Guidance Material for SESAR Deployment Programme Implementation

Planning View 2019

Annex A
CEF Funded Implementation Projects

Proposal for update
to European Commission

June 31st, 2019

Table of content

AF 1 Extended Arrival Management & PBN in high density TMA 4

Family 1.1.1 – Basic AMAN 6

Family 1.1.2 – AMAN upgrade to include Extended Horizon function 8

Family 1.2.1 – RNP APCH with vertical guidance 12

Family 1.2.2 – Geographic Database for procedure design 16

Family 1.2.3 – RNP 1 Operations in high density TMAs (ground capabilities) .. 18

Family 1.2.4 – RNP 1 Operations (aircraft capabilities) 23

AF2 Airport integration and throughput 26

Family 2.1.1 – Initial DMAN 30

Family 2.1.2 – Electronic Flight Strips (EFS) 31

Family 2.1.3 – Basic A-CDM 35

Family 2.1.4 – Initial Airport Operational Plan (AOP) 42

Family 2.2.1 – A-SMGCS Level 1&2 48

Family 2.3.1 – Time Based Separation (TBS) 53

Family 2.4.1 – A-SMGCS Routing and Planning Functions 56

Family 2.5.1 – Airport Safety Nets associated with A-SMGCS level 2 61

Family 2.5.2 – Implement vehicle and aircraft systems contributing to Airport Safety Nets 66

AF3 Flexible ASM and Free Route 69

Family 3.1.1 – (Initial) ASM Tool to support AFUA 72

Family 3.1.2 – ASM management of real time data 75

Family 3.1.3 – Full rolling ASM/ATFCM process and ASM information sharing. 77

Family 3.1.4 – Management of Dynamic Airspace Configurations 79

Family 3.2.1 – Upgrade of ATM systems to support DCTs and FRA 84

Family 3.2.4 – Implement Free Route Airspace 101

AF4 Network Collaborative Management 105

Family 4.1.1 – STAM Phase 1 107

Family 4.1.2 – STAM Phase 2 108

Family 4.2.2 – Interactive Rolling NOP 110

Family 4.2.3 – Interface ATM systems to NM systems 112

Family 4.2.4 – AOP/NOP Information Sharing 115

Family 4.3.1 – Target Time for ATFCM purposes 116

Family 4.4.2 – Traffic Complexity Tools 117

AF 5 Initial SWIM 121

Family 5.1.2 – Future PENS: Future Pan-European Network Service 125

Family 5.1.3 – Common SWIM Infrastructure Components 127

Family 5.1.4 – Common SWIM PKI and Cybersecurity 129

Family 5.2.1 – Stakeholder Internet Protocol Compliance 130

Family 5.2.2 – Stakeholder SWIM Infrastructure components 137

Family 5.2.3 - Stakeholders' SWIM PKI and cyber security 142

Family 5.3.1 – Upgrade/Implement Aeronautical Information Exchange System / Service 147

Family 5.4.1 – Upgrade/Implement Meteorological Information Exchange System/Service 158

Family 5.5.1 – Upgrade/Implement Cooperative Network Information Exchange System/Service 164

Family 5.6.1 – Upgrade/Implement Flights Information Exchange System/Service 166

Family 5.6.2 – Upgrade/Implement Flights Information Exchange System/Service supported by Blue Profile 168

AF6 – Initial Trajectory Information Sharing 169

Family 6.1.1 – ATN B1 based services in ATSP domain 170

Family 6.1.3 – A/G and G/G Multi Frequency DL Network in defined European Service Areas 172

Family 6.1.4 – ATN B1 capability in Multi Frequency environment in Aircraft domain 175

AF 1 Extended Arrival Management & PBN in high density TMA

The following table encompasses the list of implementation initiatives associated to ATM Functionality #1 that were awarded under all CEF Transport Calls for Proposals.

CEF Call Designator	Title	Family	IP Description Page Number
2015_165_AF1	Amsterdam Schiphol AMAN 1.0	1.1.1	6
2015_166_AF1	Amsterdam Schiphol AMAN 2.0	1.1.1	6
2015_188_AF1	Deploy AMAN - Arrival Management at Düsseldorf and Berlin International	1.1.1	6
2015_234_AF1	AMAN LOWW initial	1.1.1	7
083AF1	AMAN extended to en-route	1.1.2	8
104AF1	Lower Airspace Optimization	1.1.2	8
2015_073_AF1	AMAN upgrade for extended horizon at DSNA airports	1.1.2	9
2015_101_AF1	Network Support to extended Arrival Management	1.1.2	9
2015_196_AF1	XMAN - Cross-centre arrival management (A) Extended AMAN in Czech Airspace (B)	1.1.2	9
2015_203_AF1	AMAN Extended Horizon	1.1.2	10
2016_023_AF1	XMAN - Cross-center arrival management - Part 2 (CEF2016)	1.1.2	11
007AF1	Performance Based Navigation (PBN) implementation in Vienna (LOWW)	1.2.1	12
013AF1	Implementation of RNP Approaches with Vertical Guidance at the Belgian civil aerodromes within the Brussels TMA	1.2.1	12
051AF1	RNP Approaches at CDG Airport with vertical guidance	1.2.1	12
061AF1a	RNP APCH Implementation in Palma de Mallorca	1.2.1	13
2015_186_AF1	RNP approaches to three main landing runways Amsterdam Schiphol	1.2.1	13
2015_215_AF1	RNP APCH Implementation in Madrid and Barcelona	1.2.1	14
2015_272_AF1	SESAR PCP. CECAF RNP Procedures Implementation	1.2.1	14
2015_309_AF1	Implementation of GBAS	1.2.1	15
2017_024_AF1	RNP approaches to landing runways (23R, 05L and 05R) at Manchester Ringway Airport	1.2.1	15
2017_064_AF1	Final phase RNP APCH procedures Amsterdam Schiphol	1.2.1	15
060AF1	ENAIRE reference geographic database	1.2.2	16
065AF1	ENAV Geographic DB for Procedure Design	1.2.2	16
2015_139_AF1	Geographic Database - AIM Tool	1.2.2	16

CEF Call Designator	Title	Family	IP Description Page Number
2015_271_AF1	SESAR PCP. CECAF RNP Procedures Design	1.2.2	17
091AF1	Enhanced Terminal Airspace (TMA) using RNP-Based Operations	1.2.3	18
107AF1	First phase of RNAV1 and RNP-APCH approaches Amsterdam Schiphol (EHAM)	1.2.3	18
119AF1	Manchester TMA Re-Development	1.2.3	19
120AF1	London Airspace Management Programme (LAMP)	1.2.3	19
2015_193_AF1	Implementation of RNP Based Departure Operations in High Density TMAs in FRA, DUS, BER and MUC	1.2.3	20
2016_012_AF1	Synchronised PBN Implementation	1.2.3	20
2016_042_AF1	Enhanced Terminal Airspace using RNP Based Operations at STN	1.2.3	21
2016_120_AF1	ENAV Introduction of RNP1+RF and APV procedures in MXP and FCO	1.2.3	21
2016_147_AF1	RNP APCH RWY 29 Vienna	1.2.3	21
2016_166_AF1	Stockholm Arlanda Airport RNP Project (SAARP)	1.2.3	22
2017_023_AF1	Enhanced Terminal Airspace using RNP Based Operations at Manchester Ringway Airport	1.2.3	22
2015_253_AF1	RNP 1.0, RNP 0.3 & SBAS for E3A AWACS	1.2.4	23
2015_278_AF1	C-130H RNP-1 Avionics Upgrade for 5 A/C	1.2.4	23
2015_279_AF1	Falcon 50 RNP-1 Avionics Upgrade for 3 A/C	1.2.4	23
2016_077_AF1	ES_FALCON 900 compliance with RNP 1 and RNP APCH [50% & 20%]	1.2.4	24
2017_004_AF1	Flight Crew Training for RNP1 Operations	1.2.4	24

Family 1.1.1 – Basic AMAN

2015_165_AF1 - Amsterdam Schiphol AMAN 1.0 ✓			
Start Date	16/02/2016	**End Date**	31/12/2018
Project Leader	LVNL		
Contributors	-		
Main AF/Sub-AF/Family	AF1	S-AF 1.1	Family 1.1.1
Project Objective	• Implementation of improved Trajectory Predictor (TP) • Implementation of Delta-T indication • Implementation of Preview Window		

2015_166_AF1 - Amsterdam Schiphol AMAN 2.0			
Start Date	01/09/2018	**End Date**	20/12/2020
Project Leader	LVNL		
Contributors	-		
Main AF/Sub-AF/Family	AF1	S-AF 1.1	Family 1.1.1
Project Objective	• Implementing high resolution meteo data to improve trajectory prediction • Implementing speed advisories • Implementing flexible trajectory prediction to support optimised descent profiles		

2015_188_AF1 - Deploy AMAN - Arrival Management at Düsseldorf and Berlin International (de-scoped IP: AMAN BERLIN not implemented) ✓			
Start Date	16/02/2016	**End Date**	31/12/2018
Project Leader	DFS		
Contributors			
Main AF/Sub-AF/Family	AF1	S-AF 1.1	Family 1.1.1

