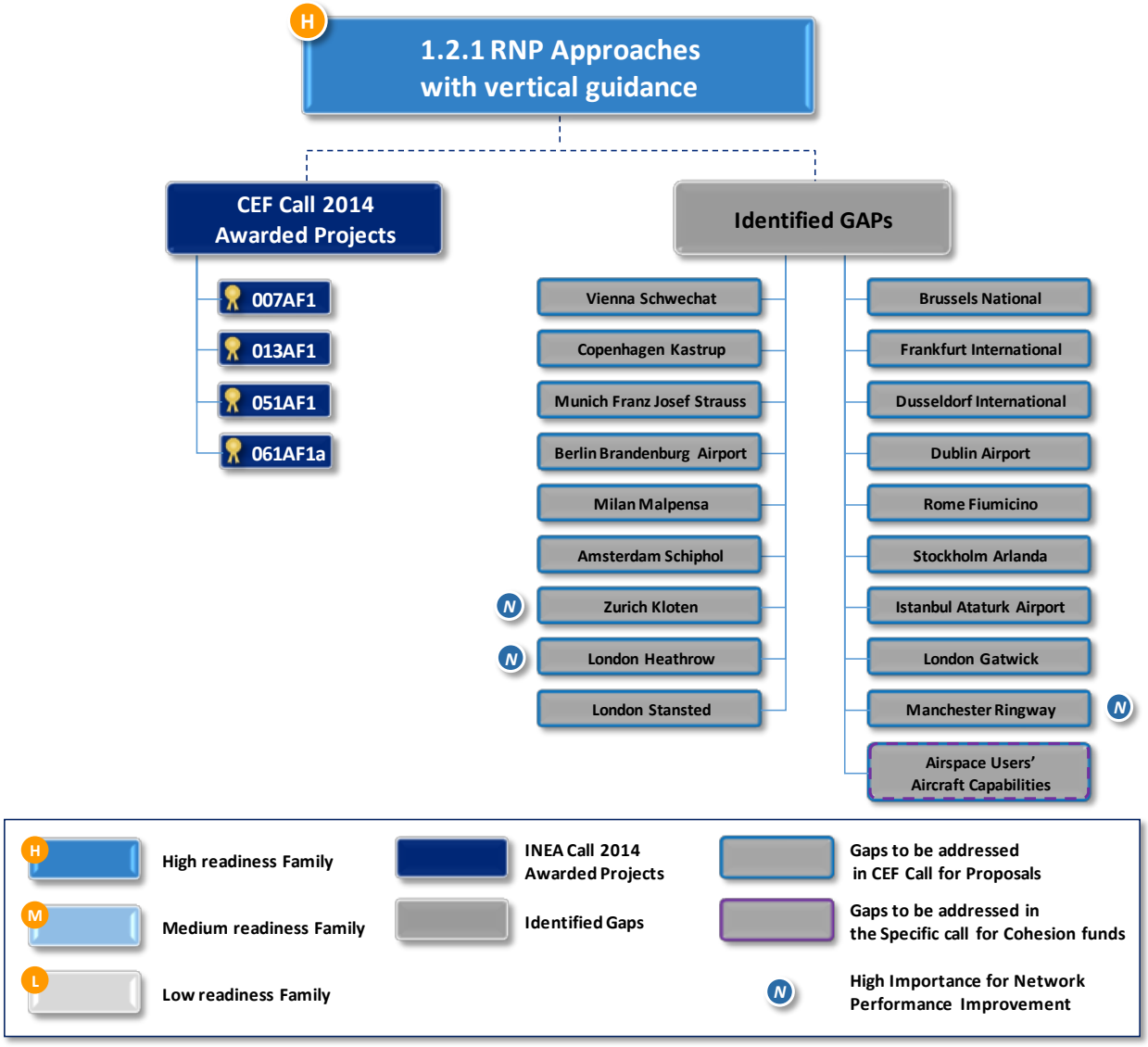


Family 1.2.1 – RNP APCH with vertical guidance

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-0602 (Baseline), AOM-0604 (Baseline) ATM Master Plan Level 3 (Edition 2015): 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 Technical requirement and operation procedures for Airspace design including procedure design (RMT.0445) Provision of requirements in support of global PBN operations (RMT.0519)
Industry Standards	None
Means of compliance and Certification or community specifications	None
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 and Cohesion Fund Calls for Proposals 2015	High
Recommendation for the IPs proposal	It is recommended to take into consideration the results of Gap Analysis, as reported in the following Chart and within section 5.1.1

The following chart reports the list of all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.

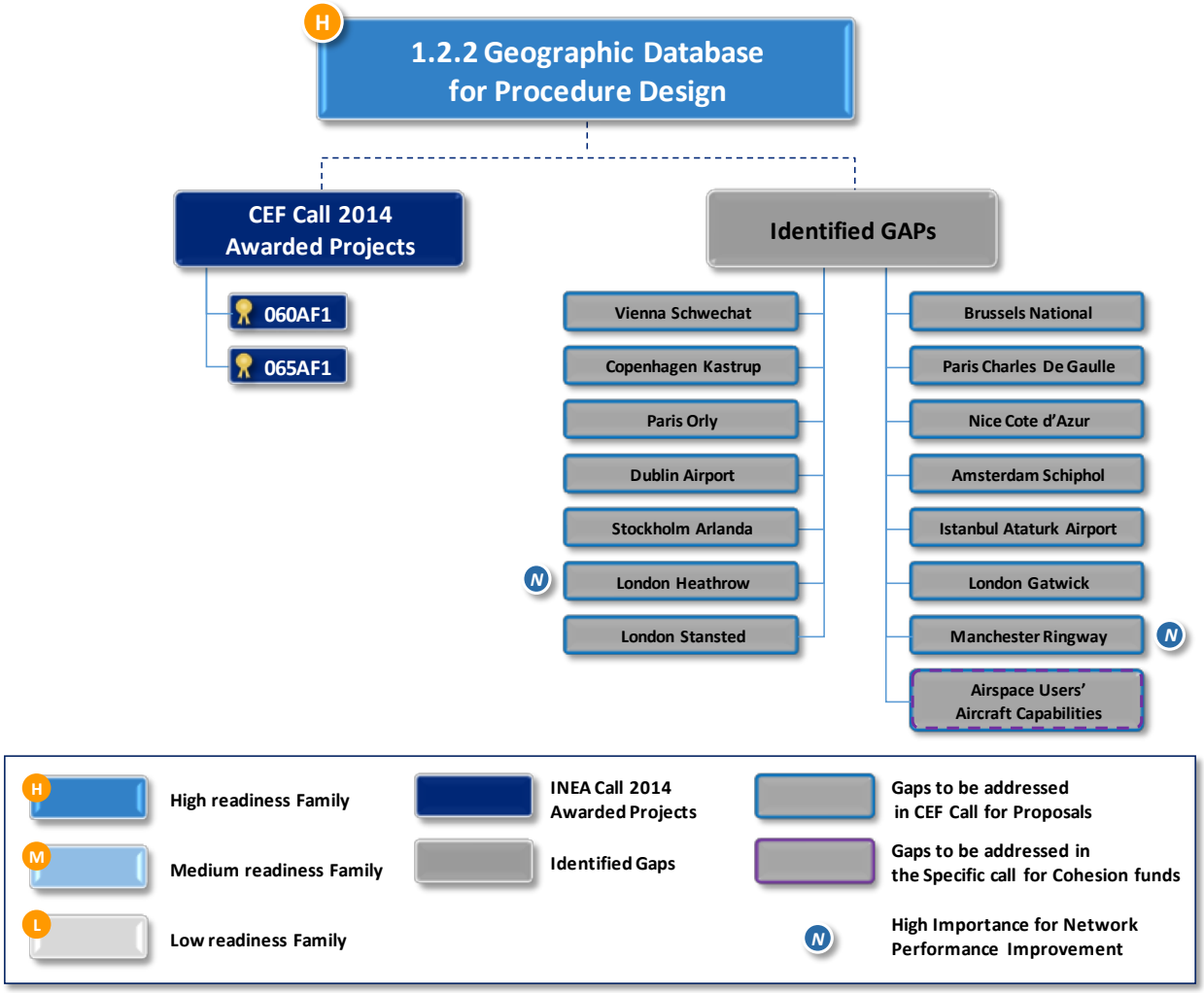


Family 1.2.2 – Geographic Database for Procedure design

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 Commission Regulation (EU) 73/2010 (ADQ IR) as amended by Commission Implementing Regulation (EU) 1029/2014 Commission Regulation (EU) No 139/2014 laying down requirements and administrative procedures related to aerodromes pursuant to Regulation (EC) No 216/2008 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 Gap Analysis, as reported in the following Chart and within section 5.1.1.

The following chart reports the list of all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.



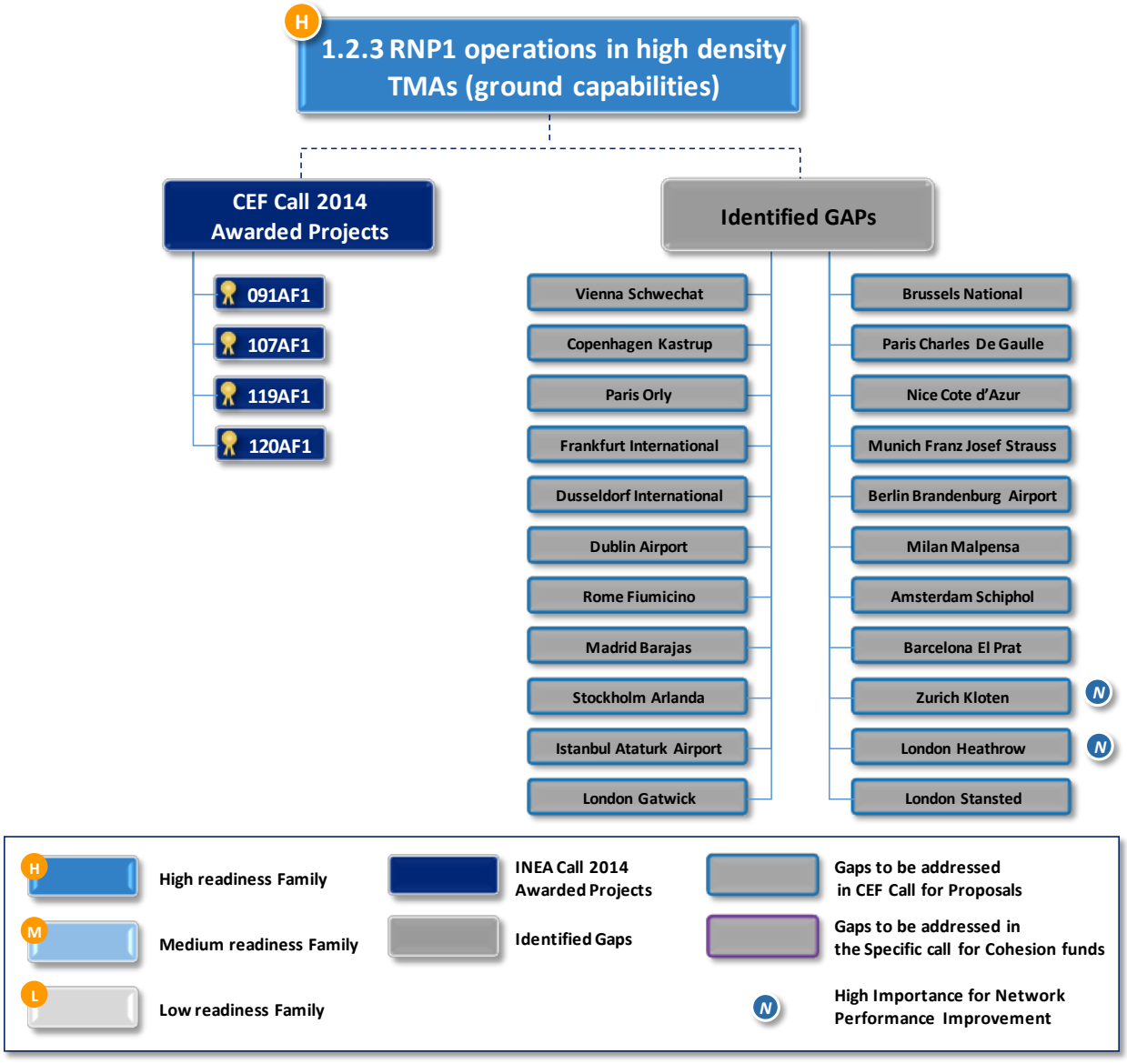
Family 1.2.3 – RNP1 Operations in high density TMAs (ground capabilities)

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 2015): 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 Gap Analysis, as reported in the following Chart and within section 5.1.1.

The following chart reports the list of all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.

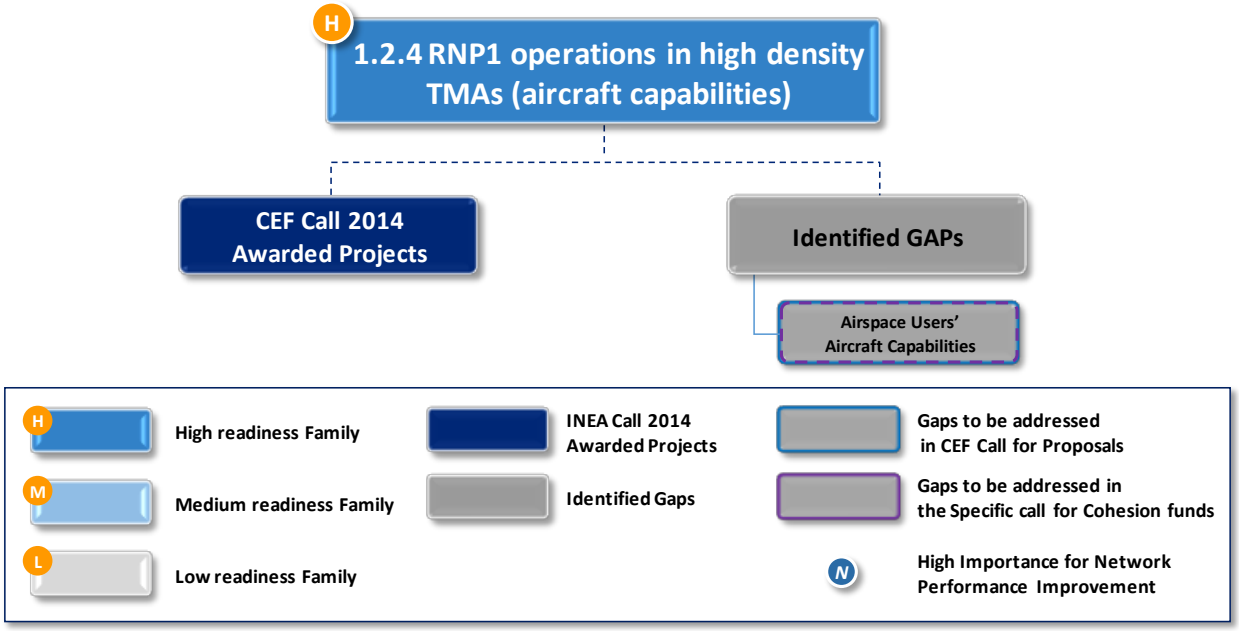


Family 1.2.4 – RNP1 operations in high density TMAs (aircraft capabilities)

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 2015): Link to NAV03 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 Provision of requirements in support of global PBN operations (RMT.0519)
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 Gap Analysis, as reported in the following Chart and within section 5.1.1

The following chart reports the list of all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.

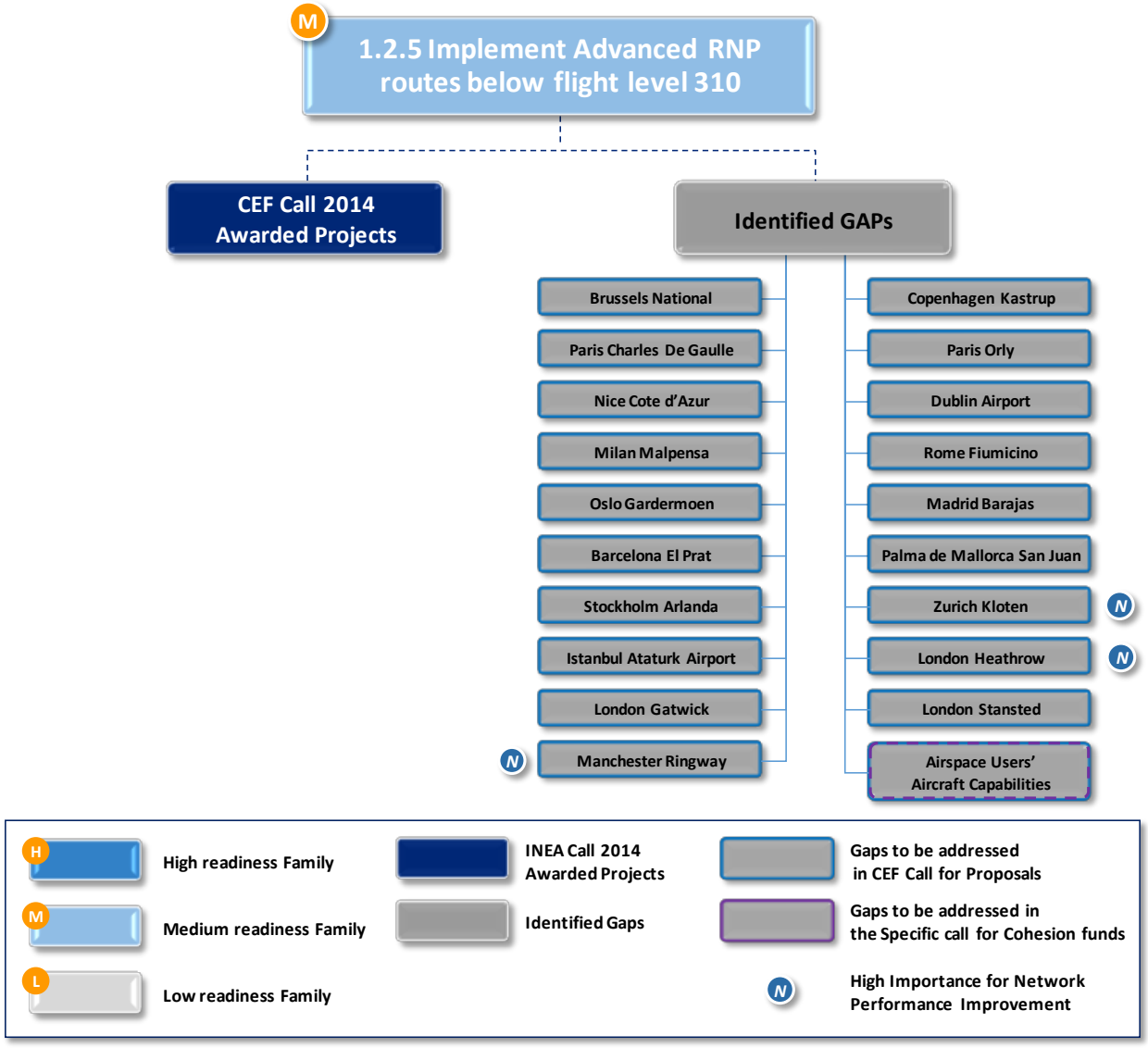


Family 1.2.5 – Implement Advanced RNP routes below FL 310

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 2015): 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.

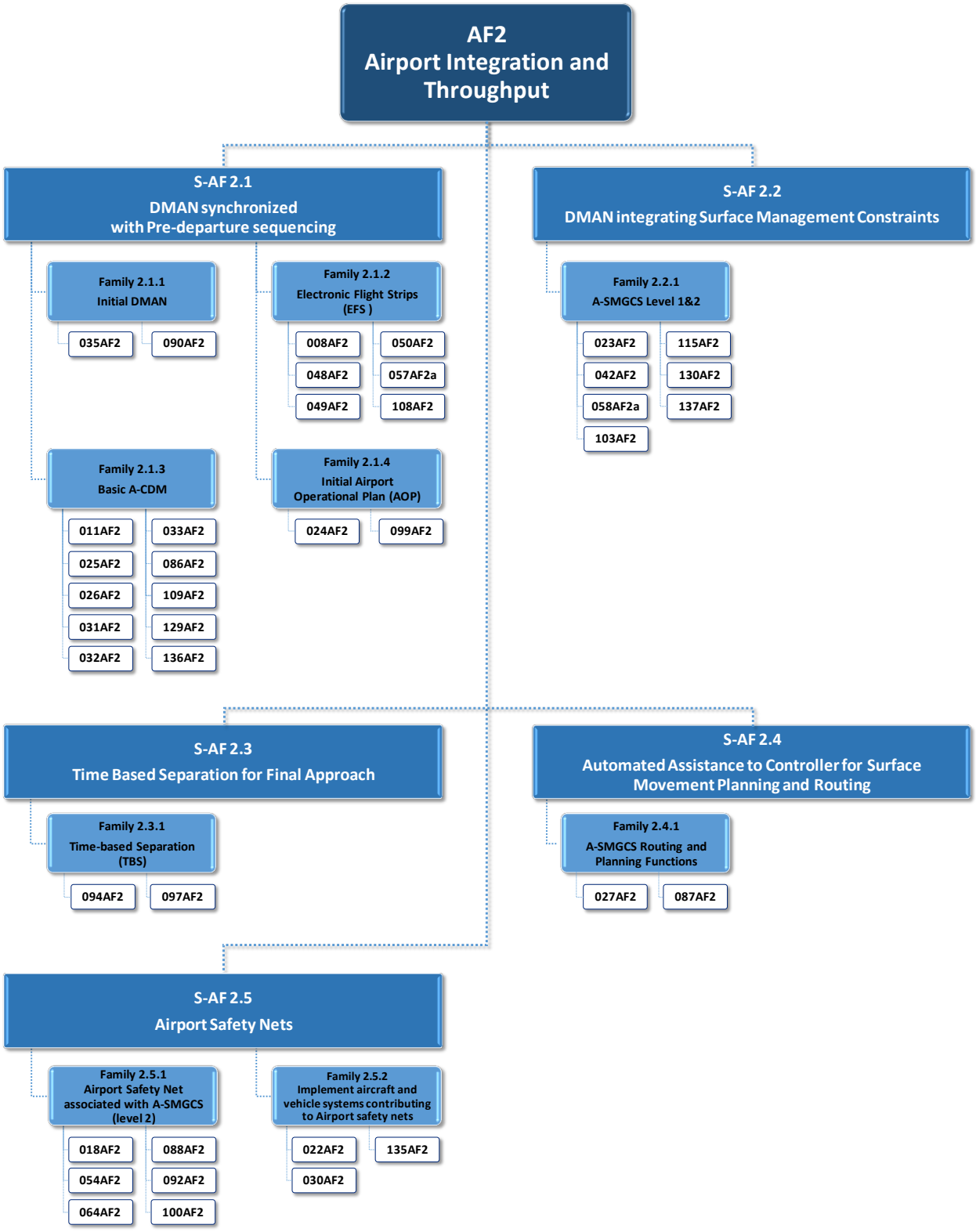
Regulatory Requirements	Commission Implementing Regulation (EU) No 716/2014
Industry Standards	None
Means of compliance and Certification or community specifications	None
Interdependencies	1.1.2 AMAN upgrade to include Extended Horizon function 1.2.3 RNP 1 Operations in high density TMAs (ground capabilities) 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 Gap Analysis, as reported in the following Chart and within section 5.1.1.

The following chart reports the list of all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the 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 that have been awarded by 2014 CEF Transport Call. Further details for each Implementation Projects are provided within Annex A.

Reference Number	Title	IP description Page Number (Annex A)
008AF2	External Gateway System (EGS) implementation	16
011AF2	Collaborative Decision Management (CDM) fully implemented	17
018AF2	Enhancement of Airport Safety Nets for Brussels Airport (EBBR)	18
022AF2	Vehicle Tracking System (VTS)	19
023AF2	SMAN-Vehicle	20
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026AF2	Evolutions CDM-CDG	23
027AF2	SMAN-Airport	24
030AF2	Equipment of ground vehicles to supply the A-SMGCS	25
031AF2	Data exchanges with the ANSP	26
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042AF2a	A-SMGCS Düsseldorf	29
048AF2	SYSAT @CDG	**30**
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054AF2	CDG 2020 Step 1	**33**
057AF2a	Fulfilment of the prerequisite EFS for the PCP AF2 Sub Functionality: Airport Integration and Throughput [Phase A]	34
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064AF2	ENAV Airport System upgrade	36
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087AF2a	Apron Controller Working Position	38
088AF2	Airport Safety Net: Mobile Detection of Air Crash Tenders	40
092AF2	Enhanced Departure Management integrating airfield surface assets	41
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097AF2	Time Based Separation	43
099AF2	Initial Airport Operational Plan (AOP)	44
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Reference Number	Title	IP description Page Number (Annex A)
108AF2	Electronic Flight Strips at Schiphol TWR	47
109AF2	Airport CDM implementation Schiphol	48
115AF2	Renewal of the Surface Movement Radar (BORA)	49
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130AF2	BOREAL-Orly	51
135AF2	Ryanair RAAS Programme	52
136AF2	A-CDM Optimization	53
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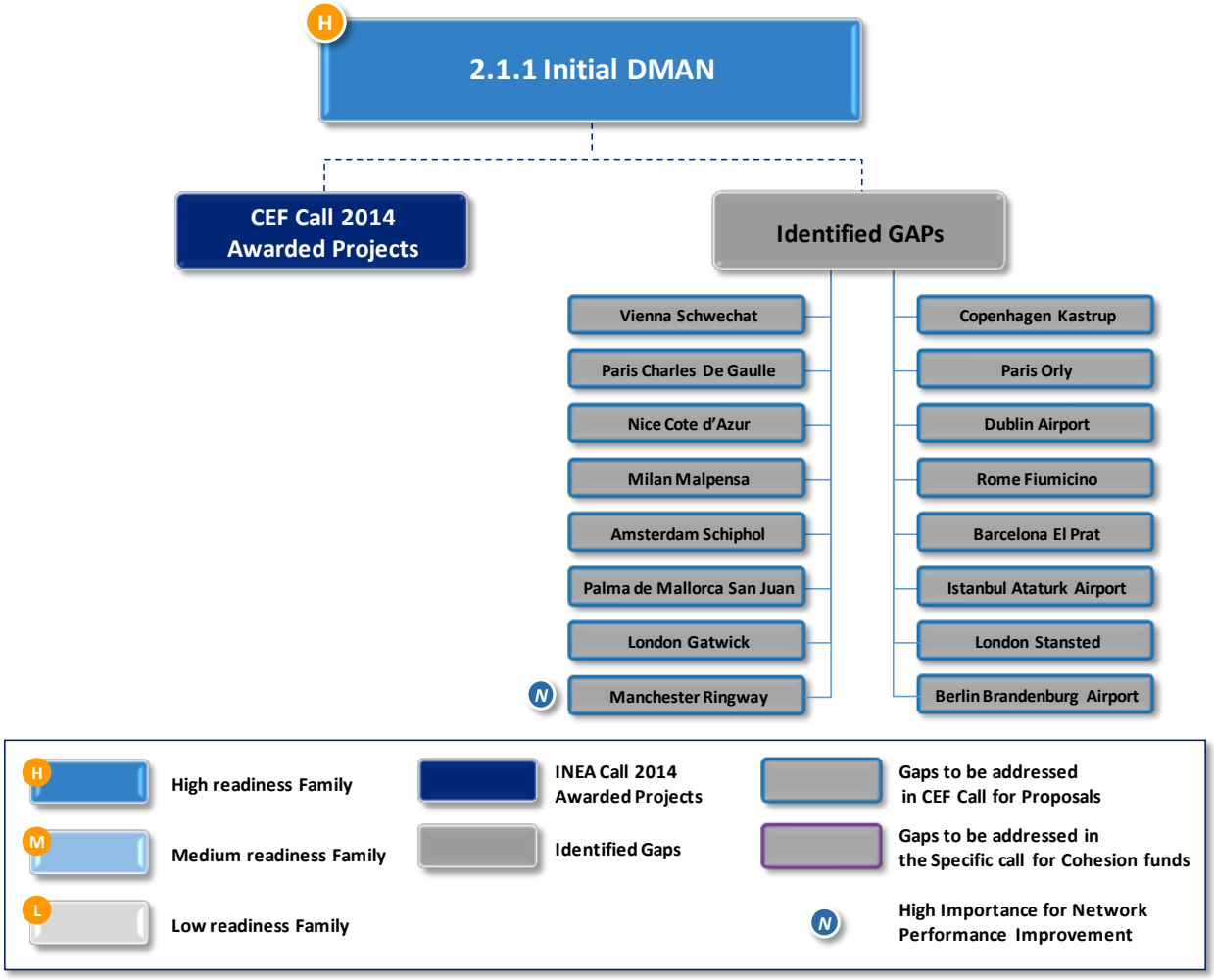
Table 3 – List of AF2 Implementation Projects (IPs)

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 2015): Link to AOP05 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 Gap Analysis, as reported in the following Chart and within section 5.1.1.

The following chart reports the list of all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.

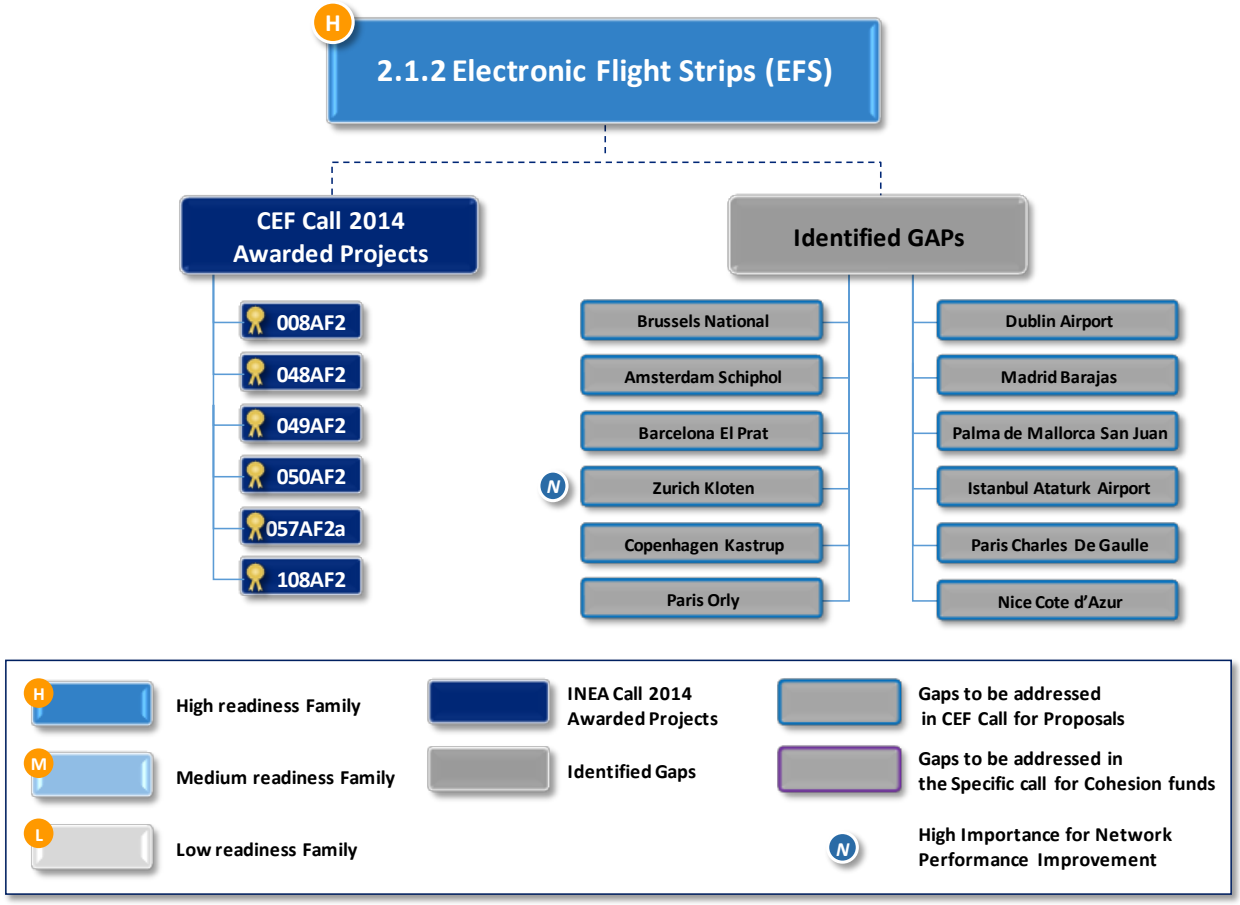


Family 2.1.2 – Electronic Flight Strips (EFS)

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 2015): Link to AOP12
Concerned stakeholders	Civil ANSPs, Military ANSPs (if applicable), AOs, AUs, 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 Gap Analysis, as reported in the following Chart and within section 5.1.1.

The following chart reports the list of all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.



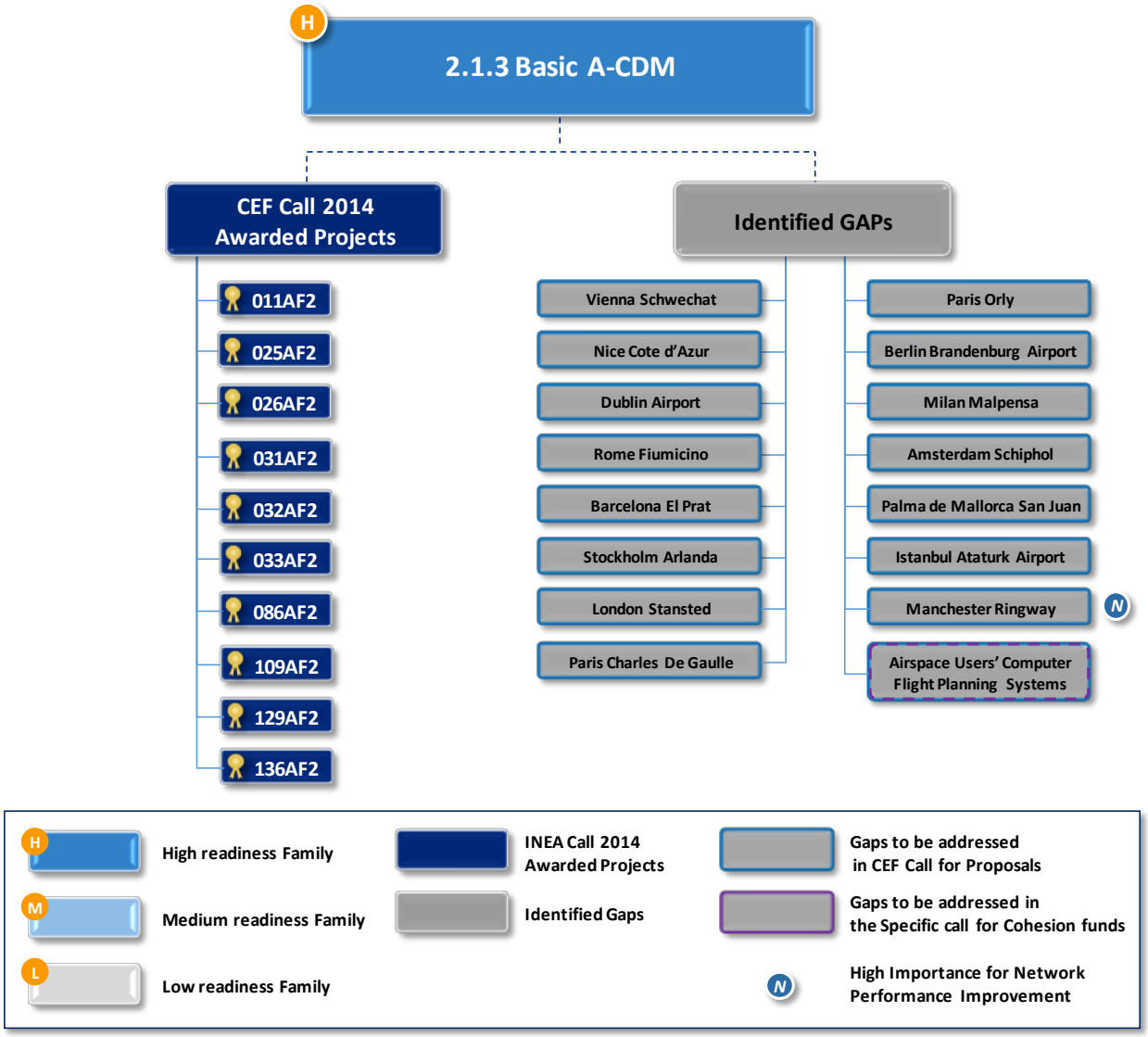
Family 2.1.3 – Basic A-CDM

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-0601, AO-0602 (Baseline) ATM Master Plan Level 3 (Edition 2015): Link to AOP05, FCM01 IDP WP3.1 and IDP WP 3.2
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 ED-146 Guidelines for Test and Validation related to A-CDM interoperability EUROCONTROL Airport CDM Implementation Manual Version 4 ICAO Doc 9971AN/485 (Manual on CDM)
Means of compliance and Certification or community specifications	Communication 2010/C 168/04 A-CDM Community Specification (ETSI EN 303 212 V1.1.1)
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 Gap Analysis, as reported in the following Chart and within section 5.1.1.

The following chart reports the list of all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.

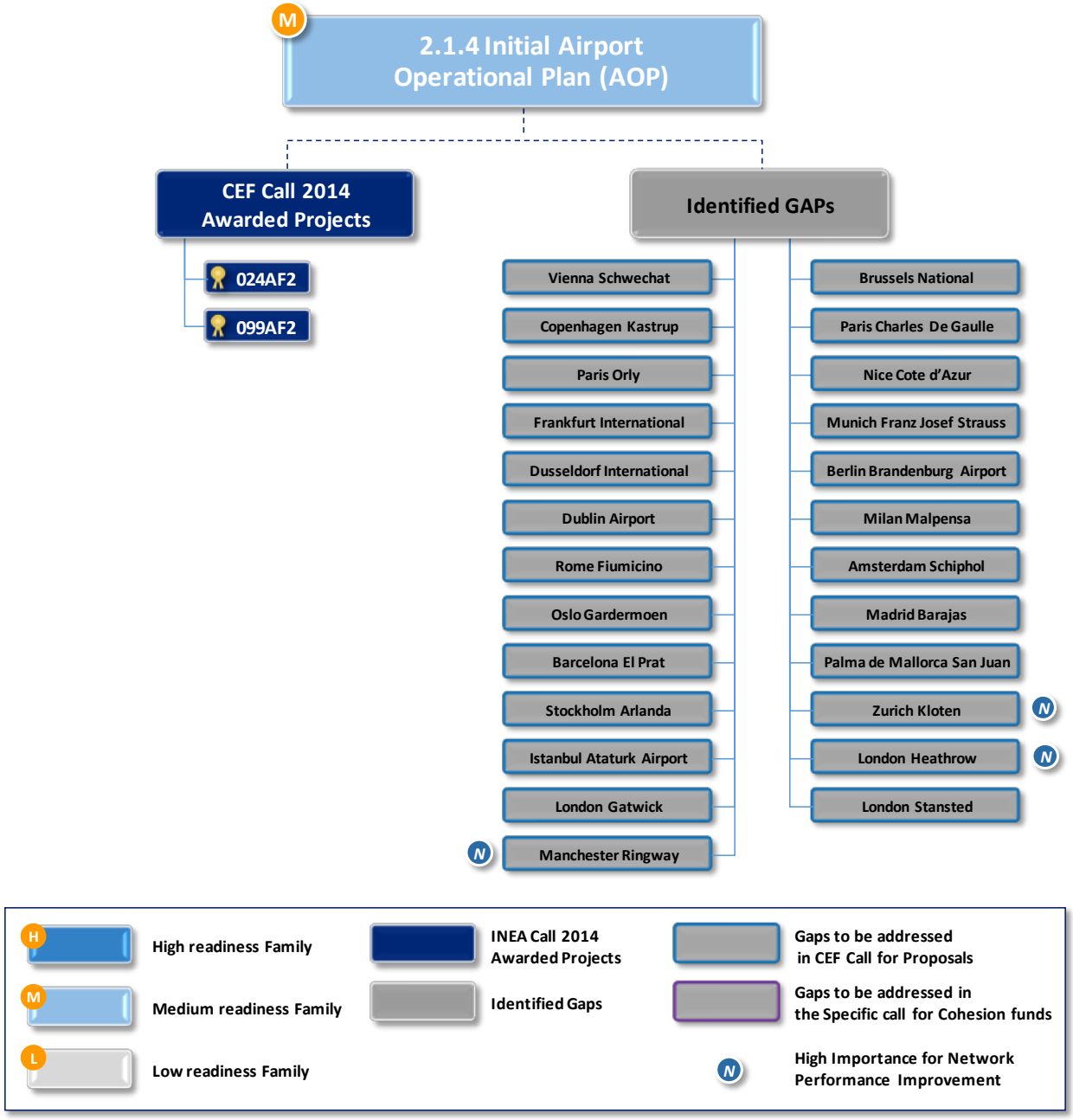


Family 2.1.4 – Initial Airport Operational Plan (AOP)

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 2015): Link to AOP11
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	None
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 Gap Analysis, as reported in the following Chart and within section 5.1.1.

The following chart reports the list of all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.

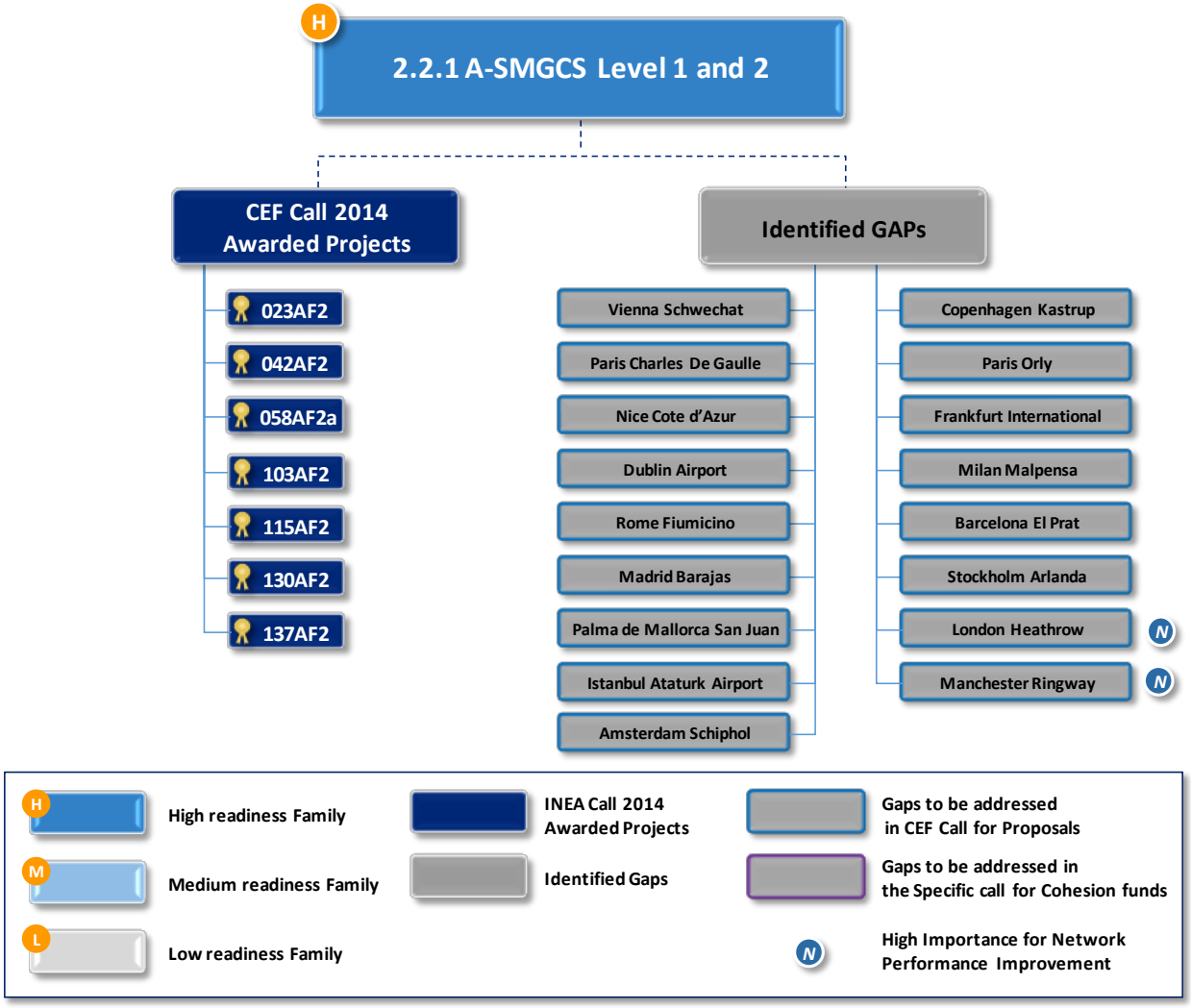


Family 2.2.1 – A-SMGCS level 1&2

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): AO-0205 ATM Master Plan Level 3 (Edition 2015): Link to AOP4.1, AOP4.2 ICAO Doc 9830 AN/452 (A-SMGCS Manual, First Edition)
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 Gap Analysis, as reported in the following Chart and within section 5.1.1.

The following chart reports the list of all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.

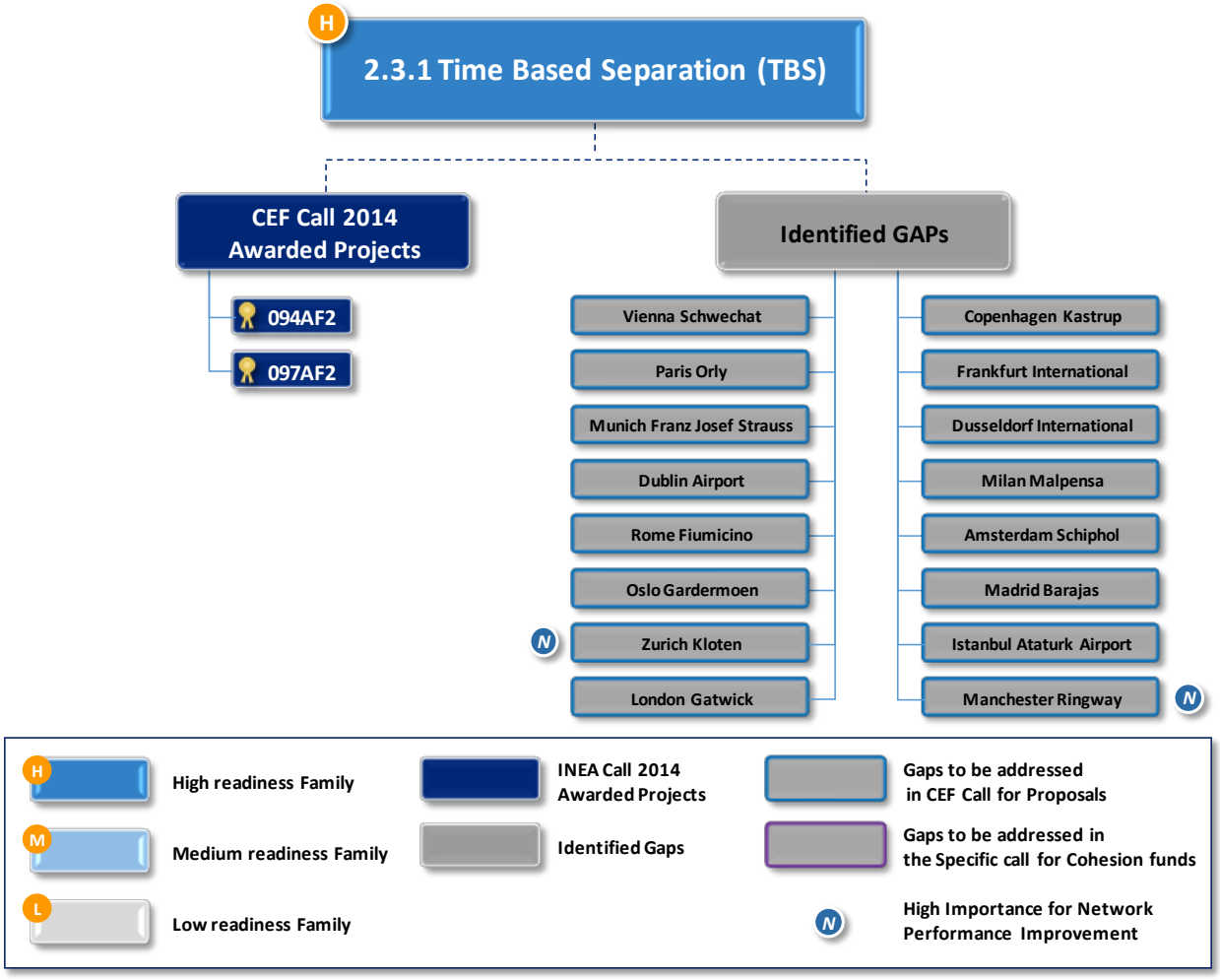


Family 2.3.1 – Time-based Separation (TBS)

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 2015): Link to AOP10
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 Gap Analysis, as reported in the following Chart and within section 5.1.1.