Project Objective	• The deployment of an Arrival Management System (AMAN) at EDDL, EDDK (both AMAN NRW) will close two of the gaps identified in the 2015 Deployment Programme as well as deploy up to three so called Families as laid down by the SESAR Deployment Manager within the Deployment Programme 2015 on the basis of implementing the Pilot-Common-Project Regulation EU No. 716/2014.
	• Therewith, deploying advanced operational concepts such as but not limited to continuous calculation of arrival sequences and automated sequence support in a timely, coordinated and synchronized effort to raise capacity and improve safety while minimizing aviation's environmental footprint by reduced holdings
	• The deployment of AMAN NRW shall:
	  ○ Improve sequencing and metering of arriving aircraft incl. control of approaching aircraft and reduce overloads
	  ○ 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 critical criteria		

	○ Provide automated sequencing support for the Air Traffic Controllers (ATCOs) handling traffic arriving to an airport ○ Provide as a minimum simple Time To Lose / Time To Gain • AMAN NRW will support the ATCOs in times of holding or delay, e.g. with the display of holdingtimes • AMAN NRW will reduce the coordination effort between approach and centre sectors in terms of the flow of approaching aircrafts and therewith increasing ATCOs productivity • AMAN NRW will provide the ATCOs with a tool-based support in the arrival process especially to accomplish air traffic increase and with a display of the predicted "Remaining Trackmiles" for each aircraft • AMAN NRW will also implement the technical capability for the implementation of the Extended Horizon Function for EDDL and EDDB • In addition, AMAN NRW is a first-mover project with regard to deploying "New Essential" Operational Changes" of the European ATM Master Plan Edition 2015 with regard to implementing a baseline capable of AMAN integration for multiple airports.

2015_234_AF1_A – AMAN LOWW initial **2015_234_AF1_B – AMAN LOWW initial** ✓			
Start Date	01/03/2016	**End Date**	31/03/2019
Project Leader	Austro Control		
Contributors	The project implementation scope depends on the coordinated work of all 4 partners (Austro Control GmbH, Hungarocontrol, LPS, ANS/CR) and is split into a cohesion and non-cohesion part		
Main AF/Sub-AF/Family	AF1	S-AF 1.1	Family 1.1.1
Project Objective	• Deploying Basic Arrival Manager (AMAN) function (allowing evolution to extended AMAN) for Terminal Area Vienna • Attaching ACC Vienna to the Vienna AMAN • Integrating AMAN functionality with the training and simulation environment ("BEST") • Ensuring Interaction with adjacent units		

Family 1.1.2 – AMAN upgrade to include Extended Horizon function

083AF1 – AMAN extended to en-route			
Start Date	01/01/2014	**End Date**	30/06/2017
Project Leader	Eurocontrol / Network Manager		
Contributors	-		
Main AF/Sub-AF/Family	AF1	S-AF 1.1	Family 1.1.2
Project Objective	• Upgrade NM systems to cope with extended AMAN requirements. • Introduce in the network view and the collaborative NOP, the information managed and shared with NM system by local extended AMAN systems (from airports / ANSP's where available) • Support the network coordination of extended AMAN functions and provide, if necessary, the network view on extended AMAN measures. The project is a key contributor to the following Strategic Objectives mentioned in the Network Strategy Plan (NSP): • SO 4: Plan optimum capacity and flight efficiency • SO 5: Facilitate business trajectories and cooperative traffic management • SO 6: Fully integrate airport and network operations		

104AF1 – Lower Airspace optimization			
Start Date	01/02/2015	**End Date**	22/12/2017
Project Leader	LFV		
Contributors			
Main AF/Sub-AF/Family	AF1	S-AF 1.1	Family 1.1.2

Project Objective	• This project aims to contribute to the PCP AF-1 Extended AMAN and PBN in high density TMAs, through the development and implementation of short term improvements for Stockholm TMA and the development of a roadmap for long term implementation.
	• A complete set up of requirements for the design and use of the future terminal airspace for Stockholm
	• A baseline and a defined long term forecast
	• Well defined KPIs for the baseline and the future
	• Implementation of short term measures within Stockholm TMA
	• A long-term implementation Plan (What, When) with the main purpose to:
	  ○ Increase the general efficiency of operations in lower airspace (more efficient route structure, better use of the available space, better planning of movements)
	  ○ Specifically increase efficiency by the removal of sub-optimal solutions currently required to ensure safety, e.g. during missed approaches
	  ○ Reduce environmental impact		

2015_073_AF1 - AMAN upgrade for extended horizon at DSNA airports			
Start Date	16/02/2016	**End Date**	31/12/2019
Project Leader	DSNA		
Contributors	Aéroports de Paris (ADP), Air France		
Main AF/Sub-AF/Family	AF1	S-AF 1.1	Family 1.1.2
Project Objective	• Extending planning horizon of AMAN for cross border flights at LFPG/LFPO/LFMN • Improving arrival management within LFFF and LFMM ACC for LFPG/LFPO/LFMN • Integrating collaborative process with airport and airlines (iStream results) • Preparing AMAN capability to export sequence to cross border systems		

2015_101_AF1 - Network Support to extended Arrival Management			
Start Date	01/01/2017	**End Date**	31/12/2020
Project Leader	Eurocontrol / Network Manager		
Contributors	-		
Main AF/Sub-AF/Family	AF1	S-AF 1.1	Family 1.1.2
Project Objective	• Supporting the network coordination of extended AMAN functions and provideing, as appropriate, the network view on extended AMAN measures • Continuing upgrading NM systems to cope with extended AMAN requirements • Introducing in the network view and in the collaborative NOP, the information managed and shared with NM system by local extended AMAN systems (from airports / ANSP's where available)		

2015_196_AF1_A – XMAN – Cross-centre arrival management 2015_196_AF1_B – Extended AMAN in Czech Airspace (completed)			
Start Date	15/02/2016	**End Date**	31/12/2020
Project Leader	DFS		
Contributors	DSNA, Eurocontrol (MUAC), LVNL, Belgocontrol, ANS CR, Skyguide (not a beneficiary of CEF funding). The project implementation scope depends on the coordinated work of all partners (DFS, MUAC, DSNA, Skyguide, LVNL, Belgocontrol, ANS CR) and is split into a cohesion and non-cohesion part.		
Main AF/Sub-AF/Family	AF1	S-AF 1.1	Family 1.1.2
Project Objective	• The overall objective is to deploy - in the European core area - the Family 1.1.2 "AMAN upgrade to include Extended Horizon function" of the Deployment Programme 2015 on the basis of the Pilot-Common-Project Regulation EU No. 716/2014. The IP covers: ○ the implementation of Extended Arrival Management (E-AMAN) in Enroute Control Centers adjacent to PCP-relevant airports Frankfurt, Munich, Zürich and London (LHR) based on a commonly developed Concept of Operations and System requirements in a timely, coordinated and synchronized effort, using currently available systems and technology		

	○ the development and validation of a common service for E-AMAN to share data, to achieve common awareness and consistent and coherent application of E-AMAN actions and to enable appropriate interactions among all actors involve • Generation of considerable improvements in various performance areas such as environment (CO_2 and fuel-burn reduction), safety (reduction in stack holding) and capacity (reduction in traffic bunching/workload). Provide ecomonic benefits to airspace users (though reduced fuel burn / improved flight efficiency) • Introduction of a common operational concept (CONOPS) and standardized systems requirements to provide a harmonized and coordinated approach to extended arrival management in the European core area • Consideration of existing technologies for early implementations and quick-wins as well as validated SESAR results and technologies for further evolution • Promotion of interoperability though automated Inter-Centre coordination by the use of system to system communication using standards (OLDI AMA Message or SWIM Webservice)

2015_203_AF1 - AMAN Extended Horizon			
Start Date	01/08/2016	**End Date**	31/12/2019
Project Leader	ENAV		
Contributors			
Main AF/Sub-AF/Family	AF1	S-AF 1.1	Family 1.1.2
Project Objective	• Designing, develop and operational deployment of AMAN with management horizon function extended to the Enroute Airspace • Optimizing traffic sequencing operations in high density TMAs minimising delay • Reducing the environmental impact		

2016_023_AF1 – XMAN - Cross-center arrival management - Part 2 (CEF2016)			
Start Date	07/02/2017	**End Date**	31/12/2021
Project Leader	DFS Deutsche Flugsicherung GmbH		
Contributors	the French Republic – Ministry of the Environment, Energy and the Sea, DGAC (Direction générale de l'aviation civile), DSNA (Direction des services de la navigation aérienne); Eurocontrol MUAC; Luchtverkeersleiding Nederland (LVNL);		
Main AF/Sub-AF/Family	AF1	S-AF 1.1	Family 1.1.2
Project Objective	The overall objective is to deploy the Family 1.1.2 "AMAN upgrade to include: • Extended Horizon function" of the Deployment Programme 2016 on the basis of the Pilot-Common-Project Regulation EU No. 716/2014. The IP covers the continued implementation of Extended Arrival Management (E-AMAN) in En-route Control Centers adjacent to PCP-relevant airports Munich, Berlin, Dusseldorf, Nice, and Barcelona based on a commonly developed Concept of Operations and System requirements in a timely, coordinated and synchronized effort, using currently available systems and Technology; • Generation of considerable improvements in various performance areas such as environment (CO2 and fuel-burn reduction), safety (reduction in stack holding) and capacity (reduction in traffic bunching/workload). Provide economic benefits to airspace users (though reduced fuel burn / improved flight efficiency); • Introduction of a common operational concept (CONOPS) and standardized systems requirements to provide a harmonized and coordinated approach to extended arrival management in the European core area; • Consideration of existing technologies for early implementations and quick-wins as well as validated SESAR results and technologies for further evolution; • Promotion of interoperability though automated Inter-Center coordination by the use of system to system communication using standards (OLDI AMA Message or SWIM Webservice); • Initial implementation of a common service for E-AMAN to share data, to achieve common awareness and consistent and coherent application of E-AMAN actions and to enable appropriate interactions among all actors involved.		

Family 1.2.1 – RNP APCH with vertical guidance

007AF1 – Performance Based Navigation (PBN) implementation in Vienna (LOWW)			
Start Date	03/03/2014	**End Date**	30/12/2016
Project Leader	Austro Control		
Contributors	-		
Main AF/Sub-AF/Family	AF1	S-AF 1.2	Family 1.2.1
Project Objective	• 2014 RNP AR Procedures to Runway 16 LOWW for noise abatement purposes implemented • 2015 feasibility study for open PBN transitions to final approach conducted • 2015 night SIDs on PBN basis implemented • 2016 one LPV (SBAS) approach in LOWW implemented		

013AF1 – Implementation of RNP Approaches with Vertical Guidance at the Belgian civil aerodromes within the Brussels TMA			
Start Date	24/06/2015	**End Date**	08/11/2018
Project Leader	Belgocontrol		
Contributors	-		
Main AF/Sub-AF/Family	AF1	S-AF 1.2	Family 1.2.1
Project Objective	The main objective of this project is to: • Achieve compliancy with ICAO AR37.11, EC Part-AUR (currently being developed at EASA) and Commission Implementing Regulation (EU) No 716/2014 Annex 1. • Implement Required Navigation Performance (RNP) Approaches (Lateral Navigation/Vertical Navigation (LNAV/VNAV) and Localizer Performance with Vertical guidance (LPV) minima) on all instrument runway ends of Brussels Airport and Antwerp Airport		

051AF1 – Required Navigation Performance Approaches at CDG Airport with vertical guidance			
Start Date	01/07/2014	**End Date**	31/12/2018
Project Leader	DSNA		
Contributors	Société Air France		
Main AF/Sub-AF/Family	AF1	S-AF 1.2	Family 1.2.1
Project Objective	• To implement RNP APCH with LPV minima and with LNAV/VNAV minima for Runway 08L/26R • To equip 51 B777 aircraft of Air France with LNAV/VNAV capability • To implement RNP APCH with LPV minima and with LNAV/VNAV minima for Runway 09L/27R • To maintain maximum CDG Airport Runway Throughput when one ILS equipment is not available by ensuring independent triple parallel approaches capability between CDG and Le Bourget airports The associated indicators are: • For objective 1: Publication of the procedures (source: French AIP) • For objective 2: Number of flights/h in case of ILS outage compared to the flight average		

061AF1a – Required Navigation Performance Approach Implementation in Palma de Mallorca			
Start Date	20/11/2015	**End Date**	01/03/2018
Project Leader	ENAIRE		
Contributors	-		
Main AF/Sub-AF/Family	AF1	S-AF 1.2	Family 1.2.1
Project Objective	The main objective of this project is to improve the precision of the approach trajectories and to develop and implement fuel efficient and environmental friendly procedures for approach in this high-density TMA airport. The new RNP APCH procedures will help increase the accessibility by means of RNP APCH to LPV minima procedures (using SBAS), in combination with LNAV and LNAV/VNAV minima for those operators not equipped with SBAS technology. These procedures will make operations at these sites more efficient and profitable, thus enhancing the use of the airports and saving operational costs, both for aircraft and airport operators (AENA). Specifically, the objectives of this project are: • Reduce the missed-approach rate when using non-precision approach runway headers for landing. • Increase safety by enabling straight approach procedures when not possible by means of current navaids infrastructure. • Reduce costs for Aircraft Operators (AOs) whenever an airport change must be done due to operational restrictions at destination airport. • Enhance airports and AOs business types by means of allowing broader kinds of flying activities at the airports.		

2015_186_AF1 - RNP approaches to three main landing runways Amsterdam Schiphol			
Start Date	02/01/2018	**End Date**	31/12/2019
Project Leader	LVNL		
Contributors	-		
Main AF/Sub-AF/Family	AF1	S-AF 1.1	Family 1.2.1
Project Objective	Implementing RNP APCH to three main landing runways (06, 18C and 36R) at Amsterdam Schiphol using Performance Based Navigation as required by the Pilot-Common-Project (PCP)		

2015_215_AF1 - RNP APCH Implementation in Madrid and Barcelona			
Start Date	04/07/2017	**End Date**	30/07/2021
Project Leader	ENAIRE		
Contributors	EBAA declare that the EBAA interest in the ENAIRE project regarding the RNP approach implementation at Madrid. EBAA does not request any grant from the Commission with a view to implementing the action on the terms laid down in this application."		
Main AF/Sub-AF/Family	AF1	S-AF 1.1	Family 1.2.1
Project Objective	The main objective of this project is to improve the precision of the approach trajectories and to develop and implement fuel efficient and environmental friendly procedures for approach in these high density TMA airports. The new RNP APCH procedures will help increase the accessibility by means of RNP APCH to LPV minima procedures (using SBAS), in combination with LNAV and LNAV/VNAV minima for those operators not equipped with SBAS technology. These procedures will make operations at this site more efficient and profitable, thus enhancing the use of the airport and saving operational costs, both for aircraft and airport operators (AENA). Specifically, the objectives of this project are: • Reducing the missed-approach rate when using non-precision approach runway headers for landing • Increasing safety by enabling straight approach procedures when not possible by means of current navaids infrastructure • Reducing costs for Aircraft Operators (AOs) whenever an airport change must be done due to operational restrictions at destination airport • Enhance airports and AOs business types by means of allowing broader kinds of flying activities at the airports.		

2015_272_AF1_AIR - SESAR PCP. CECAF RNP Procedures Implementation 2015_272_AF1_GND - SESAR PCP. CECAF RNP Procedures Implementation (completed)			
Start Date	01/11/2016	**End Date**	31/12/2019
Project Leader	Spanish Air Force		
Contributors	-		
Main AF/Sub-AF/Family	AF1	S-AF 1.1	Family 1.2.1
Project Objective	• To improve the civil-military interoperability, establishing RNP approaches in Spanish Air Force Bases opened to civil traffic as well as in joint use Bases/Airports. • Ensure civil-military ANSPs coordination. To be able to validate LEMD, LEBL and LEPA procedures design. To enable CECAF for manoeuvres design and subsequent integration. To enable CECAF (Spanish Air Force Cartographic and Photographic Centre) for RNP procedures design validation in any civil or military ECAC airport. • To enable CECAF for verification of new civil or military systems and manoeuvres associated to any civil or military ECAC airport.		

2015_309_AF1 - Implementation of GBAS			
Start Date	01/01/2017	**End Date**	14/09/2017
Project Leader	Nova Airlines AB		
Contributors			
Main AF/Sub-AF/Family	AF1	S-AF 1.1	Family 1.2.1
Project Objective	• Implementation of GBAS • Preparation of GBAS operation in the Flight Operations Department • Training of flight crew in GBAS operation		

2017_024_AF1 – RNP approaches to landing runways (23R, 05L and 05R) at Manchester Ringway Airport			
Start Date	12/04/2018	**End Date**	12/05/2023
Project Leader	Manchester Airport PLC		
Contributors			
Main AF/Sub-AF/Family	AF1	S-AF 1.2	Family 1.2.1
Project Objective	The Implementation Project aims to: • Implement RNP SIDs • Publish the RNP procedures in UK AIP • Make a Public Consultation of new RNP SIDs • Develop a Safety assessment and an operational validation • Validate the procedure by a flyability simulation.		

2017_064_AF1 – Final phase RNP APCH procedures Amsterdam Schiphol			
Start Date	01/09/2018	**End Date**	01/11/2022
Project Leader	Luchtverkeersleiding Nederland (LVNL)		
Contributors			
Main AF/Sub-AF/Family	AF1	S-AF 1.2	Family 1.2.1
Project Objective	The Implementation Project aims to deploy RNP APCH procedures to the remaining six runway ends at Amsterdam Airport Schiphol at runway ends 27, 18R, 24, 36C, 04 and 09. For each corresponding runway end, two RNAV approach procedures will be established: • LPV approach utilizing the European EGNOS system, aiming for CAT I minima; • LNAV/VNAV approach as present in large part of the fleet, with LNAV as reversionary mode. For RWY 18R there will even be a third design, aiming at independence from RWY 27, possibly with RF leg. The Implementation Project will establish ATC working methods and flight procedures taking into account the PBN equipped fleetmix.		

Family 1.2.2 – Geographic Database for procedure design

060AF1 – ENAIRE reference geographic database (Family 1.2.2)			
Start Date	01/01/2014	**End Date**	29/12/2017
Project Leader	ENAIRE		
Contributors	-		
Main AF/Sub-AF/Family	AF1	S-AF 1.2	Family 1.2.2
Project Objective	• The project will generate an ENAIRE reference dataset structure and set up the managing processes to maintain the information up to date with authoritative sources reference data. • Procedure design tools will be updated to make use of this database content; digital cartography (terrain and obstacles) and aeronautical data defining instrumental manoeuvres from authoritative sources with required quality and integrity. • To achieve the required high levels of integrity the Spanish AIS provider will participate in the data provision and management processes. • To populate the database with full datasets for LEMD, LEBL and LEPA TMA's.		