The following chart reports the list of all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.

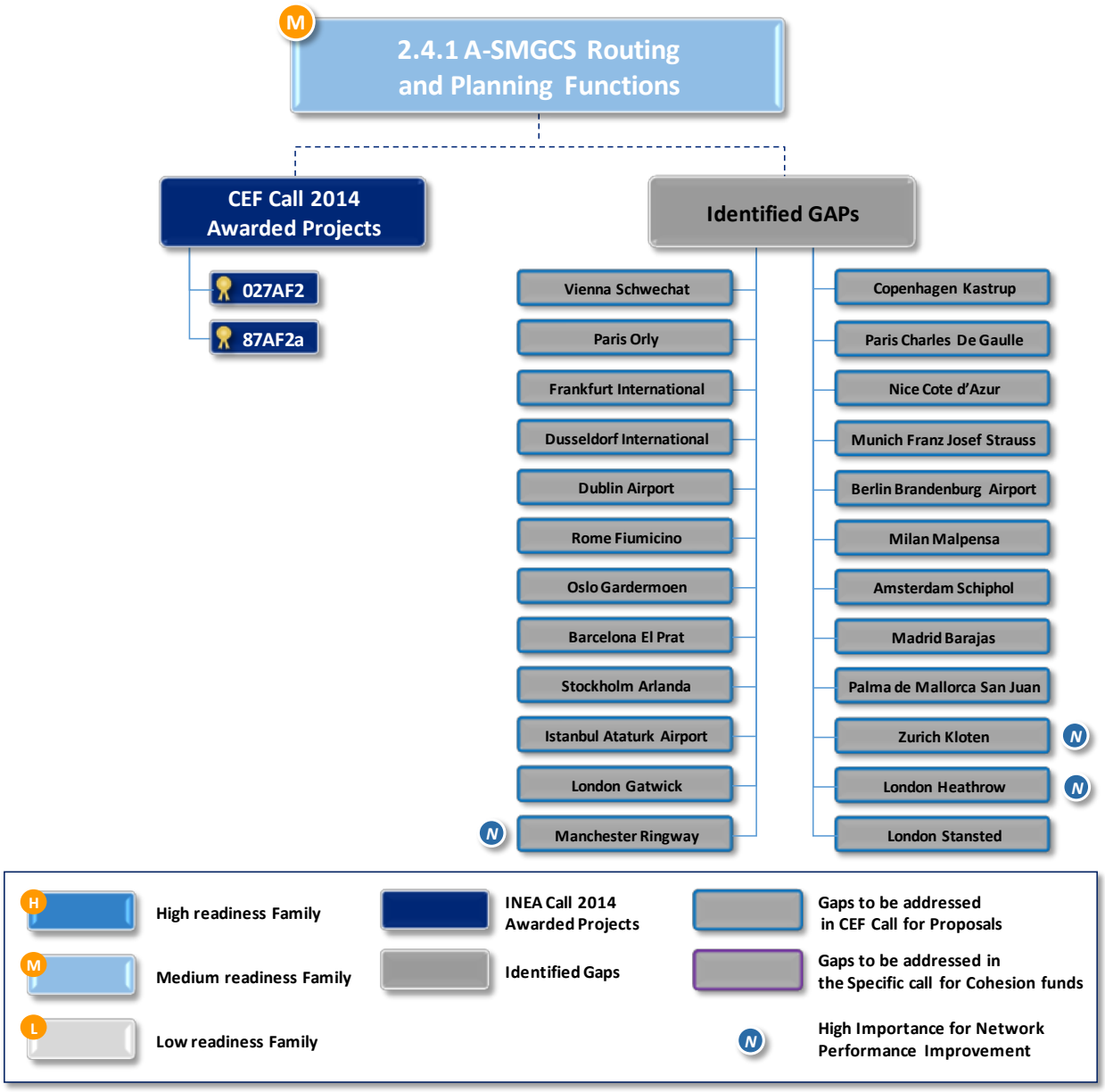


Family 2.4.1 – A-SMGCS Routing and Planning Functions

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, TS-0202, TS-0203 ATM Master Plan Level 3 (Edition 2015): 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 Gap Analysis, as reported in the following Chart and within section 5.1.1.

The following chart reports the list of all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.

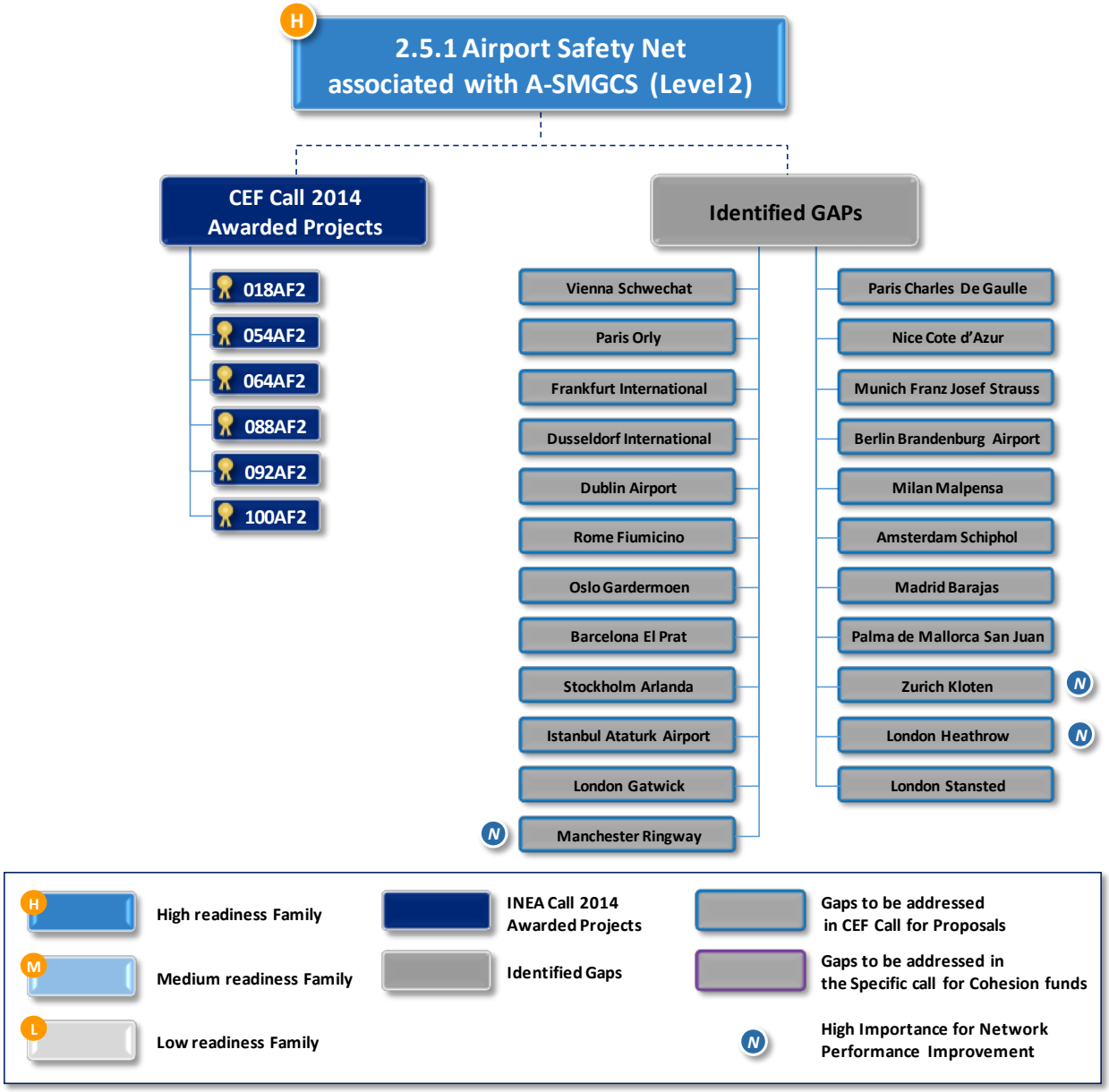


Family 2.5.1 – Airport Safety Nets associated with A-SMGCS level 2

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 2015): Link to AOP12
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 Gap Analysis, as reported in the following Chart and within section 5.1.1. Multi stakeholder project proposals are preferred

The following chart reports the list of all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.

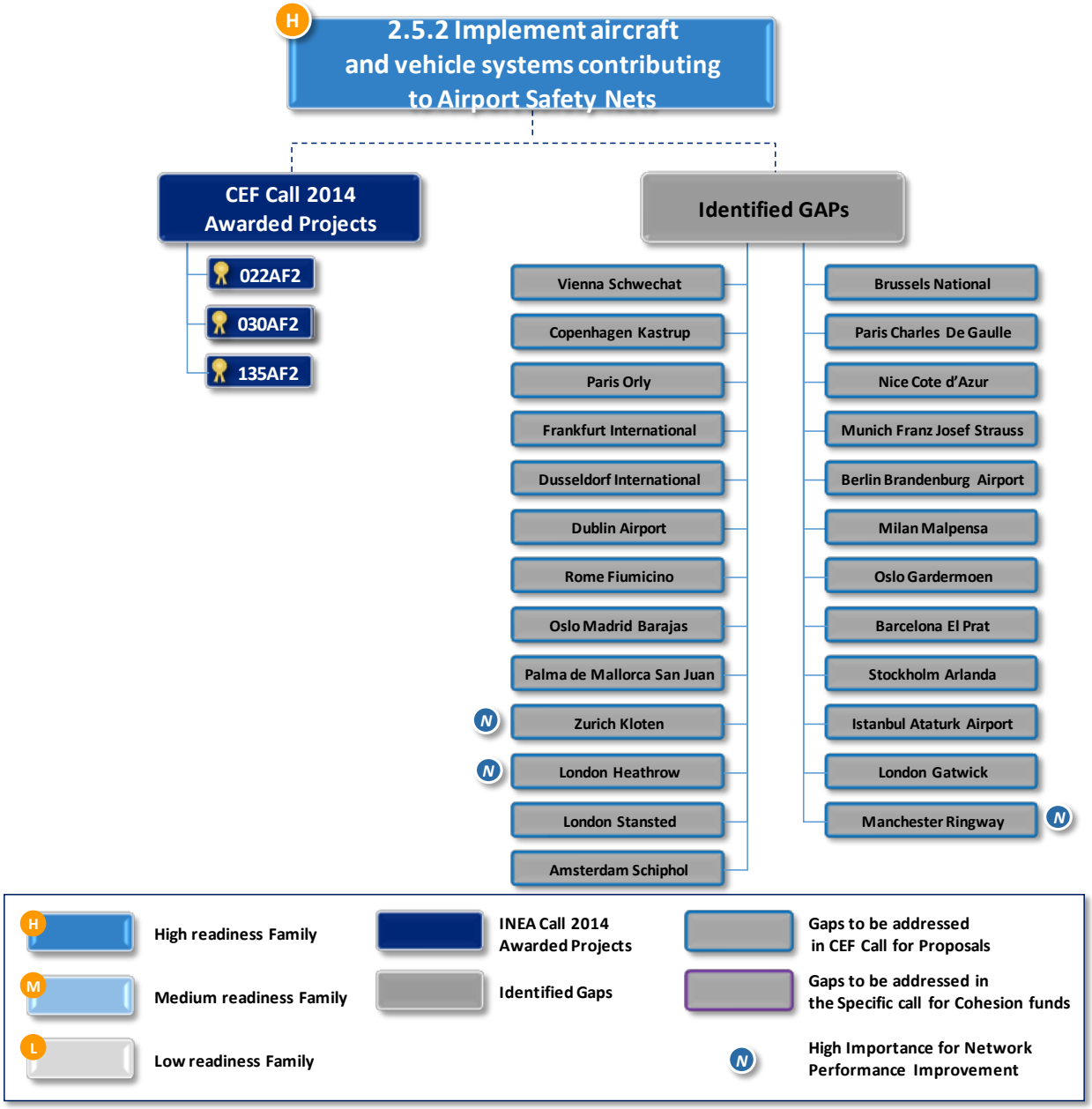


Family 2.5.2 – Implement vehicle and aircraft systems contributing to Airport Safety Nets

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

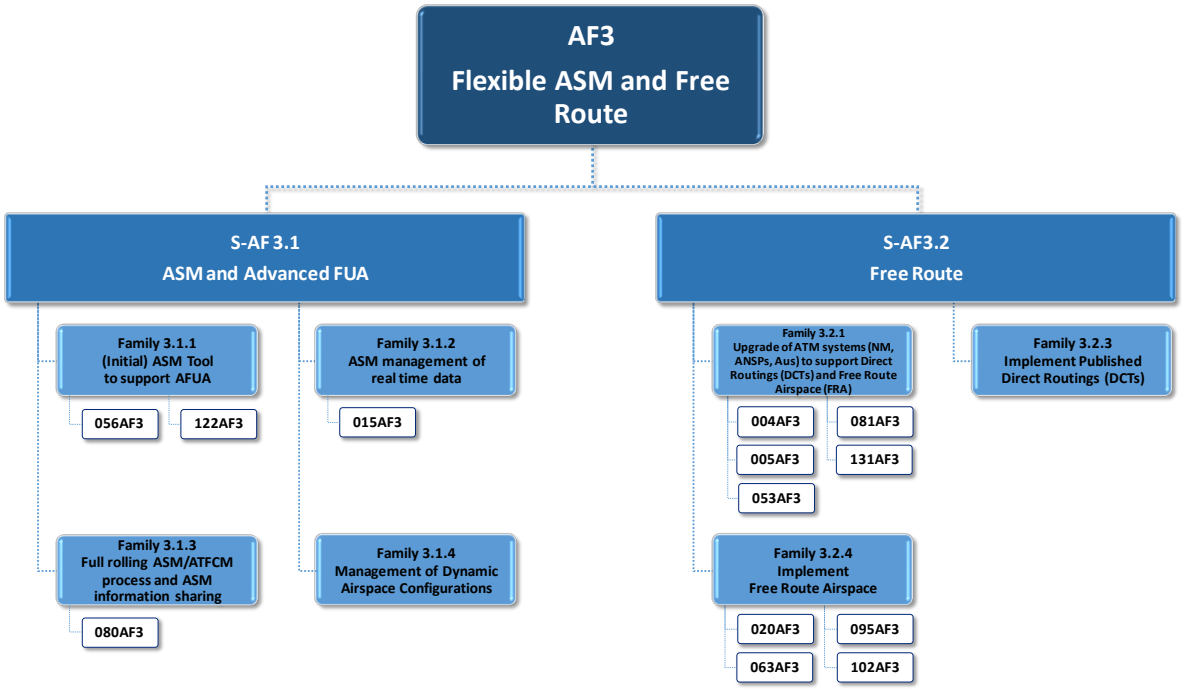
References and guidance material	ATM Master Plan Level 2 (Dataset 14): AO-0104-A ATM Master Plan Level 3 (Edition 2015): Link to AOP04.1
Concerned stakeholders	Civil ANSPs, Military ANSPs (if applicable), Airport Operators, Aircraft Operators
Geographical applicability	Geographical scope according to 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 Gap Analysis, as reported in the following Chart and within section 5.1.1. Multi Stakeholder project.

The following chart reports the list of all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the 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 that have been awarded by 2014 CEF Transport Call. Further details for each Implementation Projects are provided within Annex A.

Reference Number	Title	IP description Page Number (Annex A)
004AF3	AZA Traffic Flow Restriction (TFR) – LIDO planning system	55
005AF3	AZA Free Flight – Direct Optimization	56
015AF3	LARA integration in CANAC 2	57
020AF3	Borealis Free Route Airspace (Part 1)	58
053AF3	4-Flight deployment in DSNA pilot ACCs	59
056AF3	ASM tool Implementation	60
063AF3	ENAV implementation of Free Route	61
080AF3	ASM and A-FUA implementation	62
081AF3	NM DCT/FRA Implementation and support	63
095AF3	Implementation of FRA in Greece	64
102AF3	Free route airspace from the Black Forest to the Black Sea	65
122AF3	Family 3.1.1 NAV Portugal - Initial ASM tool to support AFUA	67
131AF3	1st part of the upgrade of the P_21 PEGASUS system to SESAR functionalities - Test and Validation Platform	68

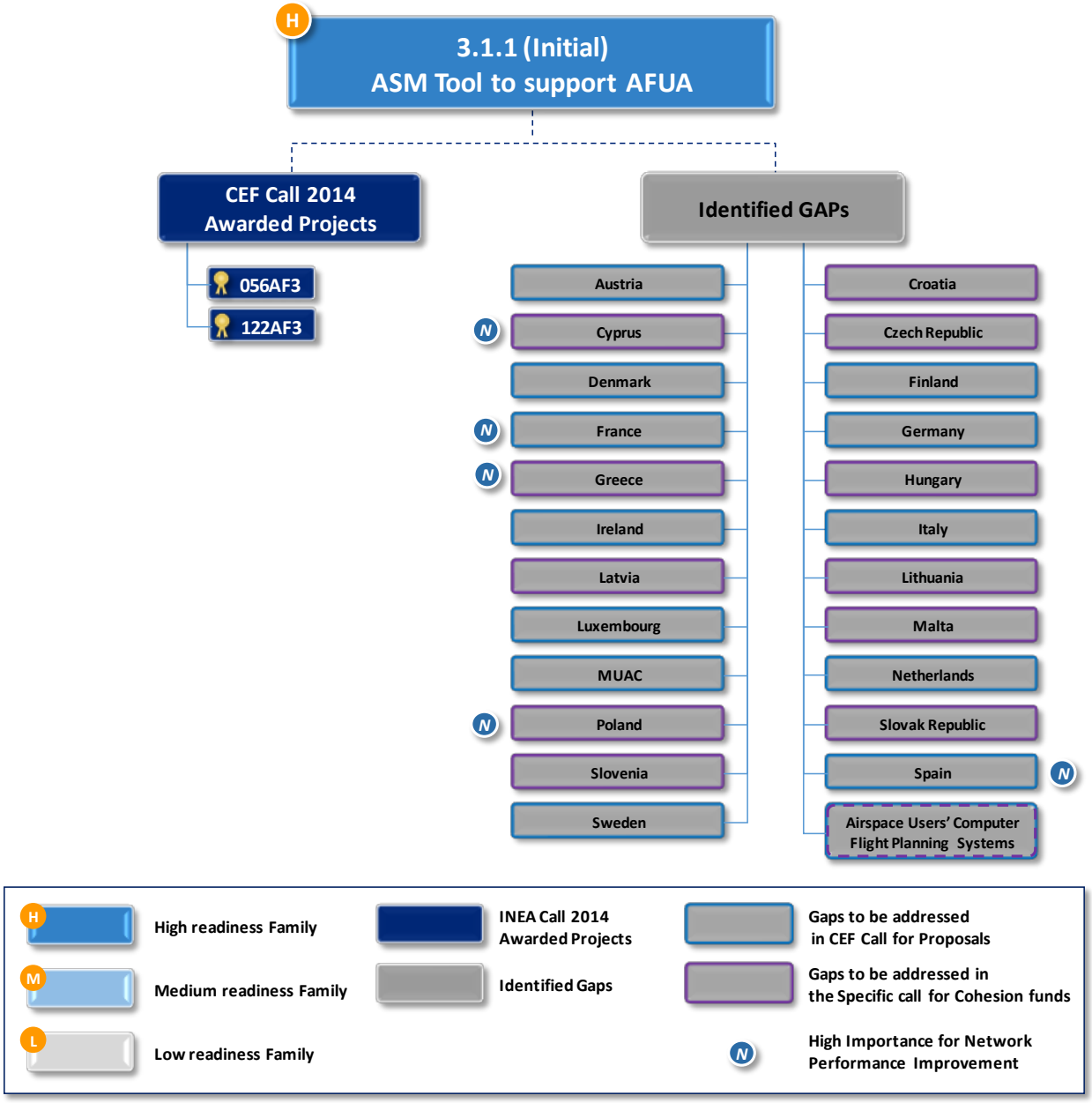
Table 4 – List of AF3 Implementation Projects (IPs)

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 2015): Link to AOM1 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 LARA Local and sub-Regional Airspace Management Support System: edition 23/01/2015
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 Commission Regulation (EC) 2150/2005 Commission Regulation (EC) 677/2011, as amended by Commission Implementing Regulation (EU) 970/2014
Industry Standards	None

Means of compliance and Certification or community specifications	Communication 2009/C 2196/05 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 Gap Analysis, as reported in the following Chart and within section 5.1.1.

The following chart reports the list of all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.

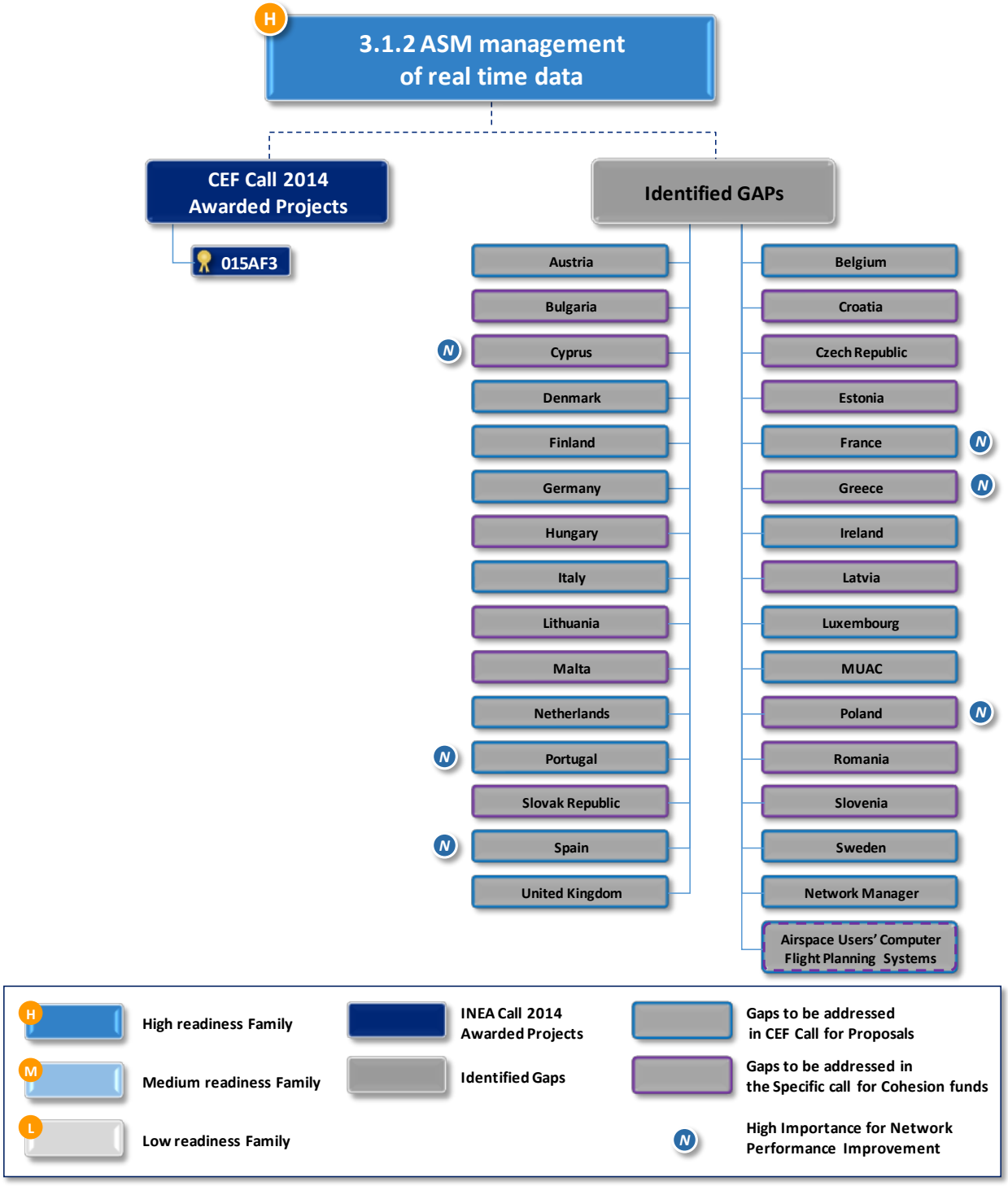


Family 3.1.2 – ASM Management of real time airspace data

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 2015): Link to AOM19 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 Commission Regulation (EC) 2150/2005 Commission Regulation (EC) 677/2011, as amended by Commission Implementing Regulation (EU) 970/2014
Industry Standards	None
Means of compliance and Certification or community specifications	Communication 2009/C 2196/05 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 Gap Analysis, as reported in the following Chart and within section 5.1.1

The following chart reports the list of all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.



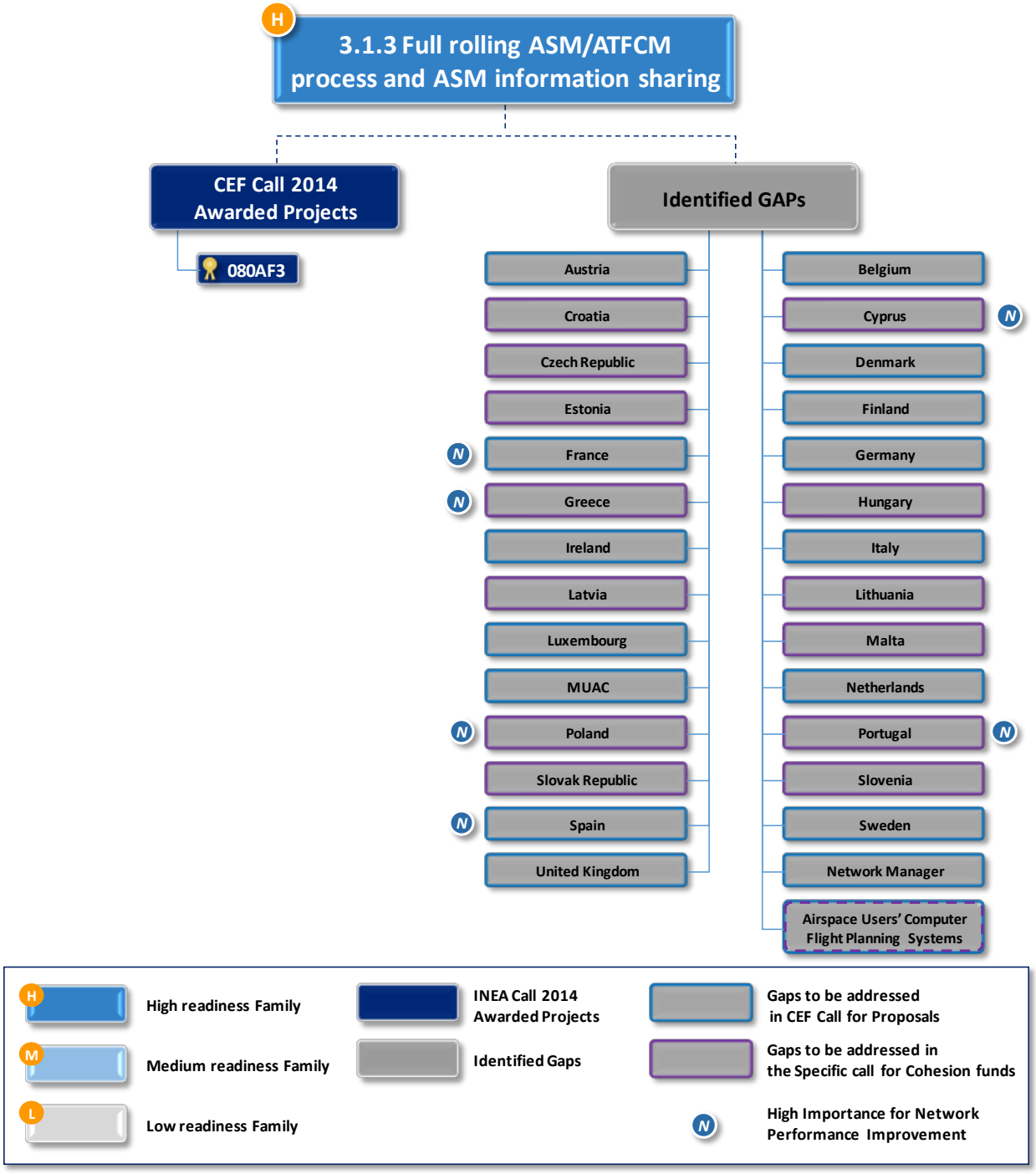
Family 3.1.3 – Full rolling ASM/ATFCM process and ASM information sharing

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 2015): 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 Responsibilities Document for the application of Air Traffic Flow Management (ATFM); Edition 1.0; Edition Date : 25/10/2012,
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 Commission Regulation (EC) 2150/2005 Commission Regulation (EC) 677/2011, as amended by Commission Implementing Regulation (EU) 970/2014
Industry Standards	None
Means of compliance and Certification or community specifications	Communication 2009/C 2196/05 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 Gap Analysis, as reported in the following Chart and within section 5.1.1.

The following chart reports the list of all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.

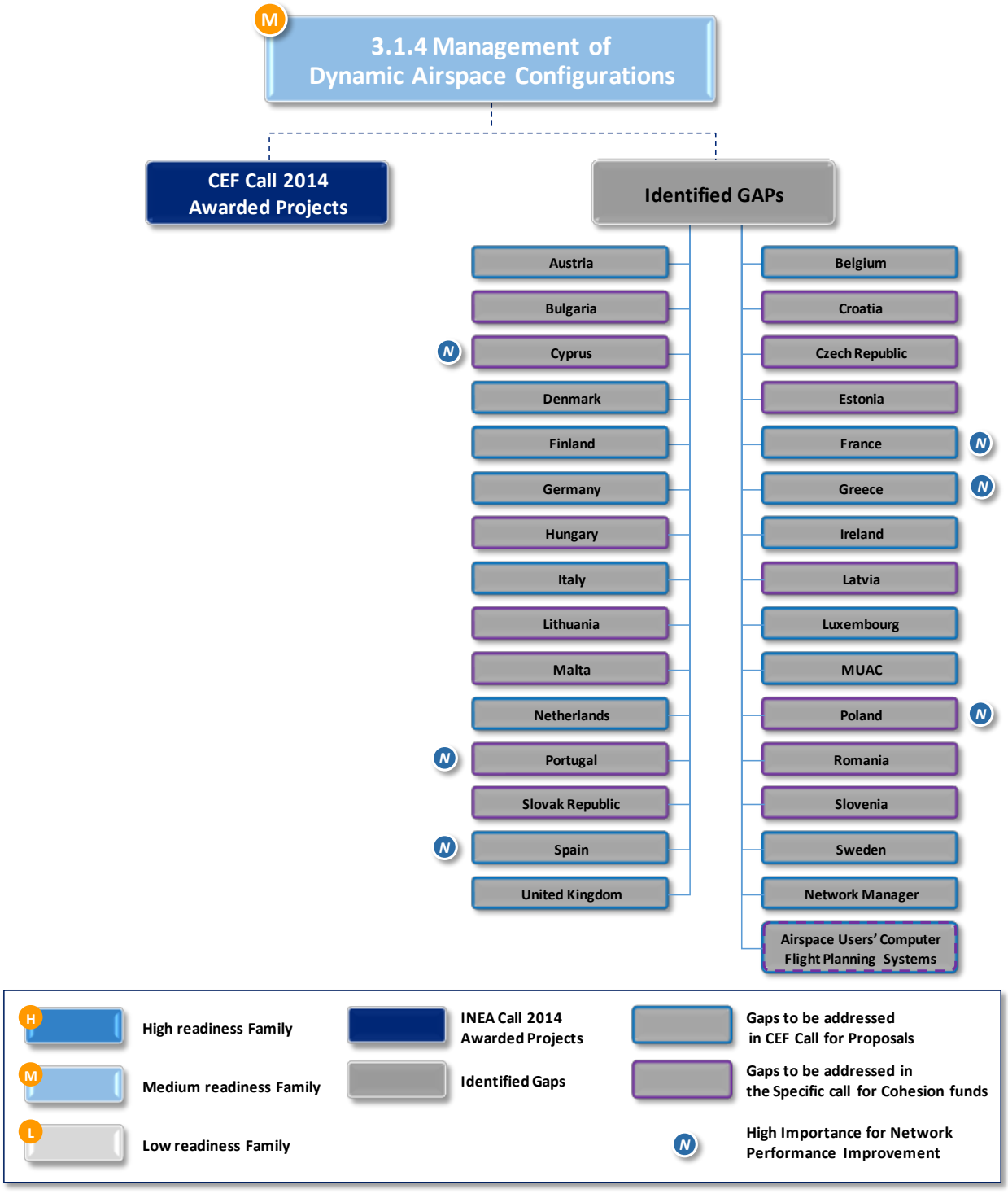


Family 3.1.4 – Management of dynamic airspace configurations

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 alleviate 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 - Implement ATM VoIP communications enabling Dynamic Airspace Configurations
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 2015): 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 Gap Analysis, as reported in the following Chart and within section 5.1.1.

The following chart reports the list of all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.



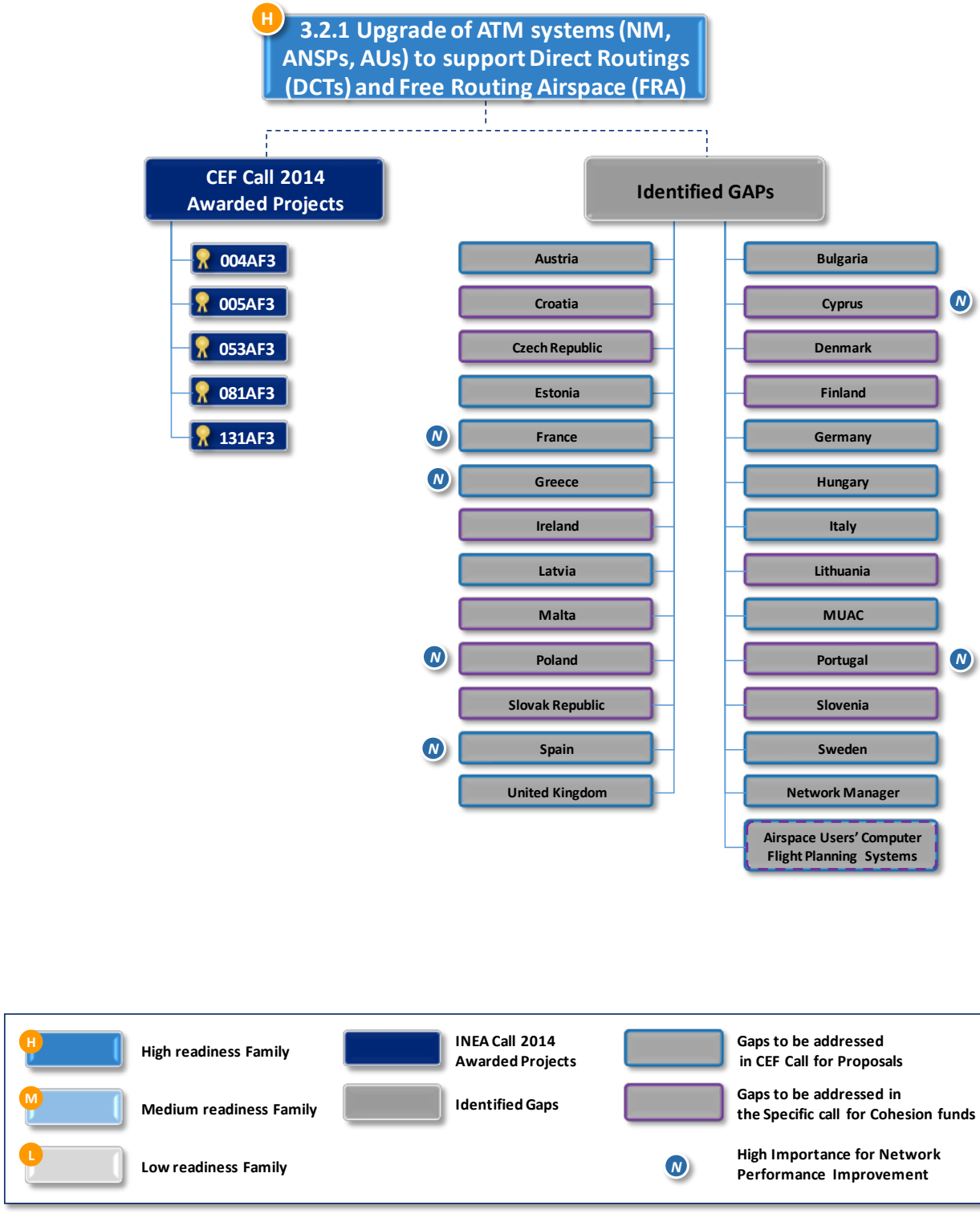
Family 3.2.1 – Upgrade of ATM systems (NM, ANSPs, AUs) to support Direct Routings (DCTs) and Free Routing Airspace (FRA)

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 2015): Link to AOM21.1, AOM21.2, ATC02.5, ATC12.1, ATC17 NSP: SO 3/1 SO 4/1 IDP WP2.3.1 WP5.2 IFPS USERS MANUAL Edition. Edition:19.0.1 Edition date: 20 March 2015
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 Specificiations based on Eurocontrol specifications on "MTCD", "MONA", "TP", "APW" 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 CEF Transport and Cohesion Fund Calls for Proposals 2015	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 Gap Analysis, as reported in the following Chart and within section 5.1.1.

The following chart reports the list of all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.

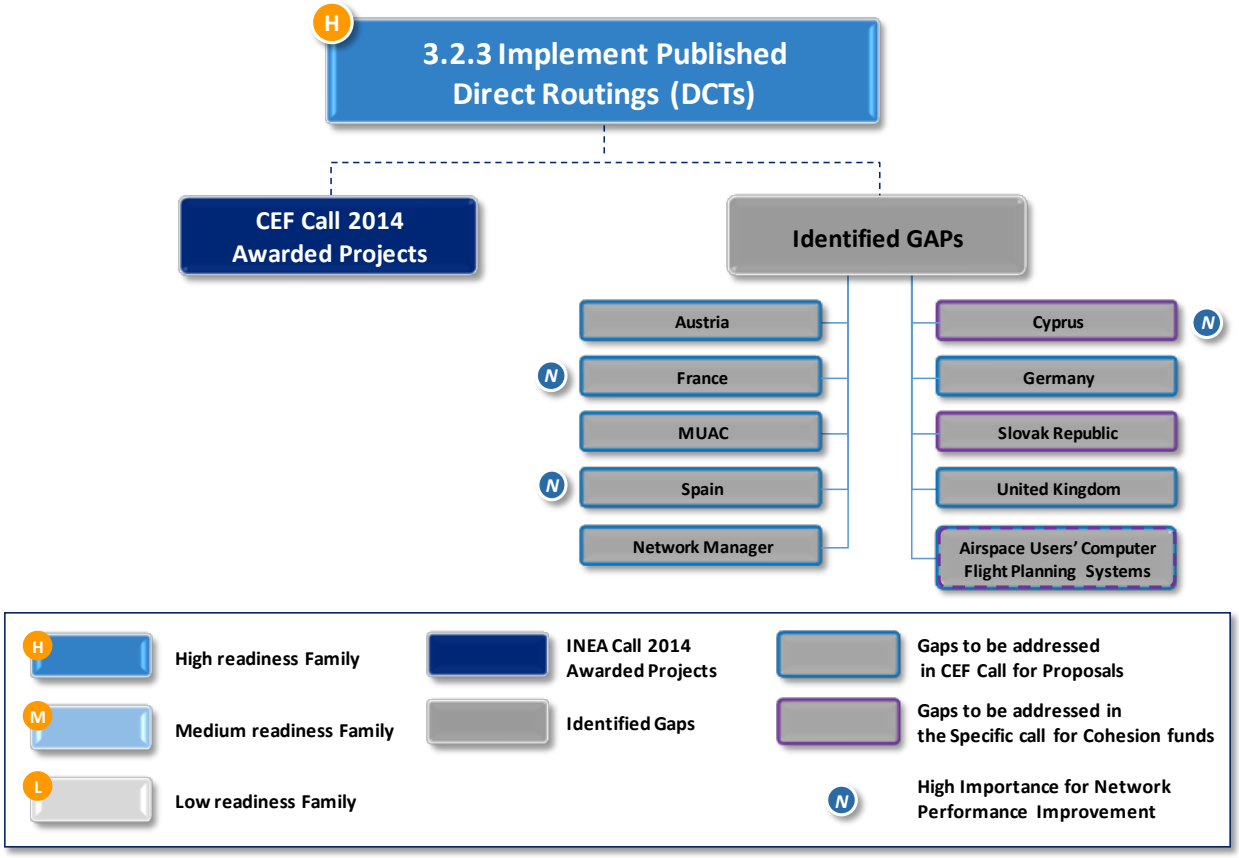


Family 3.2.3 – Implement Published Direct Routings (DCTs)

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 2015): Link to AOM 21.1 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 Commission Regulation (EC) 2150/2005 Commission Regulation (EC) 677/2011, as amended by Commission Implementing Regulation (EU) 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 Gap Analysis, as reported in the following Chart and within section 5.1.1.

The following chart reports the list of all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.

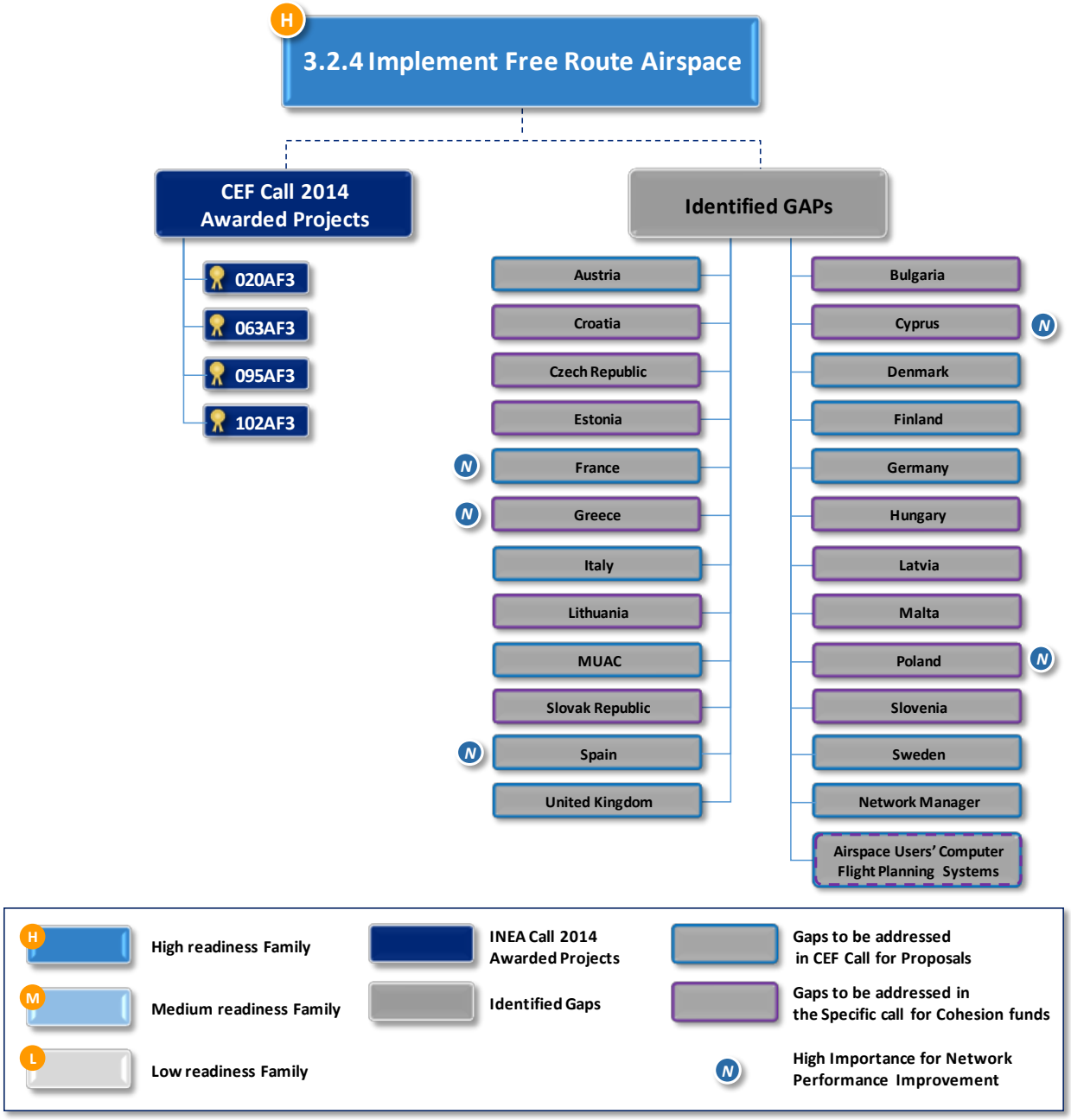


Family 3.2.4 – Implement Free Route Airspace

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 national level, progressing to FAB Regional level and finally to 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 2015): Link to AOM 21.2 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.

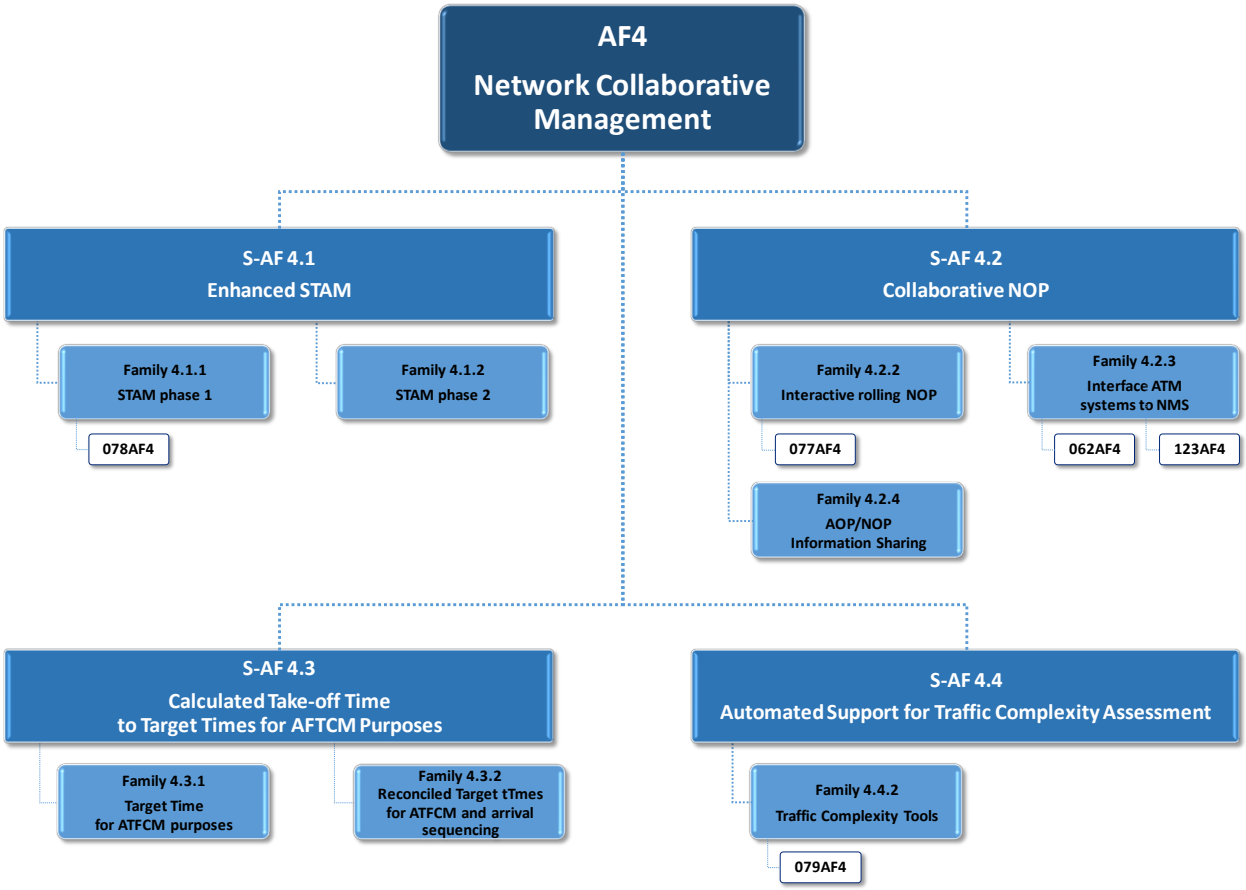
	Network Manager - European Route Network Improvement Plan (ERNIP) Part 4 - Route Availability Document User's Manual; Edition June 2014
Concerned stakeholders	NM, Civil/Military ANSP, civil/military Aus
Geographical applicability	Free Route Airspace shall be provided and operated in the airspace for 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 Gap Analysis, as reported in the following Chart and within section 5.1.1

The following chart reports the list of all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.