065AF1 – ENAV Geographic DB for Procedure Design			
Start Date	01/01/2014	**End Date**	31/12/2016
Project Leader	ENAV		
Contributors	-		
Main AF/Sub-AF/Family	AF1	S-AF 1.2	Family 1.2.2
Project Objective	• To upgrade the ENAV geographic database for procedure design suite based on two products developed by IDS (SIPRO and eTOD). • To implement improvements to the solution currently used and help to execute the Electromagnetic Compatibility analyses to determine the expected radio-electric performances of the new navaids equipment (SIPRO). • To validate a new technique for automatic feature extraction from Digital Orthophoto with the tool Electronic Terrain and Obstacle Database (eTOD). • To use the tools above to implement with priority RNP operations over the geographic applicability area identified within the PCP: LIRF and LIMC.		

2015_139_AF1 – Geographic Database - AIM Tool			
Start Date	16/02/2016	**End Date**	31/12/2020
Project Leader	DSNA		
Contributors	Aéroports de Paris (ADP)		
Main AF/Sub-AF/Family	AF1	S-AF 1.2	Family 1.2.2
Project Objective	• Providing updated databases including aeronautical information and geographical data on LFPG, LFPO and LFMN. These databases		

	will be shared by DSNA and airports operators and will be used in a collaborative way on LFPG, LFPO and LFMN • Using databases for procedure design and cartographic needs on LFPG, LFPO and LFMN. DSNA and airports operators will use the databases for their respective needs (procedure design, cartography...). For these needs, existing tools will be updated and a common AIM Tool used by local DSNA units and airports operators at LFPG, LFPO and LFMN will be developed to enhance the collaboration between ANSP and Airport operator in the AIM domain and to enhance aeronautical publication on these airports.

2015_271_AF1 - SESAR PCP. CECAF RNP Procedures Design			
Start Date	01/04/2016	**End Date**	31/12/2020
Project Leader	Spanish Air Force		
Contributors			
Main AF/Sub-AF/Family	AF1	S-AF 1.2	Family 1.2.2
Project Objective	• Ensuring civil-military ANSPs coordination. To continue compiling, producing and sharing information between ENAIRE and military • Ensuring civil-military ANSPs coordination. To complete the full data exchange implementation at national level • Ensuring civil-military interoperability, using the same reference geographic database • Ensuring civil-military AIS providers integrity. To provide aeronautical data in the required format • Ensuring civil-military ANSPs coordination. To provide ENAIRE with LEMD, LEBL and LEPA aeronautical data for procedures design • Establishing synchronisation and harmonisation of AIS at national level • Providing up-to-date terrain and obstacle information and data for aeronautical information provision (procedures, airport and environment) • Complying with ICAO Annex 15 and ADQ rules. eTOD Areas 1 to 4 • Providing interoperatibillity information and data ready to feed geospatial aeronautical database • Being able to survey the airports surrouding in a period-basis estrategy information relevant for aeronautical purpouses • Becoming an asset of eTOD for SESAR successful • Providing a geospatial database for aeronautical data and information AIXM 5.1 format • Storing aeronautical entities, terrain and obstacle relevant for aviation • Providing interoperatibillity information and data ready to feed geospatial aeronautical database • Accessing and retrieving aeronautical information and data from the data base • Becoming an asset of database for SESAR successful • Providing interoperatibillity information and data ready to feed geospatial aeronautical database • Migrating AIXM 4.5 Database to AIXM 5.1 • Producing AIXM 5.1 XML from AIXM 5.1 xsd • Developing web services based upon AIXM 5.1 data base • Becoming an asset of migration for SESAR success		

Family 1.2.3 – RNP 1 Operations in high density TMAs (ground capabilities)

091AF1 – Enhanced Terminal Airspace (TMA) using RNP-Based Operations			
Start Date	01/01/2014	**End Date**	31/12/2021
Project Leader	Gatwick Airport Limited		
Contributors	-		
Main AF/Sub-AF/Family	AF1	S-AF 1.2	Family 1.2.3
Project Objective	The objectives of the project for Gatwick Airport are as follows: • Introduce point merge • Efficient BOGNA Standard Instrument Departure (SID) Route • Dual Precision Area Navigation (P-RNAV) routes with easterly and westerly arrival and departure routes to runway (RWY) 26 and 08, providing rolling respite • Increase RWY capacity by introducing ADNID SID • Re-design SIDs and STARs to meet RNP specifications As a result of these changes, the project would deliver the following benefits: • Improvements in arrivals and departures stability • Significant improvement in operational resilience • Reduced fuel burn for airlines • Reduced CO_2 emissions (reduced track mileage) – in line with Gatwick Airport and NATS carbon reduction targets • Reduced noise impact for people on the ground through provision of rotating respite • Delivery against requirements of S106 Legal Agreement • Support the delivery of NATS 10% carbon emissions reduction target The project is divided into two Phases: • Phase 1: Enhanced terminal airspace using P-RNAV for all Standard Instrument Routes. • Phase 2: Enhanced terminal airspace to meet RNP specifications (out of scope of this INEA Call).		

107AF1 – First phase of RNAV1 and RNP-APCH approaches Amsterdam Schiphol			
Start Date	01/01/2014	**End Date**	31/12/2020
Project Leader	LVNL		
Contributors	-		
Main AF/Sub-AF/Family	AF1	S-AF 1.2	Family 1.2.3
Project Objective	• Publication and operational implementation of an RNAV1 fixed inbound route to RWY 36R from ARTIP. • Publication and operational implementation of an RNAV1 fixed inbound route to RWY 18C from ARTIP to be flown as CDO. • Publication and operational implementation of an RNP APCH procedure to RWY 22 with vertical guidance.		

119AF1 – Manchester TMA Re-Development			
Start Date	01/01/2014	**End Date**	31/03/2022
Project Leader	NATS		
Contributors	-		
Main AF/Sub-AF/Family	AF1	S-AF 1.2	Family 1.2.3
Project Objective	Introduction of RNAV1 SIDs (Standard Instrument Departure) and STARs (Standard Arrival Route) within the existing Manchester Terminal Manoeuvring Area (MTMA) in order to systemise the airspace infrastructure. The systemised airspace will: • Exploit existing and future aircraft capabilities to fly precise trajectories (through use of Performance Based Navigation – PBN), enabling greater flexibility in airspace design through closely spaced arrival and departure routes independent of ground-based navigation aids. • Offer greater resilience against human error (pilot or controller), with fewer interactions between routes and a reduction in tactical interaction by controllers. ○ Reduced tactical intervention will offer a corresponding increase in capacity • Locate routes where they best meet the needs of airports and flight profiles, making far better use of finite terminal airspace. • Save fuel and reducing noise by enabling continuous descent approaches (CDAs) and continuous climb departures (CCDs) to be flown from/to significantly higher altitudes than available today The revised RNAV route infrastructure will align with LAMP (London Airspace Management Programme) requirements and maximise the benefits within the majority of the UK TMA. The Project is split into two phases: Phase 1: Project Definition (PD) from Jan 2012 – December 2016 Goal: Develop PBN designs for the Manchester TMA airspace, and surrounded impacted areas for Consultation in November 2015 and validation by December 2016 Phase 2: Implementation from December 2016 – Q4 2018. Goal: Implement the revised NTCA designs into Operations subject to approval of CAA Consultation		

120AF1 – London Airspace Management Programme (LAMP)			
Start Date	01/01/2014	**End Date**	31/03/2016
Project Leader	NATS		
Contributors	British Airways, Heathrow Airport Limited		
Main AF/Sub-AF/Family	AF1	S-AF 1.2	Family 1.2.3
Project Objective	• Produce systemised airspace design for the London TMA by using PBN-based procedures and STARs facilitating RNP-1 SIDs where required at London Airports • Introduce greater efficiencies in the design of airspace to accommodate forecast demand and also facilitate Continuous Climb and Descent Operations minimising delay and realising fuel savings.		

	This application concerns the first implementation of the LAMP programme (Phase 1a), implementing that part of the London TMA affecting London City Airport and higher level re-sectorization and airspace modification within the TMA. The LAMP project will be delivered in a phased approach; the first deployment (Phase 1a) being delivered prior to the implementation of the key enabling project of raising the Transition Altitude (TA) to 18,000 feet from the current 6,000 feet. Subsequent phases of LAMP will be deployed after the TA change in 2018.