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 that have been awarded by 2014 CEF Transport Call. Further details for each Implementation Projects are provided within Annex A.

Reference Number	Title	IP description Page Number (Annex A)
062AF4	ENAV initiative for the identification of Network Collaborative Management requirements.	70
077AF4	Interactive Rolling NOP	71
078AF4	ATFCM measures (STAM)	72
079AF4	Trajectory accuracy and traffic complexity	73
123AF4	Family 4.2.3 NAV Portugal Interface to NMS AFP	74

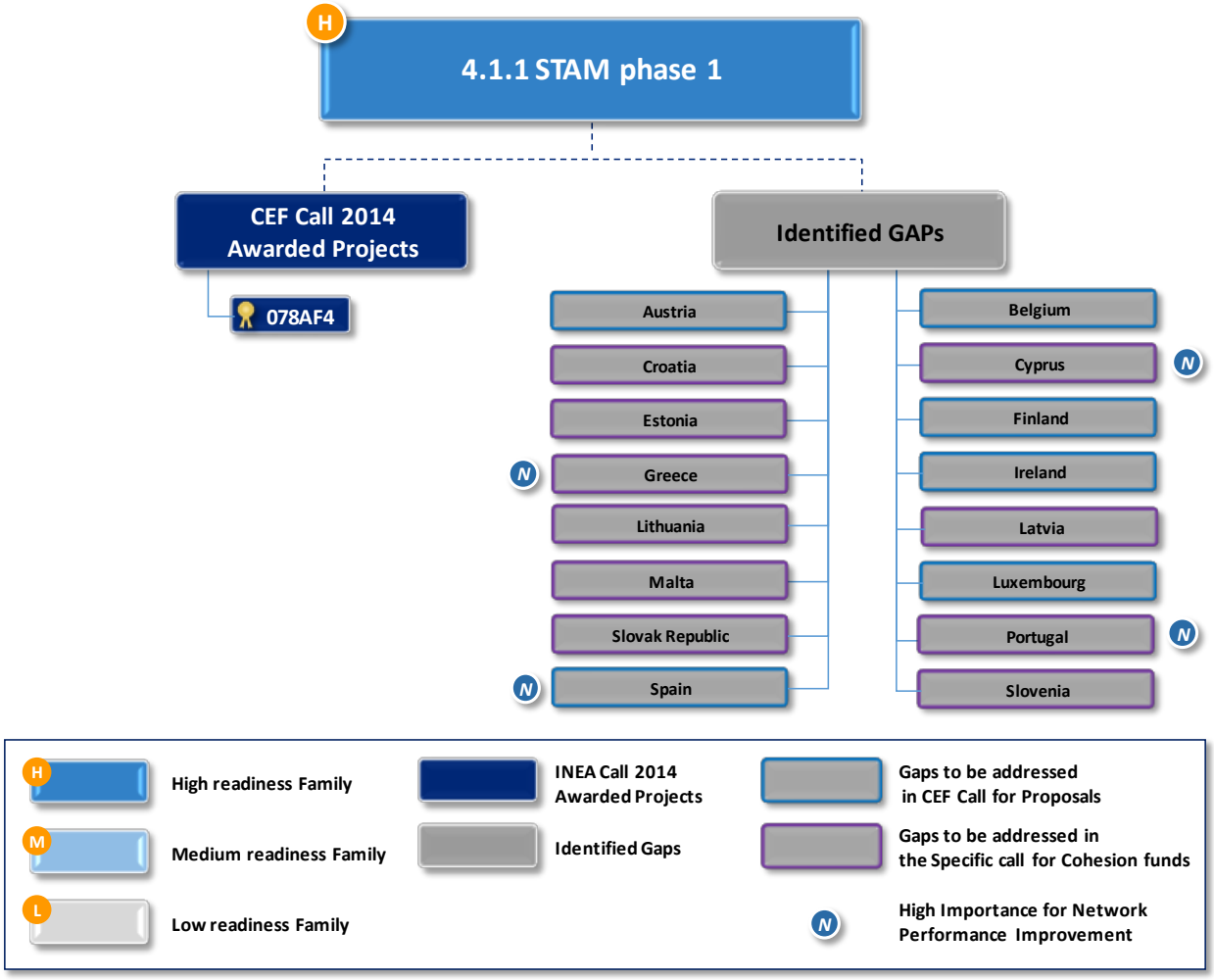
Table 5 – List of AF4 Implementation Projects (IPs)

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 2015): Link to FCM-04 NSP: SO 4/3 SO 5/4 ATFCM Operations Manual; Edition 19,1 (Date 29 April 2015)
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 Gap Analysis, as reported in the following Chart and within section 5.1.1.

The following chart reports the list of all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.

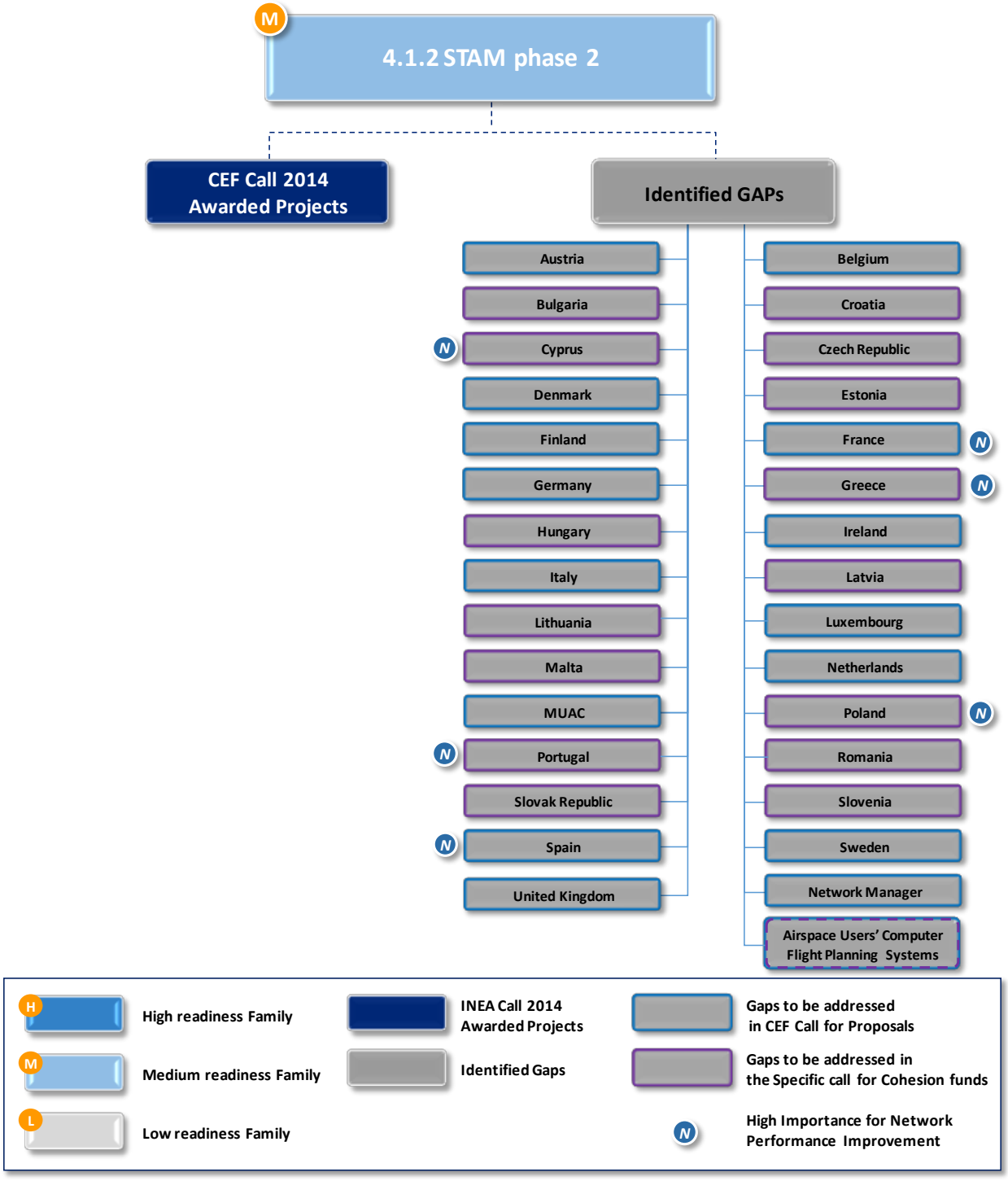


Family 4.1.2 – STAM Phase 2

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 2015): 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 Gap Analysis, as reported in the following Chart and within section 5.1.1.

The following chart reports the list of all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.

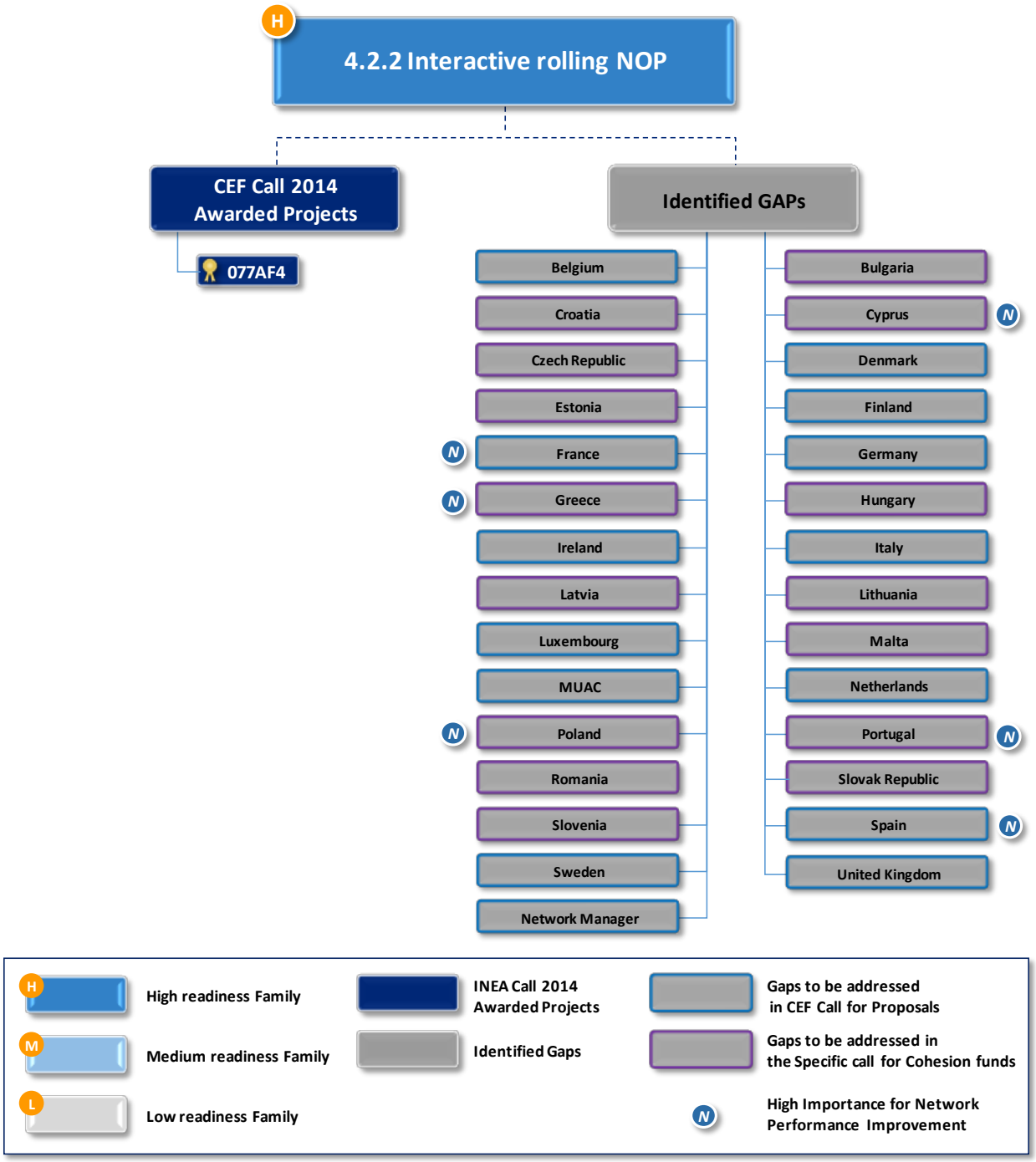


Family 4.2.2 – Interactive Rolling NOP

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 2015): Link to FCM05 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 Gap Analysis, as reported in the following Chart and within section 5.1.1.

The following chart reports the list of all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.

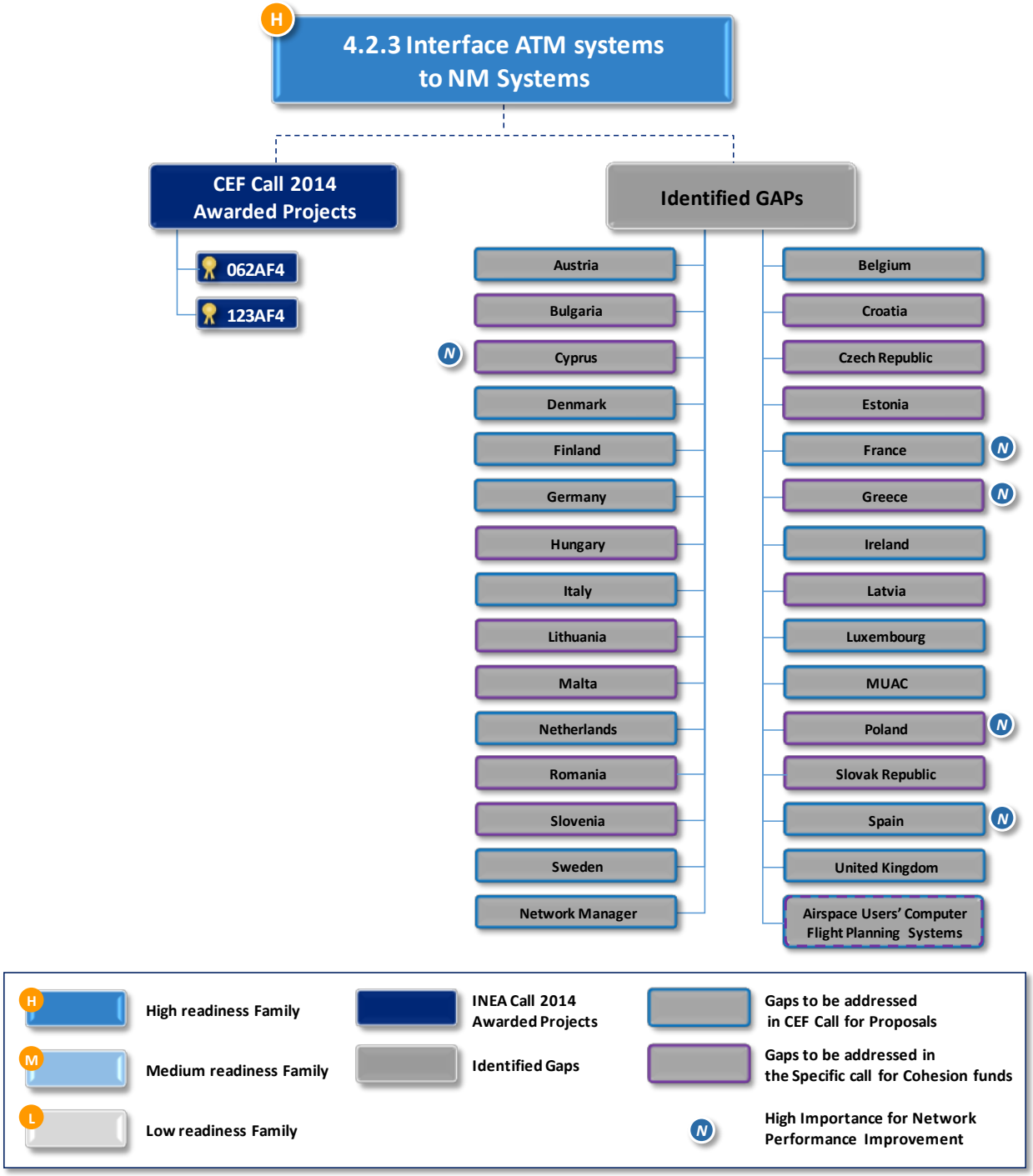


Family 4.2.3 – Interface ATM systems to NM systems

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. The improved OAT Flight Plan will be processed by AU flight planning systems, ANSPs, FDPS and IFPS, as this improved flight plan will precise the restricted area used and therefore enhance the description of the GAT part of the flight.

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 2015): 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 Specifications 0101 Edition 1.1 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 Gap Analysis, as reported in the following Chart and within section 5.1.1.

The following chart reports the list of all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.

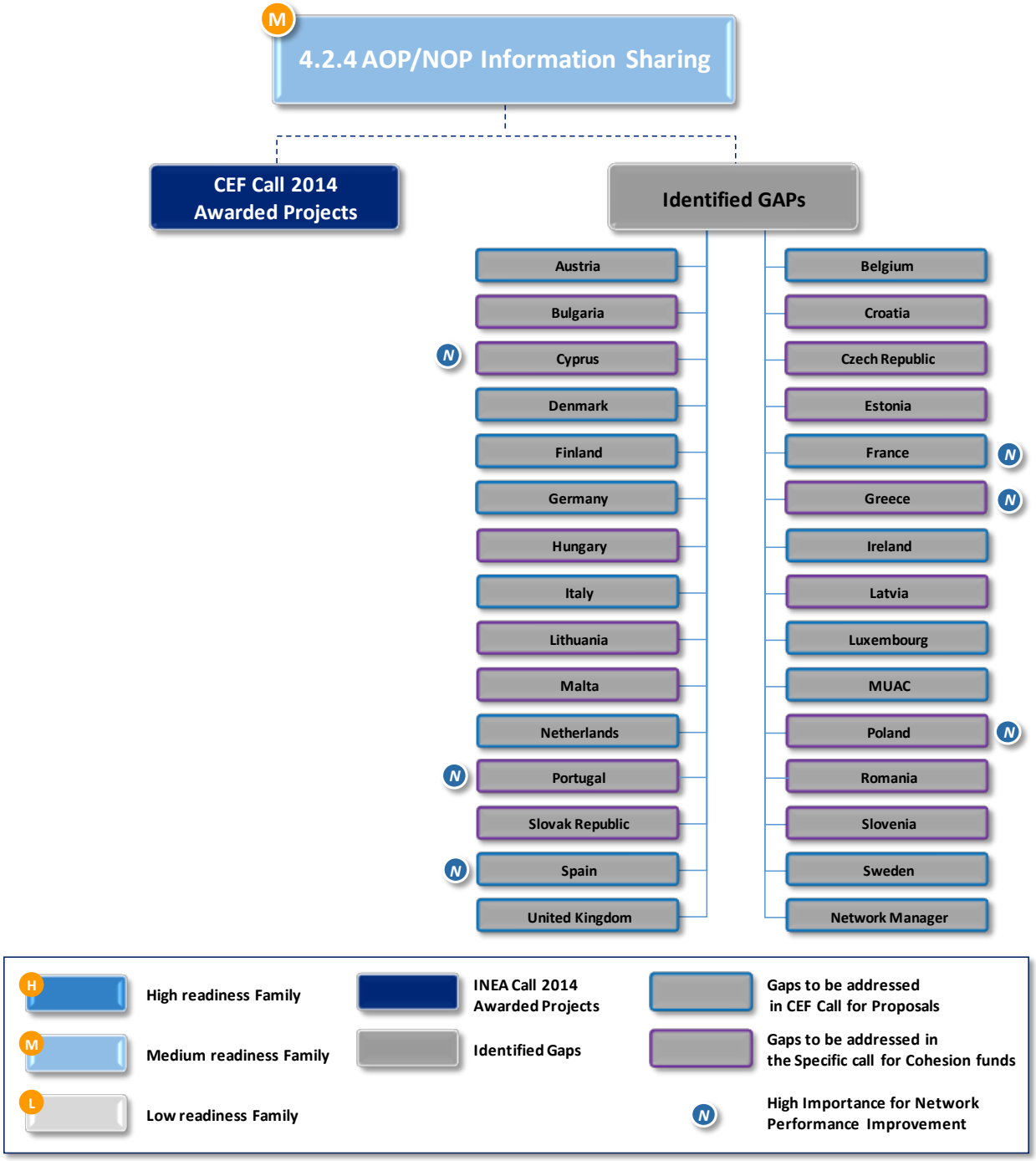


Family 4.2.4 – AOP/NOP information sharing

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 2015): 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 Gap Analysis, as reported in the following Chart and within section 5.1.1.

The following chart reports the list of all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.

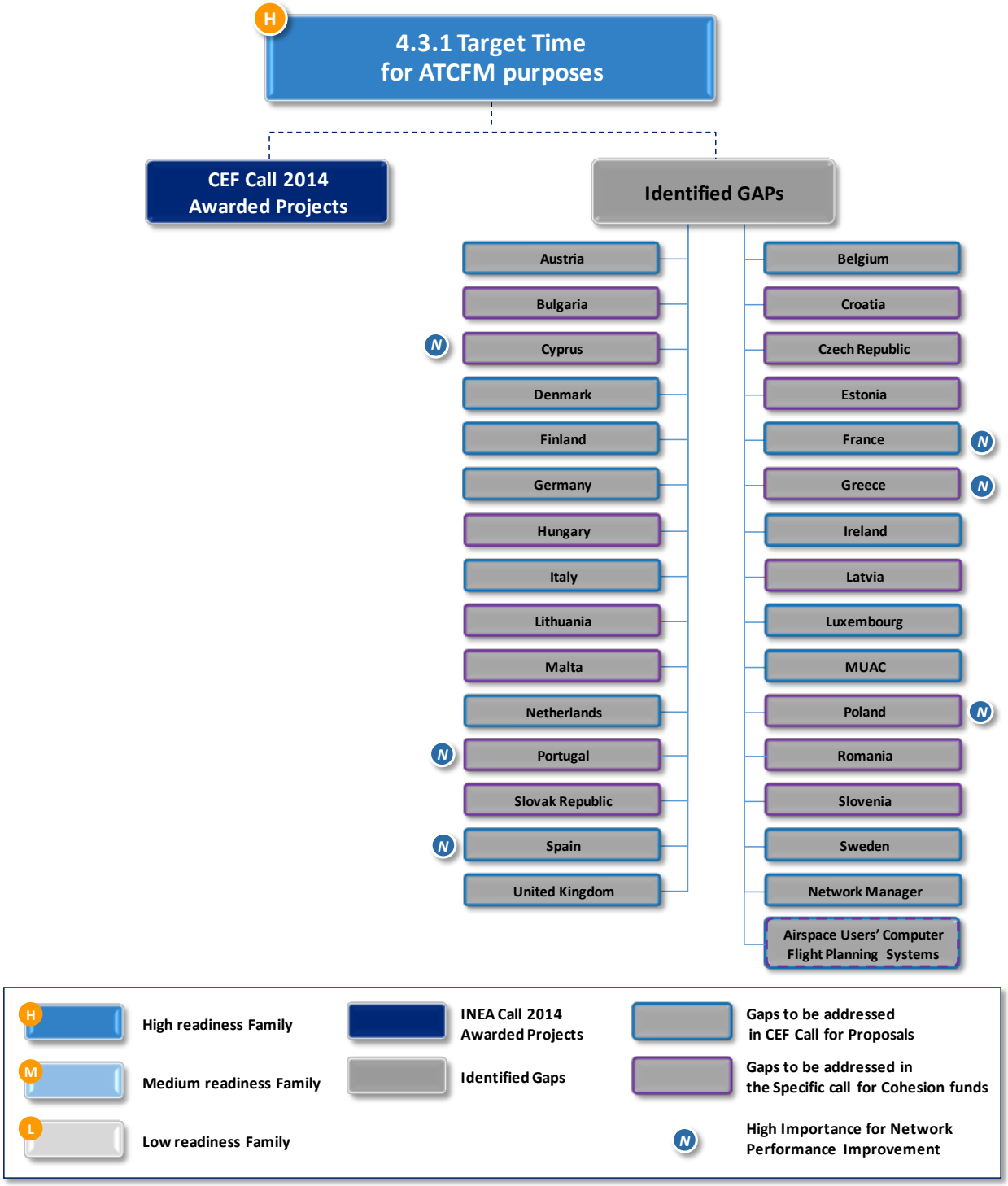


Family 4.3.1 – Target Time for ATFCM purposes

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 2015): 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 Gap Analysis, as reported in the following Chart and within section 5.1.1.

The following chart reports the list of all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.

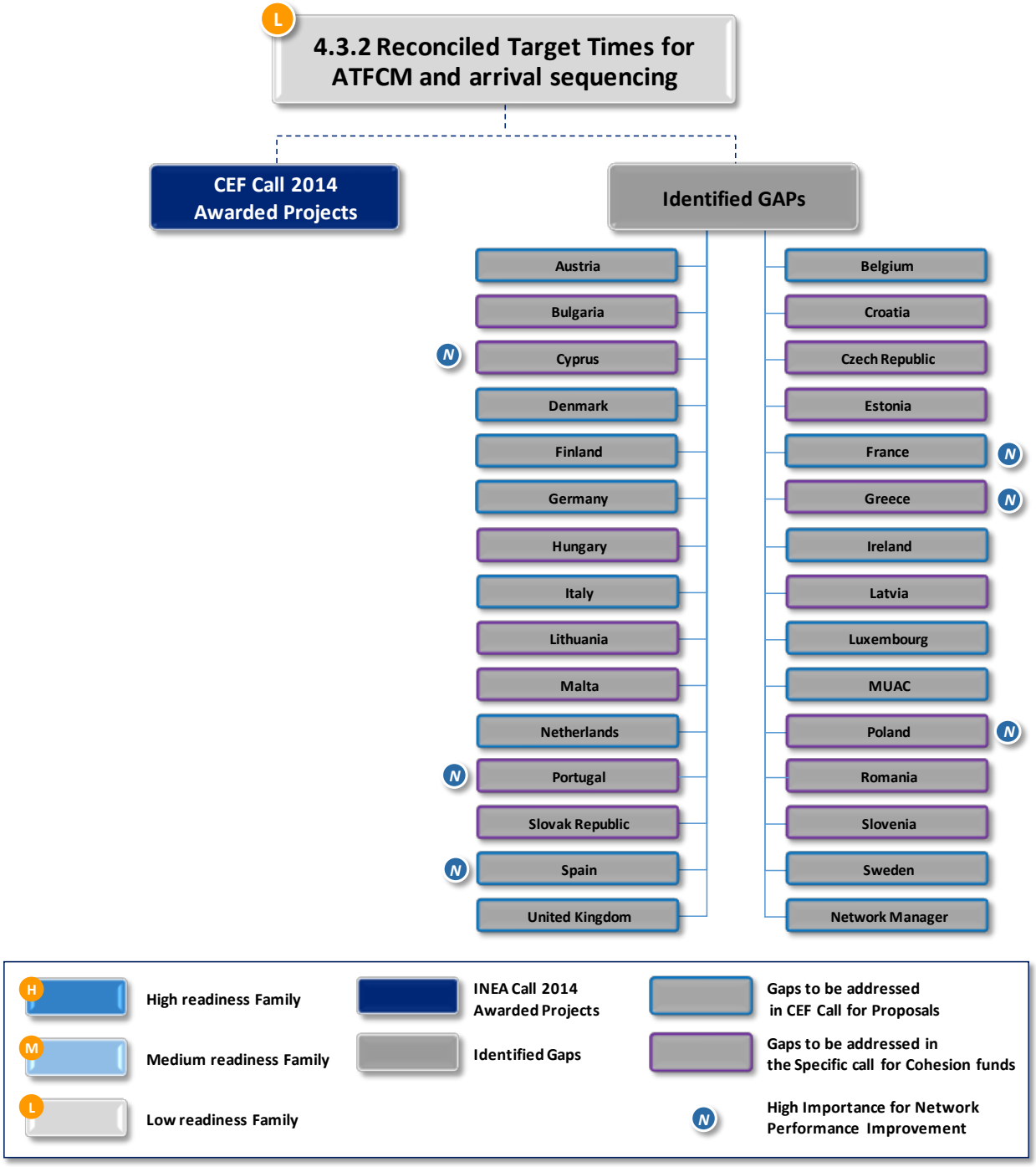


Family 4.3.2 – Reconciled target times for ATFCM and arrival sequencing

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, DCB-0213 ATM Master Plan Level 3 (Edition 2015): 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 all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.

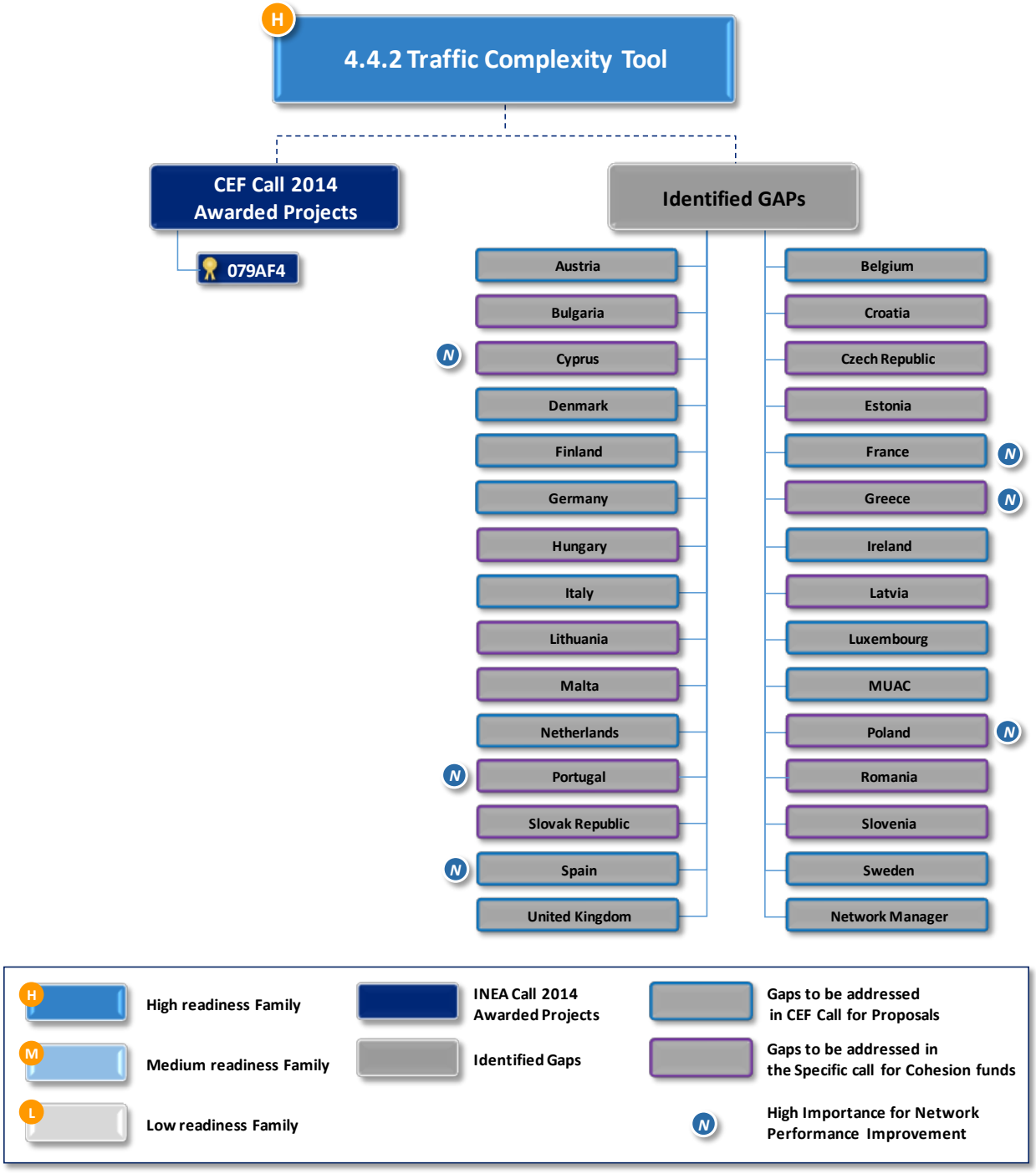


Family 4.4.2 – Traffic Complexity tools

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

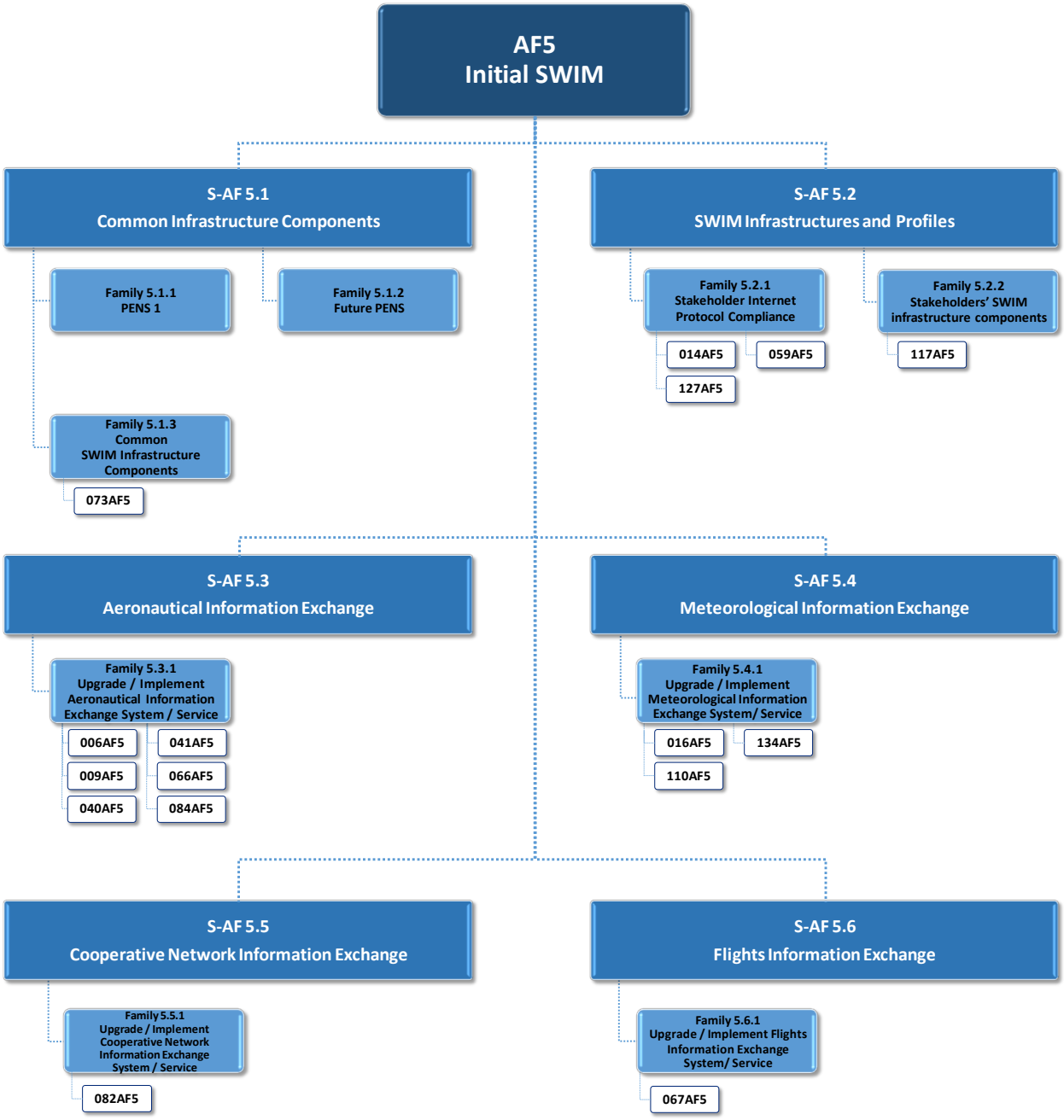
Full Operational Capability	01/01/2022
References and guidance material	ATM Master Plan Level 2 (Dataset 14):CM-0103-A ATM Master Plan Level 3 (Edition 2015): Link to FCM06 NSP: SO 4/3 and SO 5/4 NM Flight Progress Messages Document; Edition No. 2.1; 19 March 2015
Concerned stakeholders	Civil/military 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 Gap Analysis, as reported in the following Chart and within section 5.1.1.

The following chart reports the list of all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the 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.



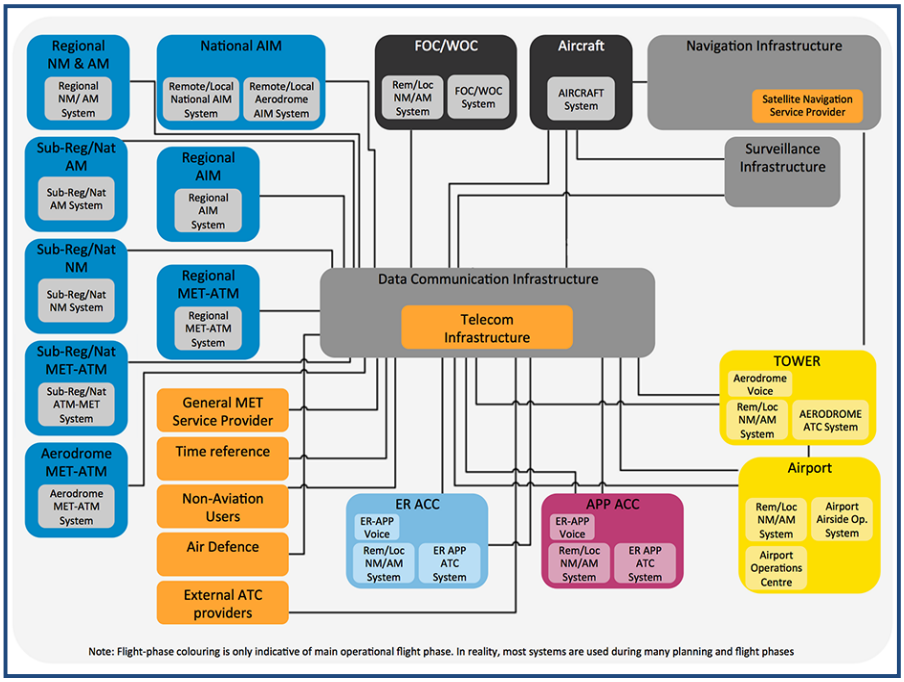
The following table encompasses the list of all projects related to the AF #5 that have been awarded by 2014 CEF Transport Call. Further details for each Implementation Projects are provided within Annex A.

Reference Number	Title	IP description Page Number (Annex A)
006AF5	ATM Data Quality (ADQ)	75
009AF5	Integrated Briefing System New (IBSN)	76
014AF5	MPLS WAN Project	78
016AF5	Initial WXXM Implementation on Belgocontrol Systems	79
040AF5	ADQ – Aeronautical Data Quality	80
041AF5	EASI – EAD AIM Systems Integration	81
059AF5	Implementation and operation of an IP-based G/G data communication network in ENAIRE	82
066AF5	ENAV AIS system upgrade to support AIXM5.1	83
067AF5	Coflight e-FDP System Development	84
073AF5	SWIM Common Components	85
082AF5	SWIM compliance of NM systems	86
084AF5	Implementation of Prerequisites for the Provision of Aerodrome Mapping Data and Airport Maps as Data Originator (Aeronautical Information Exchange)	87
110AF5	Meteorological Information Exchange by MET ANSP KNMI	88
117AF5	Implementation of Initial SWIM Capability (AF5) across NATS	89
127AF5	National WAN Infrastructure - CANDI-IP preparation project	90
134AF5	PILOT PLATFORM for access services to OPMET (worldwide/ECAC) data(METAR, TAF, SIGMET) in WXXM format	91

Table 6 – List of AF5 Implementation Projects (IPs)

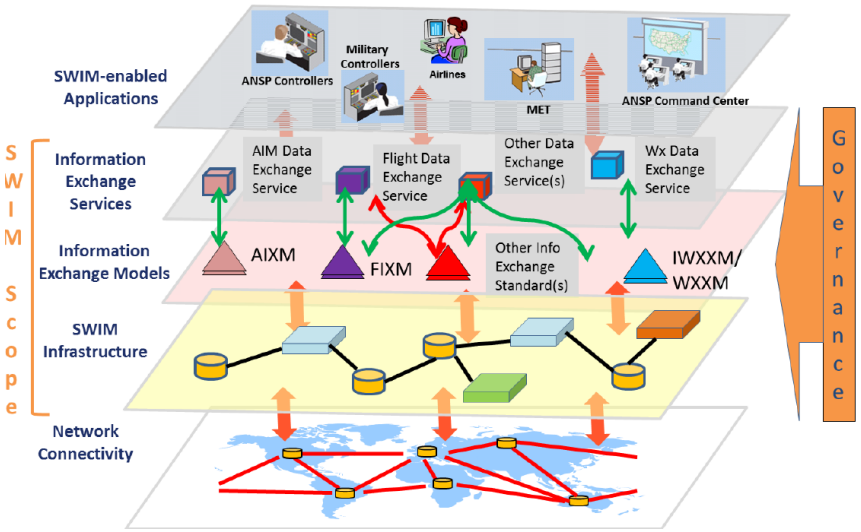
Family 5.1.1 – PENS 1: Pan-European Network Service version 1

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



SESAR EATM Architecture

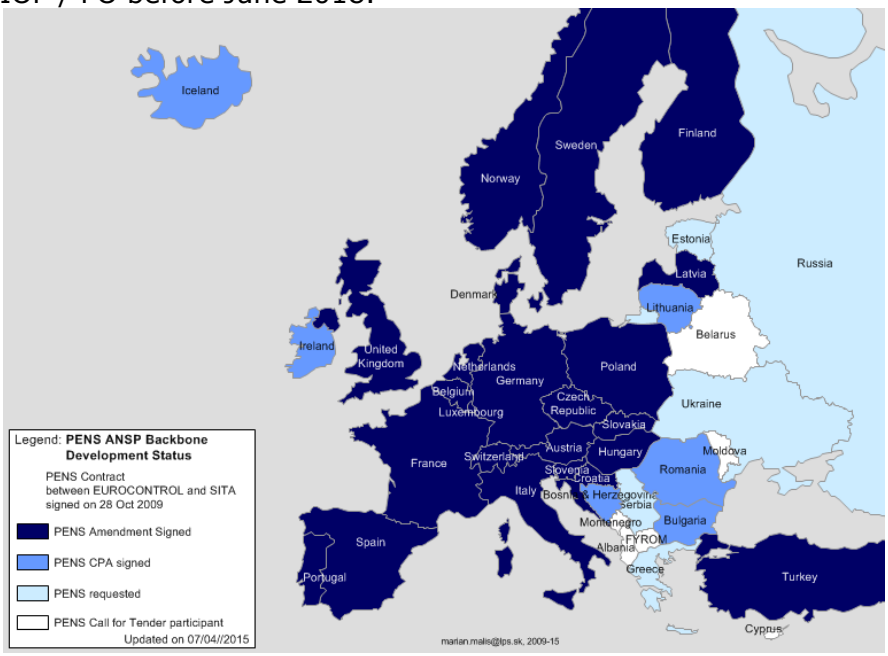
More precisely the following picture shows the place of the SWIM Infrastructure within the SWIM scope.



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

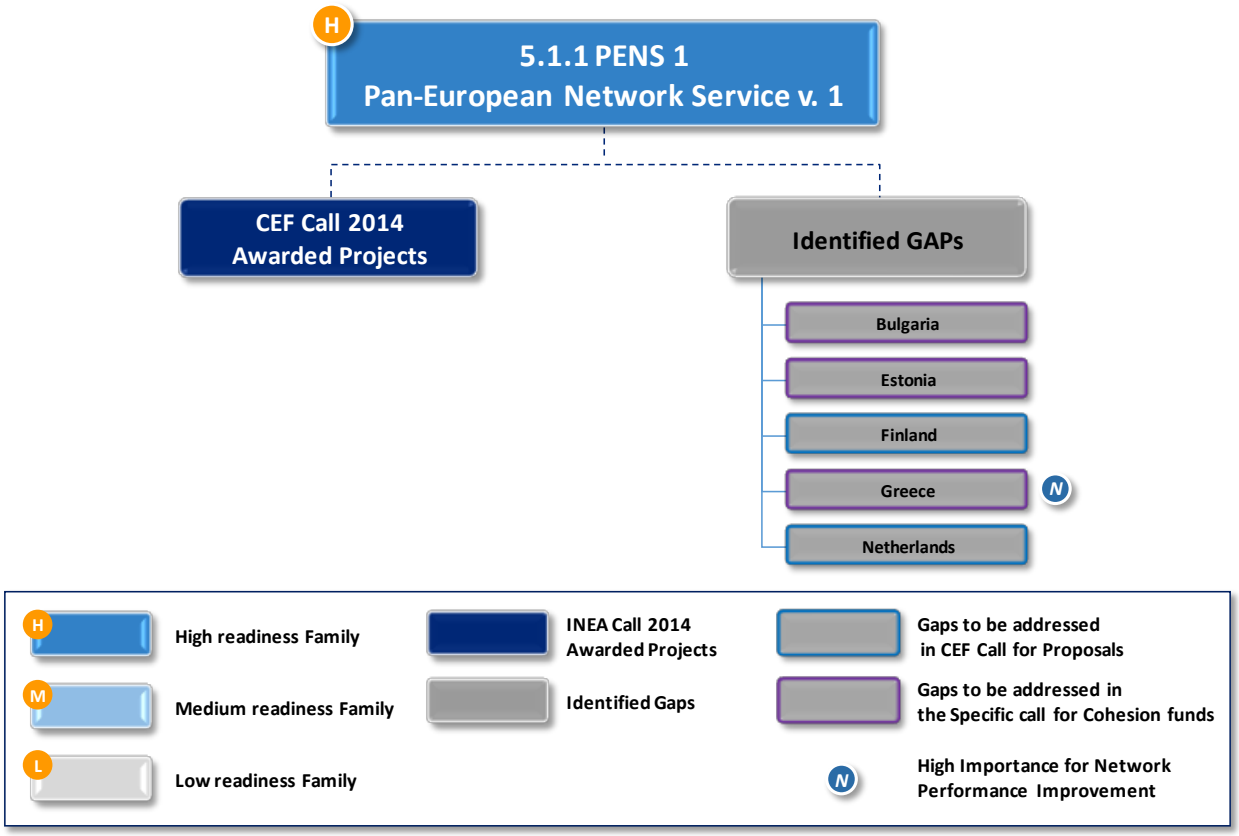
The current PENS (Pan European Network Service), called PENS1, supports the exchanges of the current ATM information based on Internet Protocol (version 4 and 6).