2015_193_AF1 - Implementation of RNP Based Departure Operations in High Density TMAs in FRA, DUS, BER and MUC			
Start Date	01/03/2016	**End Date**	31/12/2020
Project Leader	DFS		
Contributors	Fraport AG, Deutsche Lufthansa AG		
Main AF/Sub-AF/Family	AF1	S-AF 1.2	Family 1.2.3
Project Objective	• The overall objective is to deploy first elements of the so called Family "1.2.3 RNP 1 Operations in high density TMAs (ground capabilities)" as laid down by the SESAR Deployment Manager within the Deployment Programme 2015 on the basis of implementing the Pilot-Common-Project Regulation EU No. 716/2014. In that context, the Implementation of RNP Based Departure Operations in the High Density and PCP-related TMAs FRA, DUS, BER and MUC in a timely, coordinated and synchronized effort will have a significant impact on the raise of capacity, the improvement of safety and the further reduction of costs while minimizing aviation's environmental footprint • Mutual deployment by local lead carrier, ANSP and airport of RNP-based routes including Radius to Fix-functionality for departure procedures (Standard Instrument Departure: SIDs) and transitions • Reduction in spread of flight tracks during turns, and thereby reducing the noise footprint in the highly populated areas surrounding the major airports in Germany as well as reduction in CO_2 emissions and an increase in flight efficiency • Implementation of flexible and environmentally friendly procedures for departure using PBN/RNP in high density TMAs, as specified in RNP1 specifications • Implementation of the requirements set out in the SESAR ATM Master Plan moving towards the goal of the Sngle European Sky • Deploy elements of the PBN Implementation Plan		

2016_012_AF1 – Synchronised PBN Implementation			
Start Date	01/07/2017	**End Date**	30/06/2020
Project Leader	Naviair		
Contributors	Københavns Lufthavne A/S		
Main AF/Sub-AF/Family	AF1	S-AF 1.2	Family 1.2.3
Project Objective	• Implementation and publication of RNP-1 procedures (SIDs/STARs); • Implementation and publication of RNP approaches with vertical guidance (LNAV/VNAV & LPV); • Preparation of implementation of E-AMAN as support to PBN procedures (for Copenhagen airport);		

	• Validation of local TBS procedures with traffic feed from PBN (for Copenhagen airport); • Consultation and coordination with Airspace Users and development of tailored PBN training.

2016_042_AF1 – Enhanced Terminal Airspace using RNP Based Operations at STN			
Start Date	01/10/2017	**End Date**	31/12/2020
Project Leader	STAL - Stansted Airport Limited		
Contributors	-		
Main AF/Sub-AF/Family	AF1	S-AF 1.2	Family 1.2.3
Project Objective	Enhanced Terminal Airspace using RNP Based Operations [STN] The objective of this project is to convert the conventional SIDS, STARS, transitions and LPV approaches to RNP1 design standards at Stansted Airport. This project is designed to the SESAR standards as required to achieve PCP compliance as a minimum, not limited to: • To better integrate with Network Manager with increased efficiency, environmentally friendly procedures and enhanced safety by the implementation of RNP technology.		

2016_120_AF1 – ENAV Introduction of RNP1+RF and APV procedures in MXP and FCO			
Start Date	07/02/2017	**End Date**	31/12/2019
Project Leader	ENAV S.p.A		
Contributors			
Main AF/Sub-AF/Family	AF1	S-AF 1.2	Family 1.2.3
Project Objective	• Improve air traffic management in operational situation where the airport capacity could suffer from existing design constraints; • Reduce track miles providing aircraft with shortest path taking advantage from RF functionality.		

2016_147_AF1 – RNP APCH RWY 29 Vienna			
Start Date	01/06/2017	**End Date**	31/05/2019
Project Leader	Austro Control Österreichische Gesellschaft für Zivilluftfahrt mit beschränkter Haftung (Austro Control GmbH)		
Contributors	Deutsche Lufthansa AG		
Main AF/Sub-AF/Family	AF1	S-AF 1.2	Family 1.2.3
Project Objective	• SIDs based on RF functionality in the initial leg implemented (all RWY directions) in order to minimize noise exposure and emissions and improve flight Efficiency; • Feasibility study RF Overlay based on TF segments (Multiple Track Turns) for one RWY conducted in order to enhance departure procedures, provide higher efficiency due to the fact that this MTT can be flown by all operators, and reduce overall noise exposure and emissions; • RWY29 Z/X (day/night operation): SBAS LPV200 approach & re-design of LNAV/VNAV according new ICAO DOC 8168 (AMDT 6) in LOWW implemented.		

2016_166_AF1 – Stockholm Arlanda Airport RNP Project (SAARP)			
Start Date	07/02/2017	**End Date**	31/12/2020
Project Leader	Swedavia AB		
Contributors	Nova Airlines AB (Novair)		
Main AF/Sub-AF/Family	AF1	S-AF 1.2	Family 1.2.3
Project Objective	To be noted is task 9 "Analysis". This task is composed of a variety of analyses, Fuel consumption, navaid reduction possibilities and an enviromnental impact analysis. Moreover this IP is paving the way for further improvements in SID/STAR construction as this new concept makes it a simple task to adjust and refine layout of SID/STARs depending on Community or County Council expectations or Changes in current environmental condition for Stockholm Arlanda Airport.		

2017_023_AF1 – Enhanced Terminal Airspace using RNP Based Operations at Manchester Ringway Airport			
Start Date	12/04/2018	**End Date**	12/05/2023
Project Leader	Manchester Airport PLC		
Contributors			
Main AF/Sub-AF/Family	AF1	S-AF 1.2	Family 1.2.3
Project Objective	The Implementation Project aims to: • Implement RNP SIDs. • Publish the RNP procedures in UK AIP • Make a Public Consultation of new RNP SIDs • Develop a Safety assessment and an operational validation, • Validate the procedure by a flyability simulation.		

Family 1.2.4 – RNP 1 Operations (aircraft capabilities)

2015_253_AF1_A – RNP 1.0, RNP 0.3 & SBAS for E3A AWACS for CEF eligible nations and third party (GND part completed 31/12/2018) 2015_253_AF1_B – RNP 1.0, RNP 0.3 & SBAS for E3A AWACS for Cohesion eligible States			
Start Date	16/02/2016	**End Date**	30/09/2019
Project Leader	NATO Airborne Early Warning and Control Programme Management Organisation (NAPMO/NAPMA)		
Contributors	-		
Main AF/Sub-AF/Family	AF1	S-AF 1.2	Family 1.2.4
Project Objective	• Production and Retrofit Phase for the fleet (13 aircraft)Updating of Flight Training device and Full Flight Simulator for RNP functionalities • Air Crew RNP Training • RNP equipage of the multinational E3 aircraft will ensure that they are not hampered in their day-to-day operations. • RNP Upgrade will permit safe operation in Free Route Airspace and in high density TMAs without detriment to the Performance and Capacity of ANSPs and Airports throughout Europe. • Greater flight efficiency with time reduction and associated fuel and CO_2 reductions due to ability to fly optimized routes. • Reducing noise footprint for approaches using PBN in high density TMAs		

2015_278_AF1 - C-130H RNP-1 Avionics Upgrade for 5 A/C			
Start Date	01/06/2016	**End Date**	31/12/2020
Project Leader	Portuguese Air Force		
Contributors	-		
Main AF/Sub-AF/Family	AF1	S-AF 1.2	Family 1.2.4
Project Objective	• C-130H Full Civil Required Navigation Compliance RNP-1 Capability		

2015_279_AF1 - Falcon 50 RNP-1 Avionics Upgrade for 3 A/C			
Start Date	07/06/2016	**End Date**	30/10/2020
Project Leader	Portuguese Air Force		
Contributors	-		
Main AF/Sub-AF/Family	AF1	S-AF 1.2	Family 1.2.4
Project Objective	Falcon 50 Full Civil Required Navigation Compliance RNP-1 Capability		

2016_077_AF1 – ES_FALCON 900 compliance with RNP 1 and RNP APCH [50% & 20%]			
Start Date	04/09/2017	**End Date**	19/10/2020
Project Leader	Spanish Airforce		
Contributors			
Main AF/Sub-AF/Family	AF1	S-AF 1.2	Family 1.2.4
Project Objective	The modification to PBN navigation for FALCON 900 White fleet will comply with the regulatory baseline of section 4.2 of the Eurocontrol Guidelines on conformity assessment for the interoperability Regulation of the single European sky (Edition 3.0 dated 20/02/2012) and so will enhance the interoperability Civil-Military. This directly contributes to PCP AF1 objectives. It will also be a solid basis for compliance with future PBN regulation. Adequate on-board equipage for PBN implementation which, in turn, is one of the elements that crucially contributes to the increase in capacity and safety and to the decrease in the carbon footprint of State aircraft operations. As the Falcon 900 fleet flies predominantly GAT, including within the 25 identified TMAs and airport, full compliance with applicable PBN specifications will alleviate capacity constraints that would result from handling based on exemption. This directly contributes to PCP AF1 objectives. To enable the Implementation of RNP (Required Navigation Performance) Approach with LPV (Localizer performance with vertical guidance) capabilities in Spanish Air Force Falcon 900 Fleet. RNAV (aRea NAVigation) capability, which means no operating restrictions for flight levels and increased safety. In this context, Eurocontrol expected that to have P-RNAV will reduce VHF communications between crew and ATM, between 30% and 50%.With RNP capabilities, the expected benefits are even higher. Possibility of short and direct routes, with consequent savings in time, fuel and operating costs, providing greater reach. Eurocontrol estimate forecasts an average time savings of 2-4 minutes of 13-15 miles per flight. Flexible route modification which facilitates also ATM (Air Traffic Management). Make operation at airports having no restrictions. As a resume, benefits of aircraft equipped with RNP1 and RNP APCH specifications includes: • Improved safety, situational awareness, and improved reliability; • Improved surveillance capabilities; • Seamless GAT accommodation; • Reduction of ATC workload.		