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

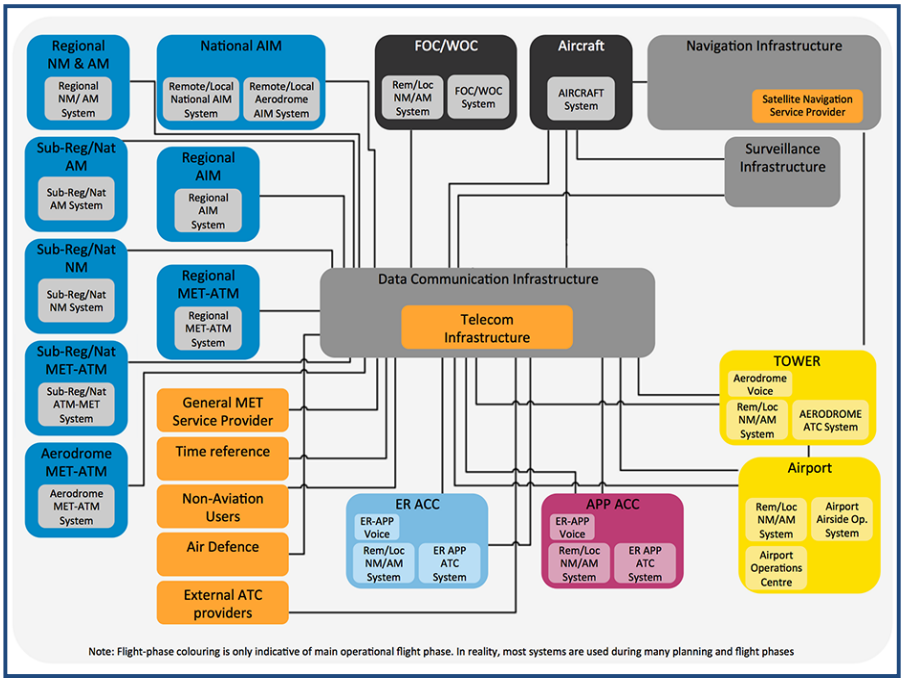
Concerned stakeholders	NM and stakeholders managing the Area Control Centres & TMAs identified in the IR 716/2014 Appendix. Other ATC and military controlling units could be interested in particular to implement the FMTP IR.
Geographical applicability	NM, Area Control Centres & TMAs identified in the 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 Gap Analysis, as reported in the following Chart and within section 5.1.1.

The following chart reports the list of all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.



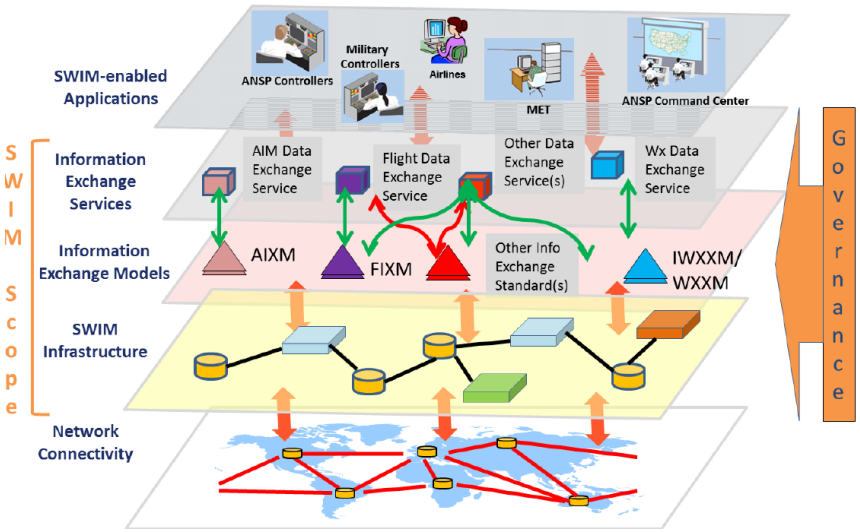
Family 5.1.2 – Future PENS: Future Pan-European Network Service

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.

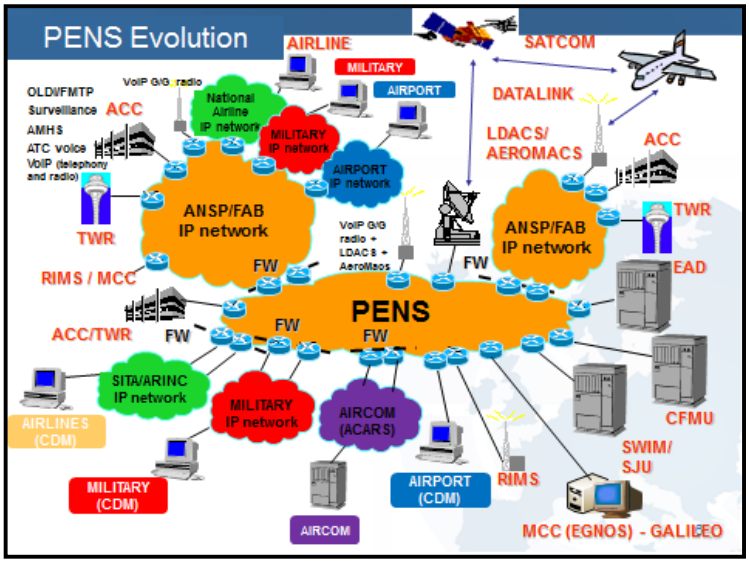
The future PENS will replace PENS1 terminating in June 2018.

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 :

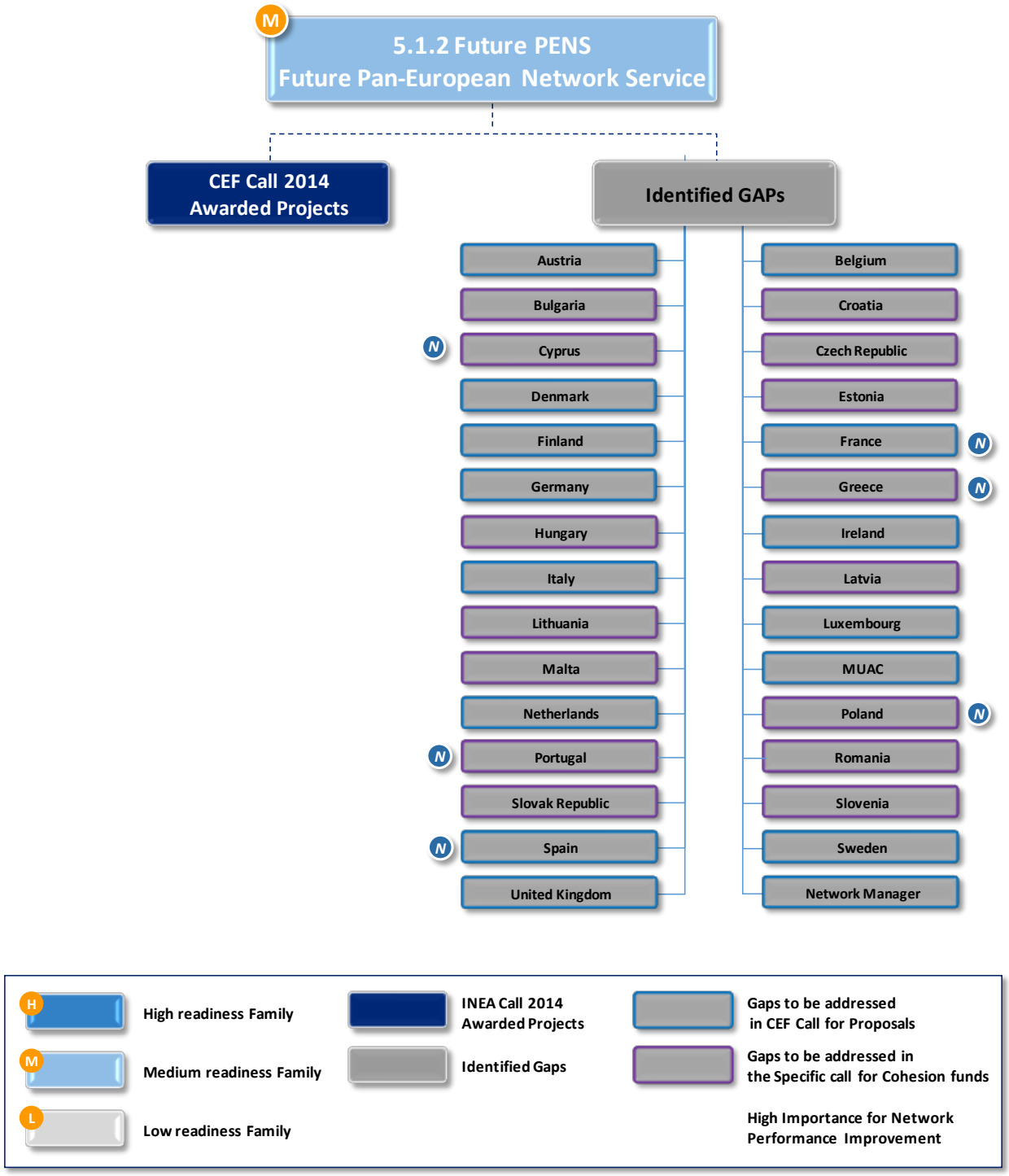
- **By the end of the current PENS contract (mid 2018)**, PENSv1 will be operationally used by ANSPs/FABs to support their international Internet Protocol ground/ground voice and data communications within ICAO EUR/NAT Region and to/from other ICAO regions. Some regional network communications may continue to be supported on the existing network infrastructure where PENS connectivity is not suitable or available.
- **By 2020, an Enhanced PENS 2** 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	01/06/2018
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 2015): 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.

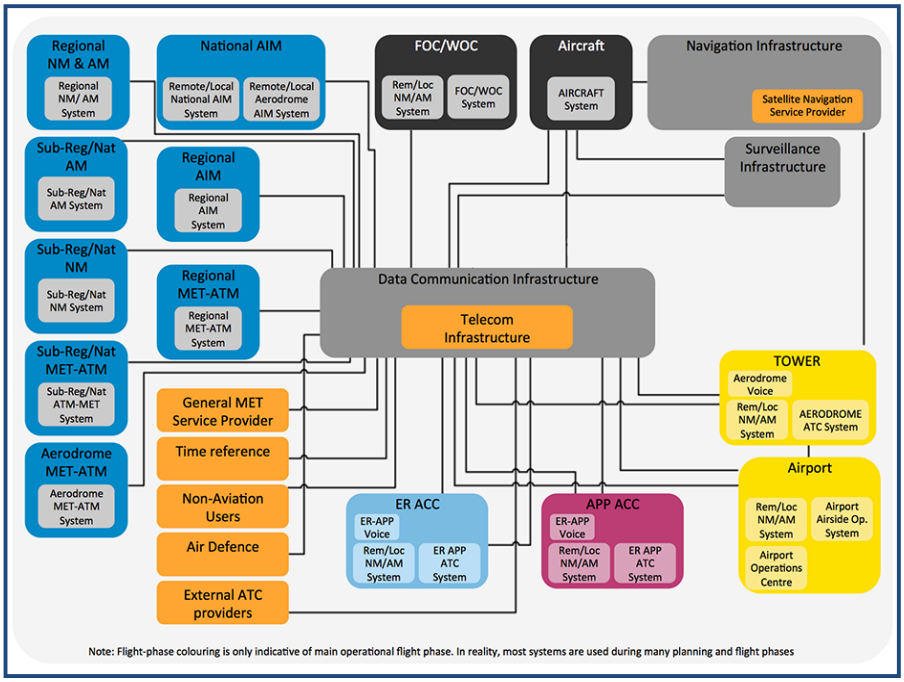
	The future PENS is also able to support all the ATM information exchanges even if the IR 716/2014 is requiring PENS only for the Blue Profile required for Flight Object.

The following chart reports the list of all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.



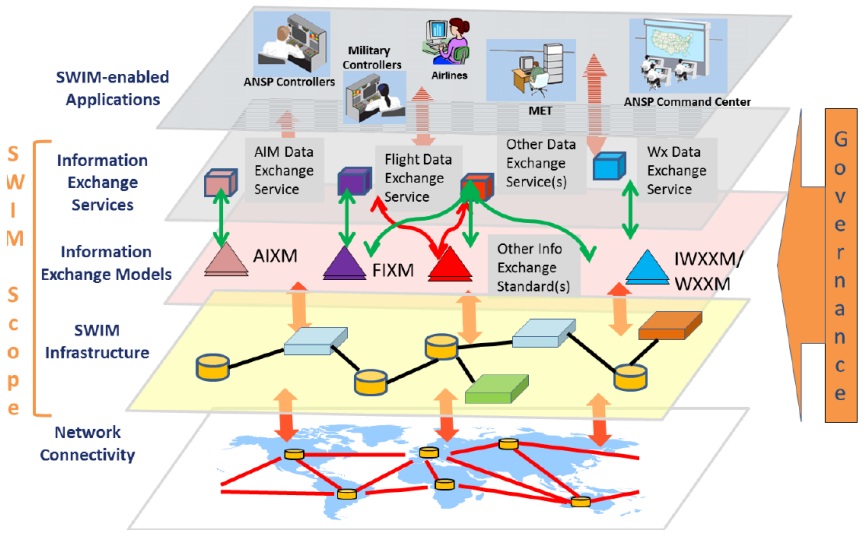
Family 5.1.3 – Common SWIM Infrastructure components

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



SESAR EATM Architecture

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

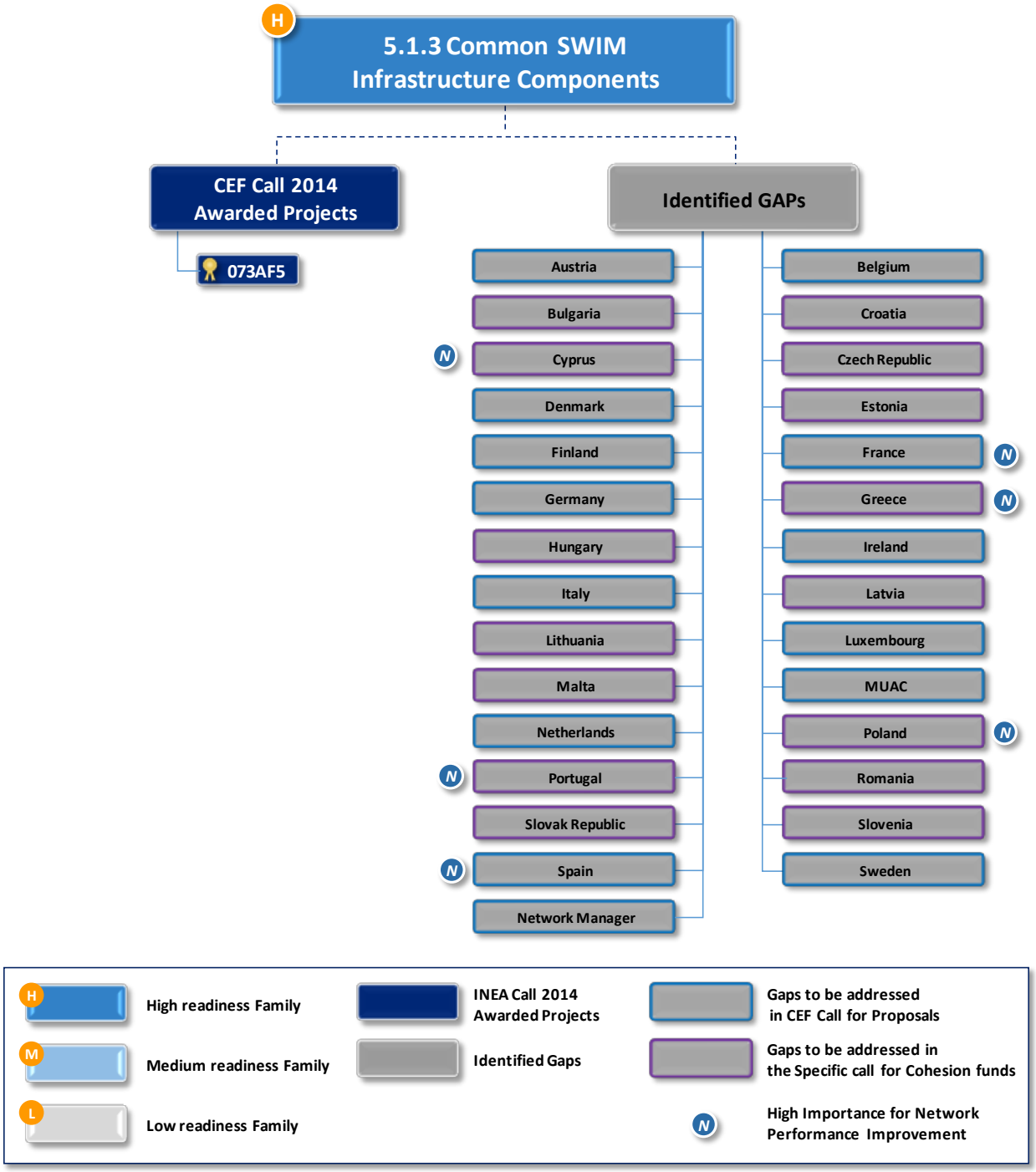


Within the IR 716/2014 the SWIM Infrastructure has been split in two parts:

	- The common components § 5.1.1. Common infrastructure components - The stakeholders' components § 5.1.2. SWIM Technical Infrastructure and Profiles According to 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 2015): None
Concerned stakeholders	All the stakeholders Airspace Users, Airport Operators, Civil and Military ANSPs, Network Manager, MET, AIS providers are concerned

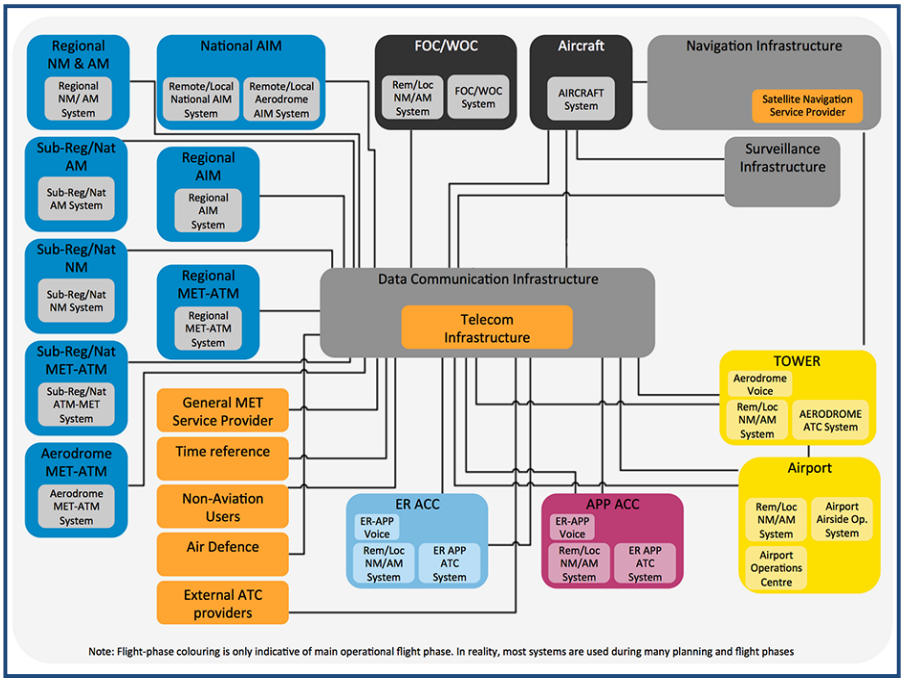
Geographical applicability	As stated in Commission Implementing Regulation (EU) No 716/2014
Synchronization	Strong coordination is necessary between all stakeholders (at least pioneers) to set-up first implementation of common components through a Governance structure and processes.
Regulatory Requirements	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 all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.



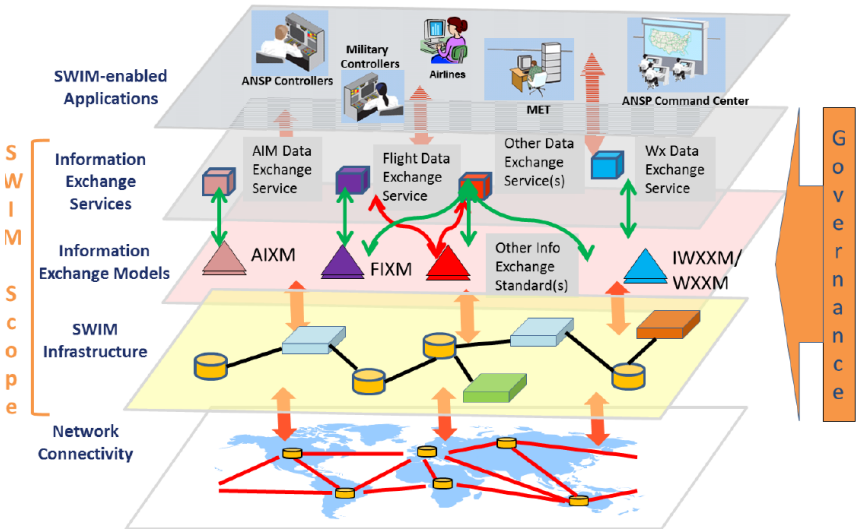
Family 5.2.1 – Stakeholder Internet Protocol Compliance

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.



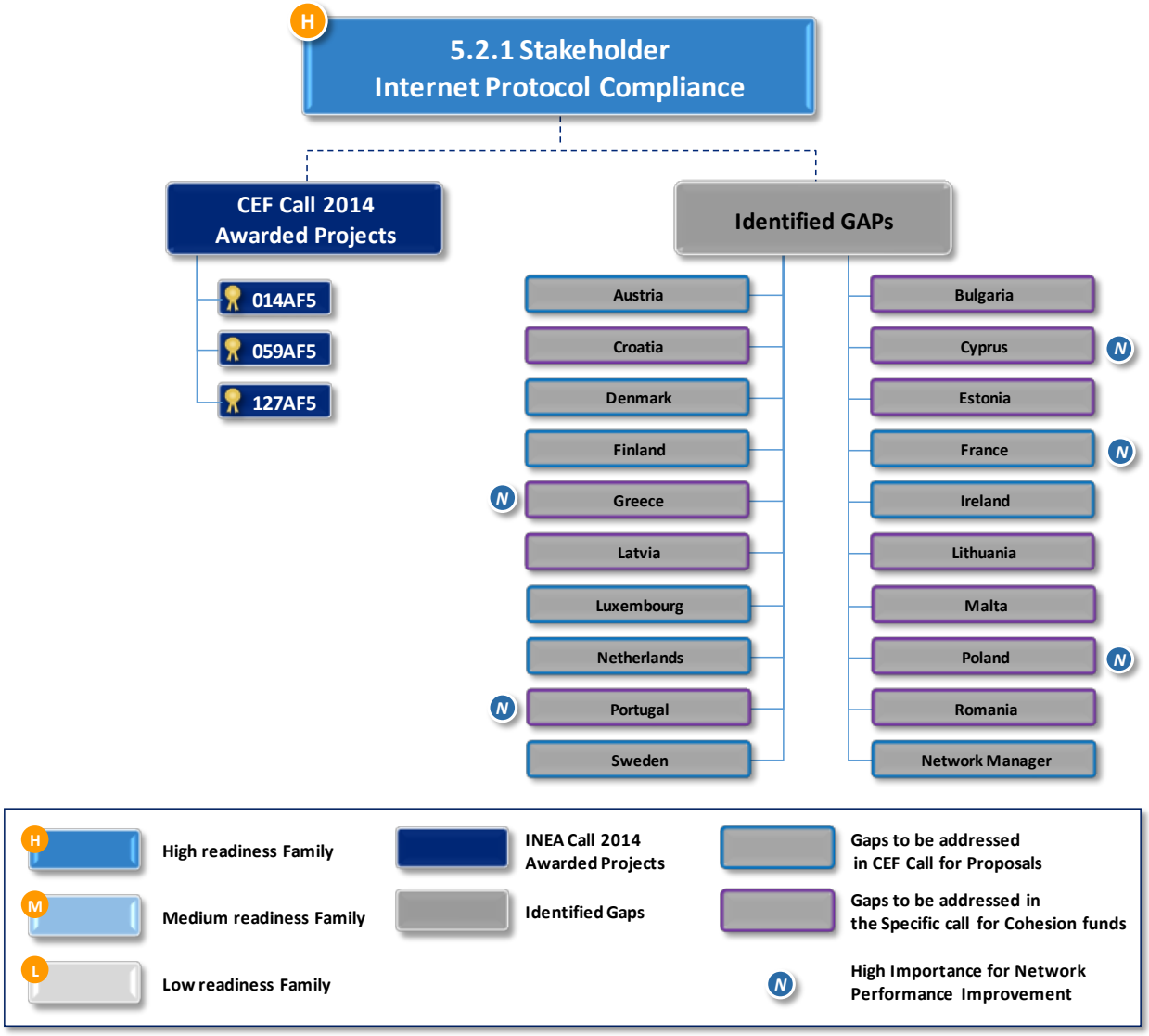
The IR 716/2014 stipulates *"Initial System Wide Information Management (iSWIM) supports information exchanges that are built on standards and delivered through an internet protocol (IP)-based network by SWIM enabled systems"*.

So a strong SWIM prerequisite is to be IP-compliant.

This family is dealing with the necessary Internet Protocol

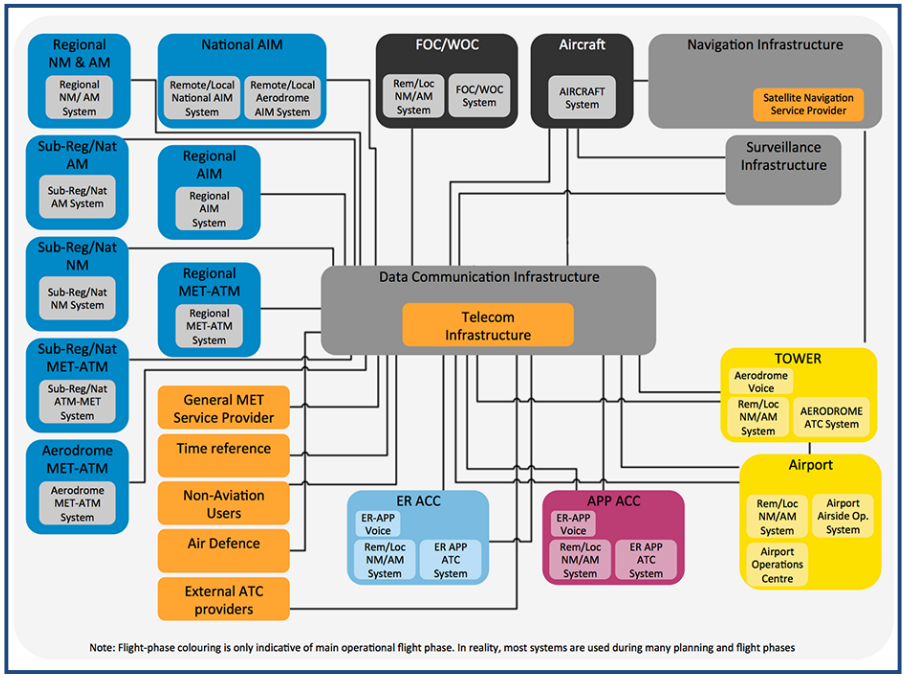
	compliance for each civil and military stakeholder to be able to support future SWIM information exchanges through SWIM profiles based on Internet Protocol. The scope of this Projects Family aims mainly at implementing on civil and military stakeholder side Internet Protocol Network connectivity to be 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 2015):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 Gap Analysis, as reported in the following Chart and within section 5.1.1.

The following chart reports the list of all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.



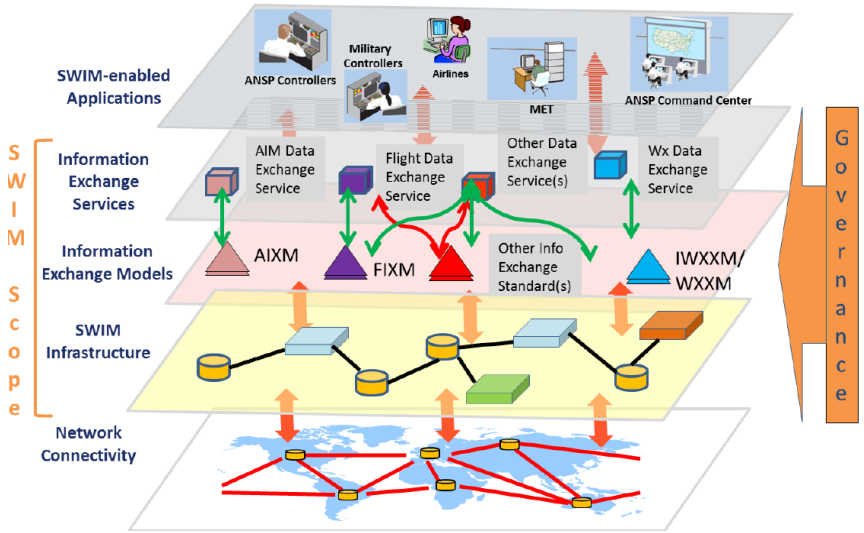
Family 5.2.2 – Stakeholder SWIM Infrastructures Components

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.



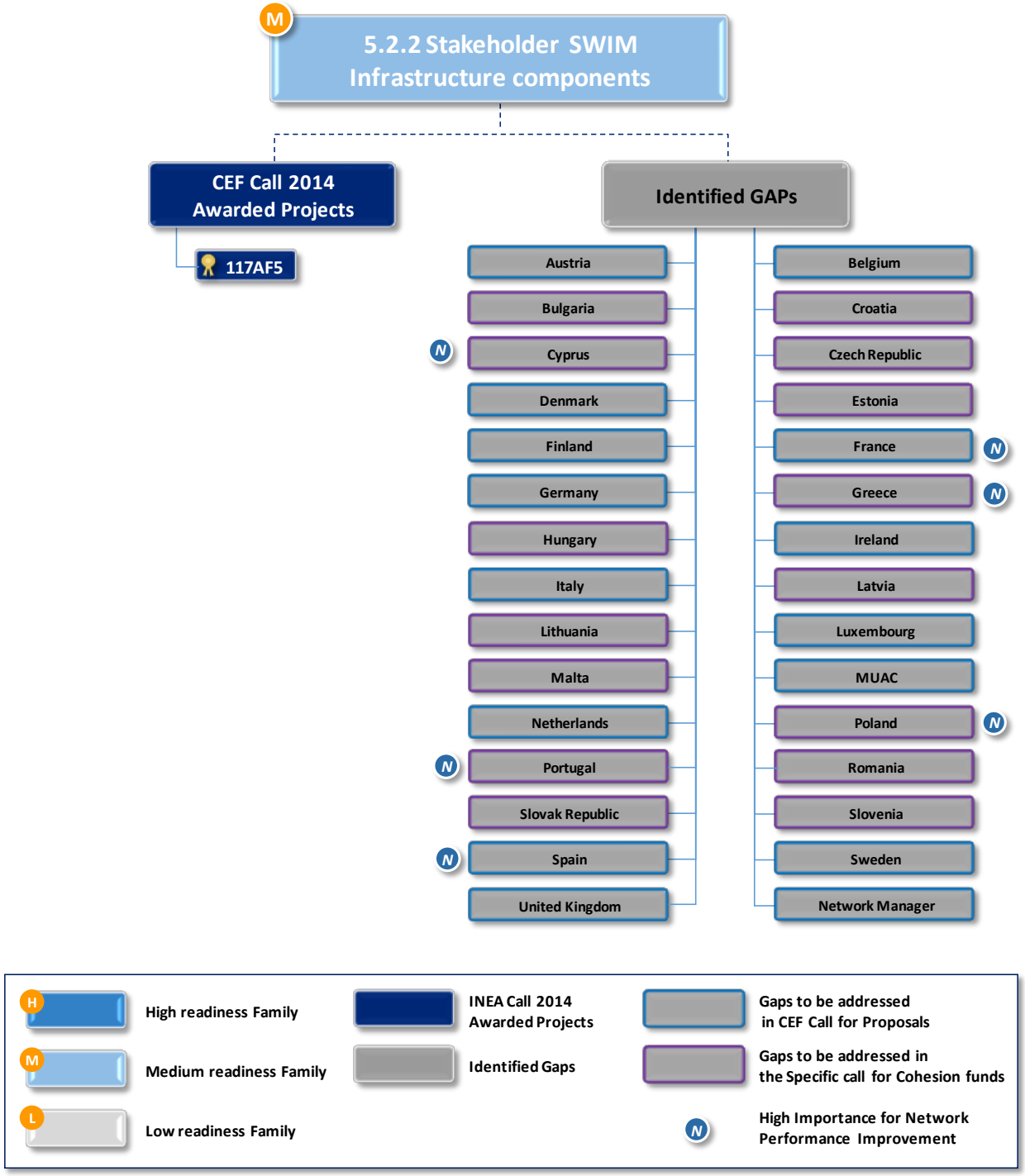
Within the IR 716/2014 the SWIM Infrastructure has been split in two parts:

- 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 2015): 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 all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.



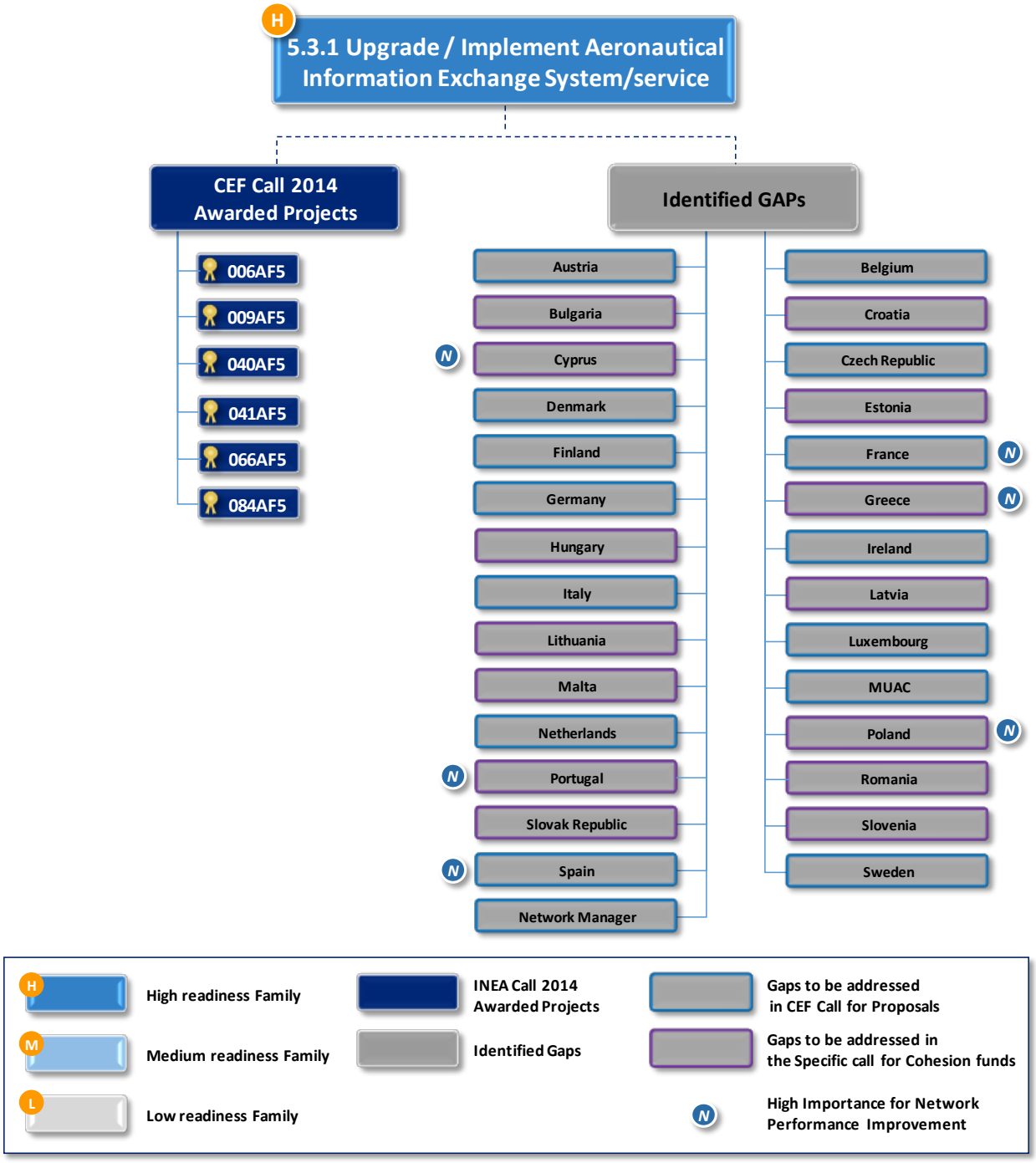
Family 5.3.1 – Upgrade / Implement Aeronautical Information Exchange system / service

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 2015): 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	AIXM, developed by Eurocontrol; AMXM (AMDB), developed by EUROCAE
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 all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.



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

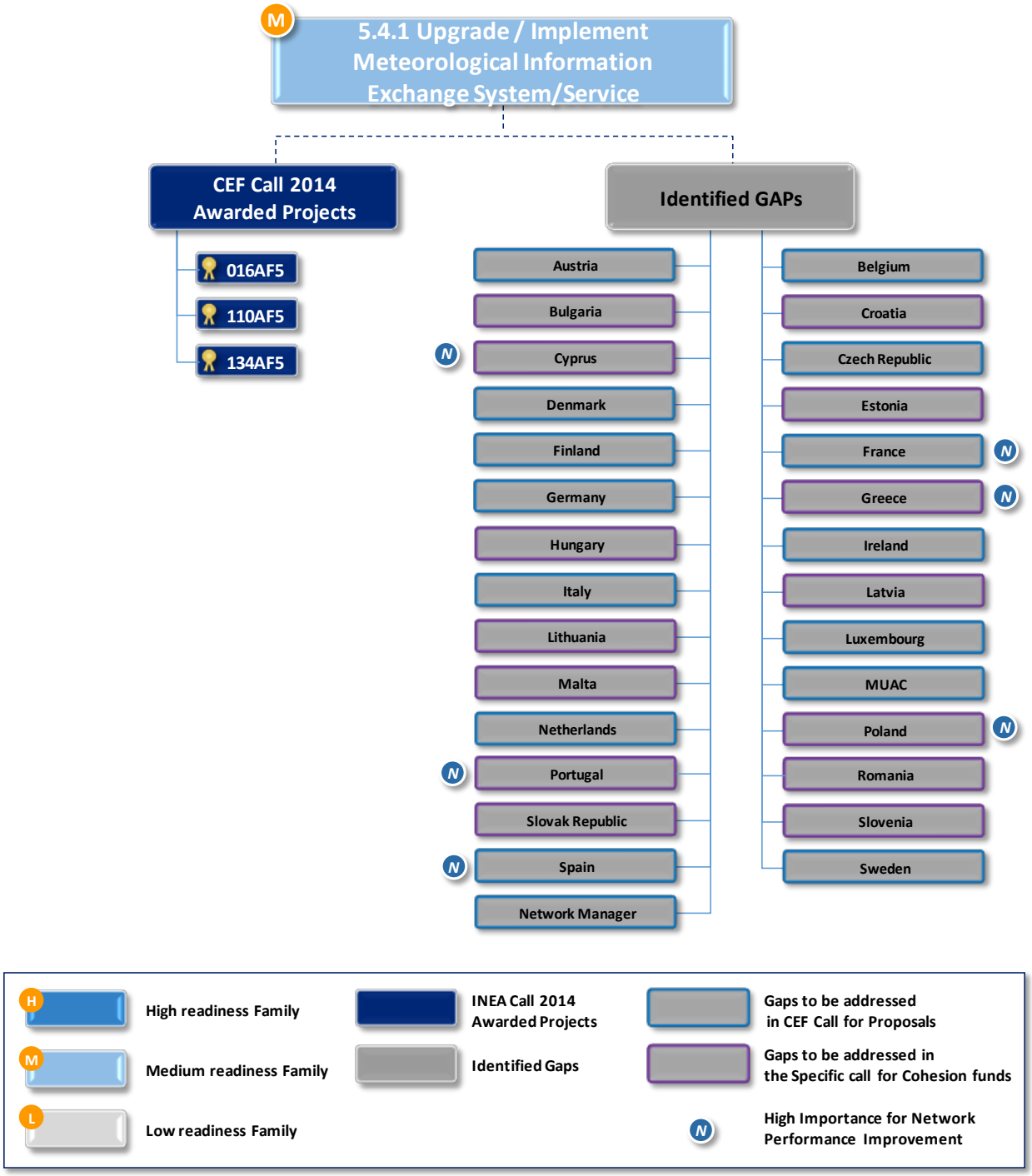
Designator	5.4.1
Name	Upgrade / Implement Meteorological Information Exchange system / service
Main Sub-AF	S-AF 5.4 SWIM Meteorological Information Exchange

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:*
	  ○ *wind speed and direction*
	  ○ *the air temperature*
	  ○ *the altimeter pressure setting*
	  ○ *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 2015): 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	iWXXM / WWXM, developed by ICAO/WMO, Eurocontrol and FAA AMXM (AMDB), developed by EUROCAE
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 all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.



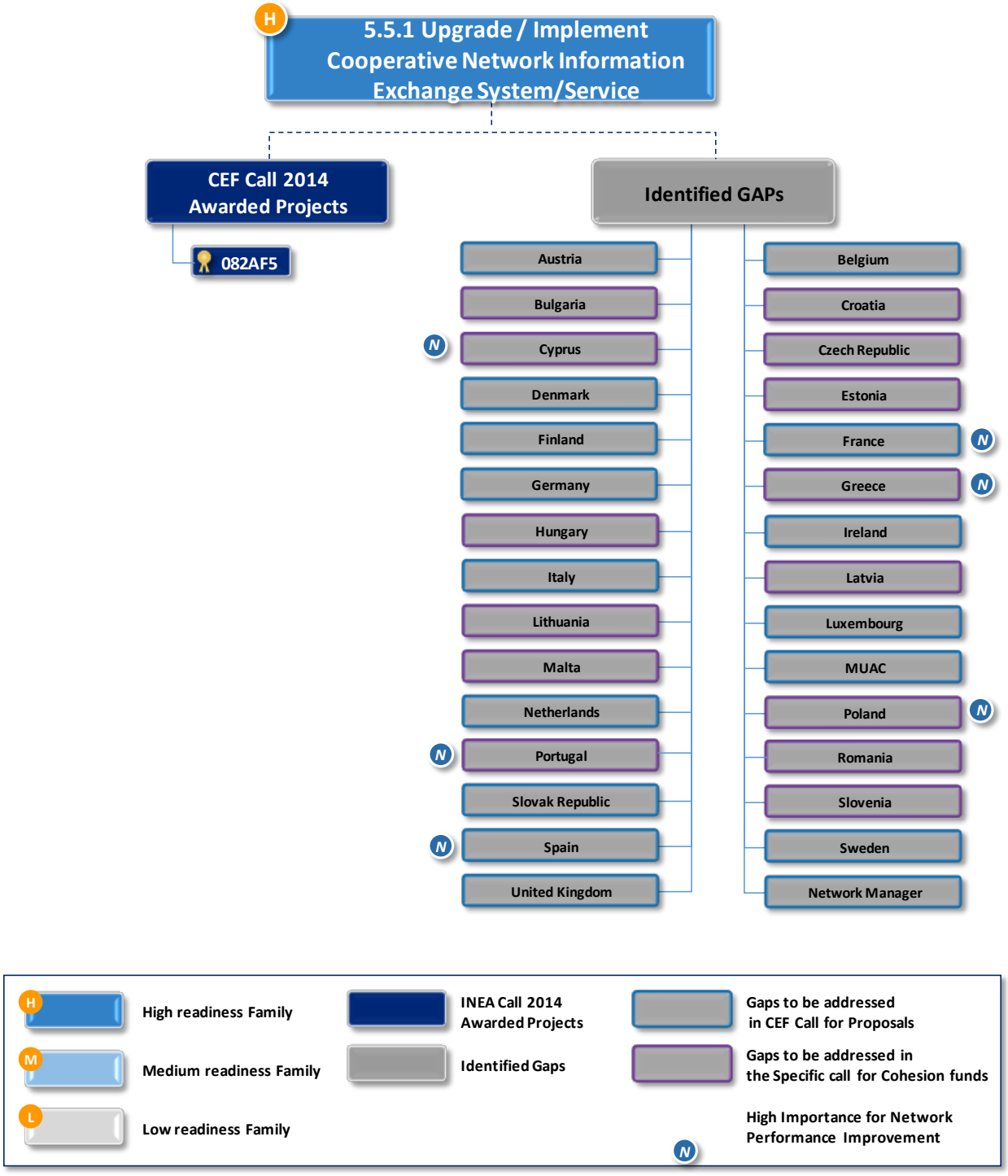
Family 5.5.1 – Upgrade / Implement Cooperative Network Information Exchange system/service

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 2015): Link to FCM05 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
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 all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.



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

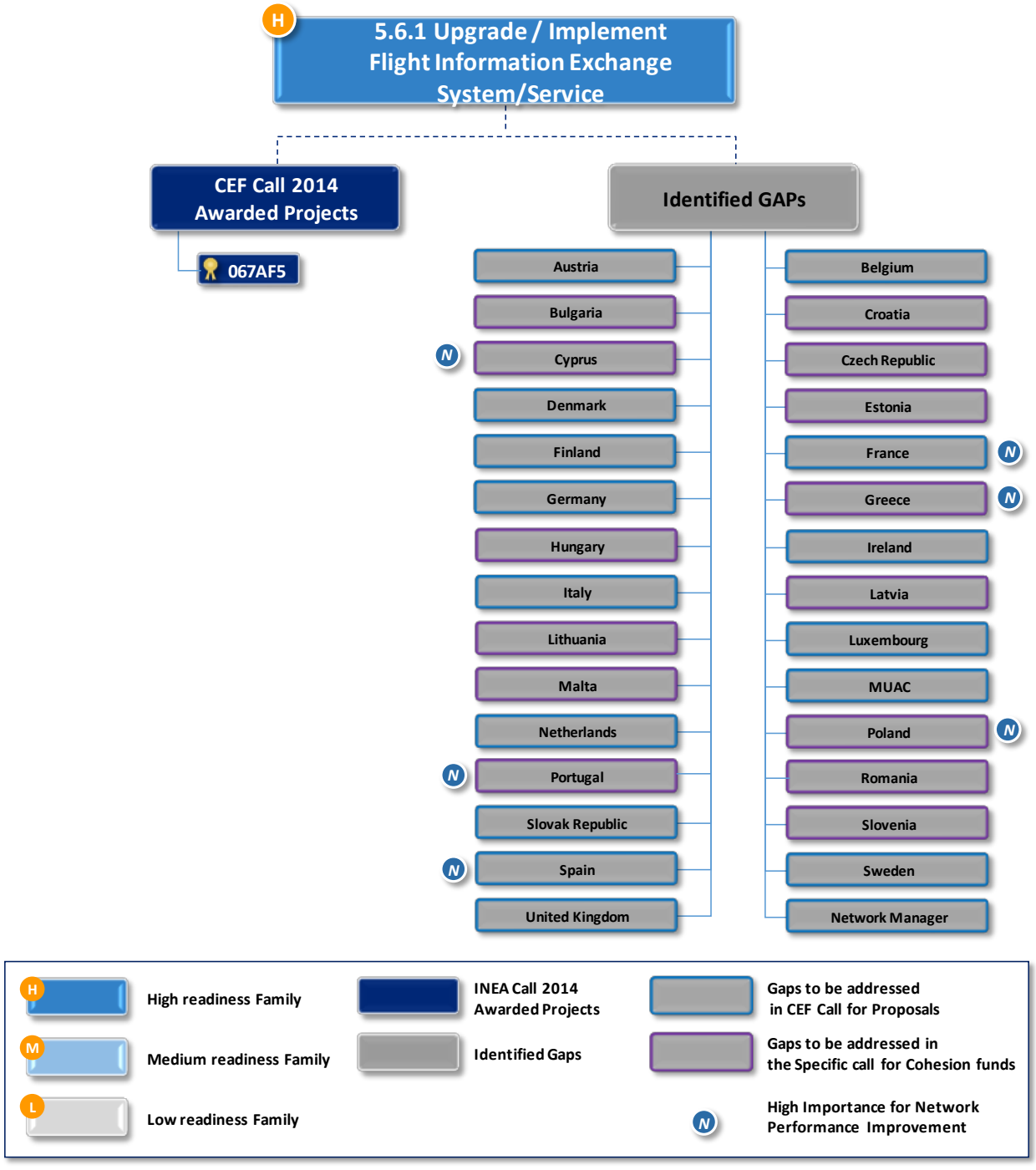
Designator	5.6.1
Name	Upgrade / Implement Flights Information Exchange system / service
Main Sub-AF	S-AF 5.6 SWIM Flights Information Exchange
Description and Scope	*PCP content:* *Flight information shall be exchanged during the pre-tactical and tactical phases by ATC systems and Network Manager.* *Operational 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 2015): 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.