2017_004_AF1- Flight Crew Training for RNP1 Operations			
Start Date	12/04/2018	**End Date**	31/12/2023
Project Leader	Deutsche Lufthansa AG		
Contributors	Air Dolomiti S.p.A.; | Austrian Airlines AG; | Eurowings Europe GmbH; | Eurowings GmbH; | Germanwings GmbH; | Lufthansa Cargo AG; | Lufthansa Cityline GmbH; | Swiss International Airlines Ltd		
Main AF/Sub-AF/Family	AF1	S-AF 1.2	Family 1.2.4
Project Objective	In the scope of this project, LH Group will prepare, conduct and monitor simulator training to assure practical skills regarding operation on RNP1 procedures. The RNP1 specific training will consist of 7 min briefing time and 35 minutes full flight simulator time, being part of a broader PBN training program.		

	• Handling of flight management system rerarding required navigation performance (5 min) • Demonstrate effects on x-track error and specialities of RNP1 and Radius to Fix (10 min) • Failure sequence on RNP1 procedure: Loss of GNSS, loss of AP and FD, map shift. Realize effects on navigation performance (10 min) • Engine Failure followed by go around on RF Leg on turn to final of an RNP1 to ILS Approach (or RNP1 to xLS Approach) (10min) The training comprises 10 Airlines and 10.000 (actual 9847) pilots. Conduction of training measures will start in april 2018 with the first group airlines and end in december 2022.

AF2 Airport integration and throughput

The following table encompasses the list of implementation initiatives associated to ATM Functionality #2 that were awarded under all CEF Transport Calls for Proposals.

CEF Call Designator	Title	Family	IP Description Page Number
2015_044_AF2	Implementation of initial DMAN and AOP at Copenhagen Airport	2.1.1	30
2015_085_AF2	DMAN and Pre-departure sequence (PDS) implementations for the CDM implementation	2.1.1	30
2015_161_AF2	Initial implementation of DMAN	2.1.1	30
008AF2	External Gateway System (EGS) implementation	2.1.2	31
048AF2	SYSAT@CDG	2.1.2	31
049AF2	SYSAT@NCE	2.1.2	31
050AF2	SYSAT@ORY	2.1.2	32
057AF2a	Fulfillment of the prerequisite EFS for the PCP AF2 Subfunctionality: Airport Integration and Throughput (2014-2016)	2.1.2	32
108AF2	Electronic Flight Strips at Schiphol TWR	2.1.2	33
2015_162_AF2	Electronic Flight Strip (EFS) Implementation	2.1.2	34
2015_212_AF2	Fulfillment of the prerequisite EFS for the PCP AF2 Subfunctionality: Airport Integration and Throughput (2017-2019)	2.1.2	34
2015_286_AF2	Introduction of Electronic Flight Strips	2.1.2	34
011AF2	Decision Management (CDM) fully implemented	2.1.3	35
025AF2	TSAT to the Gate	2.1.3	35
026AF2	Evolution CDM-CDG	2.1.3	36
031AF2	Data exchanges with the Air Navigation Service Provider	2.1.3	36
032AF2	Data exchanges with the Network Manager Operations Center	2.1.3	36
033AF2	Data exchanges with COHOR	2.1.3	37
086AF2	A-CDM Extension	2.1.3	37
109AF2	Airport CDM implementation Schiphol	2.1.3	37
129AF2	CDM-ORLY	2.1.3	38
136AF2	A-CDM Optimization	2.1.3	38
2015_074_AF2	Display TOBT TSAT at the Gate	2.1.3	39
2015_076_AF2	Aerial Visual Display A-CDM Phase 2	2.1.3	39

CEF Call Designator	Title	Family	IP Description Page Number
2015_077_AF2	Universal Mobile Display System (UMDS) solution to support A-CDM Implementation	2.1.3	39
2015_078_AF2	A-CDM Enhancements EIDW	2.1.3	40
2015_133_AF2	Initial AirPort Operational Centre (iAPOC)	2.1.3	40
2015_294_AF2	Implementation of OTP	2.1.3	40
2016_041_AF2	Basic A-CDM implementation at London Stansted Airport	2.1.3	41
024AF2	SAIGA	2.1.4	42
099AF2	Preparation for AOP	2.1.4	42
2015_060_AF2	Airport Operating Plan AOP	2.1.4	43
2015_083_AF2	iAOP implementation	2.1.4	43
2015_135_AF2	CDG and ORLY - Initial Airport Operational Plan (AOP)	2.1.4	43
2015_178_AF2	Implementation of AOP Schiphol Airport	2.1.4	44
2015_225_AF2	Initial Airport Operations Plan @ FRA	2.1.4	44
2015_244_AF2	APOC implementation	2.1.4	44
2015_245_AF2	AIRSTAT	2.1.4	45
2015_282_AF2	Initial APOC and AOP	2.1.4	45
2015_290_AF2	Initial AOP	2.1.4	45
2015_292_AF2	DMAN Stockholm Arlanda Airport	2.1.4	46
2015_299_AF2	Integrated Ground Management (GMAN)	2.1.4	46
2016_137_AF2	Initial AOP DUS	2.1.4	46
2017_022_AF2	Synchronized stakeholder decision on process optimization at airport level	2.1.4	47
023AF2	SMAN-Vehicle	2.2.1	48
042AF2a	A-SMGCS Düsseldorf	2.2.1	48
058AF2a	Fulfillment of the prerequisite A-SMGCS 2 for the PCP AF2 Subfunctionality: Airport Integration and Throughput (2014-2016)	2.2.1	48
103AF2	FT 2.2.1 Standardization of A-SMGCS	2.2.1	49
115AF2	A-SMGCS Renewal of the Surface Movement Radar (BORA)	2.2.1	49
130AF2	BOREAL-Orly	2.2.1	50
137AF2	Enhancement of Airport Safety Nets at Stockholm Arlanda Airport	2.2.1	50

CEF Call Designator	Title	Family	IP Description Page Number
2015_016_AF2	ASMGCS Level 1 & 2	2.2.1	51
2015_211_AF2	Fulfillment of the prerequisite A-SMGCS 2 for the PCP AF2 Subfunctionality: Airport Integration and Throughput (2017-2019)	2.2.1	51
2015_291_AF2	A-SMGCS Level 2 implementation	2.2.1	51
2016_117_AF2	ENAV Implementation of A-SMGCS Level 1 and 2 with Safety Nets in MXP and FCO	2.2.1	52
094AF2	Time-based separation for Final Approach	2.3.1	53
097AF2	Time Based Separation	2.3.1	53
2015_220_AF2	AF2_MET-Compliance-Program	2.3.1	54
2015_232_AF2	TBS4LOWW (Time Based Separation for Vienna Airport)	2.3.1	54
2017_037_AF2	TBS deployment at Paris CDG	2.3.1	54
027AF2	SMAN-Airport	2.4.1	56
087AF2	Apron Controller Working Position (Part 1 of 2)	2.4.1	56
2015_043_AF2	AF2.4 A-SMGCS - Routing & Planning	2.4.1	57
2016_021_AF2	TANGe (Tower ATS-System Next Generation) Phase 1	2.4.1	57
2016_150_AF2	Enablers for Airport Surface Movement related to Safety Nets [50% & 20%]	2.4.1	58
2017_032_AF2	TANGe (Tower ATS-System Next Generation) Phase 1+ incl. Service Architecture	2.4.1	59
2017_058_AF2	ITWP4LOWW (Integrated Tower Working Position for Vienna Schwechat)	2.4.1	60
2017_063_AF2	A-SMGCS High Performance Surveillance enhancement in view to support routing & planning functions implementation	2.4.1	60
018AF2	Enhancement of Airport Safety Nets for Brussels Airport (EBBR)	2.5.1	61
054AF2	CDG2020 Step1	2.5.1	61
064AF2	ENAV Airport System upgrade	2.5.1	62
088AF2	Airport Safety Net Mobile Detection of Air Crash Tenders	2.5.1	62
092AF2	Enhanced Departure Management integrating airfield surface assets	2.5.1	63
100AF2	Preparation for SMAN	2.5.1	63
2015_046_AF2	AF 2.5 A-SMGCS - Safety Nets	2.5.1	64
2015_187_AF2	TWR System at Amsterdam Schiphol	2.5.1	64
2015_298_AF2	A-SMGCS upgrade to provide airport safety nets and routing & planning functions	2.5.1	64

CEF Call Designator	Title	Family	IP Description Page Number
022AF2	Vehicle Tracking System (VTS)	2.5.2	66
030AF2	Equipment of ground vehicles to supply the A-SMGCS	2.5.2	66
135AF2	Ryanair RAAS Programme	2.5.2	66
2015_031_AF2	Vehicle Transponder A-SMGCS Düsseldorf	2.5.2	67
2015_222_AF2	Advanced Airport Moving Map (AAMM) Prototype Implementation	2.5.2	67
2015_226_AF2	Airport Safety Net: Mobile Detection of Marshaller Vehicles	2.5.2	68
2016_069_AF2	Runway Overrun Prevention System (ROPS) bundled application for TAP Portugal [50% & 20%]	2.5.2	68

Family 2.1.1 – Initial DMAN

2015_044_AF2 - Implementation of initial DMAN and AOP at Copenhagen Airport			
Start Date	01/03/2016	**End Date**	31/12/2018
Project Leader	Københavns Lufthavne (Copenhagen Airports AS)		
Contributors	Naviair		
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.1
Project Objective	• Implementing Basic Departure Management (DMAN) at Copenhagen Airport in order to ensure efficient usage of the runway capacity, increasing predictability and improving departure flows at the airport • Introducing a Demand and Capacity Balancing process for the AOP in order to improve common situational awareness and form a common basis for decisionmaking amongst all airport stakeholders. This includes the creation of a formalized Ground Coordinator function in order to coordinate both internally and with the Network Manager		

2015_085_AF2 - DMAN and Pre-departure sequence (PDS) implementations for the CDM implementation			
Start Date	16/02/2016	**End Date**	30/12/2019
Project Leader	Aéroports de la Côte d'Azur		
Contributors	DSNA		
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.1
Project Objective	• Implementing the requested tool in SESAR • Improving operations predictibility • Optimizing resources management and increase capacity • Providing a common tool between all stakeholders • Sharing a common situationnal awareness between all stakeholders • Decreasing environmental impact • Enhancing resilience (better disruption management)		

2015_161_AF2 - Initial implementation of DMAN			
Start Date	16/02/2016	**End Date**	15/01/2019
Project Leader	Irish Aviation Authority		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.1
Project Objective	• Contributing to the implementation of A-CDM at Dublin Airport • Enhancing information sharing between IAA and A-CDM partners • Implementation of the DMAN as a component of the Electronic Flight Strip system.		

Family 2.1.2 – Electronic Flight Strips (EFS)

008AF2 – External Gateway System (EGS) implementation			
Start Date	25/02/2014	**End Date**	16/12/2015
Project Leader	Austro Control		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.2
Project Objective	EGS (External Gateway System) will connect the Tower and Approach ATS Units' subsystems DIFLIS (Digital Flight Strip System) and ASTOS (A-SMGCS – Airport Surface Movement and Guidance Control System) to the ATM Data Processing System. The EGS implementation contributes to AF2 of the PCP implementing rule as an enabler for future Electronic Flight Strip, DMAN, CDM and A-SMGCS enhancements. The former ATM Data processing system VAS will be removed for end of life (EOL) reasons.		

048AF2 – SYSAT@CDG			
Start Date	01/01/2014	**End Date**	18/12/2025
Project Leader	DSNA		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.2
Project Objective	In all CDG tower facilities (3 ATC + 2 apron cab) and Approach control room • introduce Electronic Flight Strip • provide new ASMGCS level 2 tracker with enhanced ground situation display including some level 3/4 functionalities • provide new Air Situation Display • provide new weather information, synoptic display and electronic documentation • increase information sharing among ATC actors and Airport handler especially regarding DMAN and CDM processes • be ready for SESAR evolution Phase 1 (2014-2016): product acquisition and installation preparation Phase 2 (2017-2018): installation in operational rooms		

049AF2 – SYSAT@NCE			
Start Date	02/01/2014	**End Date**	31/12/2023
Project Leader	DSNA		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.2
Project Objective	In the Tower cab and Approach control room • provide ASMGCS level 1 capability before full SYSAT deployment • introduce Electronic Flight Strip		

	• evolve ASMGCS to level 2 with enhanced ground situation display including some level 3/4 functionalities, • provide new Air Situation Display, • provide new weather information, synoptic display and electronic documentation, • be ready for SESAR evolution. Phase 1 (2014-2016): Acquisition, Deployment preparation Phase 2 (2017-2019): Deployment, Training and transition

050AF2 – SYSAT@ORY			
Start Date	02/01/2014	**End Date**	31/12/2023
Project Leader	DSNA		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.2
Project Objective	In Tower cab and Approach control room • introduce Electronic Flight Strip, • provide new ASMGCS level 2 tracker with enhanced ground situation display including some level 3/4 functionalities, • provide new Air Situation Display, • provide new weather information, synoptic display and electronic documentation, • increase information sharing among ATC actors and Airport handler especially regarding DMAN and CDM processes, • be ready for SESAR evolution. Phase 1 (2014-2016) • ACQUISITION • SYSTEM ADAPTATION Phase 2 (2017-2019): IMPLEMENTATION		

057AF2a – Fulfillment of the prerequisite EFS for the PCP AF2 Sub-Functionality: Airport Integration and Throughput (Phase A)			
Start Date	01/01/2014	**End Date**	17/03/2017
Project Leader	ENAIRE		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.2
Project Objective	Partial fulfilment of the IR 716/2014 "Pilot common project", and in special the AF2 functionality which identifies the use of EFS ("Electronic Flight Strip" in the Tower domain) as a prerequisite for the following functions: • Departure management synchronized with pre-departure sequencing • Departure management integrating surface management constraints • Time based separation • Automated assistance to controller for surface movement planning and routing • Airport safety nets Family 2.1.2 Electronic Flight Strip (EFS). Electronic Strip where all the information regarding instructions controller/pilot about flight plan, surveillance, etc., are integrated. The tool will ease the data		

	input and display for the use of advanced tools like DMAN, A-SMGCS and CDM." There will be two EFS operation modes, according to the operational complexity of the airport: 1. Based on lists. The information contained in the flight strip will be available in different lists and windows of the system 2. Based on labels. In airports with surface surveillance systems, the relevant flight strip information will be displayed (apart from the lists and windows) in the corresponding flight label It will require the development of a dynamic simulation system for training purposes. The following Spanish airports will implement Electronic Flight Strip: 1. Adolfo Suárez Madrid-Barajas 2. Barcelona El Prat 3. Palma de Mallorca This proposal includes all the development activities, to be carried out from 2014 to 2016, prior to the operational validation of the new function. The operational validation and deployment of the functionality in the above-mentioned airports will be performed 2017 onwards.

108AF2 – Electronic Flight Strips at Schiphol TWR			
Start Date	01/09/2014	**End Date**	01/12/2019
Project Leader	LVNL		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.2
Project Objective	• Digital flight data processing at Schiphol Towers and the Tower simulator • Safer and more efficient handling of ground traffic • Efficient and flexible data distribution and data sharing • Enabler for safety support systems • Enabler for CDM extension of functionalities **Description:** • Work Package 1: Project Management • Work Package 2: Tender Organisation • Work Package 3: Electronic Flight Strip Application • Work Package 4: Console Adjustments • Work Package 5: Transition The overall expected results after EFS is operational with particular reference to the ATM Performance contribution: • A 'digital' tower environment with a digital data flow (so without paper flight strips); • Identical tower working positions with cleaned up and simplified consoles; • A flexibility gain in allocating functions to working positions and extending the amount of working positions; • A quieter working environment (speechless co-ordination, less standing up and walking in the tower, printing noises, etc.). These results will lead to less working errors (thus an increase in safety) and a more efficient use of both data and ATC personnel in the ATM process at the tower. It is an enabler for a lot of planned future activities like safety net functions, conflict detection, data sharing, enhanced CDM, automation of specific functions, enhanced A-SMGCS, etc.		

2015_162_AF2 - Eletronic Flight Strip (EFS) Implementation			
Start Date	01/03/2016	**End Date**	05/12/2018
Project Leader	Irish Aviation Authority		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.2
Project Objective	• Implementation of an Electronic Flight Strip system. • Enhancing information sharing between IAA and A-CDM partners • Contributing to the implementation of A-CDM at Dublin Airport		

2015_212_AF2 - Fulfillment of the prerequisite EFS for the PCP AF2 Subfunctionality: Airport Integration and Throughput (2017-2019)			
Start Date	01/01/2017	**End Date**	26/05/2020
Project Leader	ENAIRE		
Contributors			
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.2
Project Objective	• Operational validation, specification, development and technical verification of changes for EFS based on lists • Operational validation, specification, development and technical verification of changes for EFS based on labels • Deployment in Madrid, Barcelona and Palma de Mallorca airports		

2015_286_AF2 - Introduction of Electronic Flight Strips			
Start Date	16/02/2016	**End Date**	05/07/2018
Project Leader	NATS		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.2
Project Objective	• Introducing electronic flight data for the London TC approach function • Permitting 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		

Family 2.1.3 – Basic A-CDM

011AF2 – Collaborative Decision Management (CDM) fully implemented			
Start Date	17/07/2014	**End Date**	03/03/2020
Project Leader	Austro Control		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.3
Project Objective	• CDM fully implemented in LOWW and certified by Eurocontrol • Process organisation established, considering all stakeholders involved and guaranteeing a sustainable CDM operation • Meaningful KPIs are constantly measured and used for improvement • Additional tasks contain Enhanced De-icing and the guarantee of a Degraded Mode in case of partial system failure		

025AF2 – TSAT to the Gate ✓			
Start Date	01/01/2014	**End Date**	31/12/2017
Project Leader	Aéroports de Paris: CDG Airport & ORLY Airport		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.3
Project Objective	The use of VDGS/Displays is driven by 2 types of needs: • Consolidate the Pre-departure Sequence and enhance predictability by implementing highly recommended milestones: In-bloc (AIBT - milestone n°7 - Airport CDM Manual V4) and Off-bloc (AOBT- milestone n°15 - Airport CDM Manual V4). • Display key A-CDM information, such as TSAT, to all stakeholders located at the Gate: Airlines crews, Ground handler and Airport operator. Visual Display Guidance System (VDGS) units and Displays address sub AF 2.1 and associated Families: • 2.1.1 Consolidate Initial DMAN capabilities • 2.1.3 Enhance Basic A-CDM • 2.1.4 Consolidate Initial Airport Operational Plan (AOP) Number of stands concerned:		