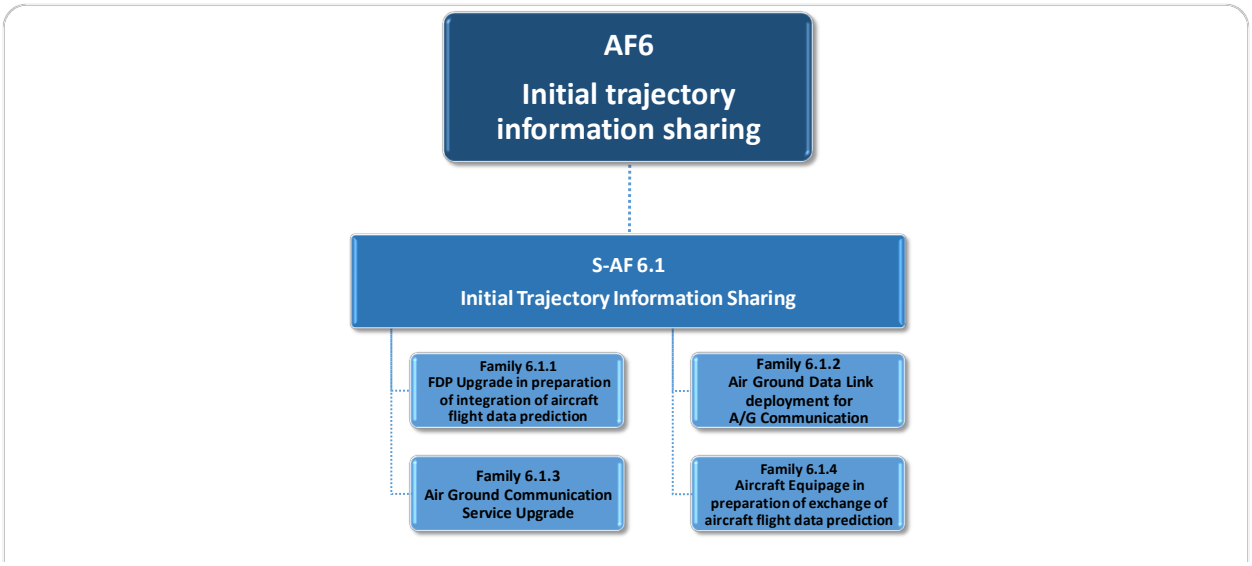
	It could be relevant that a cluster of ANSPs, a FAB or neighbouring ANSPs, present Implementing Projects to implement FO in their Airspace especially synchronized with Free Route implementation.

The following chart reports the list of all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.



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.



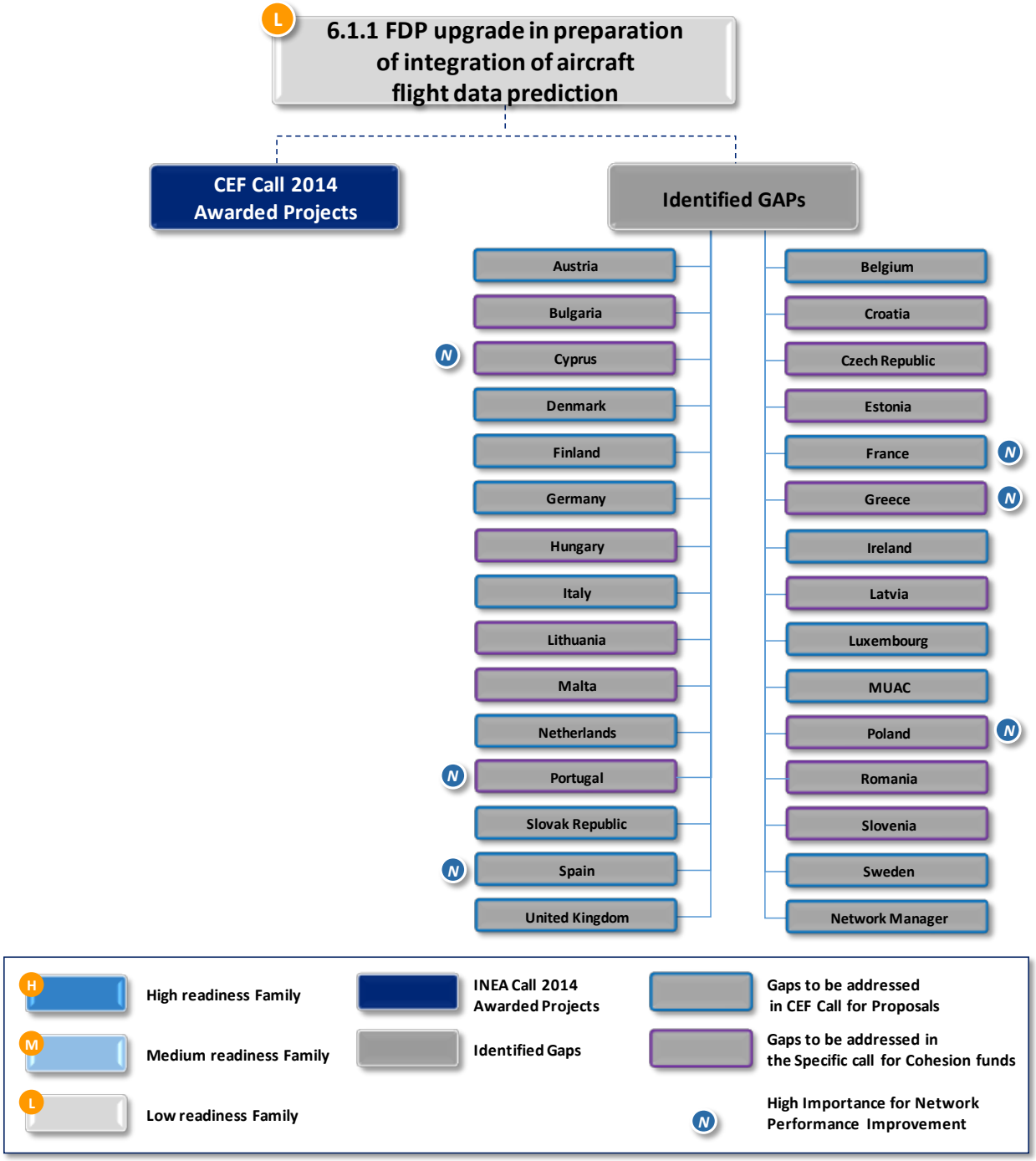
No project related to this ATM Functionality has been awarded in CEF Transport Call 2014.

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 2015): 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 all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.

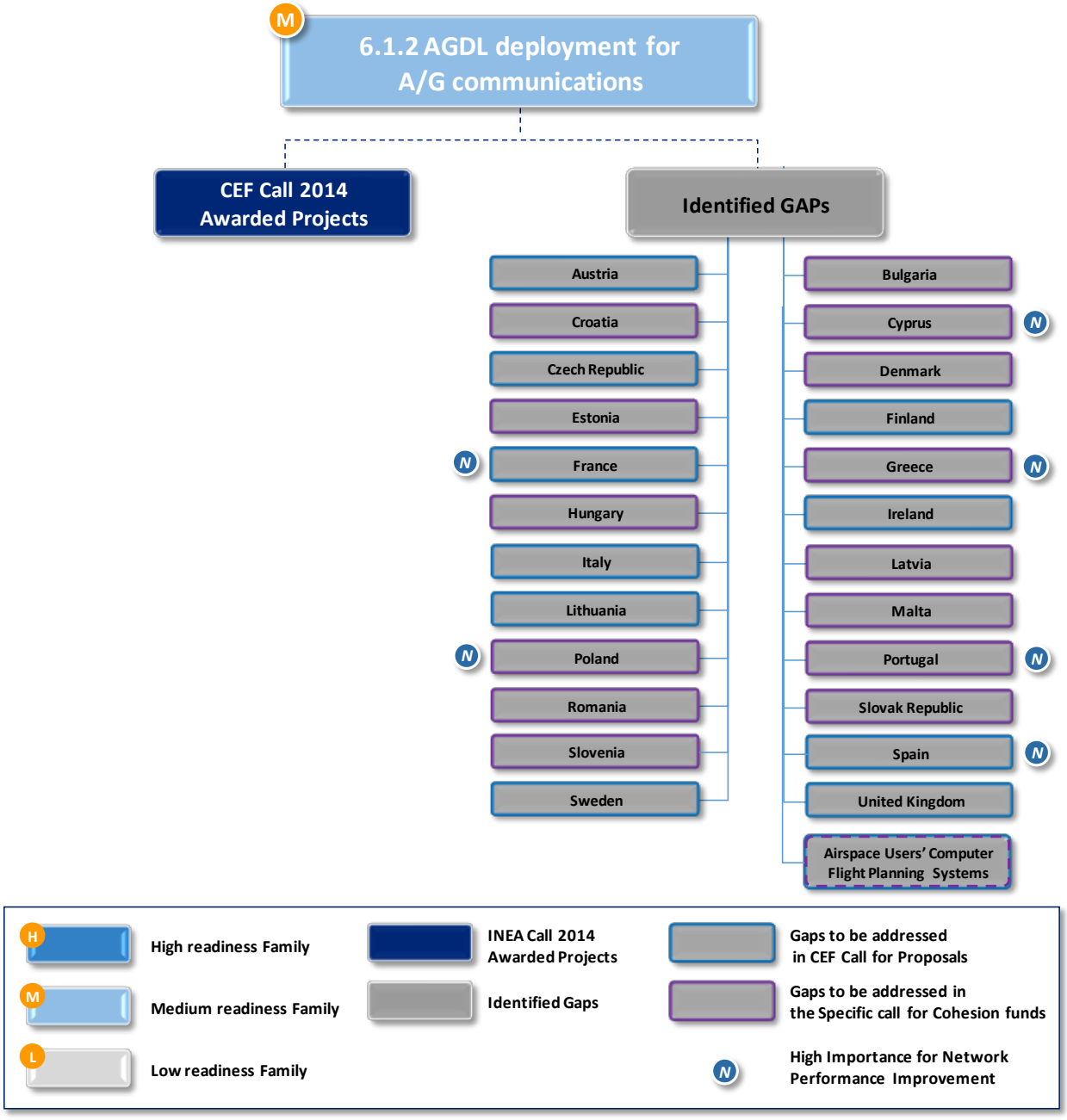


Family 6.1.2 – Air Ground Data Link deployment for Air & Ground Communication

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) No 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 2015): 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) ED-120 (EUROCAE)
Means of compliance and Certification or community specifications	Commission 2012/C 168/03 - Community Specification on DL (ETSI-EN-303-214 V1.2.1)
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.

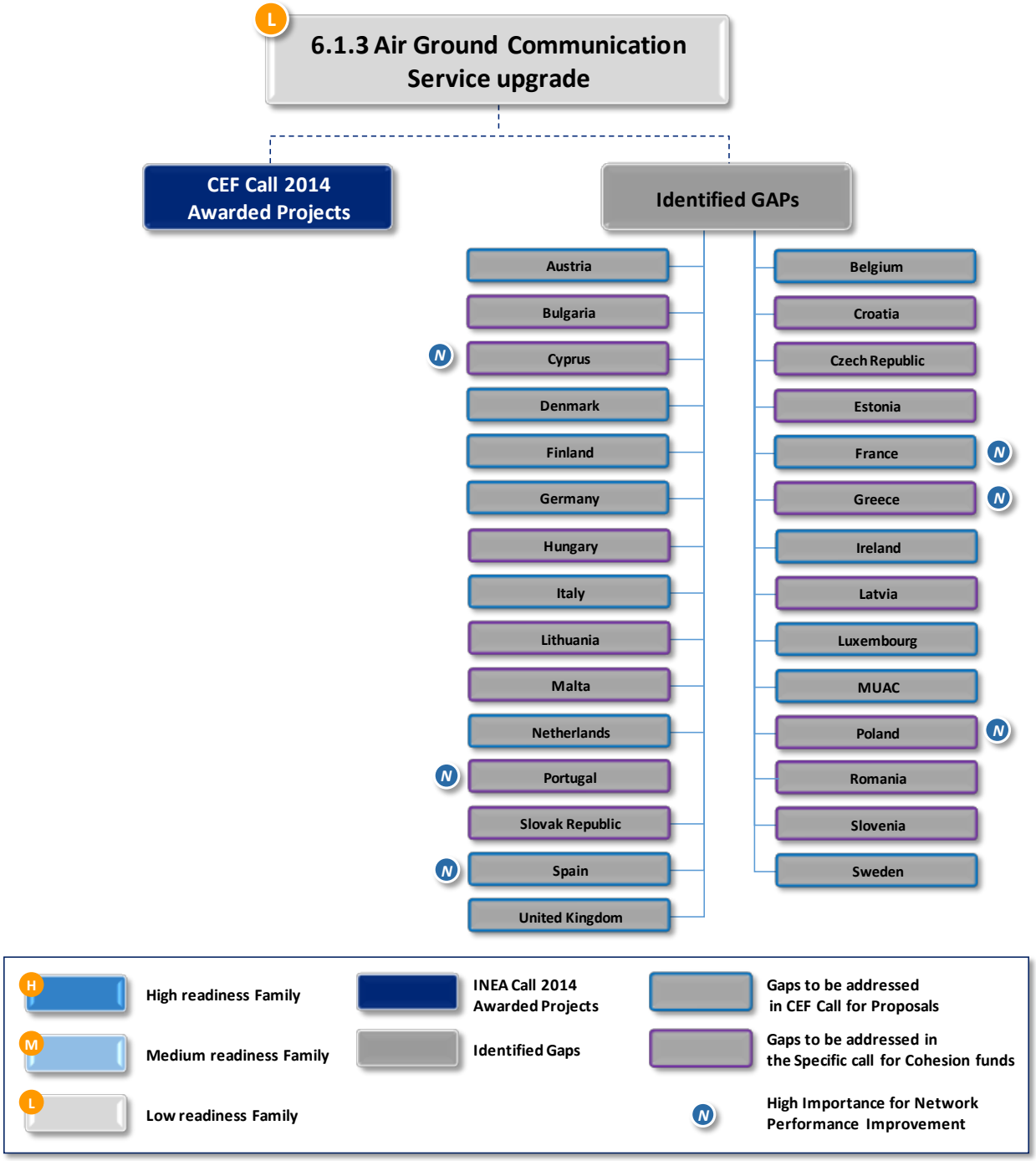
The following chart reports the list of all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.



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 2015): 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	Standard on DL ATN B2 (ICAO/ESO/EUROCAE)
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 all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.

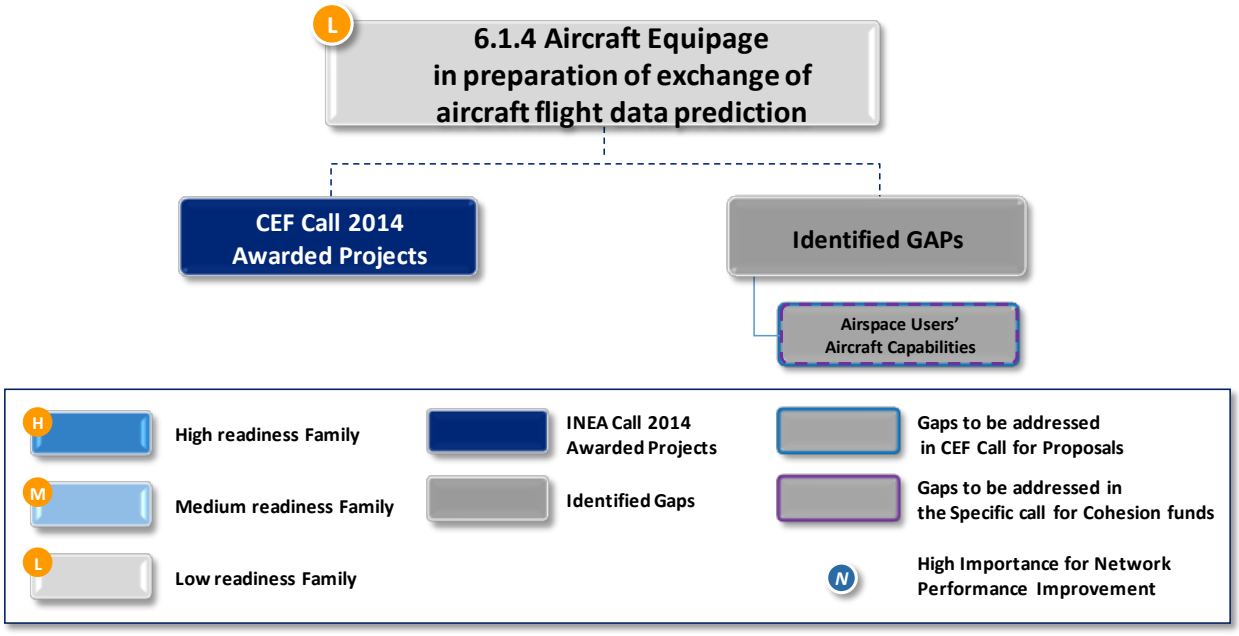


Family 6.1.4 – Aircraft Equipage in preparation of exchange of aircraft flight data prediction

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 2015): None Information derived from on-board FMS and CPDLC information will be transferred over A/G datalink to ATC systems on ground ICAO Doc 9880, Doc 9776, ICAO GOLD and PANS/ATM
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	Update of ED75 to support initial 4D navigation capabilities as part of the package with EPP (ED-75D) Update standards on CPDLC to support implementation of full trajectory exchange service including CPDLC elements in support of ED-230, 231, 232, 233 (ADS-C EPP) 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 all implementation priorities towards the timely implementation of the Pilot Common Project, including both awarded projects during 2014 CEF Transport Call and, if any, the results of the Gap Analysis.



4. Performance view

The PCP has been adopted by the Commission after positive opinion of the EU Member States and endorsement by the operational stakeholders on the basis of a high level Cost Benefit Analysis (CBA) that demonstrated an overall benefit[6]. 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 line with SDM's performance policy laid down at section 2.2 above, the performance view of SDM's Deployment Programme aims at planning and monitoring the implementation of the PCP against the boundaries of the high level CBA that has triggered its adoption in 2014.

In order to meet this objective, the performance view chapter includes:

- An overview of SDM's role within the SES performance framework;
- An overview of the performance assessment and CBA methodology that SDM will apply in support to its performance policy and how it builds on and connect with the methodologies used by other SES and SESAR bodies involved into performance;
- An overview of the funding and financing mechanisms that could be activated to facilitate timely PCP implementation by the operational stakeholders and further optimise PCP's benefits;
- Some initial findings, mainly derived from the costs and expected benefits drawn from the implementation projects awarded as a result from the CEF call 2014; and
- A vision of how SDM's performance view will be enriched and consolidated through the subsequent versions of the DP.

4.1 SDM in the SES performance framework

The SDM has been established by the European Commission as another SES instrument to ensure timely, synchronised and coordinated implementation of SESAR through a series of Common Projects. **As such, SDM's performance view shall comply with SES overall performance framework, use common indicators and methodologies with other SES bodies dealing with performance and build on their expertise and early results.**

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 in 2005. 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 four High-level Goals to be achieved by 2020 and beyond are to:

- Enable a 3-fold increase in ATM capacity, to be deployed where needed, reducing delays both on the ground and in the air;

[6] PCP's global cost benefit analysis is available at http://ec.europa.eu/transport/modes/air/sesar/doc/ec-716-2014_article4c_globalcba.pdf

- 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.

Since implementation as from 1 January 2012 of the performance scheme, the EU has been operating a formal and explicit performance-driven approach, which includes performance indicators – fit for setting binding regulatory targets on specific stakeholders accountable for delivering measurable performance outcomes. Through a succession of Reference Periods (2012-2014, 2015-2019, …) the performance scheme drives and monitors the final achievement of SES High-level Goals.

SESAR deployment shall fit within this performance scheme: investments, benefits and performance gains drawn from SESAR deployment shall support the achievement of the specific targets of the active Reference Period. **SDM will cooperate with the Performance Review Body (PRB) to ensure this compliance.**

Another key player in the SES performance framework is the Network Manager (NM). Since 2011, with a specific network perspective, the NM has been forecasting, planning, monitoring and reporting to help deliver the performance targets of the Single European Sky. Since its establishment in December 2014, SDM has been closely cooperating with NM with the objective to build on NM's wide experience, tools and findings. As an early result of this cooperation, the project view of the DP already flags the gaps in PCP implementation which are the most critical to network performance with a specific "N" label. **Pursuing in this direction, the performance assessment and CBA methodology introduced in the following paragraph and detailed in the annex D to the DP is closely interrelated with NM's tools and activities in the field of performance.**

Finally, the Global Cost-Benefit Analysis that SJU has delivered back to 2013 in support to PCP's adoption sets the overall frame for SDM's action in the field of performance. With regards to the PCP CBA, SDM shall pursue several objectives:

1) **Monitoring that CBA's boundaries are met:** Taking advantage of more refined costs through implementation projects submissions and more robust expected benefits through recent SJU's validation campaigns and upcoming Large Scale Demonstrations, SDM shall monitor that PCP is implemented within the boundaries of the CBA and that, in particular, the ranges assumed in the CBA for the 5 sensitivity drivers are met[7]**.**

2) **Addressing with high priority the potentially critical situation hidden behind the overall positive result of the CBA:** whilst the CBA demonstrates an overall benefit of 2,4 billion € (Net Present Value) over the period 2014-2030, it highlights some critical issues on which SDM shall be pro-active, such as:
   - AF5 and AF6 where CBA at AF level is negative;
   - AF1, AF2, AF3, AF6 where the category of operational stakeholders that invests the most is not the category drawing the more benefits (asymmetric return on investment);

[7] Air Traffic Growth, Fuel and CO2 savings, Delay Cost Savings, PCP investments costs ground and airborne

Considering that PCP's CBA has been developed without taking into account the positive impact of any EU funding or financing mechanism, SDM shall play a key role in assessing EU grants' impact and targeting other EU financing mechanisms to adequately address those critical issues, ensuring that it is the whole PCP that will be rolled out timely and not only the "easy parts".

3) **Gathering updated costs and benefits data in relation with PCP implementation** that would be used to update PCP's CBA if EC decides a review of the PCP.

The 3 objectives above require close cooperation with SJU as well as re-use by SDM of key financial assumptions and methodology that have been used by SJU when developing PCP's CBA.

4.2 Performance assessment and CBA methodology's overview

SDM's performance assessment and CBA methodology is the cornerstone of SDM's performance policy. It bridges between technological investments required to achieve new ATM functionalities required through the PCP Regulation and ATM performance improvement. It contributes to ensure that all benefits expected from the whole PCP implementation will materialise whilst not exceeding the estimated cost. It is an essential tool in monitoring PCP implementation, assessing and monitoring cost and benefits of implementation projects submitted by operational stakeholders but also assessing the impact of "missing implementation projects", i.e. implementation projects not submitted timely and identifying solutions to recover such situations and get the whole PCP implemented.

The performance assessment and CBA methodology describes the different steps taken to set the baseline against which performance will then be monitored during DP execution. Detailed methodology is annexed to the DP as Annex D. In particular, the performance assessment and CBA methodology assumes that co-funding is awarded by INEA and reflected by the operational stakeholders in their investment plans in accordance with 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).

4.2.1 General principles

SDM's performance assessment and CBA methodology shall:

- Be **extrapolated from and compatible** with the methodology used by SJU to develop the CBA of the PCP and by PRB to assess degree of achievement of the SES high-level goals;
- **Build on and connect with** best practices and existing tools by other SES stakeholders involved in ATM performance's improvement planning and monitoring;
- **Take advantage of thinner granularity** through DP's project view, together with more refined costs provided by operational stakeholders and manufacturing industry through CEF calls and more robust expected benefits through SJU's

validation campaign and large scale demonstrations to better assess and monitor implementation projects' contribution to achieving SES High-level Goals;
- **Be transparent to and share results** with operational stakeholders and other SES and SESAR stakeholders including the Military Coordination;
- **Be flexible** enough to evolve in time to better ensure performance driven deployment of SESAR.

SDM's performance assessment and CBA methodology should run at 2 levels:

- **The global CBA level,** providing views per AF and per category of stakeholders. This level shall be comparable with PCP's CBA by the SJU which constitutes the overarching reference. This level shall highlight the positive impact of funding and financing mechanisms which were not considered in the PCP's CBA by the SJU and how these mechanisms mitigate the potentially critical situations behind the overall positive CBA of the PCP;
- **The projects level.** This new and essential level of analysis is enabled by the PCP's projects view laid down in the DP. This level of analysis may require to group several interrelated projects into the same thread and perform the analysis at thread level.

SDM's performance assessment and CBA methodology relies on close cooperation, in particular with NM, SJU and PRB.

4.2.2 Candidate Implementation Projects: setting the targets

Performance analysis is prepared at implementation project or thread of implementation projects level as part of clusters (of projects) definition and before their submission to INEA. At this early stage, the objective is to evaluate, with the implementing partners, the key performance related parameters of the projects: declared costs, expected benefits ("targets" meaning "expected benefits" and "declared costs" in the title), stand-alone or part of a thread, risks (margins of errors, interdependencies with other projects). This phase is supported by a specific "performance grid" that the operational stakeholders will be required to fulfil when forwarding a candidate project to SDM. Once stabilised for each project or thread of projects, those targets will constitute the reference against which projects or threads of projects will be monitored until completed.

Performance analysis at projects' level feed the global level. This is why harmonisation in between projects and threads of projects is important: it enables aggregation of information as required to update the global level regarding the expected impact of any new wave of projects submitted as a result from an INEA call. Global level analysis shall also assess the impact of "missing projects" that could trigger "performance gaps" and help to define mitigation actions to recover such situation through future calls.

By construction of the DP, any candidate implementation project that could demonstrate relevance to at least one family of projects in the DP is de facto required to achieve full PCP implementation. **SDM's performance analysis preparation remains without prejudice to access to co-funding.**

4.2.3 Awarded Implementation Projects: monitoring the targets

Once Implementation Projects are awarded by INEA and kicked-off under SDM's coordination as a result of a CEF call, SDM shall monitor that projects are being executed in such a way that agreed performance targets for those projects or threads of projects remain within reach: costs are contained within initial envelop and expected contributions to performance are maintained in time.

In the case where monitoring would reveal that a project or a threads of projects drifts from its initially agreed targets to the extent that it becomes useless or even detrimental to PCP's overall CBA, SDM would issue recommendations to EC and INEA to recover the situation after due consultation with the relevant implementing partners. As a last resort, suspension or cancellation of the project or a threads of projects could be recommended by SDM, including potential revision of the PCP.

4.2.4 Completed Implementation Projects: the final check

During projects or threads of projects execution, SDM can only monitor that everything is on track so that initially agreed targets remain reachable by projects' or threads' completion. This is the monitoring.

After projects or threads of projects completion, SDM intends to perform a final check to "close the loop" both in terms of investments and contribution to performance. Close cooperation with PRB will be essential in performing this final check and drawing relevant conclusions. This part of the methodology is not yet defined. It will be one of the main topics for stakeholders' consultation when developing the next version of the DP.

4.3 Funding and financing mechanisms

One of the key challenge to meet in order to get PCP fully implemented is to align time wise and volume wise PCP investment requirements with operational stakeholders' investment capacity. EU funding and financing mechanisms shall facilitate this alignment.

PCP investment requirements profile has started to be defined by SDM based on early inputs from the CEF call 2014, SJU's CBA and latest updated regarding readiness for implementation of PCP's enablers. It will be further developed and consulted as part of the next issue of the DP to be delivered in June 2016. Average operational stakeholders' investment capacity is known but shall be refined in the context of PCP's implementation and in compliance with RP2's performance targets. EU funding and financing mechanisms are not at the same stage of development: whilst funding mechanisms through Connecting Europe Facility (CEF) and Cohesion Fund are well defined with an overall envelop in the range of 2 to 2,2 billion € of grants, financial mechanisms remains mostly to be defined and implemented with an overall envelop in the range of 500 million €.

4.3.1 Connecting Europe Facility

With an envelope of about 1,5 to 1,7 billion € over the 2014-2020 timeframe, CEF is the main source of EU funding to facilitate timely PCP implementation. As such, the frequency

of the CEF Transport Calls for Proposals by INEA sets the frequency for SDM to update the DP and set optimum technical and operational sequence 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. CEF co-funding rates are up to 50% for ground based investments and up to 20% for airborne investments.

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

A first call under CEF has been launched in September 2014 (CEF call 2014) and closed early March 2015. 110 PCP related implementation projects have been submitted through five proposals representing a total investment of 850 million € requiring 409 million € of co-funding. After EC's evaluation and award decision, 85 projects have been selected for a total co-funding of 325 million €[8].

For the next calls, the latest information obtained from EC is that the CEF Call 2015 will be launched in November 2015, closing in April 2016. Expected envelope of co-funding for the CEF call 2015 would be in the range of 700 million €[9]. Selected projects would be awarded in September 2016. Contrary to the CEF call 2014 that has been launched prior to SDM's selection and DP approval, the CEF call 2015 will be the first call launched on the basis of a DP (this version) approved by EC, therefore with a true steering effect on the projects to be submitted.

At least another CEF call is planned by November 2016 closing April 2017 and with awarding projects in September 2017. As part of its initial risks analysis, SDM has already drawn EC's attention to the need to plan for other calls beyond end 2016 in order to better align with PCP investment profile. Indeed, SJU's validation planning and standardisation roadmap already show that not all families of projects in the PCP will be ready for implementation by end 2016, therefore requiring later calls in 2017 and 2018 to ensure smooth PCP implementation.

4.3.2 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[10]. It aims to reduce economic and social disparities and to promote sustainable development.

[8] Final update of the figures in this paragraph to be performed by the end of SGA's preparation (still on-going by the time of drafting)
[9] To be updated as required by the time of finalising DP 2015
[10] For the 2014-2020 period, the Cohesion Fund concerns 15 Member States: Bulgaria, Croatia, Cyprus, the Czech Republic, Estonia, Greece, Hungary, Latvia, Lithuania, Malta, Poland, Portugal, Romania, Slovakia and Slovenia.

An envelope of about 500 million € is available through the Cohesion Fund in addition to the 1,5 to 1,7 billion € available through CEF. This envelope would be made available through a single call that would be launched in parallel to the CEF call 2015. The advantage compared to CEF is the co-funding rate that could rise up to 85% regardless whether it is ground or airborne investment, making the opportunity more appealing compared to the CEF, especially for the airspace users registered in the Cohesion States.

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, it seems that most of Cohesion States are not considering the Air Traffic Management as a priority. If not corrected through adequate and coordinated lobbying by the SDM and the operational stakeholders from Cohesion States who are required to invest into PCP implementation before end 2015, this could lead to the loss of up to 500 million € of co-funding in support to PCP implementation.**

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). Accordingly, 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.

4.3.3 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.

4.4 Initial findings

This section provides an initial and qualitative assessment of the awarded projects within the CEF Transport Call 2014.

Based on the input from the Implementation Project Managers of the 2014 CEF Call for Proposals, SDM has reviewed the assessments of a sample of Implementation Projects.

This initial performance assessment is qualitative, without prejudice to the future quantitative assessment required by the performance assessment and CBA methodology. Also the guidelines for the assessment have been refined to better capture the essential inputs that a project manager shall provide to SDM for CBA purpose.

The main results from the qualitative assessment of the awarded projects are as follows:

- 94% of the projects are qualified as having a positive (29%) or strong positive impact (65%) on one of the SES Key Performance Areas (Safety, Capacity, Flight Efficiency, Cost Efficiency).
- 41% of the projects are qualified as having a strong positive impact on Cost Efficiency, and 84% of those are addressing ATCO productivity.
- 40% of the projects are qualified as having a strong positive impact on Safety, 79% of those are addressing Airport (ground and runway).
- 28% of the projects are qualified as having a strong positive impact on Flight Efficiency, 65% of those are addressing Airport/Ground.
- 20% of the projects are qualified as having a strong positive impact on Capacity, 76% of those are addressing Airport (ground and runway).
- 8% of the projects are qualified as interdependent to other projects (either prerequisites or other kind of interdependency).

When analysing these figures, consideration should be given to the proportion of the projects in each functionality, approximately 46% being AF2, 19% AF5, 14% AF1, 14% AF3, and then 6% AF4 and 0% AF6.

Only a more quantitative assessment of the "strong positive impact" can give a better understanding of the global performance expected from the first wave of projects to implement the PCP. This will be done using the performance assessment and CBA methodology described at annex D to the DP and will be an input for the Performance View in the next issue of the DP to be delivered in June 2016.

4.5 Next steps

Next steps are for the next issue of the DP to be delivered in June 2016 even if most of them are or will soon be engaged:

- Application of the performance assessment and CBA methodology to the whole set of projects selected as a result from the CEF call 2014 ;

- Initialisation of the performance assessment and CBA methodology to the projects to be submitted as a result from the CEF call 2015 and the Cohesion Fund call 2015 (before award only);
- Refinement of performance assessment and CBA methodology in the light of a) first lessons learnt from early application on projects from calls 2014 and 2015; b) interactions with PRB, SJU and NM when applying the methodology;
- Extension of performance assessment and CBA methodology to also address the final check;
- Verification of compliance with PCP's global CBA;
- Gathering of data that could be used to update the global CBA of the PCP in conjunction with a PCP review when decided by EC.

Results from the above actions being reported through the performance view in the next issue of the DP to be delivered in June 2016, they will be subject to stakeholders' consultation.

5. Monitoring view

An effective and efficient monitoring of the Implementation projects, submitted and selected within the frame of 2014 CEF Transport Call 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.** Also taking into account the tight timeframe in which DP 2015 **has been developed**, the following Chapter embraces both a preliminary overview of the current status of implementation of the Pilot Common Project throughout Europe (featuring – within Section 5.1 – the results of the current gap analysis and the outcomes of the monitoring activities of the IDP Activity Areas and/or Work Packages addressing PCP prerequisites and facilitators), as well as the presentation of the overall SDM synchronisation and monitoring approach, which is currently being implemented (described in section 5.2).

5.1 PCP current status of implementation

DP 2015 aims at identifying – through the aforementioned of gaps – **all implementation activities that still need to be undertaken** in order to achieve the full PCP implementation. Such exercise has been performed with the twofold objective to **support ATM stakeholders in the identification of implementation areas to be tackled** by their investments and to **avoid significant gaps in the Programme's implementation**, thus supporting performances' expectation. The elaboration of such a comprehensive picture of the overall current PCP deployment status is based on two main aspects:

- **DP 2015 Gap analysis**: such analysis has been by SDM in strict cooperation with the operational stakeholders and with the support of the Network Manager, in order to identify, per each Family, those implementation initiatives still needed towards the full PCP implementation;
- **IDP Execution Progress Report (IEPR) Recommendations and Status Update:** 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.

5.1.1 DP 2015 Gap Analysis

The gap analysis initialized in DP v1 has been significantly enhanced through a further direct involvement of all relevant operational stakeholders: the analysis, building on the inputs provided by Airspace Users, ANSPs and airport operators through ad-hoc templates and surveys developed by SDM, now aims at detailing the nature of the gap identified. In particular, with regard to the **ground stakeholders**, **nine categories of implementation status have been identified**, plus a tenth one in case no information is available. For each family, a **graphical representation** of this information is provided in the following pages, associating to each implementation status a specific color.

- ***Family's scope already fully implemented (not a gap);***
- ***Submitted project(s) for which CEF financing has already been requested; its/their realisation will ensure the full family's implementation coverage (not a gap)***
- ***Submitted project(s) for which CEF financing has already been requested, although the full family's implementation will not be covered;***
- ***Implementation planned but for which co-financing through CEF Calls have not been requested and/or not awarded;***
- ***Implementation in progress but for which co-financing through CEF Calls have not been requested and/or not awarded;***
- ***Partial coverage in terms of scope (not all the necessary functionalities have been implemented;***
- ***Partial coverage in terms of involved Stakeholders***
- ***Complete lack of any implementation initiative***
- ***Not Applicable (not a gap)***
- ***No information available***

Specifically, for AF 1 and AF 2, the **25 airports included in the Pilot Common Project**, related feeding TMAs and en-route sectors, are indicated, whilst **for other AFs** the relevant **EU countries are mentioned**. It is also worth noting that 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.

It is worth noting that the current snapshot of ground gaps included in the Programme is the result of the **integration of feedbacks gathered from the ANSPs and from the Airport operators' perspective**, aiming at providing a "common" overview of which implementation activities are still to be performed on ground side. Detailed feedback received from both stakeholders' categories will however be taken in the upmost consideration during the elaboration of future versions of the Programme, **potentially leading to a further expansion and development of the monitoring view**.

With regard to the **Airspace Users (AUs)**, the gap analysis has been performed through a survey in cooperation with the airspace user associations, targeting those families

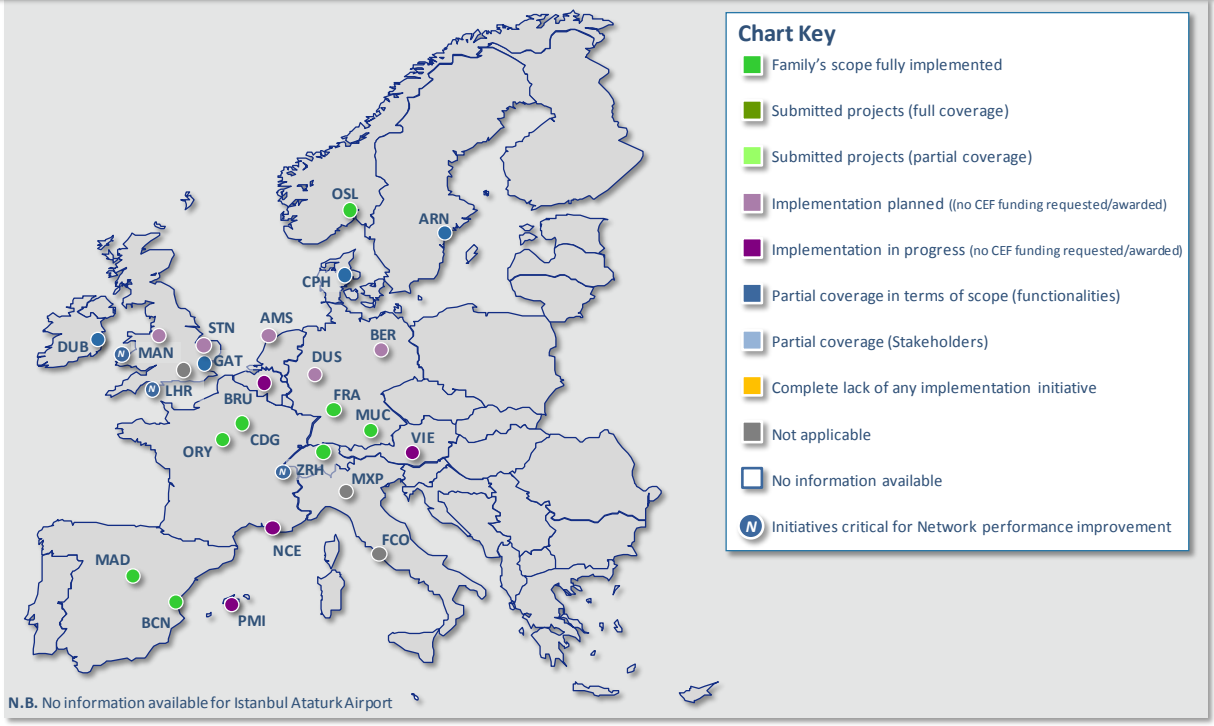
impacting the AUs. In order to identify where further projects would be needed in order to deliver the PCP and to address the needs of the Airspace Users community, two questionnaires have been developed, one on **PCP-related flight planning capabilities**, the other one on **aircraft capabilities** and airspace user's readiness to make use of avionic functionalities on their aircraft and their **operational readiness (Operational Approval / Flight Crew Trained)**. This network-centric approach, due the nature of the AU stakeholders, complemented the gap analysis of the ground stakeholders - focused on the geographical scope of each ANSPs and airport.

For those families whose full deployment will require additional implementation activities from the Airspace Users, a specific text is added to the charts.

It is worth noting that the **gap analysis** represents a **living picture** of the actual status of **SESAR implementation** thus, as such, to be constantly kept updated through SDM synchronization and monitoring of the Programme.

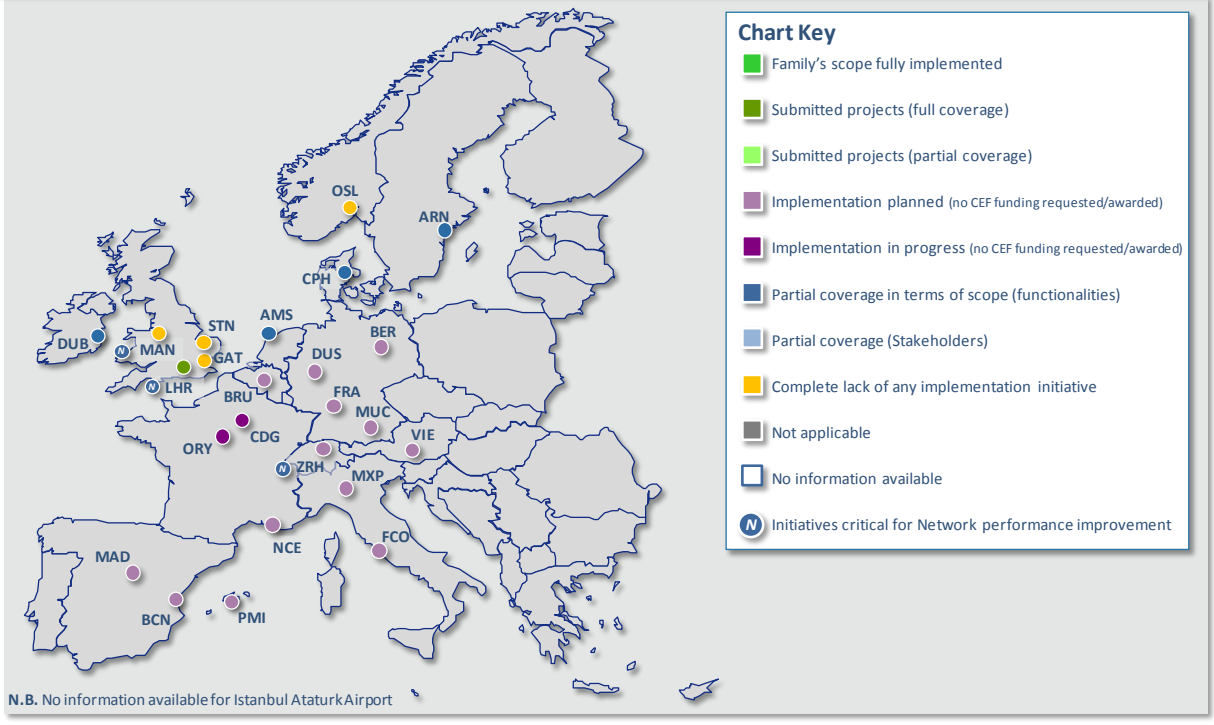
AF 1 – Extended Arrival Management and Performance Based Navigation in the High Density TMAs

1.1.1 Basic AMAN



N.B. No information available for Istanbul Ataturk Airport

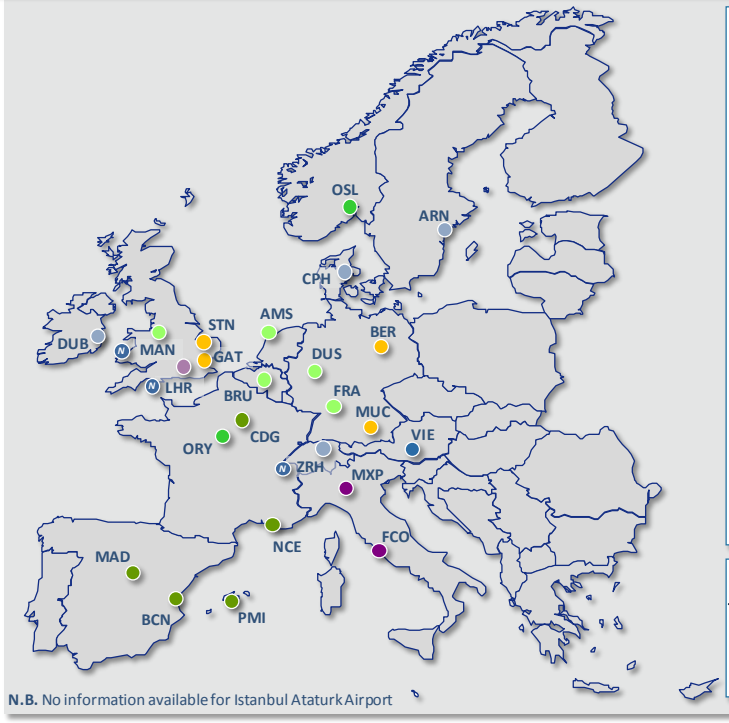
1.1.2 AMAN Upgrade to include Extended Horizon



N.B. No information available for Istanbul Ataturk Airport

NB – *Feeding TMA and en-route sectors for the 25 airports shall be considered*

1.2.1 RNP Approaches with vertical guidance



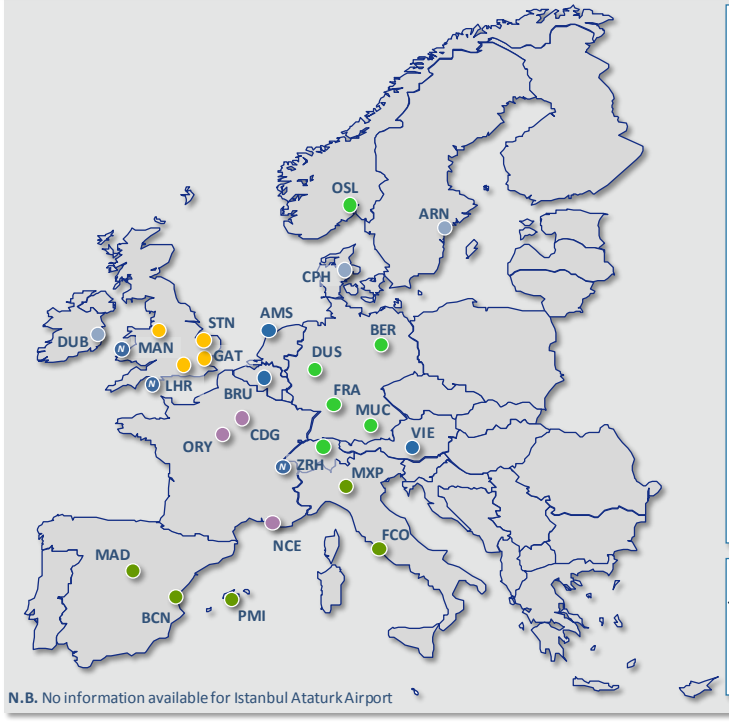
N.B. No information available for Istanbul Ataturk Airport

Chart Key

- Family's scope fully implemented
- Submitted projects (full coverage)
- Submitted projects (partial coverage)
- Implementation planned (no CEF funding requested/awarded)
- Implementation in progress (no CEF funding requested/awarded)
- Partial coverage in terms of scope (functionalities)
- Partial coverage (Stakeholders)
- Complete lack of any implementation initiative
- Not applicable
- No information available
- (N) Initiatives critical for Network performance improvement

Airspace Users** needing **enhancements** of their **aircraft capabilities** (with regard to RNP1, RNP APCH LNAV, RNP APCH LNAV / VNAV with APV, RNP AR, LPV EGNOS (SBAS) and GLS (GBAS)) have to be considered as **part of the list of gaps

1.2.2 Geographic Database for Procedure Design



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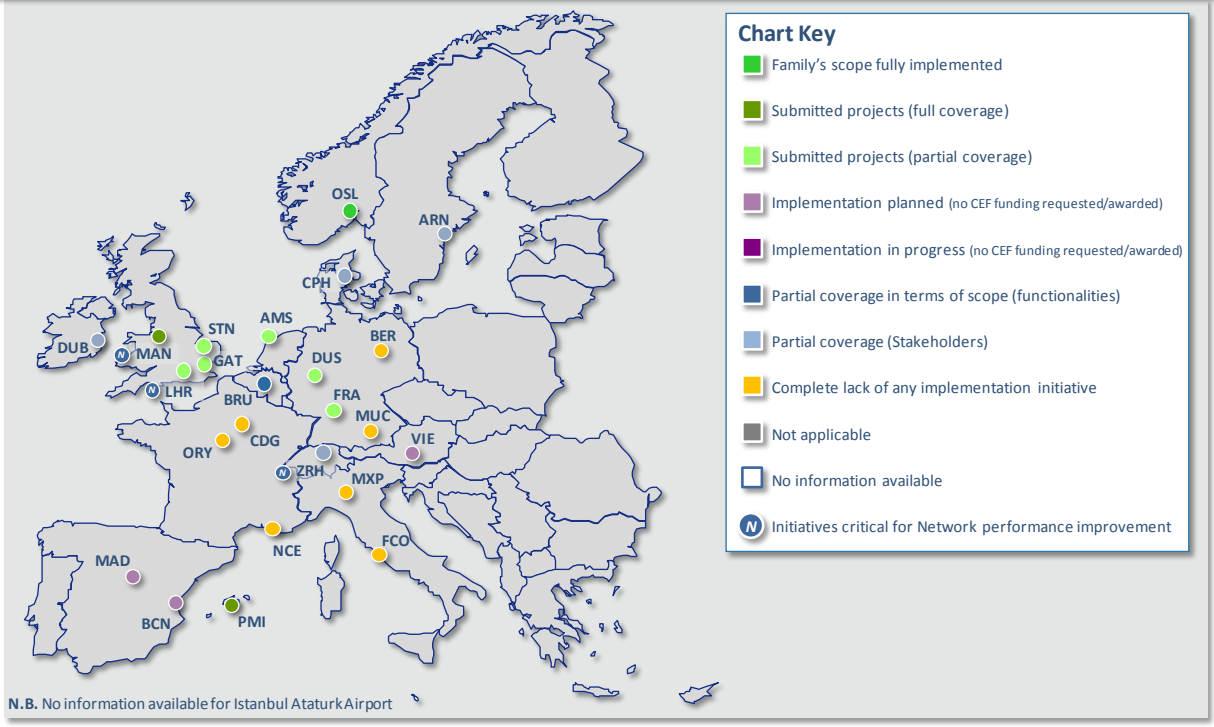
- Partial coverage (Stakeholders)
- Complete lack of any implementation initiative
- Not applicable
- No information available
- (N) Initiatives critical for Network performance improvement

Airspace Users** needing **enhancements** of their **aircraft capabilities** (with regard to RNP1, RNP APCH LNAV, RNP APCH LNAV / VNAV with APV, RNP AR and RF legs) have to be considered as **part of the list of gaps

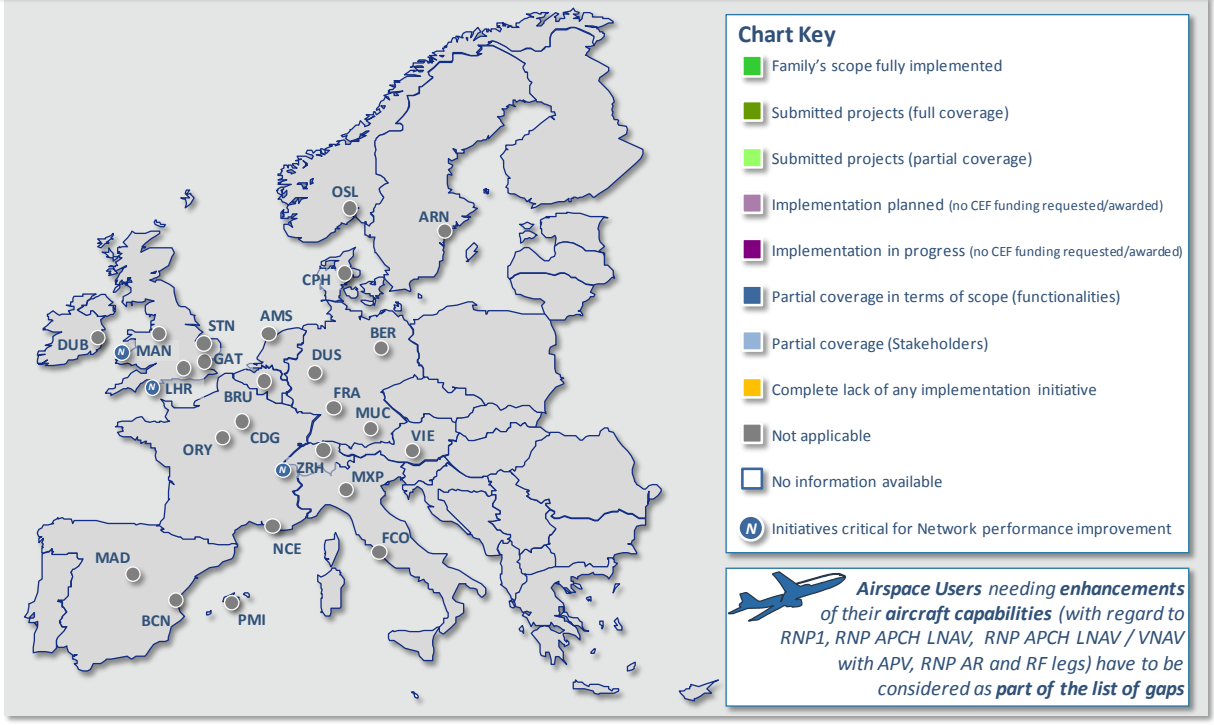
1.2.3 RNP 1 operations in high density TMAs (ground capabilities)



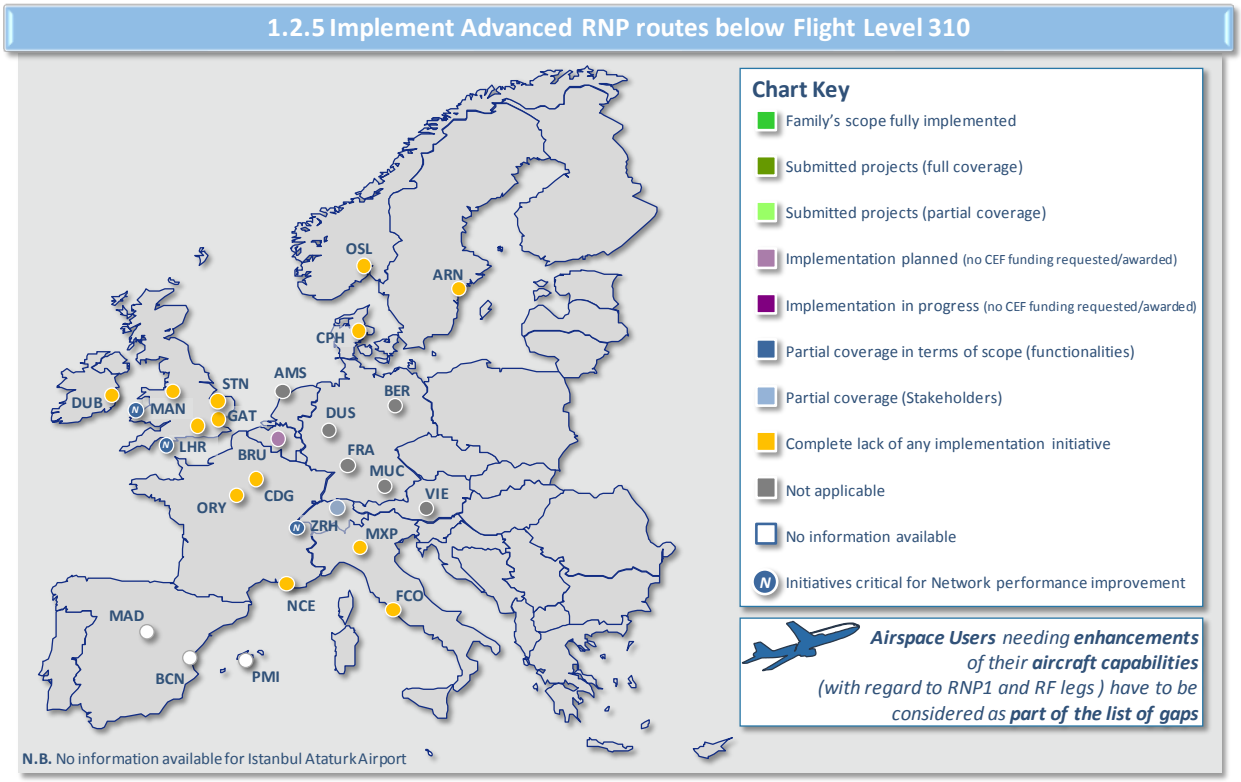
N.B. No information available for Istanbul Ataturk Airport

***NB** – Feeding TMA sectors for the 25 airports shall be considered*

1.2.4 RNP 1 operations in high density TMAs (aircraft capabilities)



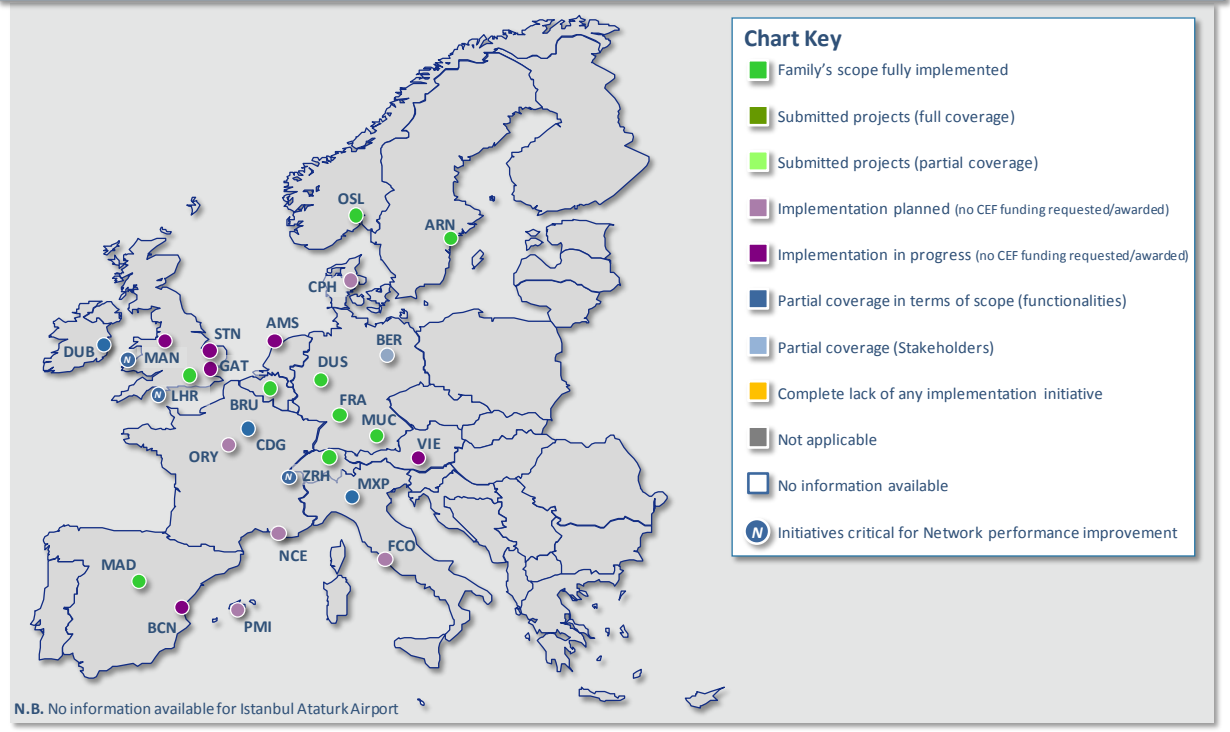
***NB** – Feeding TMA sectors for the 25 airports shall be considered*



NB – *Feeding TMA and en-route sectors for the 25 airports shall be considered*

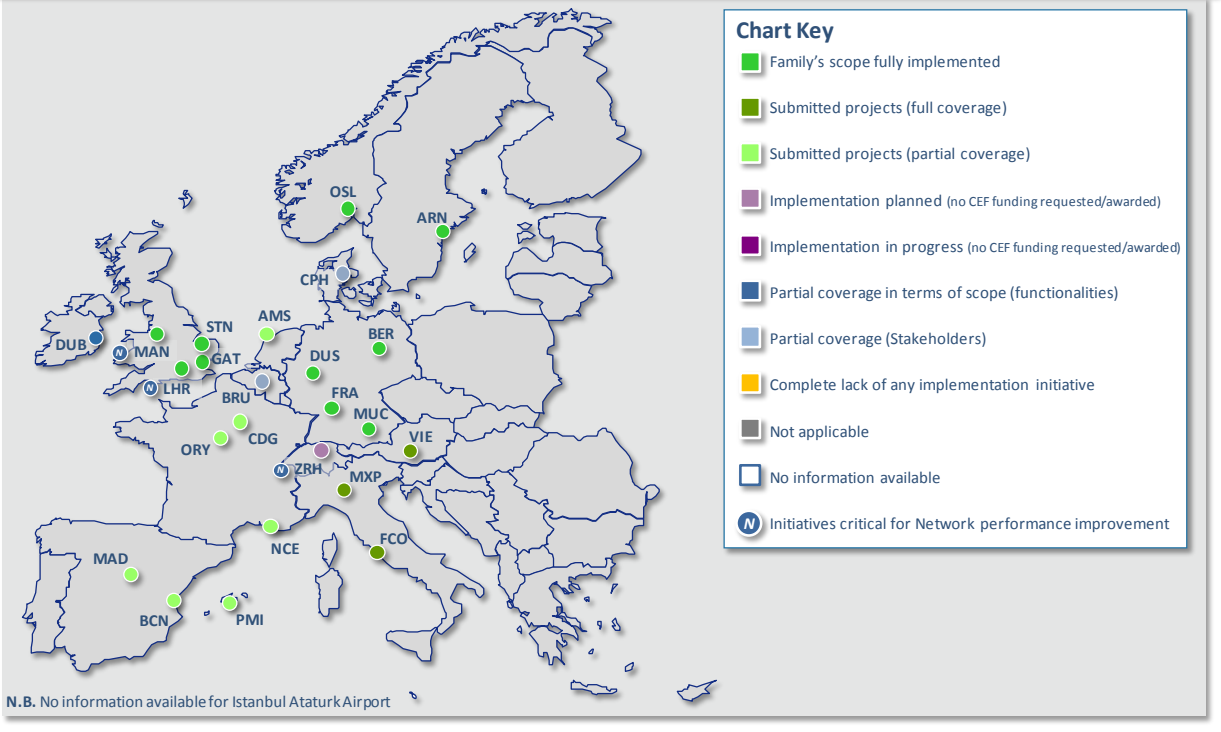
AF 2 – Airport Integration and Throughput

2.1.1 Initial DMAN



N.B. No information available for Istanbul Ataturk Airport

2.1.2 Electronic Flight Strips (EFS)



N.B. No information available for Istanbul Ataturk Airport

2.1.3 A-CDM

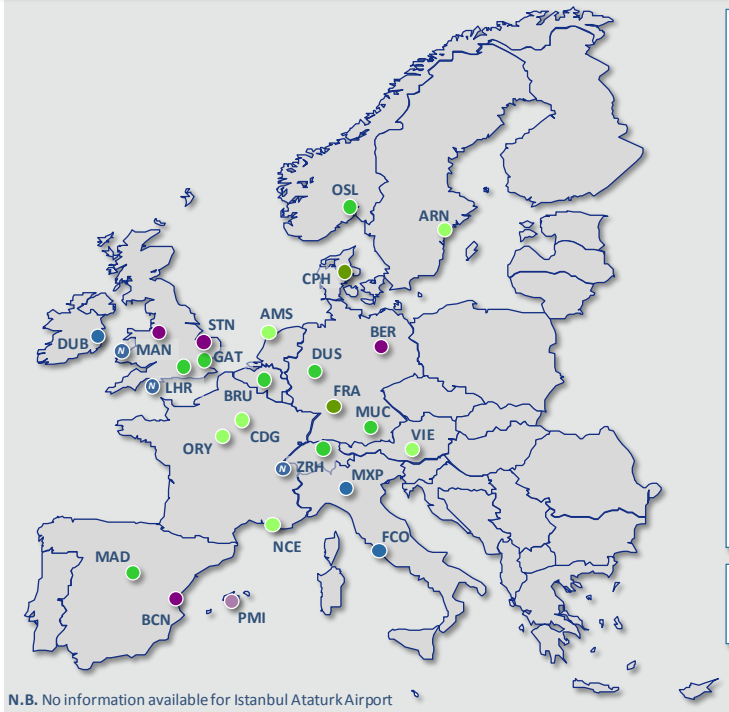


Chart Key

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- Submitted projects (partial coverage)
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- Implementation in progress (no CEF funding requested/awarded)
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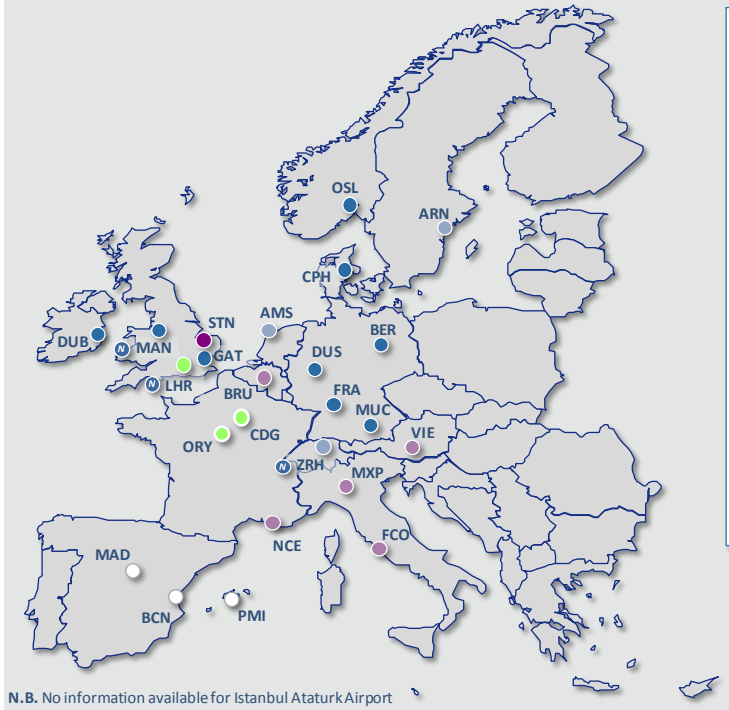
- Partial coverage (Stakeholders)
- Complete lack of any implementation initiative
- Not applicable
- No information available
- (N) Initiatives critical for Network performance improvement

Airspace Users** needing updates of their **Computer Flight Planning Systems** have to be considered as **part of the list of gaps

N.B. No information available for Istanbul Ataturk Airport

2.1.4 Initial Airport Operational Plan (AOP)



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- Not applicable
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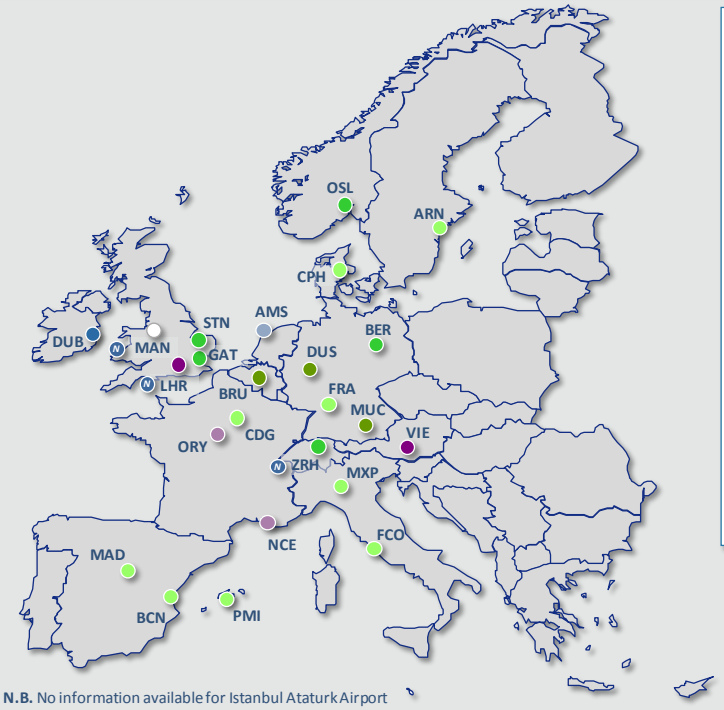
N.B. No information available for Istanbul Ataturk Airport

2.2.1 A-SMGCS Level 1 and 2



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- Partial coverage in terms of scope (functionalities)
- Partial coverage (Stakeholders)
- Complete lack of any implementation initiative
- Not applicable
- No information available
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N.B. No information available for Istanbul Ataturk Airport

2.3.1 Time Based Separation (TBS)

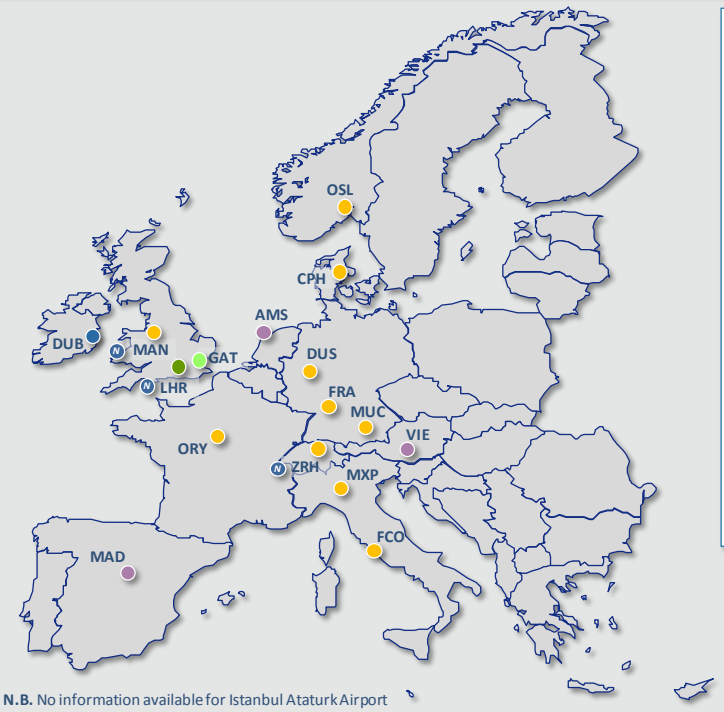

Chart Key

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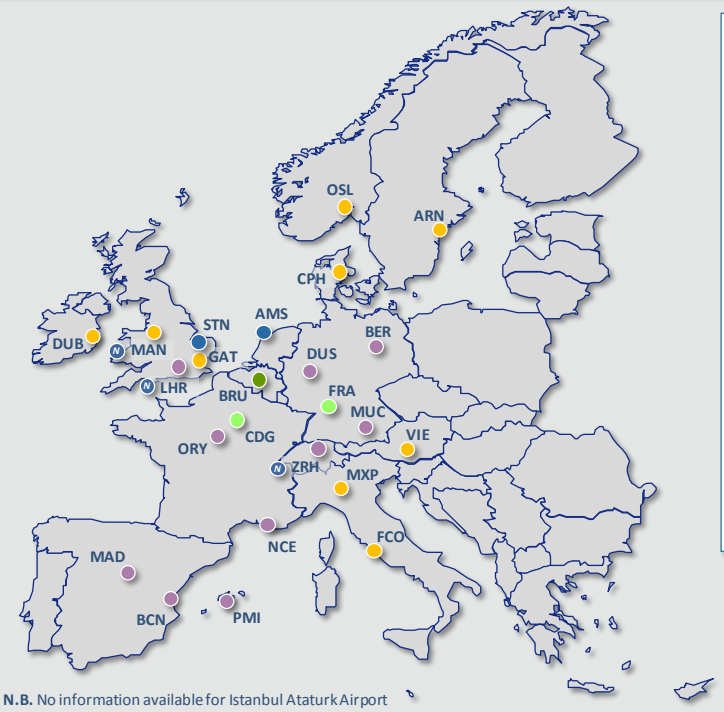
- Partial coverage (Stakeholders)
- Complete lack of any implementation initiative
- Not applicable
- No information available
- Initiatives critical for Network performance improvement

N.B. No information available for Istanbul Ataturk Airport

2.4.1 A-SMGCS Routing and Planning Functions



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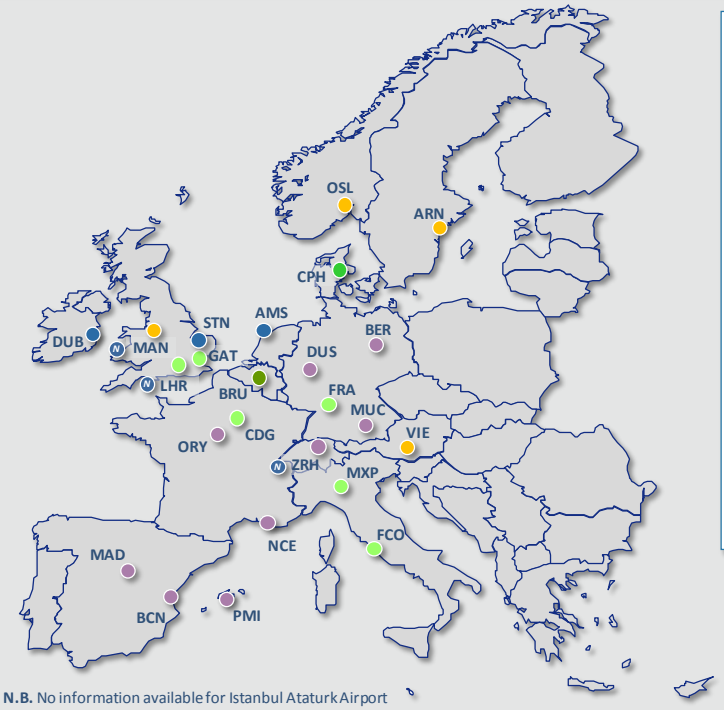
- Initiatives critical for Network performance improvement

N.B. No information available for Istanbul Ataturk Airport

2.5.1 Airport Safety Nets associated with A-SMGCS (Level 2)



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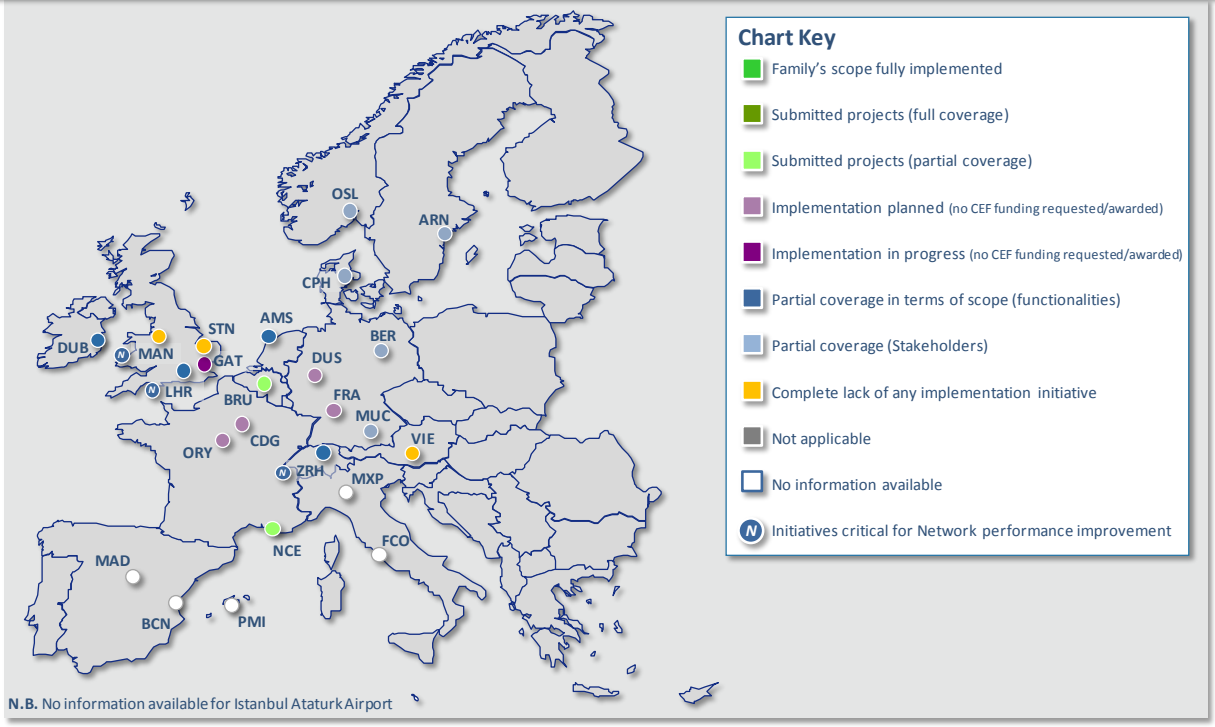
- Initiatives critical for Network performance improvement

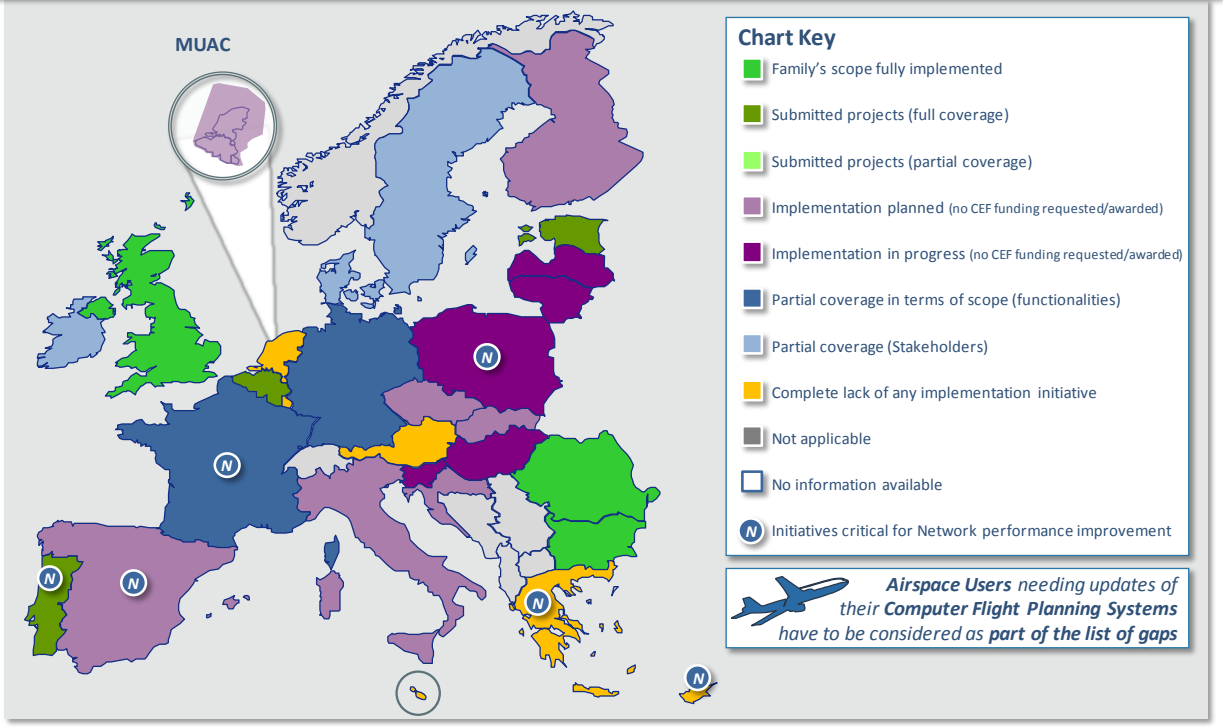
N.B. No information available for Istanbul Ataturk Airport

2.5.2 Implement Aircraft and Vehicle Systems contributing to Aircraft Safety Nets

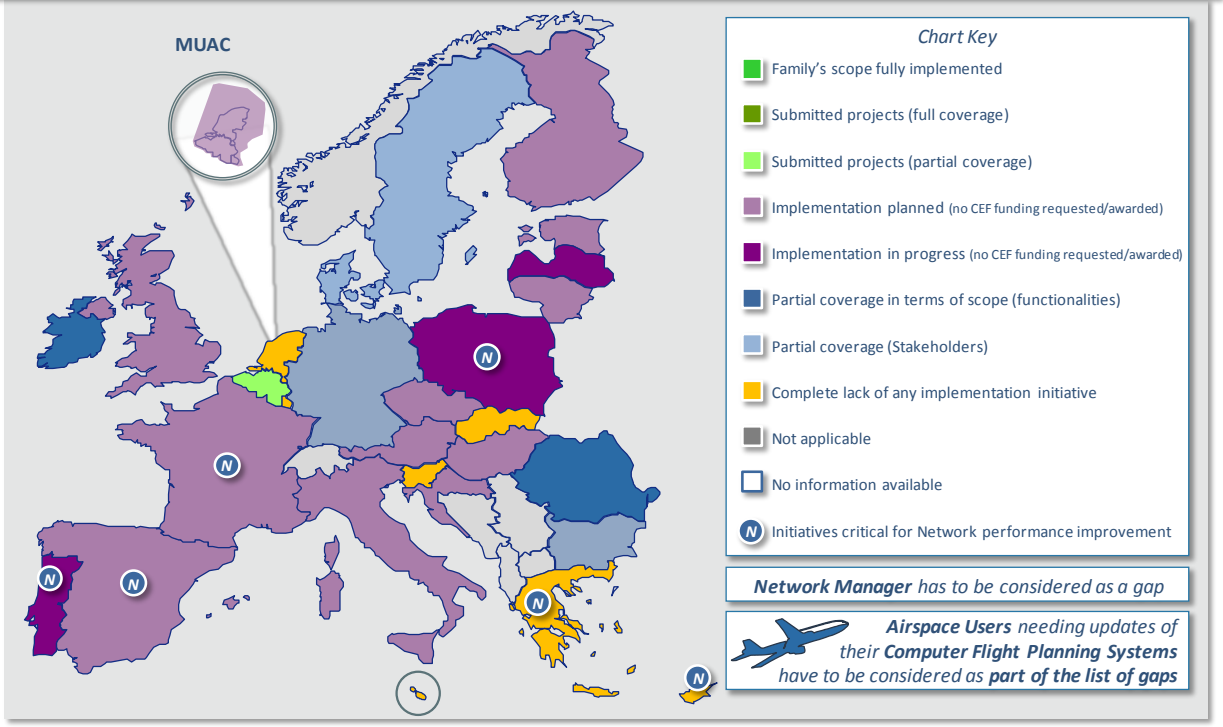


AF3 – Flexible Airspace Management and Free Route

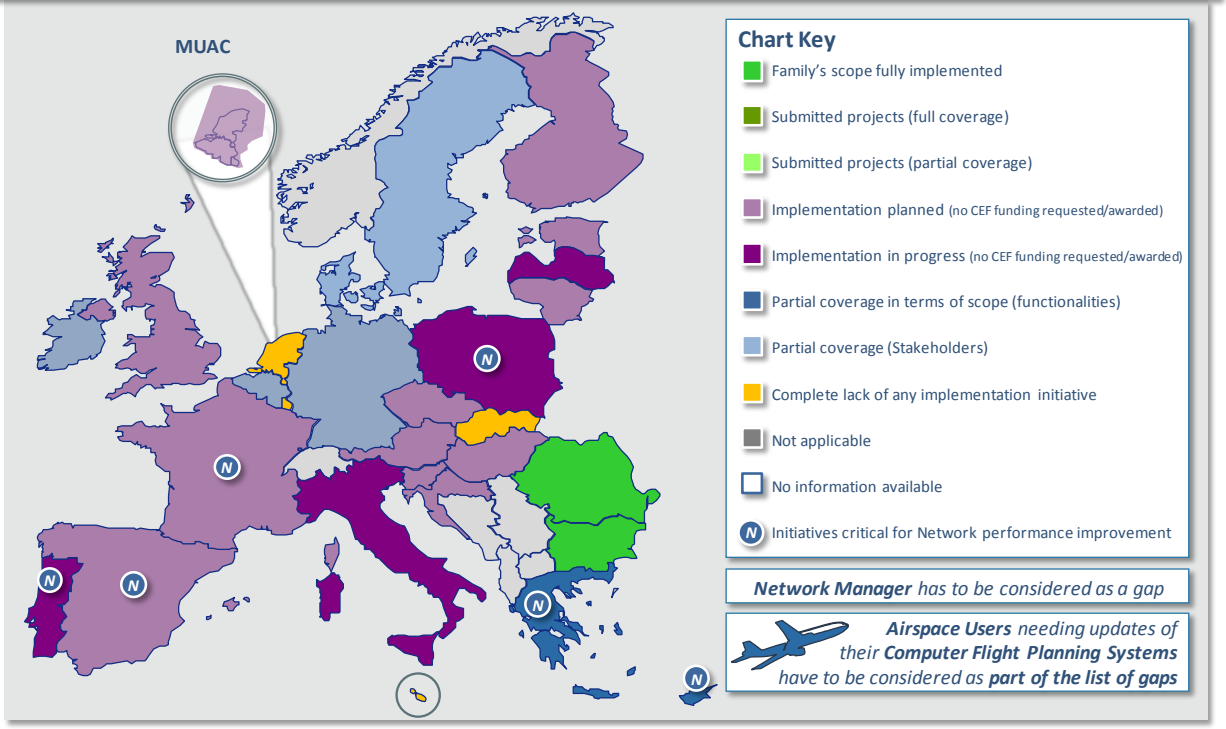
3.1.1 (Initial) ASM Tool to support AFUA



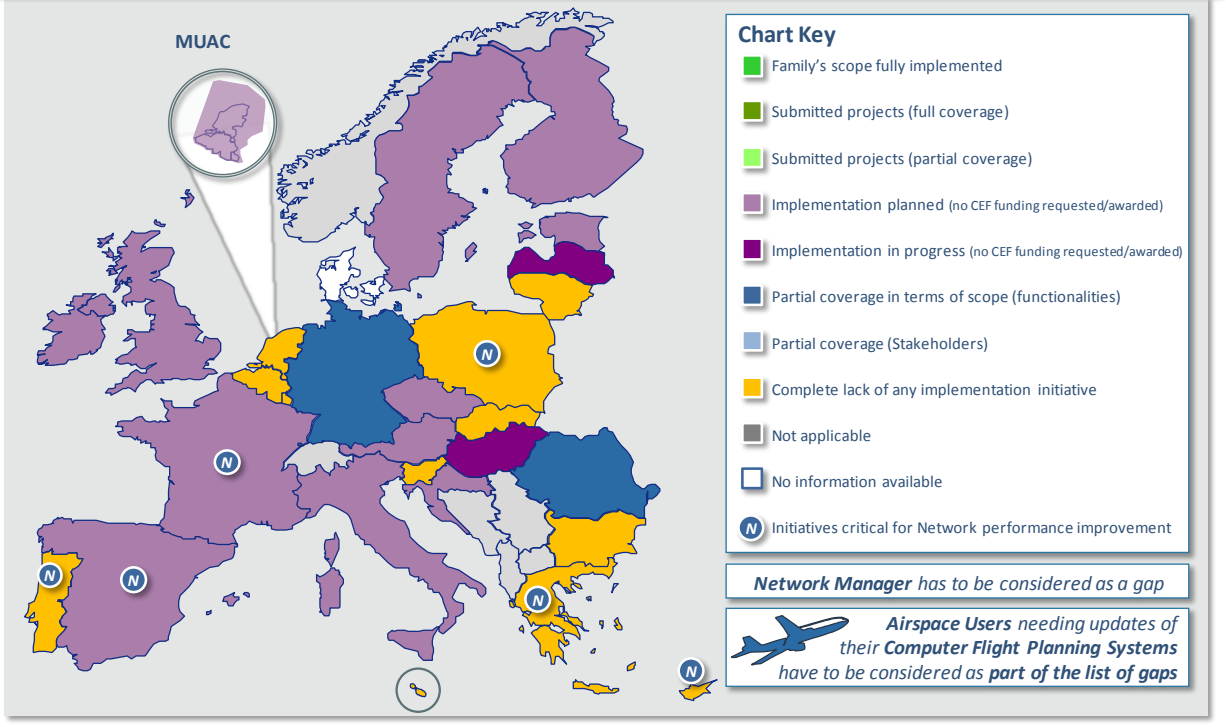
3.1.2 ASM management of real time data



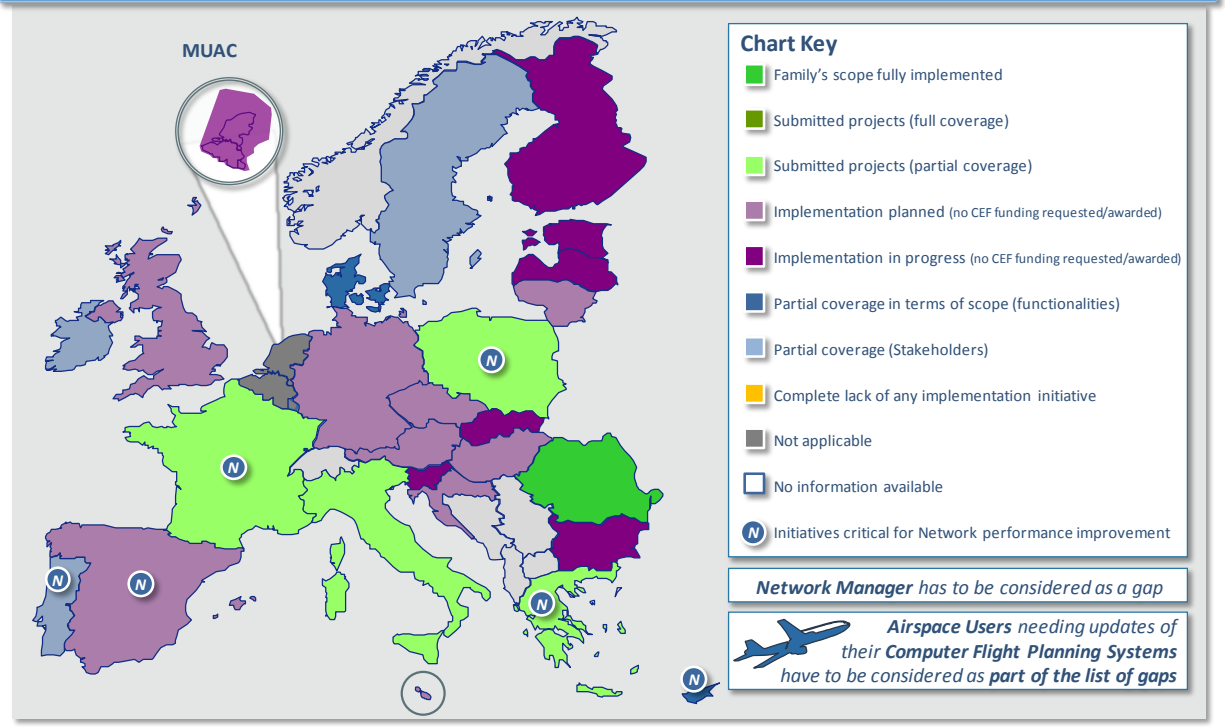
3.1.3 Full rolling ASM/ATFCM process and ASM information sharing



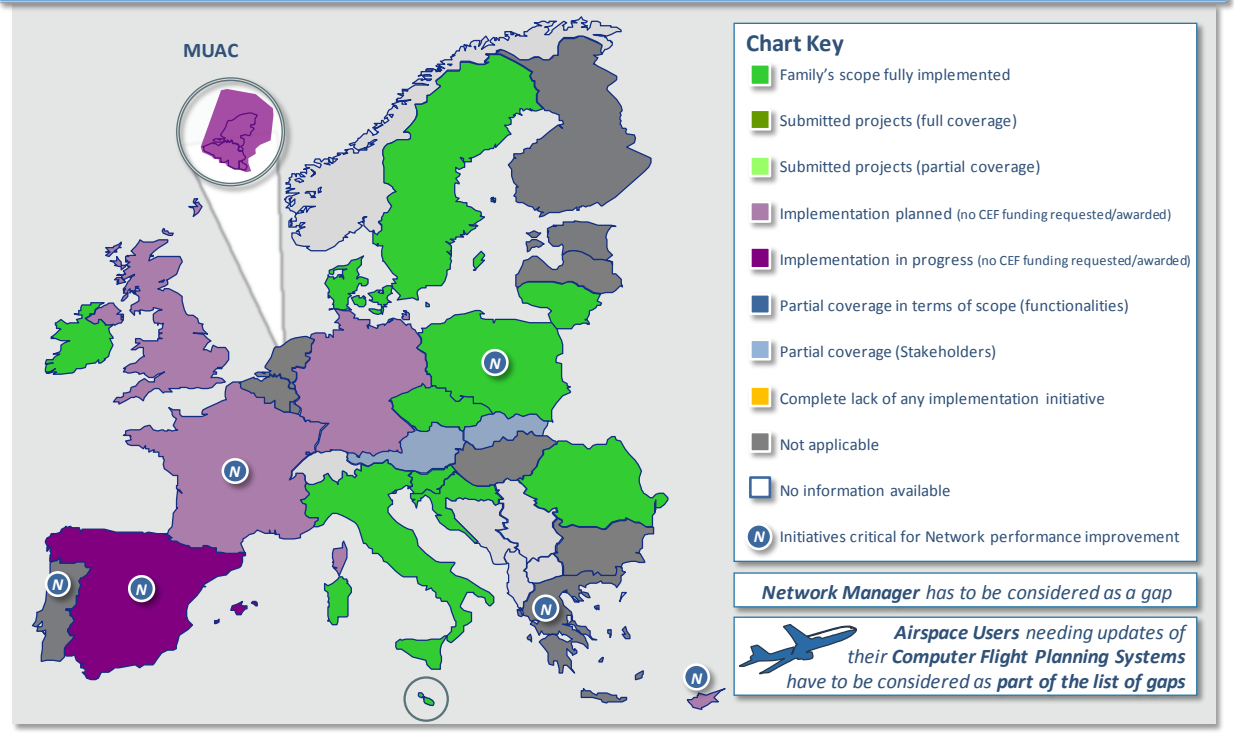
3.1.4 Management of Dynamic Airspace Configurations



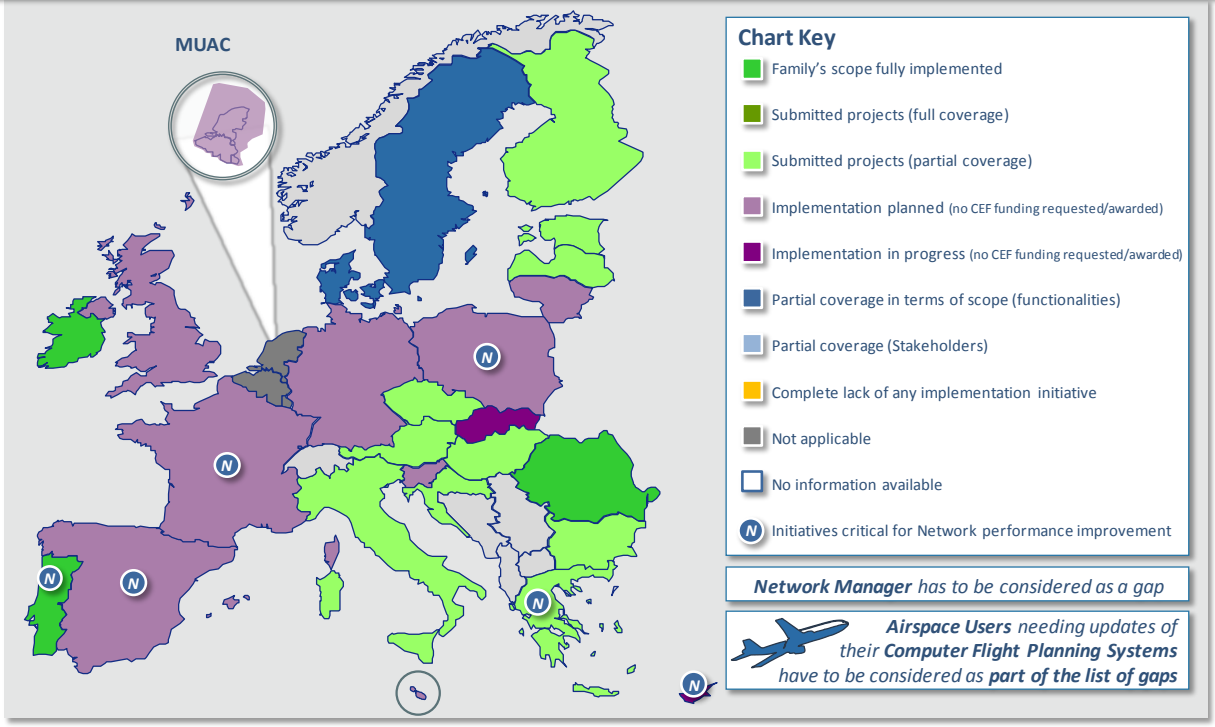
3.2.1 Upgrade of ATM systems (NM, ANSPs, AUs) to support Direct Routings (DCT) and Free Route Airspace (FRA)



3.2.3 Implement Direct Routings (DCTs)

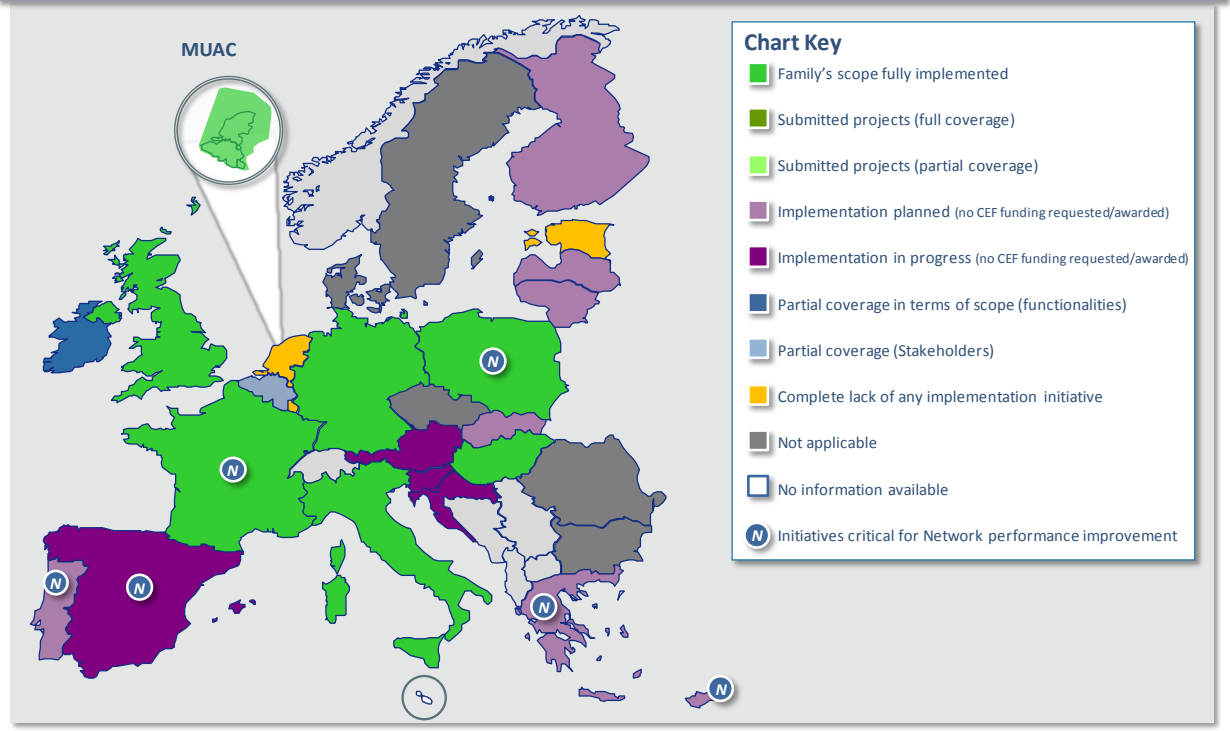


3.2.4 Implement Free Route Airspace

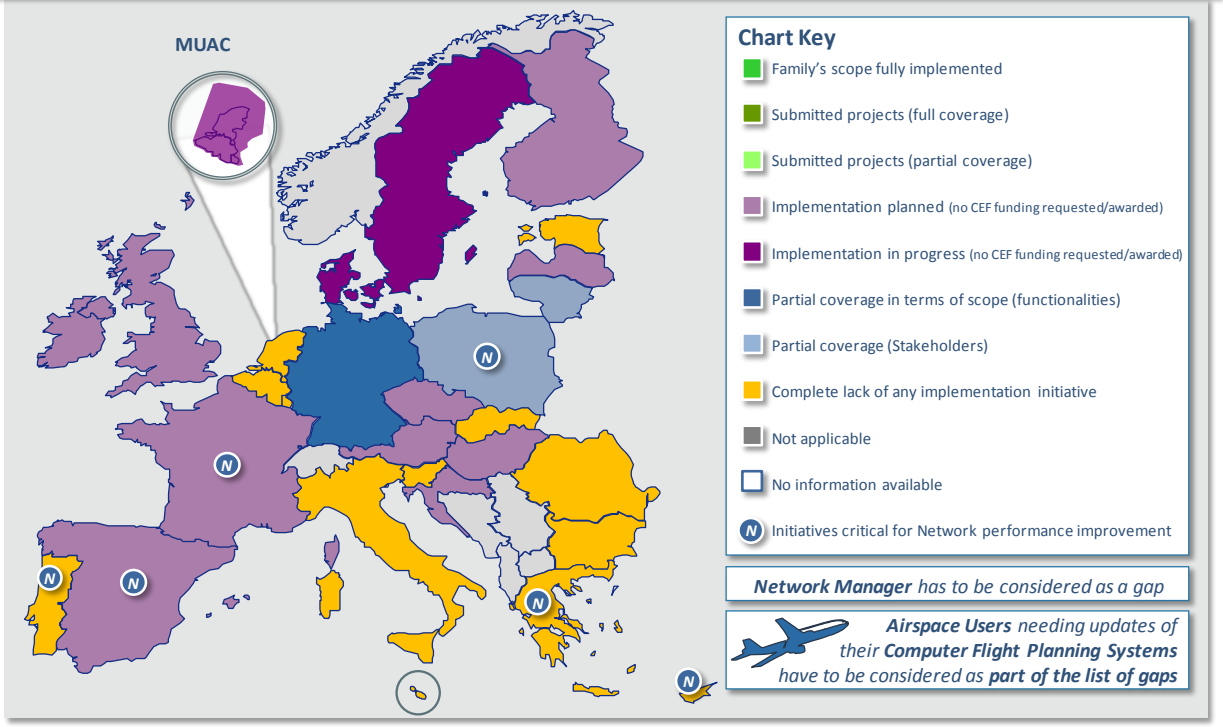


AF4 – Network Collaborative Management

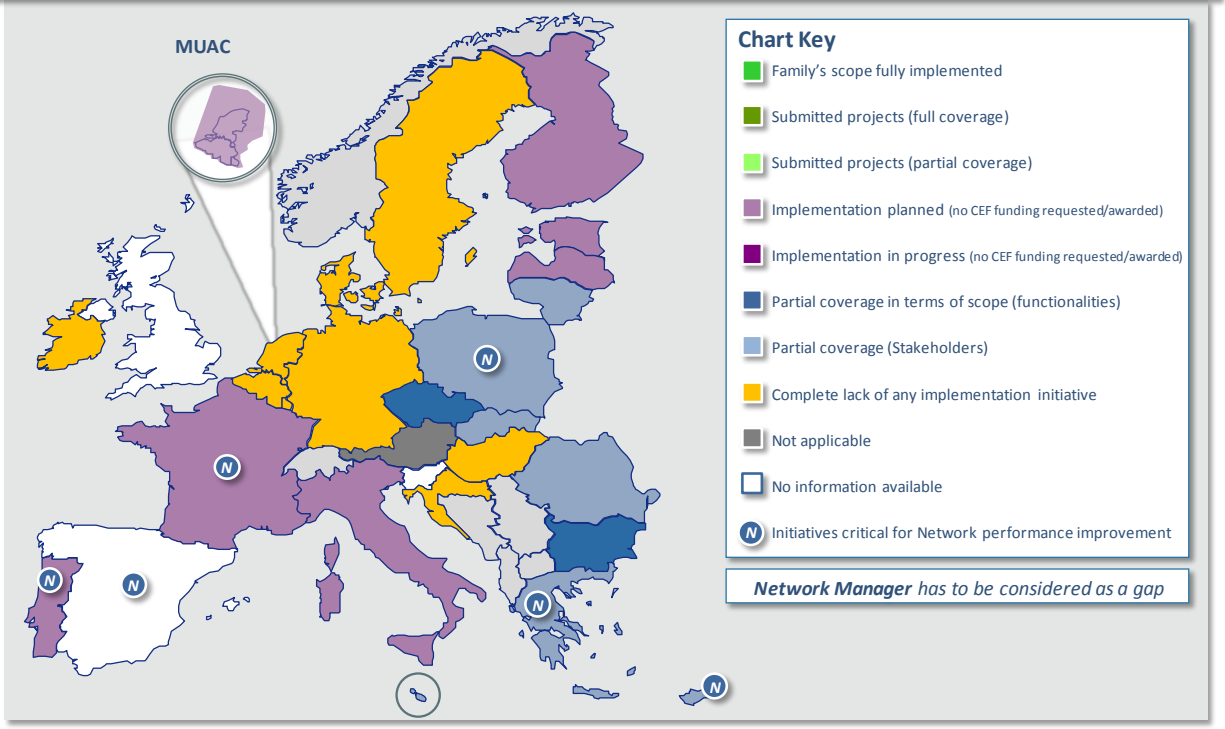
4.1.1 STAM Phase 1



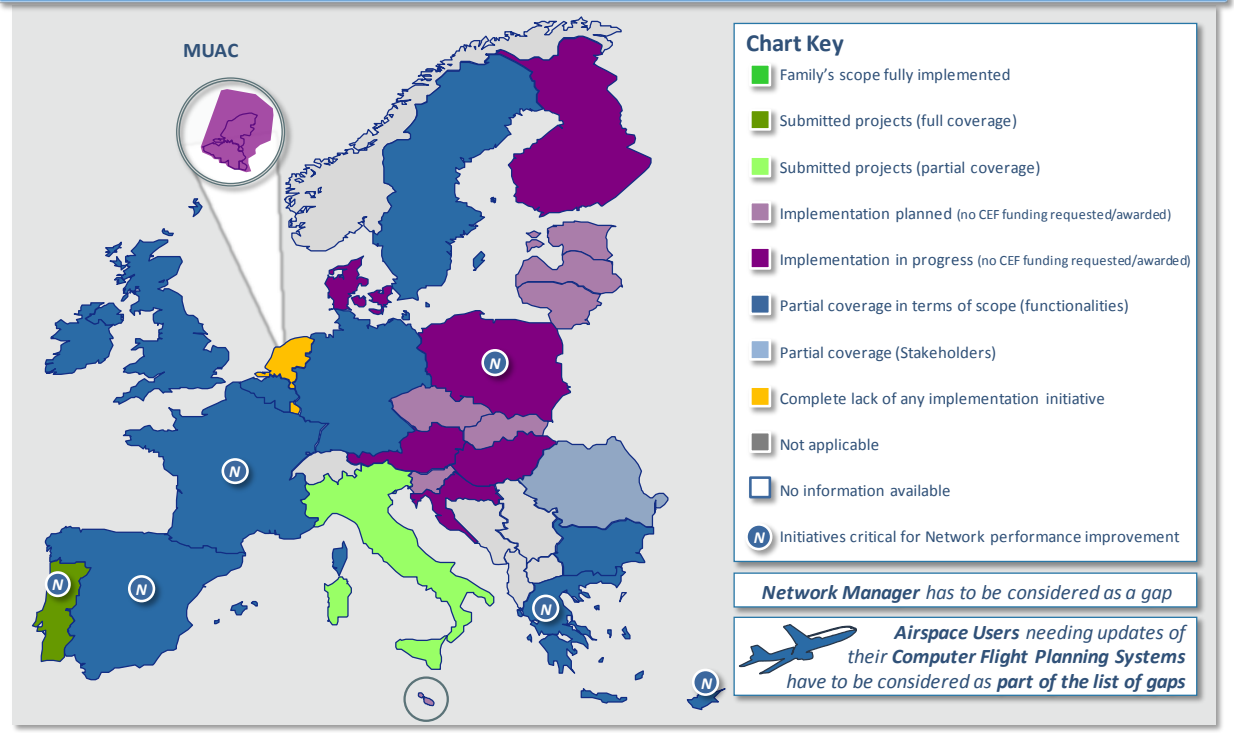
4.1.2 STAM Phase 2



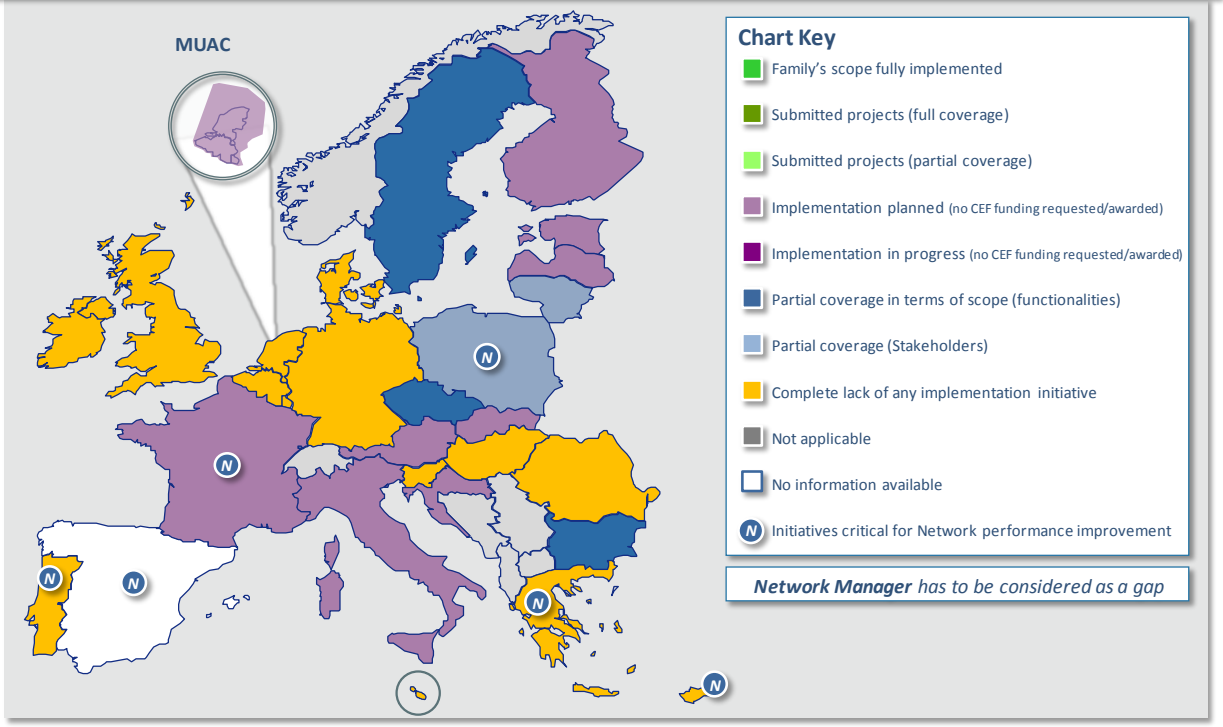
4.2.2 Interactive Rolling NOP



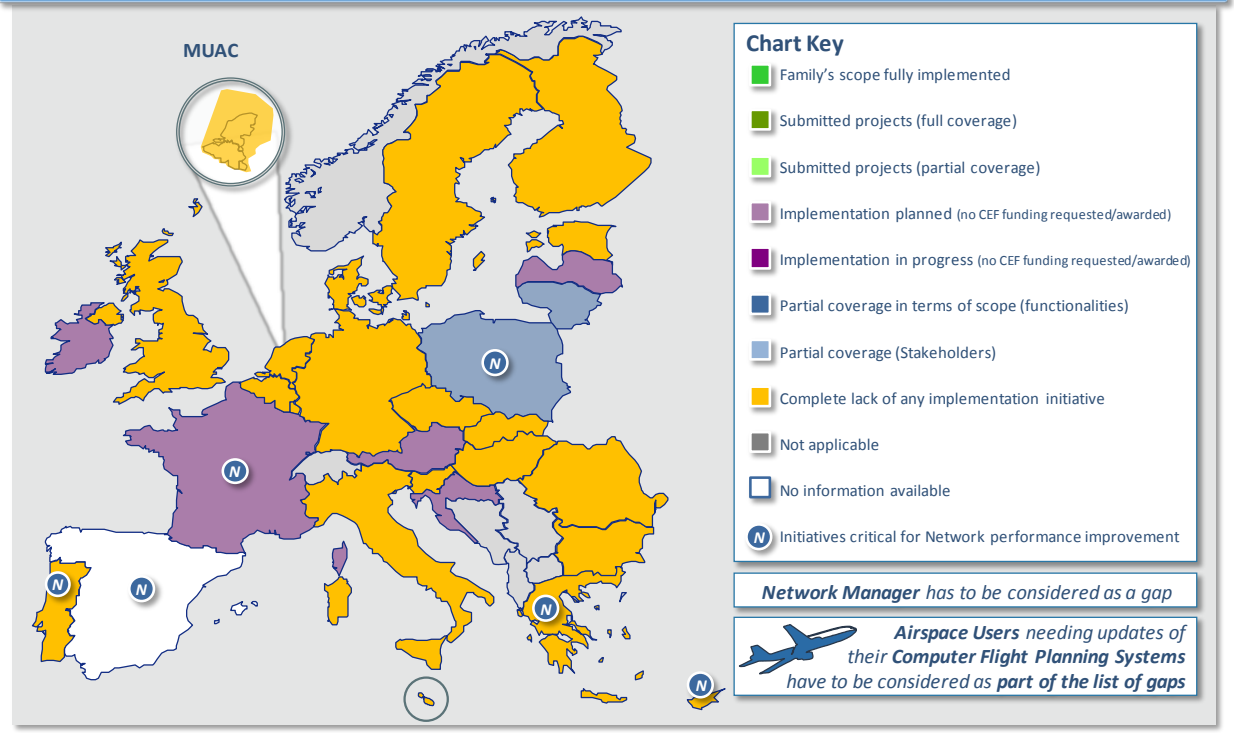
4.2.3 Interface ATM systems to NM systems



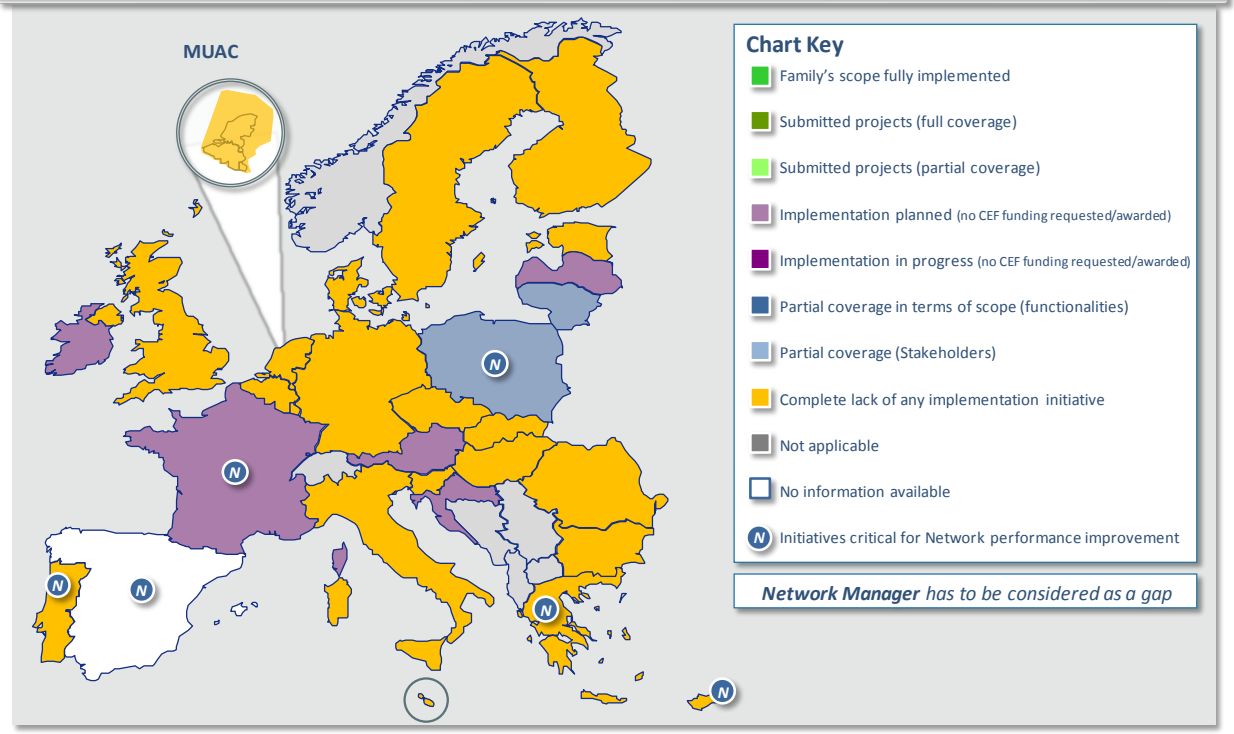
4.2.4 AOP/NOP Information Sharing



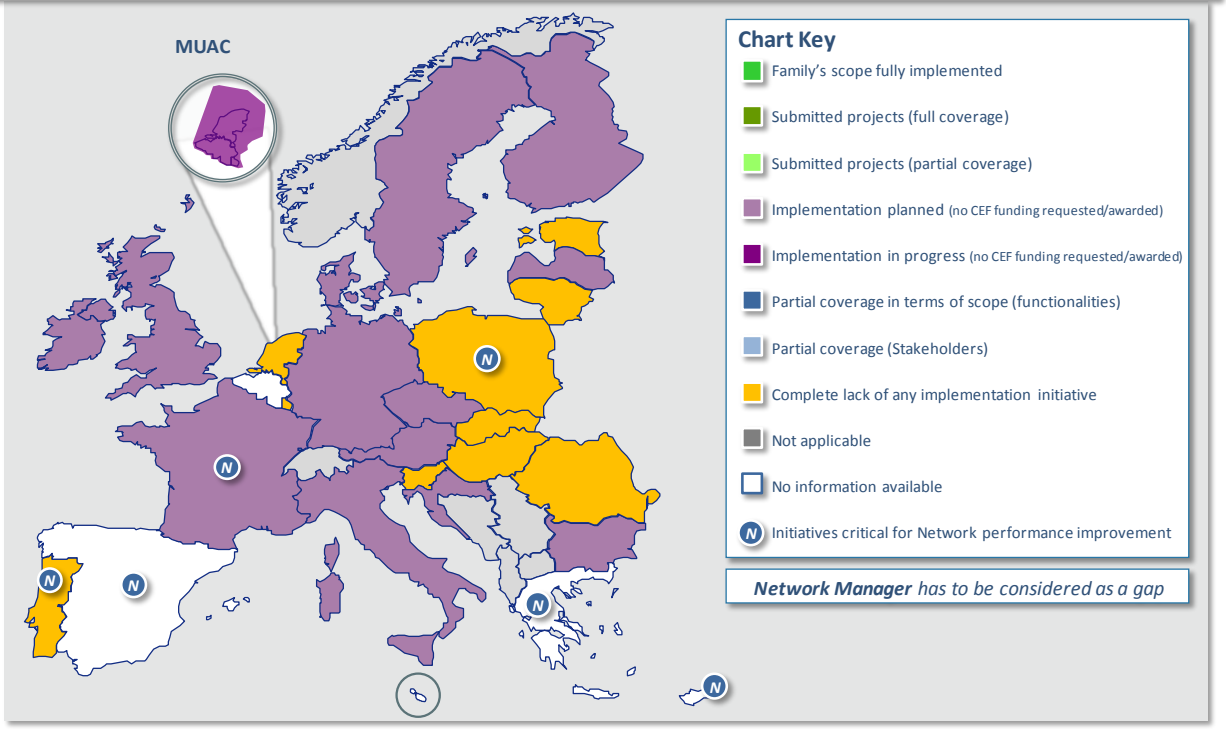
4.3.1 Target Time for ATCFM purposes



4.3.2 Reconciled Target Times for ATFCM and arrival sequencing

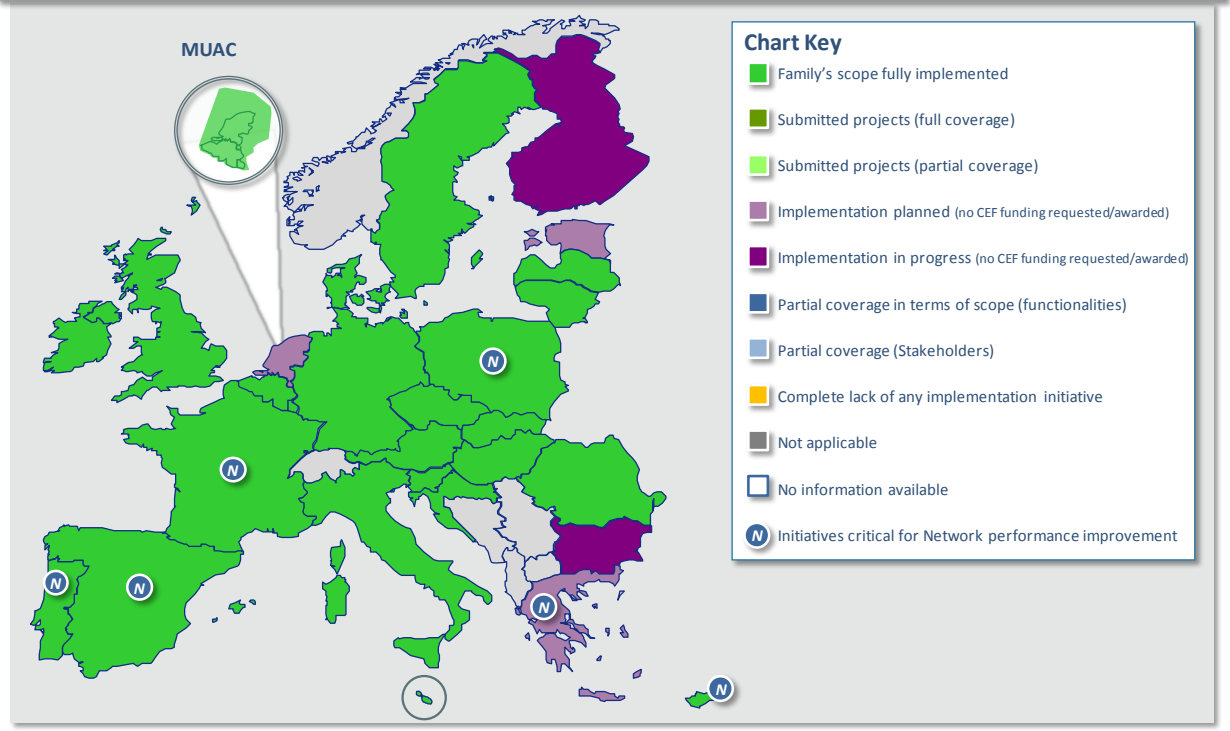


4.4.2 Traffic Complexity Tool

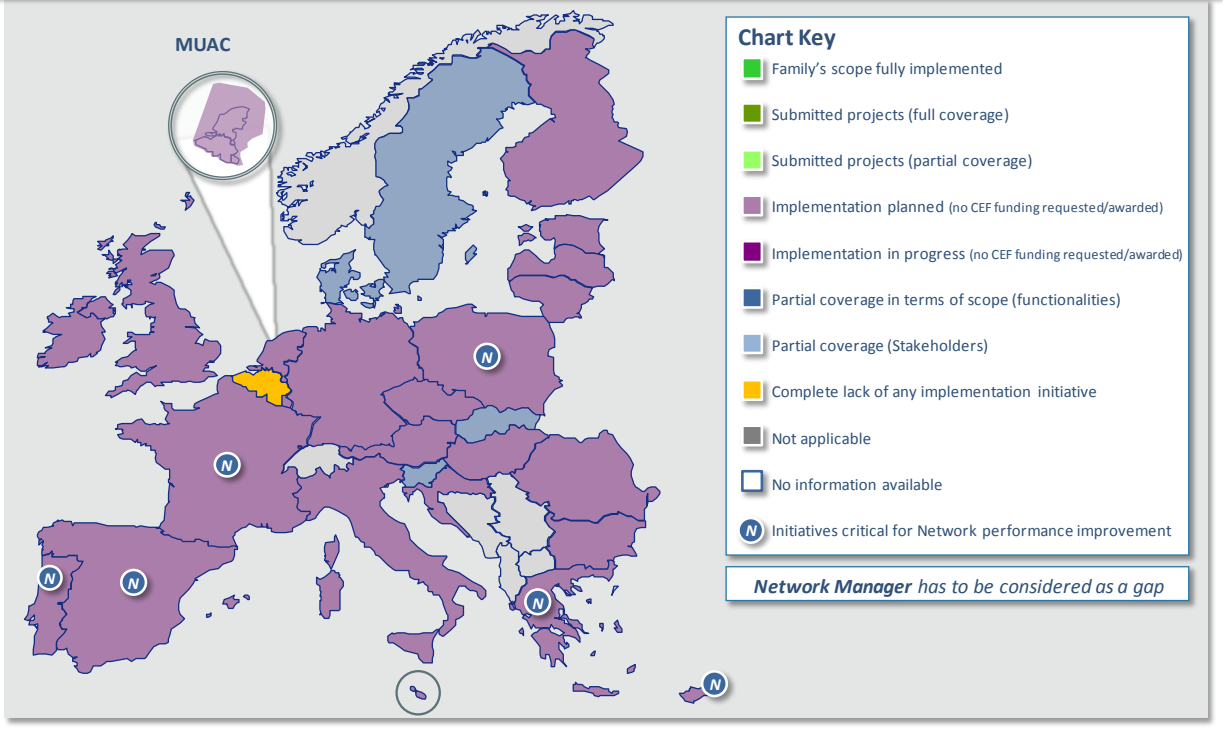


AF5 – Initial SWIM

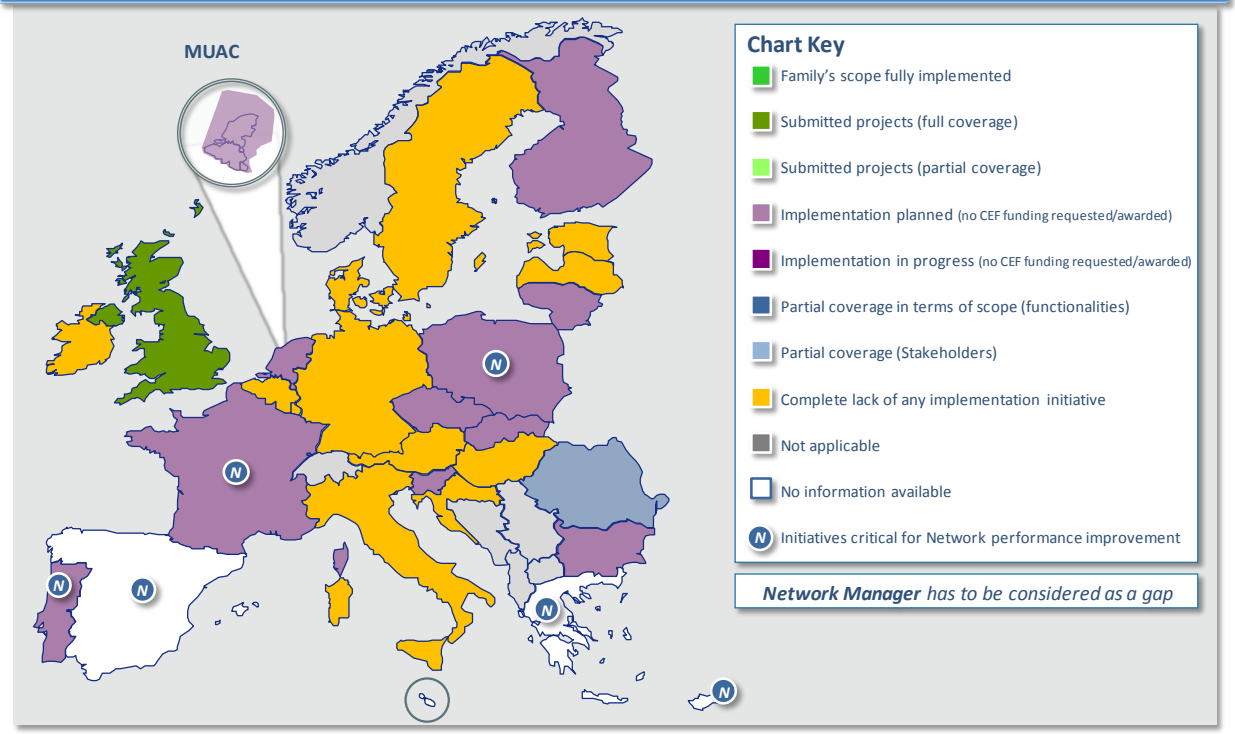
5.1.1 PENS 1 – Pan-European Network Service v.1



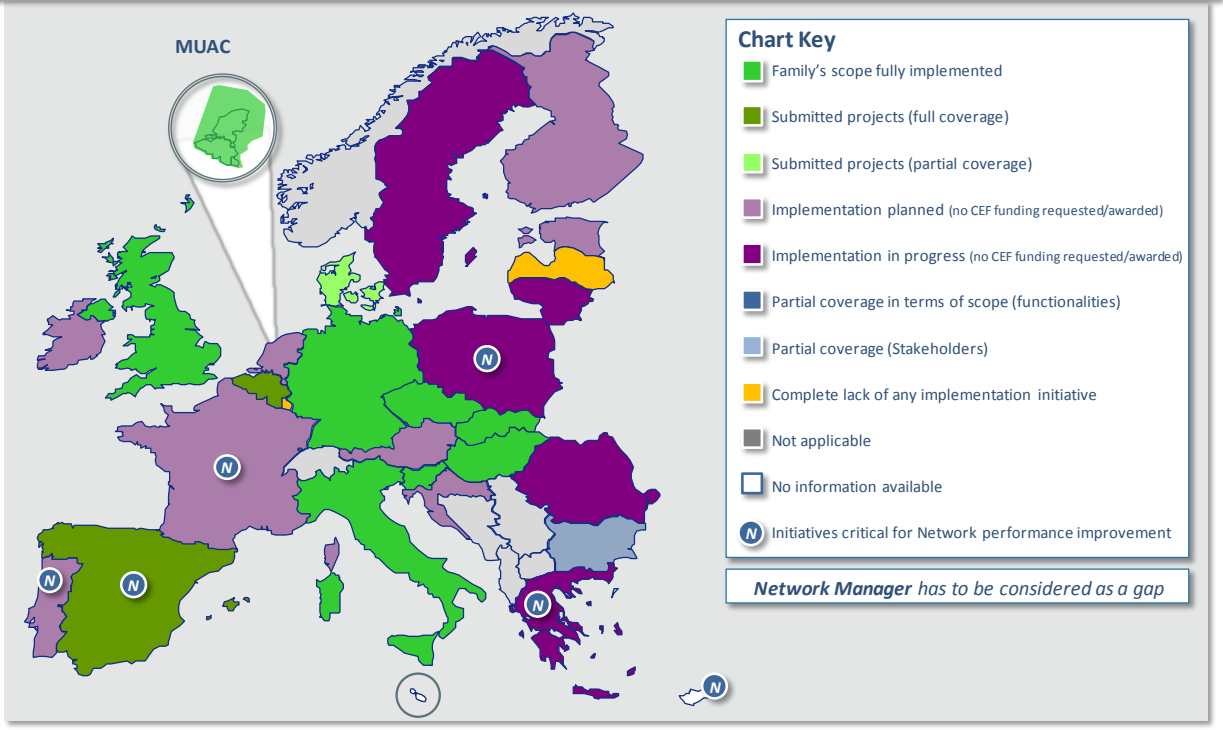
5.1.2 Future PENS – Future Pan-European Network Service



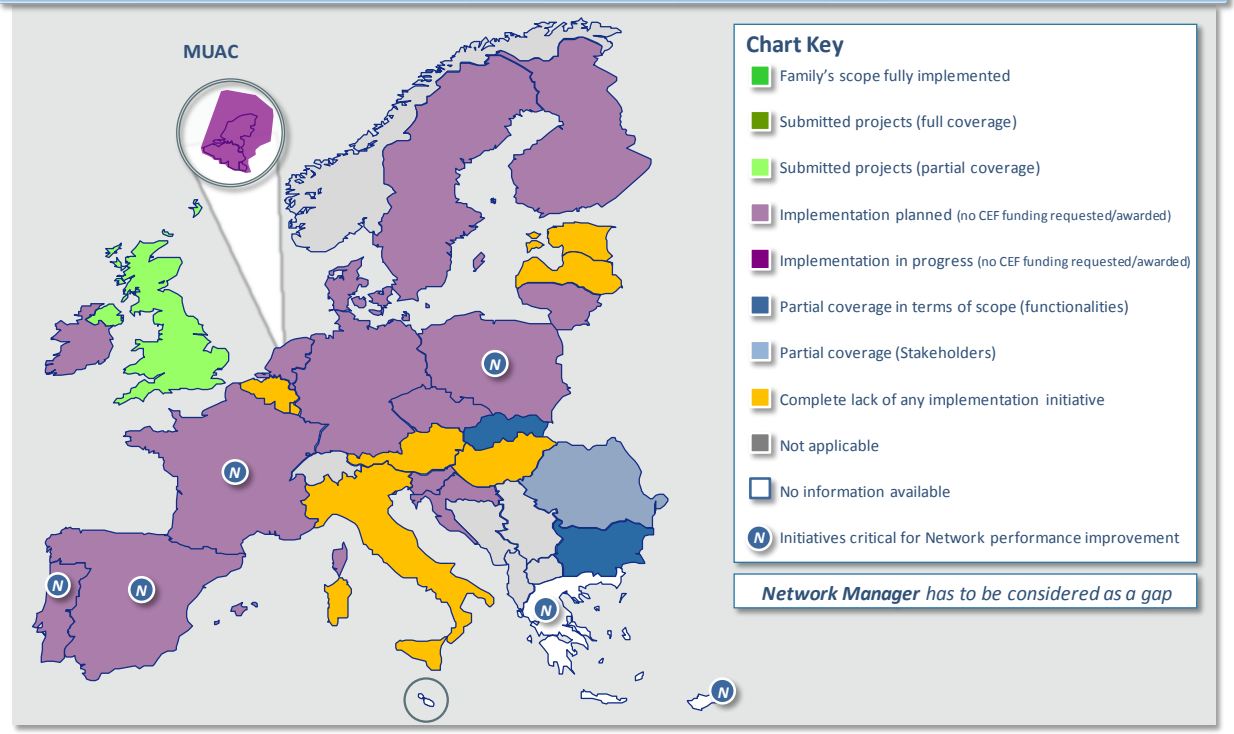
5.1.3 Common SWIM Infrastructure Components



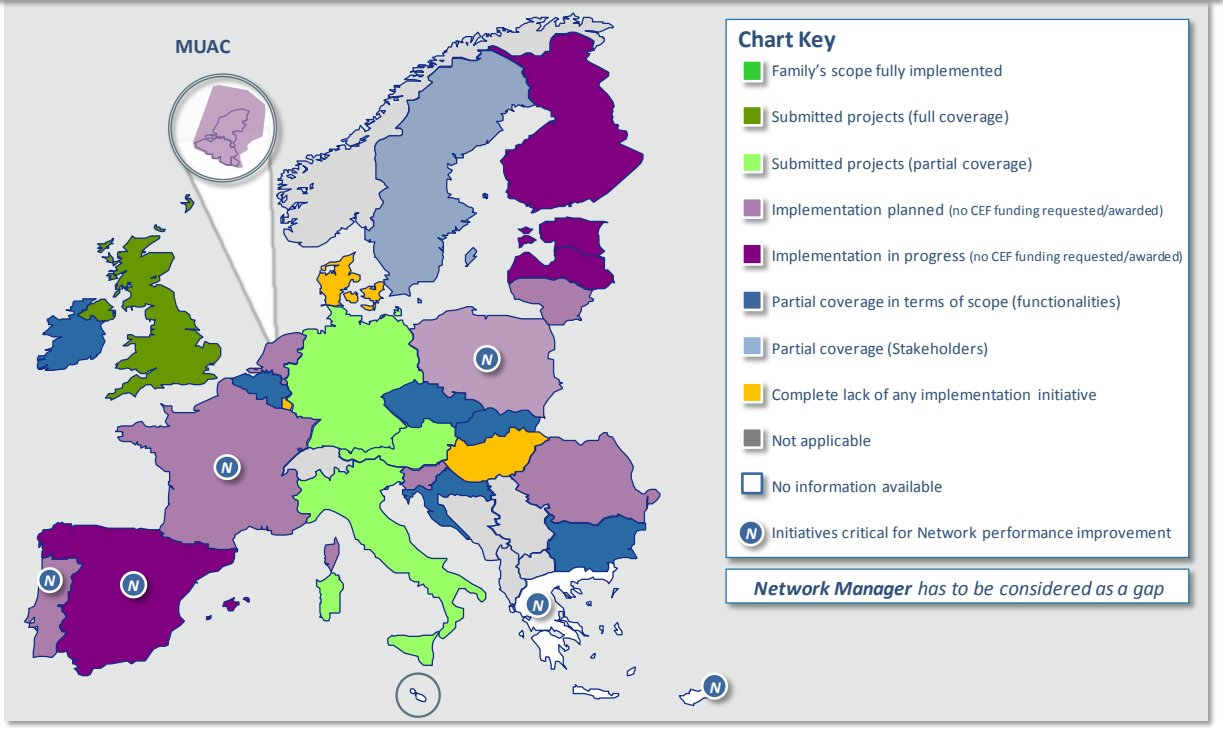
5.2.1 Stakeholders Internet Protocol Compliance



5.2.2 Stakeholders SWIM Infrastructure Components



5.3.1 Upgrade / Implement Aeronautical Information Exchange System / Service



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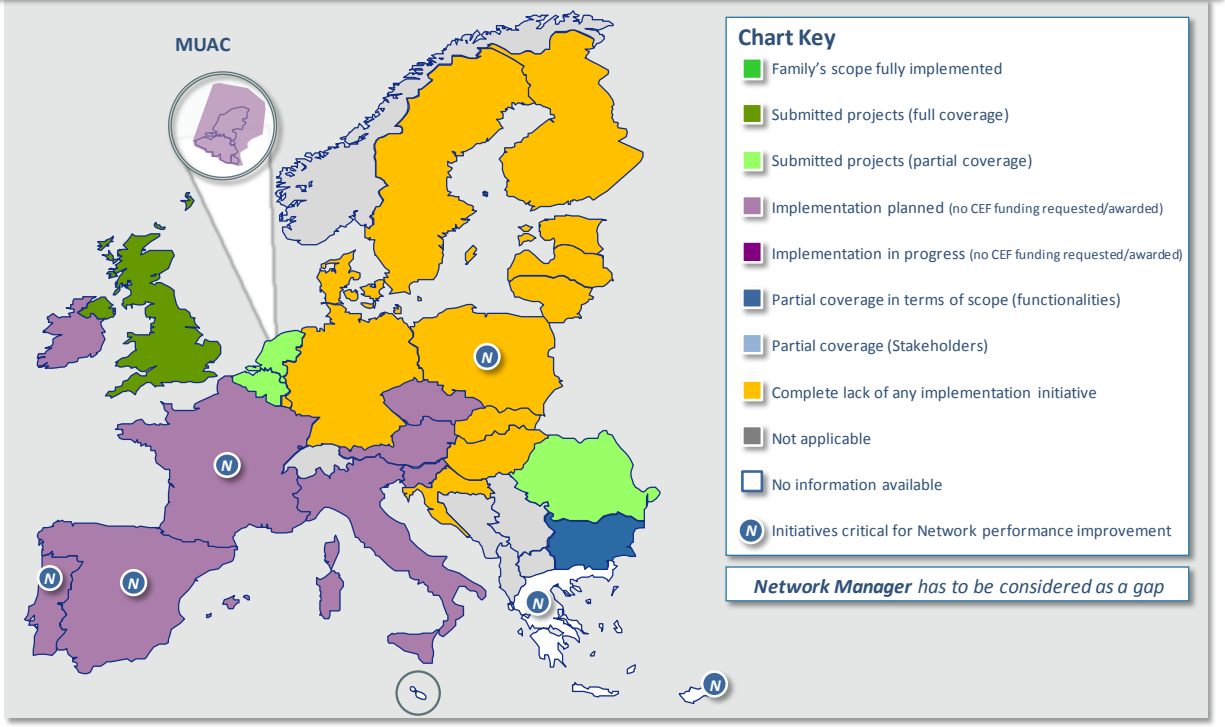
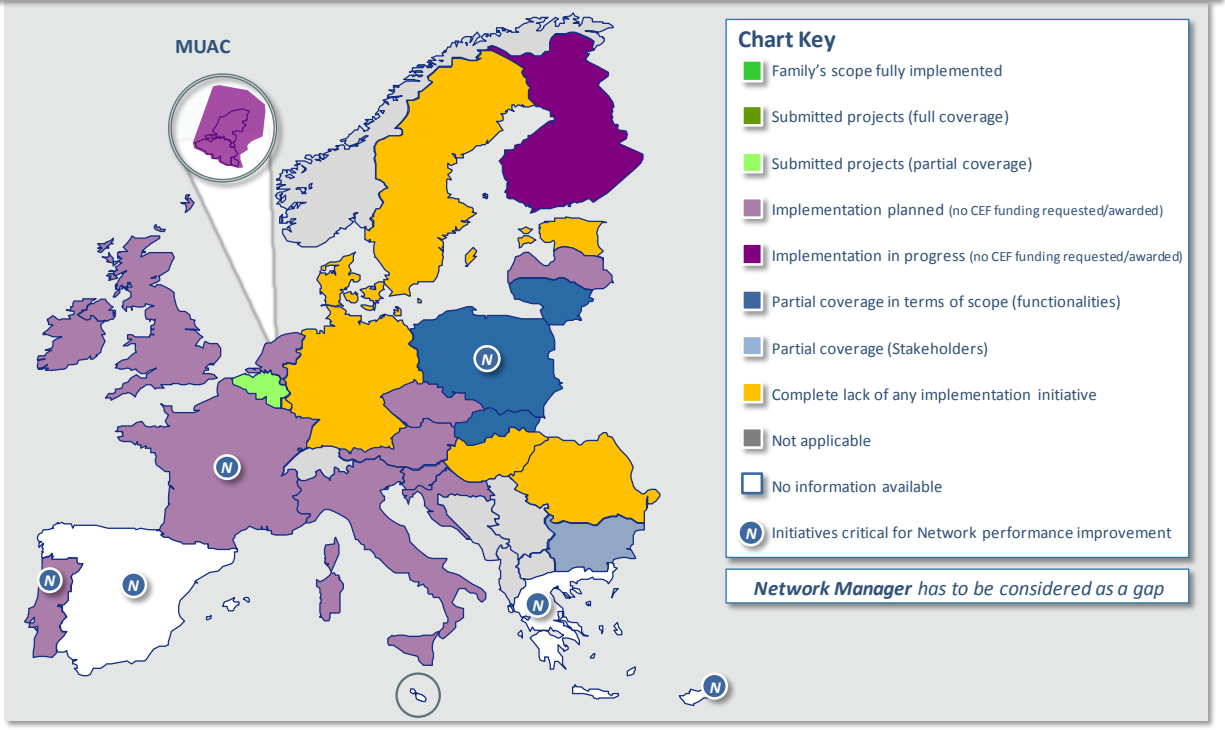
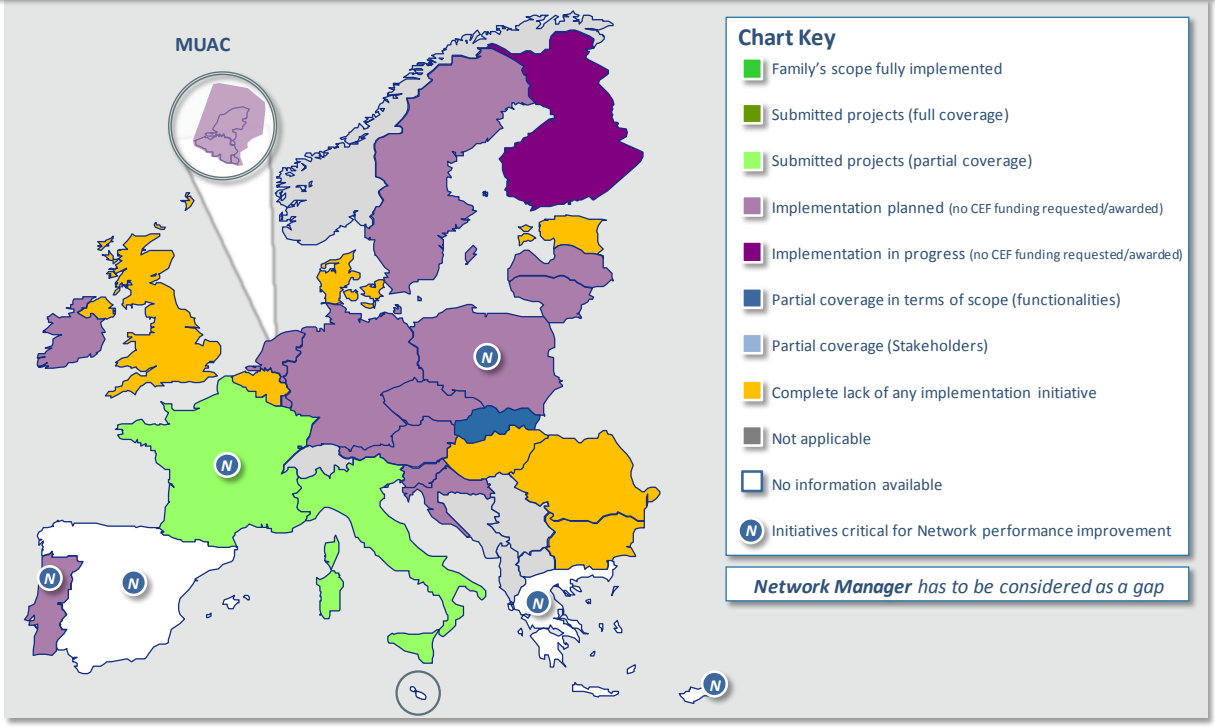


5.5.1 Upgrade / Implement Cooperative Network Information Exchange System / Service

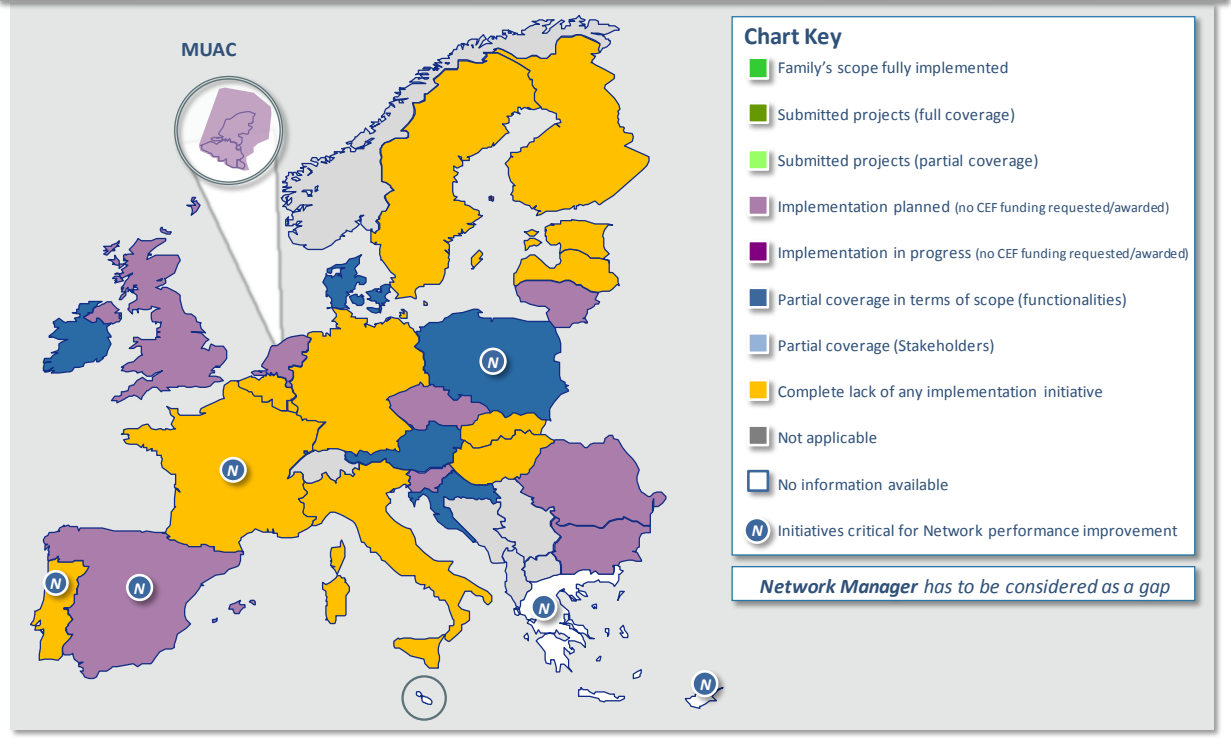


5.6.1 Upgrade / Implement Flight Information Exchange System / Service

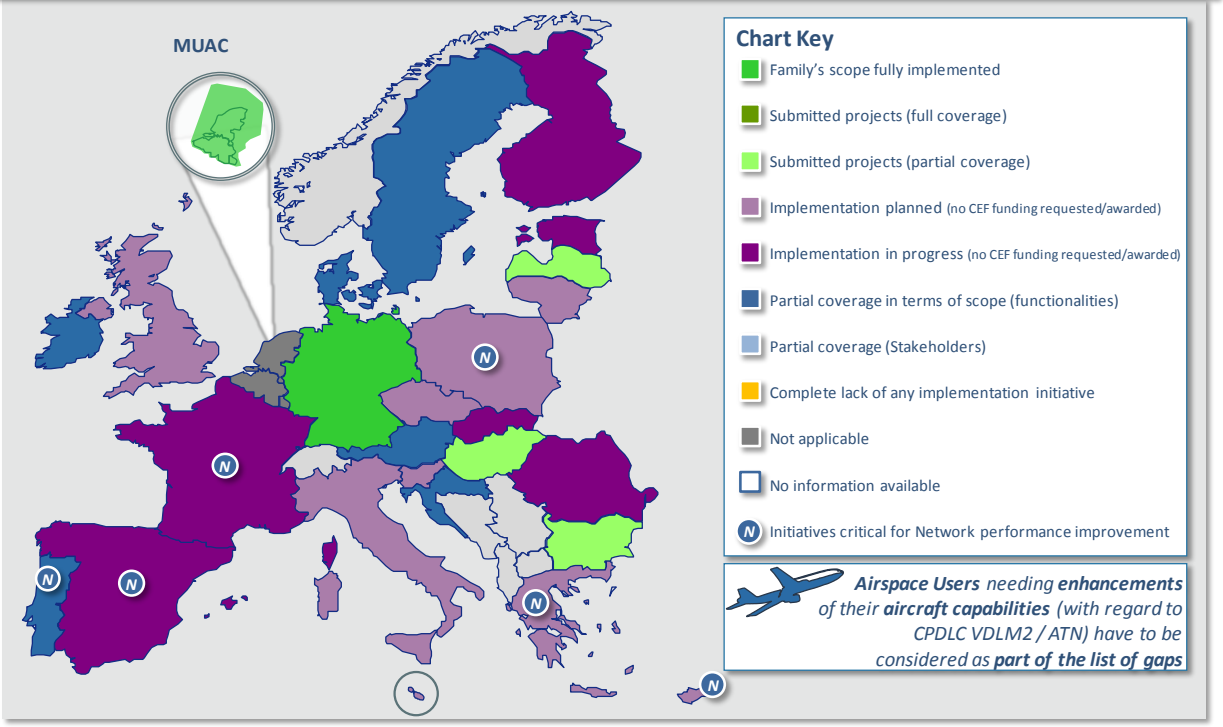


AF6 – Initial Trajectory Information Sharing

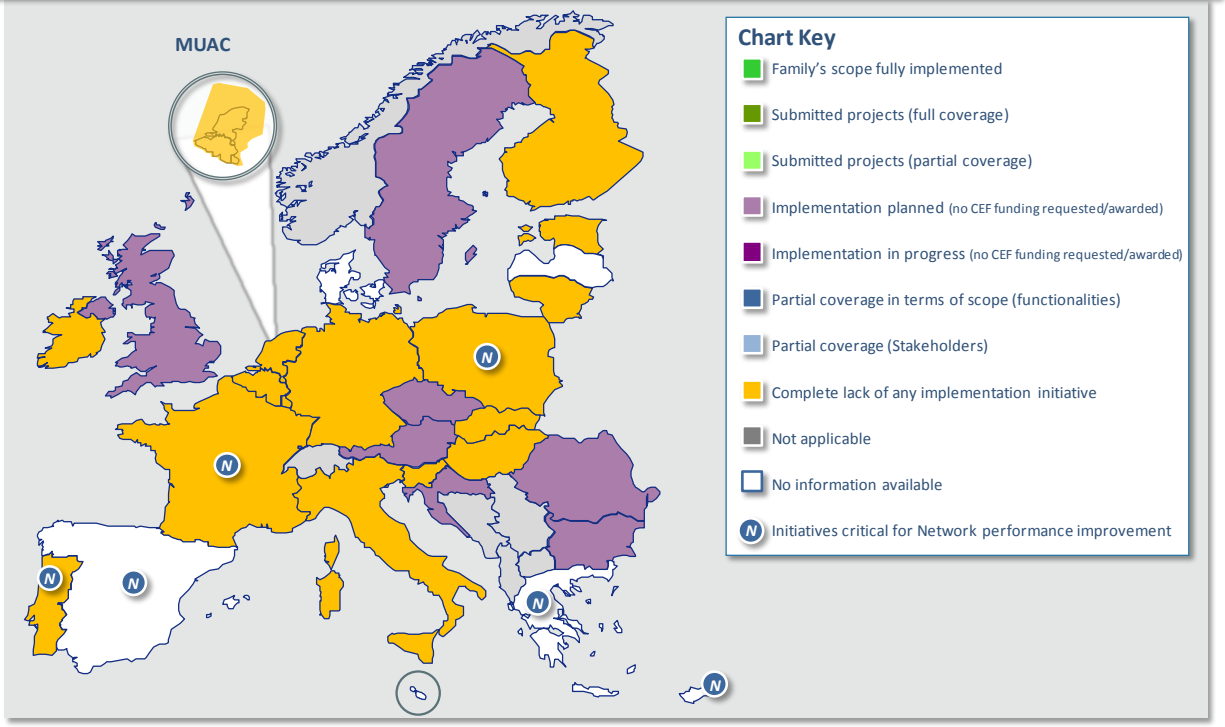
6.1.1 FDP Upgrade in preparation of integration of aircraft flight data prediction



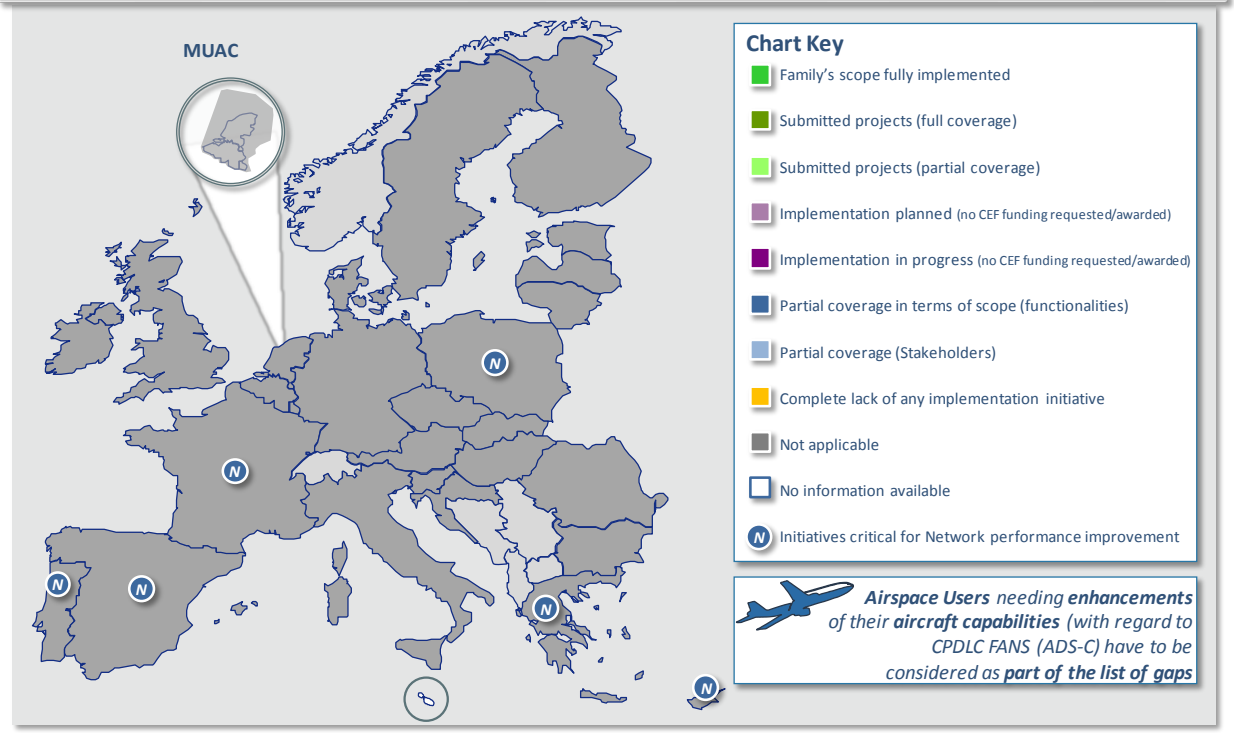
6.1.2 Air Ground Data Link deployment for A/G Communication



6.1.3 Air Ground Communication Service Upgrade



6.1.4 Aircraft Equipage in preparation of exchange of aircraft flight data prediction



High-level Conclusions of AU Gap Analysis Surveys

40 airlines have provided feedback to the SDM (75% from EU/EAA), including **all major European hub carriers and point-to-point carriers**. With respect to the number of commercial aircraft, number of departures/arrivals and market share, the outcome of this survey reflects a representative snap-shot of the current state-of-play on airspace user side, which will however be constantly kept updated through SDM synchronisation and monitoring of the Programme.

Regarding the **gap analysis on flight planning capabilities** most airlines refer to the need for synchronized implementation of the Network Manager systems, the ANSPs systems and their Computer Flight Planning System Providers (CFSPs) systems. So the involvement of the airspace users to upgrade their flight plan systems capabilities would **become a key factor for success**. Due to the nature of the airlines, using the whole European airspace, the NM system availability for AF4 families and the ANSPs readiness throughout the network are key factors. The **synchronization task of the SDM** towards ANSPS, AUs and NM will have highest priority in planning, executing and monitoring a harmonized implementation.

Regarding the **gap analysis on aircraft capabilities and operational readiness,** the differences between the percentage of aircraft equipped and the percentage of crews trained and their operational approvals became obvious. Having in mind that crew training is a costly process for the airlines and would be only performed if the approaches / procedures can be actually **used in the network wide operational environment.** The synchronized implementation of the respective families together with ANSPs and airports are key factors for successful implementation again. Airlines crew training should be part of PCP implementation, as well as the required aircraft equipment and avionics deployment.

As a general recap, Airspace Users have to be considered as significantly affected by the deployment of the following families:

- **1.2.1** RNP Approaches with vertical guidance
- **1.2.2** Geographic database for procedure design
- **1.2.4** RNP1 operations in high density TMAs (aircraft capabilities)
- **1.2.5** Implement Advanced RNP routes below Flight Level 310
- **3.1.1** (Initial) ASM tool to support AFUA
- **3.1.2** ASM management of real time data
- **3.1.3** Full rolling ASM/ATFCM process and ASM information sharing
- **3.1.4** Management of Dynamic Airspace Configurations
- **3.2.1** Upgrade of ATM systems (NM, ANSPs, AUs) to support Direct Routings (DCT) and Free Route Airspace (FRA)
- **3.2.3** Implement Direct Routings (DCTs)
- **3.2.4** Implement Free Route Airspace
- **4.1.2** STAM Phase 2
- **4.2.3** Interface ATM systems to NM systems
- **4.3.1** Target Time for ATCFM purposes
- **6.1.2** Air Ground Data Link deployment for A/G Communication

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, 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.

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, 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

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, 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.

	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, 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.

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, 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.

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. 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 CEF Transport 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.

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, 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.

	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 OLDI links with neighbouring ACCs (Porto, Brest, Bordeaux, Marseille, Shanwick), awaiting for their readiness	Confirmed plan, as expressed in INEA-call 2014

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, 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.

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

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

5.2 SDM Synchronisation and Monitoring

SESAR synchronized deployment is at the core of SDM mission, and **encompasses** all three phases of the Programme: **planning, execution and monitoring**. With that in mind, SDM has developed a comprehensive approach which on one hand, entails the adoption of an **ad-hoc synchronization methodology** (§ 5.2.1), and on the other hand provides for exhaustive SDM monitoring guidelines (§ 5.2.2) – which are pivotal to ensure that the synchronization activities are continously and exhaustively fed by up-to-date implementation data.

5.2.1 Synchronization approach

In order to ensure the synchronized deployment of the DP, the SDM will apply a comprehensive methodology which covers **four interconnected phases**, as outlined in the following chart.

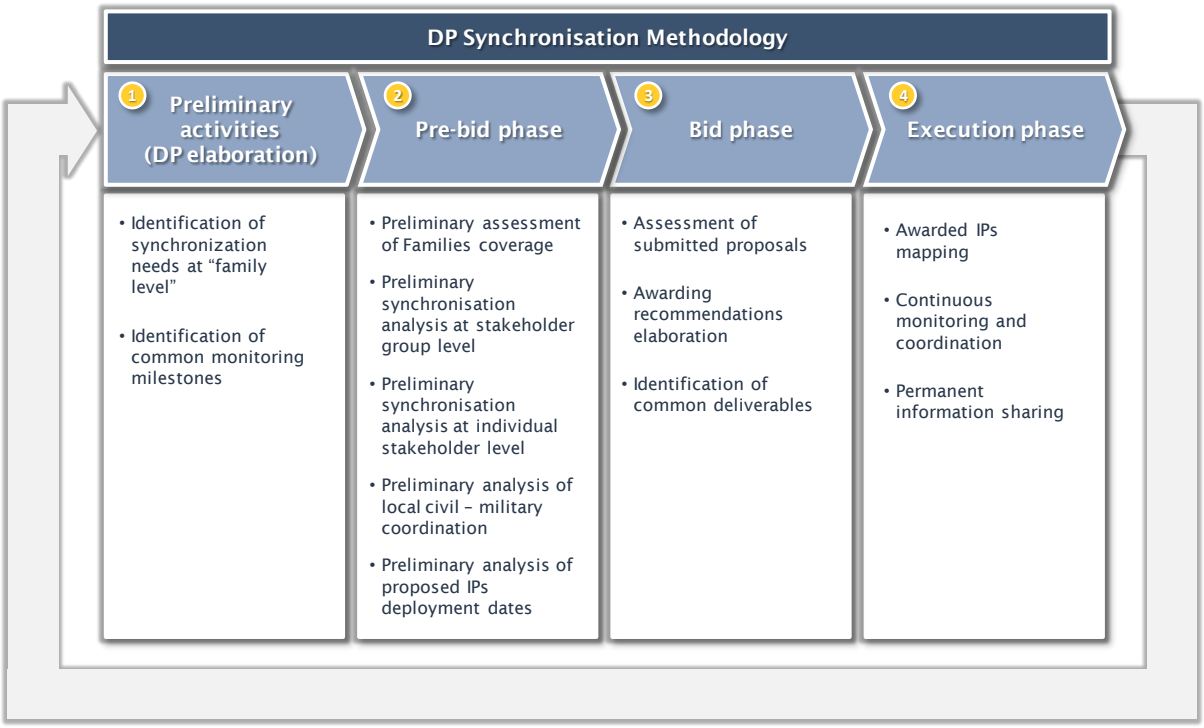


Fig. 9 – Overall DP Synchronization Methodology

In particular, the applied methodological approach envisages the following phases:

1. **Preliminary activities (DP elaboration):** during the DP elaboration, the SDM identifies the sequencing and synchronization needs at family level and defines the relevant milestones to be monitored to ensure a coordinated deployment. In particular, such approach has been implemented during the elaboration of the DP 2015 and will be re-iterated for updating purposes during any major evolution of the Deployment Programme.
   In this phase, two steps are envisaged:

a) **Identification of synchronization needs at "family level" -** the families included into the DP are analysed in order to identify:
   1. the synchronisation needs related to the affected Stakeholders groups:
      i. within each family
      ii. among different families (families can be in different AFs)
   2. the synchronisation needs related to the sequencing of the families themselves, through the identification of the IOC and FOC of each family

b) **Identification of common monitoring milestones:** in order to facilitate the synchronised deployment of the Programme, the SDM identified a set of "common" milestones to be monitored during the execution phase. In particular:
   1. Common milestones to be applied by all the IPs.
   2. Common milestones at "Family level", to be applied by each Implementing Partner on the basis of the relevant Family of reference. Such milestones are included in the "IP Template" to be filled in by the operational stakeholders in order to submit the respective proposals.

The establishment of this set of common milestones support the definition of a consistent "monitoring framework" which will facilitate the prompt detection by the SDM of delays during the IPs implementation, which might have a negative impact on the synchronisation dimension.

2. **Pre-bid phase:** during the pre-bid phase, the "Indications of Interest" provided by the operational stakeholders are analysed by the SDM in order to verify that synchronization needs at "IP level" have been taken in duly account; it is worth noting that, during this phase, the SDM interacts with operational stakeholders in order to provide support in the identification of synchronization needs to be considered in the elaboration of IP proposals.

   In particular, the following activities are performed:

   a) **Preliminary assessment of Families coverage:** the "indications of interest" submitted by the operational stakeholders are analysed by the SDM in order to understand:
      1. The relevance of the content of each proposed project with the scope of the respective Family.
      2. The extent to which each proposed project is able to cover the identified Family level "gaps" that have an impact on the synchronisation dimension

      Such activity can lead to interactions between the SDM and the operational stakeholders in order to further align the proposed projects' content with the respective Family and increase the gaps coverage level.

   b) **Preliminary synchronisation analysis at stakeholder group level:** each "indication of interest" submitted by the operational stakeholders is analysed by the SDM in order to identify, on the basis of the synchronisation needs analysis performed at Family level in the previous phase, the operational stakeholder groups (ANSPs, Airport Operators, Airspace users, MET service providers) which need to be involved and synchronised.

c) **Preliminary synchronisation analysis at individual stakeholder level:** once the stakeholder groups to be involved and synchronised in the proposed projects have been identified, the SDM verifies if all the affected individual stakeholders have been taken into account within the "indications of interest". The SDM can interact with Level 3 in order to propose the involvement of specific individual stakeholders in the "indications of interest" so as to facilitate a synchronised deployment.
Moreover, in this phase the SDM can suggest the consolidation of several "indications of interest" into a single proposal, encompassing all the individual stakeholders whose specific implementation activities need to be conducted in a synchronised manner.

d) **Preliminary analysis of local civil – military coordination:** in order to ensure that also military stakeholders are taken in duly account in the synchronisation process, the SDM analyses the "indications of interests" in order to verify:
   1. If civil – military coordination at local level has been conducted in order to identify synchronisation needs and avoid any adverse effect on the military operations.
   2. If military stakeholders need to be integrated within individual proposed projects so as to ease the synchronisation process.

   If the analysis proves the necessity of military involvement and no coordination at local level was done before, SDM interacts with the operational stakeholders to trigger the coordination with the military authorities at local level to ensure the synchronisation.

e) **Preliminary analysis of proposed IPs deployment dates:** the "indications of interest" are analysed by the SDM with respect to the deployment dates proposed by the operational stakeholders, in order to verify their compatibility with the need to ensure a synchronised deployment.
If needed, during this step the SDM can interact with the operational stakeholders in order to propose a potential fine-tuning of the proposed deployment dates so as to foster the synchronised sequencing of deployment activities at IPs level.

3. **Bid phase:** once proposals have been submitted by operational stakeholders, the SDM assesses them taking into account – among the other aspects – the extent to which the proposed projects are able to ensure a synchronized deployment of the DP, taking into account key elements such as the proposed implementation dates, the operational stakeholders involved and the coordination with the military.

In particular SDM will:

a) **Assess the submitted proposals:** each proposal submitted by the operational stakeholders is analysed by the SDM with respect to the extent to which:
   1. The proposed project is able to cover existing "gaps" at Family level.
   2. The relevant stakeholders which are needed to ensure/facilitate a synchronised deployment have been integrated into the project.

3. The necessary coordination actions with the military have been put in place.
4. The proposed deployment dates are consistent with the need to ensure/facilitate the synchronised sequencing of implementation activities among stakeholders within each project and among different interdependent projects.

b) Identify common deliverables: during the phase of negotiation between INEA and the awarded IPs, the SDM can suggest the identification of common deliverables to be released by the IPs, on the basis of the common milestones to be monitored, so as to ease the synchronisation process.

4. **Execution phase:** once IPs are awarded by INEA, the SDM finalises the identification of interdependencies and links among them and performs the necessary **monitoring** and risk management activities to ensure the synchronized deployment.

   In particular, this objective will be achieved through the following activities:

   a) Awarded IPs mapping: the first step for ensuring a synchronised deployment during the execution phase is the analysis of the awarded IPs and the development of a "map" highlighting:
   1. The interdependencies among the projects.
   2. The links of each project with AFs, Sub-AFs and Families.
   3. The "sequencing path" including the deployment start and end dates of all the projects, with specific regard to those which are interrelated.

   It is worth noting that this activity could lead to interdependencies between projects within the same AF and projects of different AFs.

   b) Continuous monitoring and coordination: in order to ensure a synchronised deployment, it is crucial to establish the most effective monitoring and coordination mechanisms which can enable respectively:
   1. A prompt detection of misalignments between the planned and the actual progress of the projects and the Deployment Programme as a whole.
   2. The identification and implementation of effective actions to tackle the above-mentioned misalignments.

It is worth noting that to ensure the effectiveness of the above mentioned synchronization phases, a **permanent information sharing is necessary.** The continuous exchange of information among interrelated IPs is key to ensure a synchronised deployment and will be facilitated by:

1. Fostering the establishment of "information sharing" groups encompassing interrelated IPs, so as to facilitate the exchange of information/data/documents which are relevant to facilitate the synchronised deployment (e.g. progress of deliverables / milestones / tasks, status of mitigation actions to be implemented to re-align IPs activities in accordance with the planned "sequencing path", etc.).
2. Establishing "open spaces" within the SDM support tool, to be used by interrelated IPs to permanently exchange data/information/documents as well as organise and manage specific meetings/workshops/events focused on the synchronisation dimension.

5.2.2 Monitoring and synchronization interrelation

An effective and comprehensive monitoring of the DP during the execution phase is necessary in order to ensure the timely and synchronised implementation of the Programme. In this respect, the following monitoring guidelines have been elaborated by the SDM, in terms of:

- "What" is monitored by the SDM
- "Who" is responsible for managing the monitoring process
- "How" the monitoring is performed
- "When" the monitoring activities are executed

"What"

The following elements will be monitored by the SDM during the execution phase, with reference to all the IPs included in the Programme:

- **Tasks:** the SDM will monitor the progress of tasks outlined by each IP in the "IP template", in order to ensure that planned activities are executed according to the defined timeframes

- **Milestones:** the SDM will monitor the achievement of several kinds of milestones for each IP, including:

    1. The milestones associated to each task, as defined by the implementing partners in their accepted bids;
    2. The "Common milestones" to be applied by all the IPs (see the "Monitoring view" in DP v1 section 5.2)
    3. Common milestones at "Family level", to be applied by each IP on the basis of the relevant Family of reference

- **Deliverables:** the SDM will monitor the timely submission of all the deliverables associated to the tasks, as outlined by the IPs in the IP template; moreover, all the deliverables submitted by the IPs will be reviewed by the SDM in order to ensure their consistency

- **Costs:** the SDM will monitor the costs reported by each IP taking into account INEA requirements (HR & travel costs, investment and procurement costs, other costs, etc.).

Moreover, SDM will monitor:

- the evolution of existing "gaps", in terms of number and nature, in order to ensure their coverage over time.
- the IDSG "leftovers", which are linked to DP families

"How"

The SDM monitoring process will be facilitated by the following elements:

1. Use of a **state-of-the-art programme management IT tool**, namely Tool Support System (TSS)
2. Continuous **project management support**

With regards to the TSS, it has been configured by the SDM in such a way to:

- provide a **"user friendly" platform** to facilitate the gathering of relevant information from IPs for monitoring and coordination purposes;
- enable an effective monitoring of the DP execution phase through the analysis of the uploaded data, as well as the proactive identification of discrepancies, risks and issues;
- facilitate the FPA and communication processes as well as the execution of performance and CBA related analyses

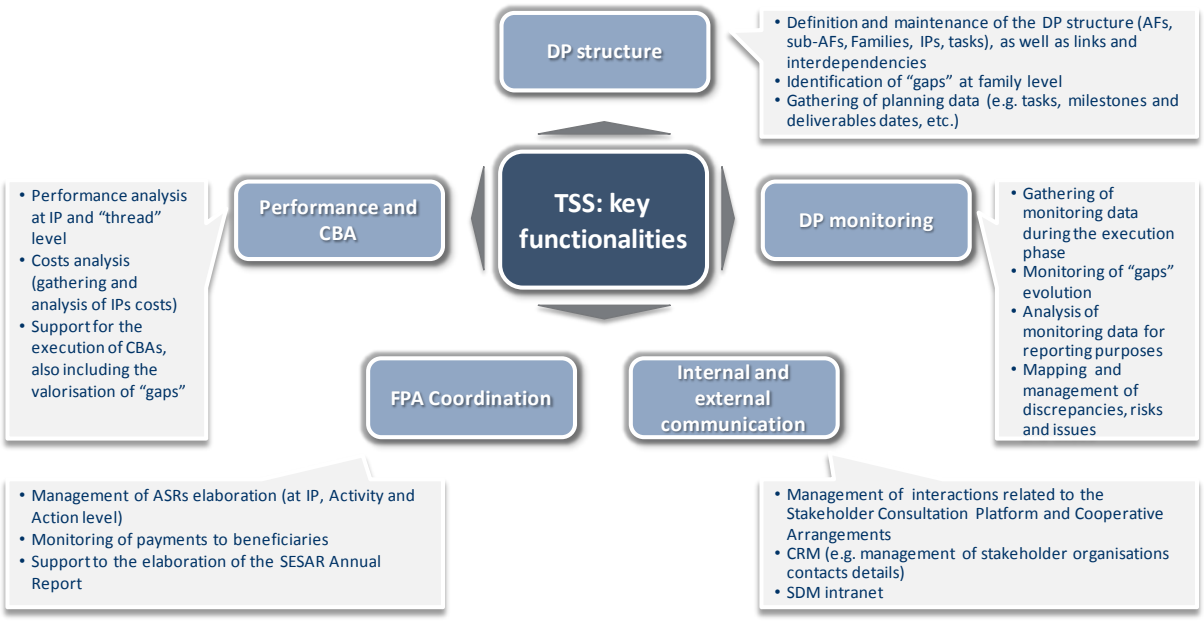


Fig. 10 – TSS: Key Functionalities

In particular, the TSS will be key in order to ensure the **synchronisation** of the Programme, through the provision of the following functionalities:

- **Possibility to develop and maintain the Deployment Programme structure**: the TSS has been configured in order to mirror the defined structure of the Deployment Programme in terms of AFs, sub-AFs, Families, Implementation Projects and related tasks; moreover, the tool provides the possibility to insert information related to links and interdependencies;
- **Possibility to continuously and effectively monitor the DP execution**: the TSS enables the gathering and analysis of all the information which is relevant for monitoring purposes (e.g. progress of tasks, deliverables, achievement of milestones, costs); such information will be uploaded by the operational stakeholders through specific forms within the tool itself, thus enabling:

  a. the prompt identification of misalignments between planned and actual progress at any level of the DP (from the task to the Programme level);
  b. the analysis of the consistency of IPs' deliverables, to be performed by the SDM experts;
  c. the elaboration of monitoring reports, aimed at highlighting the progress status of the DP.

- **Possibility to identify / activate / communicate coordination actions:** on the basis of the results of the analysis of the monitoring data, the TSS enables the identification and tracking of discrepancies, risks and issues, as well as the definition of the related mitigation actions.

Moreover, the effective monitoring of the DP execution will be facilitated by a structured and integrated "PMO" both at Level 2 and Level 3, the latter of which will support both Implementing Partners (IPs), Activity leaders and Action leaders. With regards to the IPs, the PMO will perform, among others, the following activities:

- Provision of day to day support in order to ensure the accomplishment to SDM/EC requirements
- Provision of support in the timely and correct upload of information to be provided through the TSS
- Execution of preliminary quality check of data and deliverables to be submitted
- Provision of support to facilitate the prompt identification of risks and issues

With regards to the Activity leaders, the PMO will perform, among others, the following activities:

- Provision of implementation progress data already elaborated at AF level to facilitate timely submission of progress data at reporting gates;
- Support in the coordination of IPs belonging to the same AF
- Support in the identification and management of discrepancies, risks and issues at AF level

With regard to the Action leaders, the PMO will provide a structured and integrated support through:

- Continuous contribution for the management of coordination among AFs
- Preliminary detection of discrepancies, risks and issues for DP Implementation at transversal level
- Provision to Action Leader of implementation progress data already elaborated (consistent draft) at AF transversal level to facilitate timely submission of progress data at "reporting gates";
- Preliminary analysis of DP synchronization at AF transversal level and of contributions for CBA/Performance Analysis according to guidelines provided by SDM (at transversal AF level).

Methodology wise, the PMO will also guarantee quality control, aiming at verifying the effective implementation of quality procedures set by the FPA Coordination.

A comprehensive list of activities performed by the "PMO" is outlined in the "Who" section of this paragraph.

"When"

From a time perspective, the monitoring activities performed by the SDM will be executed on the basis of:

- Specific **"monitoring gates"**
- **Continuous interactions** with the operational stakeholders

With reference to the specific "monitoring gates", it has been envisaged that the gathering of monitoring data from the operational stakeholders through the TSS will occur three times per year, and specifically on the:

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

On the basis of the data collected on each monitoring gate, the SDM will elaborate a "DP execution progress report", aimed at highlighting key monitoring information related to the progress of the Programme as well as any risk and issue to be managed.

With specific reference to the 15th of January monitoring gate, it will also be used to gather the relevant information for the elaboration of the Action Status Report.

An additional cycle in 2015 will be performed starting after the external roll out of the TSS tool and until mid-December just for testing purpose and in order to help stakeholders familiarise with the TSS and monitoring activities.

With reference to the monitoring through "continuous interactions", the Implementing Partners are expected to provide a feedback and supporting documents to the SDM through the TSS at latest 7 working days after the expected date of:

- Achievement of a milestone
- Completion of a task
- Submission of a deliverable

The SDM will provide a feedback to each Implementing Partner on the received supporting documents within 10 working days at latest.

"Who"

In order to provide a comprehensive view on roles and responsibilities related to the monitoring activities and related tasks aimed at facilitating the synchronised execution of the Programme, the following table is provided.

	Art 409 (SDM-DTO/PFS)	
	DP Synchronisation	**DP Coordination and execution**
SDM (DTO/PFS)	• Provision of guidelines for technical monitoring and reporting • Training/help for the use of the TSS-tool • Continuous analysis of monitoring data/information/ deliverables/costs provided by IPs by using the TSS-tool • Interactions with operational stakeholders for clarification purposes by using the TSS-tool • Feedbacks provision; in particular, provision of feedbacks to IPs • Elaboration of DP execution progress report referring to the reporting gates • Technical evaluation of ASR and Final Report • Contribution to the Annual Progress Report • Identification of Interdependencies and links between projects • Monitoring of the Interdependencies and links + informing all related projects • Collection and checking of bugs/change request for TSS • Updates/adjustments of the TSS-tool (bugfixing/change requests, administration of profiles) • Monitoring the timely availability of standards/regulations for DP-execution	• Identification and assessment of discrepancies, risks and issues at DP level • Clarification of the discrepancies together with the affected IPs • Identification and follow up of the necessary mitigation actions at DP • Coordination of the mitigation actions for the risks and issues with the stakeholders • Monitoring and reporting of the identified mitigation actions and proposal of changes to the planning • Providing an overall DP planning view through the use of the TSS-Tool • Coordination with EDA/NM/SJU • Reviewing the documents provided by the IPs as a proof of completion of tasks, deliverables and milestones.
Action Leader	• Analysis of relevant issues impacting on DP realisation at transversal level, building on information provided by AF leaders and consolidated by PMO (at transversal level) • Collection and analysis of contributions for CBA/Performance Analysis according to guidelines provided by SDM (at transversal AF level)	• Analysis of relevant issues impacting on DP realisation at transversal level • Risk and issue management at transversal action, as well as mitigation actions monitoring
PMO (Action Leader)	• Continuous contribution to the coordination management among AFs • Provision to Action Leader, on the basis of progress data provided by AFs leaders, of implementation progress data already elaborated (consistent draft) at AF transversal level to facilitate timely submission of progress data at "reporting gates"; • Preliminary analysis of DP synchronization at AF transversal level and of contributions for CBA/Performance Analysis according to guidelines provided by SDM (at transversal AF level); the activity will be performed on the basis of the AFs Leaders contribution.	• Preliminary detection of discrepancies, risks and issues for DP Implementation at transversal level (on the basis of the data provided by AFs leaders)

	Art 409 (SDM-DTO/PFS)	
	DP Synchronisation	**DP Coordination and execution**
Activity Leaders	• Management of interactions with SDM during the established "reporting gates" (January, April and September) • Timely submission of progress data at "reporting gates" (January, April and September) by using the TSS tool • Risk and issue management activities at AF level • Verification of IPs contributions for CBA/Performance Analysis according to guidelines provided by DTO • Provision of updates/changes to the plan at AF-level • Reporting of Bugs/change requests concerning the use of the TSS-tool to DTO	• Assessment of the impact of the monitoring data for the mitigation actions identified (AFs level)
PMO (Activity leaders)	• Continuous management of coordination among IPs within the same AF • Support to AF leaders for timely submission of progress data at "reporting gates" (January, April and September) • Provision of IPs implementation progress data to AF leaders already elaborated (consistent draft), on the basis of data provided by IPPs • Preliminary detection of discrepancies, risks and issues for DP Implementation (on the basis of data provided by IPPs) • Reporting of bugs/change requests concerning the use of the TSS-tool to DTO	• Provision of IPs implementation progress data risks, issues and related mitigation actions (already elaborated) to AF leaders • Clarification of discrepancies identified by SDM DTO • Support SDM for the monitoring at Implementation level of the mitigation actions identified
IPs	• Provision of technical and financial data/information for the intermediate reporting gates (January, April and September) by using the TSS-tool • Provision of deliverables, communication of milestones achievement/not achievement, communication of tasks completion/not completion within 7 working days from deadline by using the TSS-tool • Provision of updates/changes to the project plan (deliverables, milestones, tasks) • Reporting of bugs/change requests concerning the use of the TSS-tool to DTO	• Provision of progress data concerning risks, issues and related mitigation actions • Clarification of discrepancies identified by SDM DTO
PMO (IPs)	• Direct support to assist the timely upload of all the information to be provided at each reporting gate by using the TSS-tool • Support to IPs (preliminary verification) for the quality assurance in terms of completeness/consistency/alignment to quality requirements of data / information / deliverables provided by IPPs • Support IPs in case of clarifications requested by SDM/EC • Reporting of bugs/change requests concerning the use of the TSS-tool to DTO	• Support IPs for proactive identification of discrepancies/risks/issues • Support IPs for proactive identification of mitigation actions

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. The risks have been identified building on the lessons learnt during the elaboration of the DP, and on the outputs of the coordination between SDM and both operational and non-operational stakeholders.

In particular, the table highlights 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 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 DP 2015 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 DP 2015 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 2015 and subsequent versions;	

Risk	Objectives affected by the risks	Consequences /impacts	Mitigation actions	
			Actions by SESAR Deployment Manager	**Proposed Actions by other Stakeholders**
			- Support the civil and military 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	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

Risk	Objectives affected by the risks	Consequences /impacts	Mitigation actions	
			Actions by SESAR Deployment Manager	Proposed Actions by other Stakeholders
			issues linked to industrialisation.	resources.
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	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
		could lead to a significant time gap in 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/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.		SDM identifies the absence of any clear governance as a serious show stopper to AF5 implementation. The need to study governance options for SWIM - building on already existing studies – has to be considered as a mitigation action.
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. An additional aspect could be that the results of the SESAR JU validation in	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. On the basis of the output of the close cooperation with SJU, the SDM will properly	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
		2016 are not available in time to allow the stakeholders to submit new Datalink projects for the INEA-CEF-call 2016.	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 2016

This chapter aims at looking forward the next major update of the Programme, **DP 2016**, **expected by 30th September 2016**.

The drafting process will be inspired by the same principles that underpinned the delivery of DP v1, which all converge in the realization of a harmonised and defragmented ATM system. DP 2016 will take advantage of the wider available time span: it is envisaged that the development of Deployment Programme 2016 will take up to 8 months from its inception to its final delivery to European Commission. According to such timeframe**, the cooperation with SJU, EDA and NM will be substantially deepened and the Stakeholders Consultation process (via SCP) will be expanded to more than 6 months**, ensuring the highest level of engagement and awareness of the operational Stakeholders impacted by PCP implementation.

SDM will further increase its cooperation with SJU, EDA and NM in order to **expand and further detail the Programme sections and their consolidation**. The joint efforts of all the relevant organisations will focus on the update and enhancement of the technical descriptions of the Implementation Families of the Programme.

In particular, two macro-areas will be tackled:

- The R&D area, where the aim will be to ensure the alignment between the Deployment Programme and the ATM Master Plan, the large scale demonstrations and the validation exercises;
- The Standardisation and Certification area, where the aim will be to ensure the alignment of the Deployment Programme with regulations and standardisation requirements as well as with Manufacturing Industry Plans.

The joint work by SDA, SJU, EDA and NM will be followed by the beginning of the **Stakeholders Consultation process**, eventually leading to the parallel and intertwined progress of both streams of activities. Stakeholder Consultation Platform will therefore be activated accordingly with the envisaged drafting schedule by the end of 2015 / beginning of 2016. In this process the first document to be released on the Platform will be the updated DP 2016 structure together with the list of future updates. While the cooperative effort with other relevant non-operational stakeholders in the detailed drafting of the DP 2016 will be continued, SCP participants will be able to provide their valuable comments and feedback on the overall framework of the Programme.

By the end of I quarter of 2016, a **preliminary draft of the Deployment Programme 2016** will be published on the SCP. The publication will lead to the same process followed during DP v1 elaboration; however, considering the wider time span available, two different rounds of consultation are envisaged, and for each of them Stakeholders will be given additional time for their assessment and provision of comments. Such process will lead to the **delivery to EC of a DP 2016 Draft by the end of June**, which will be updated accordingly in the following months, thus leading to the **final delivery of DP 2016 in September**.

DP 2016 will be a significant evolution and development of DP 2015 from the content point of view. For instance, a particular focus will be given to the **integration of cyber security requirements.** In this respect, those families that need to comply with such requirements will be identified and highlighted in the Programme. Moreover, the cyber

security-related issues will be taken into due account in the development of the overall risk analysis included in the DP.

Another critical element which will be further tackled by DP 2016 is the **Data Link Systems upgrade**.

In view of the final delivery of SJU's study, currently set for June 2016, SDM will perform dedicated activities in order to mitigate any upcoming risk, namely:

- case by case assessment of any candidate IP related to Family 6.1.2, in cooperation with SJU;
- if needed, proposal of adjustments and adaptations to the submitted projects, in strict coordination with the Implementing Partners of the relevant projects;
- identification of the main risks related to the projects and potential mitigation actions;
- incorporation of the amended projects in DP 2016.

Furthermore, with regard to **AF5 deployment**, as a mitigation action to avoid the definition of **SWIM governance** that might hinder the achievement of operational and economic benefits associated with PCP implementation, DP 2016 will mirror the results of an SDM **dedicated study** that will be composed of two main sub-activities:

- an **assessment of SWIM governance state of play**, which will among other available information, build on the results of studies such as the A6/ECTL PENS governance study, and especially the SWIM governance definition study that SJU will deliver in November 2015;
- the **development of a dedicated action plan** aimed at ensuring as soon as possible the readiness for implementation of a SWIM governance framework, setting the scene for its subsequent actual implementation.

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

	DP v1	DP 2015	DP 2016 Draft
Timeline			
Released	24/06/15	30/09/15	30/06/16
Consulted	Yes	No	Yes
Approved	Noted	November 2015	Noted
Contents			
Strategic view	Yes (updated)	Yes Updated from DP v1 to reflect Call 2014 award	Yes Updated from DP 2015 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 in CEF Call 2014 **+ gaps**	Projects awarded in CEF Call 2014 **+ gaps**	Projects awarded in CEF Call 2014 + xxx projects submitted calls 2015 **+ gaps**
Performance view	Initial	Consolidate the methodology on performance assessment and monitoring + global/local CBA development	Updated from DP v 2015 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 CEF Transport call 2014

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
GAT	General Air Traffic
GBAS	Ground Based Augmentation System
GHG	Green House Gas
GMCS	Ground Manoeuvre 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

Acronym	Meaning
MLAT	Multilateration system
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 Operations 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

Acronym	Meaning
SDM	SESAR Deployment Manager
SES	Single European Sky
SESAR	Single European Sky ATM Research
SID	Standard Instrument Departure
SITA	Société Internationale de Télécommunications Aéronautiques
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
SO	Strategic Objective
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

Acronym	Meaning
WXXS	Weather Information Exchange Schema
XMAN	Arrival MANager with Extended Horizon

9. Notes