First Phase (2014 – 2016)	Second phase (2017 – 2019)
• CDG ○ 64 VDGS ○ 34 Displays • ORLY ○ 36 VDGS ○ 16 Displays	• CDG ○ 256 VDGS ○ 136 Displays • ORLY ○ 144 VDGS ○ 64 Displays

026AF2 – Evolutions CDM-CDG			
Start Date	01/01/2014	**End Date**	30/11/2017
Project Leader	Aéroports de Paris: Paris CDG Airport		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.3
Project Objective	Upgrade CDM@CDG airport tools (PDS and De-icing tool) to be more efficient and to enhance actual functionalities to respond to the requirements of operational staff. It directly responds to the pre-requisite S-AF 2.1 though Family 2.1.1 ("initial DMAN capability") and Family 2.1.3 (Basic A-CDM) • DPI improvements • TSAT stabilization • PLN / Airport slot reconciliation • PDS/DMAN interface • Training infrastructure • Variable Taxi Time calculation • De-icing tool improvements		

031AF2 – Data exchanges with the Air Navigation Service Provider			
Start Date	25/11/2014	**End Date**	30/04/2019
Project Leader	Aéroports de la Cote d'Azur		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.3
Project Objective	• Implement a new channel for data exchanges between us and the ANSP • Improve the data exchanges (quality and quantity) • Create a common awareness of all operational situations • Through the improvement of the awareness, improve the management of adverse conditions and make the operations more efficient		

032AF2 – Data exchanges with the Network Manager Operations Center			
Start Date	04/02/2015	**End Date**	31/12/2016
Project Leader	Aéroports de la Cote d'Azur		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.3
Project Objective	• Be part of the European Network • Improve the real time data exchanges • Improve the operations efficiency at a local level and at a European one • Facilitate the flow and capacity management • Improve the situational awareness • Better anticipation of the different situations • Improve the management of normal and adverse conditions		

033AF2 – Data exchanges with COHOR			
Start Date	15/09/2014	**End Date**	30/05/2019
Project Leader	Aéroports de la Cote d'Azur		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.3
Project Objective	• Obtain correct and on-time information for general aviation flights • Make the operations easier in order to better anticipate the management of the resources • Make the whole operations more efficient through an easier way to obtain automatically the information • As general aviation traffic is a big part of our whole traffic, the improvement of the management of this part allow a gain in the management efficiency for the whole traffic		

086AF2 – A-CDM Extension ✓			
Start Date	03/03/2014	**End Date**	08/09/2016
Project Leader	Fraport		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.3

Project Objective	• Enhancement of the pre-departure sequencing (PDP Family 2.1.3 Basic A -CDM) by:
	  ○ Considering minimum departure intervals (MDI) on standard instrument departures (SID)
	  ○ Facilitating a demand & capacity balance capability
	• Implementation of a "de-icing" element enabling Airport CDM for adverse conditions (PDP Family 2.1.3 Basic A-CDM)		

109AF2 – Airport CDM implementation Schiphol ✓			
Start Date	01/01/2014	**End Date**	31/12/2018
Project Leader	Schiphol Nederland B.V. (AAS)		
Contributors	LVNL, KLM		
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.3
Project Objective	Airport CDM implementation according to Eurocontrol guidelines consisting of 2 major parts: Local Airport CDM • Real time CDM data presentation to pilots and handlers • CDM for adverse conditions • Development of an HMI presentation for SUC • CDM Trials • Process and procedure development and implementation • (Local) CDM information sharing Connection to Eurocontrol NMOC • Connecting the local CDM process to the NMOC • allow exchange of DPI messages in accordance with Eurocontrol specifications		

129AF2 – CDM-Orly			
Start Date	01/01/2014	**End Date**	30/11/2017
Project Leader	Aéroports de Paris: Orly Airport		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.3
Project Objective	• Upgrade PDS for sharing information with DMAN, • Implement De-icing tool for improving operational efficiency • Share essential information, such TSAT, on the CDM Website for all stakeholders These functionalities contribute directly to the pre-requisite S-AF 2.1 "Departure Management synchronized with Pre Departure sequencing", through Family 2.1.1 "Initial DMAN capability" and Family 2.1.3 "Basic A-CDM" : • PDS upgrades / DMAN/PDS interface integration • De-icing manager tool upgrades • CDM Website upgrades		

136AF2 – A-CDM Optimization			
Start Date	02/01/2015	**End Date**	20/12/2017
Project Leader	Swedavia		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.3
Project Objective	Although Airport Collaborative Decision Making Optimization Project covers several areas that can be attributed to basic A-CDM the focus is primarily on optimization of "Information Sharing" which is one of the cornerstones in the milestone approach process described in the A-CDM Manual. The detailed purpose of the project is • to facilitate cooperation between different organizations while raising the quality of information dissemination at Stockholm Arlanda Airport and at Network Manager Operations Centre (NMOC). • The distribution of information will only be recorded once • Online information will replace the estimated values. • The quality of operational flight data will increase by making data available online • Improve the quality of "Departure Progress Information" to NMOC The main steps are: • Development and introduction a WEB-interface. • Development and introduction of an Flight Operational APP • Develop and introduce a CDM portal • System integration • Introducing Flight information at GATE and STAND		

2015_074_AF2 - Display TOBT TSAT at the Gate			
Start Date	01/05/2016	**End Date**	31/12/2018
Project Leader	DAA		
Contributors			
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.3
Project Objective	• Consolidating the Pre-departure Sequence and enhancing predictability by implementing highly recommended milestones: In-bloc (AIBT - milestone n°7 - Airport CDM Manual V4) and Off-bloc (AOBT- milestone n°15 - Airport CDM Manual V4) • Displaying key A-CDM information eg TOBT, TSAT to all stakeholders located at the Gate: Pilots, Ground Handler and AO		

2015_076_AF2 - Aerial Visual Display A-CDM Phase 2			
Start Date	15/04/2016	**End Date**	30/04/2019
Project Leader	DAA		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.3
Project Objective	• Improving Situational Awareness • Assisting A-CDM by automatically capturing On and Off block times; • Tracking aircraft on the ground, vehicles • Allowing graphic representation of availability of stands during winter operations • Allowing playback of events for incident investigation • Alerting if vehicles enter a closed area (eg. closed taxiway, construction site, etc.)		

2015_077_AF2 - Universal Mobile Display System (UMDS) solution to support A-CDM Implementation			
Start Date	01/04/2016	**End Date**	31/01/2018
Project Leader	DAA		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.3
Project Objective	• Sharing A-CDM information with all A_CDM partners at the airport on mobile devices • Providing powerful functionalities to integrate, operate and monitor information distribution		

2015_078_AF2 - A-CDM Enhancements EIDW			
Start Date	01/04/2016	**End Date**	31/05/2019
Project Leader	DAA		
Contributors			
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.3
Project Objective	• Delivering functionality enhancements to basic A-CDM package to cater for EIDW specific requirements • Additional integrations with Airlines and Ground Handlers of A-CDM related data this was initially anticipated to be entered directly into the A-CDM (AOS) platform • Enhancing information sharing between Daa and all A-CDM partners thus providing improved information to the network		

2015_133_AF2 - Initial AirPort Operational Centre (iAPOC)			
Start Date	01/03/2016	**End Date**	31/12/2019
Project Leader	Aéroports de Paris		
Contributors	DSNA, Air France		
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.3
Project Objective	• Initial APOC realisation • Reinforcing Collaborative Decision Making with all stakeholders • Demand Capacity Balancing monitoring		

2015_294_AF2 - Implementation of OTP ✓			
Start Date	16/02/2016	**End Date**	31/12/2018
Project Leader	Swedavia		
Contributors			
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.3
Project Objective	• Establishing a robust operational environment needed for PCP implementation • Reducing/eliminating IT blocking points and establish reduced resolution time of IT incidents		

2016_041_AF2 – Basic A-CDM implementation at London Stansted Airport			
Start Date	01/03/2017	**End Date**	30/09/2020
Project Leader	STAL - Stansted Airport Limited		
Contributors			
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.3
Project Objective	• Ensuring that the Airport complies to the Commission Implementing Regulation (EU) no 716/2014 by supporting the SESAR/PCP ATM functionality deployments in coordination with PCP Deployment Manager • Deploying Phase 1 by the end of 2018 • Deploying Phase 2 by the mid of 2020		

Family 2.1.4 – Initial Airport Operational Plan (AOP)

024AF2 – SAIGA			
Start Date	01/01/2014	**End Date**	15/12/2015
Project Leader	Aéroports de Paris; CDG Airport & ORLY Airport		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.4
Project Objective	Extend the capabilities of the airport resources management system: Stands, Gates, bridges, and Baggage claims, to: • Consolidate the Airport Operational Plan • Consolidate the Pre-departure sequencing and DMAN capability • Optimize and increase the efficiency and performances of operations • Better support crisis situation and faster recovering		

099AF2 – Preparation for AOP			
Start Date	01/10/2014	**End Date**	31/10/2017
Project Leader	Heathrow Airport Limited		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.4
Project Objective	Airfield Flow Management The key improvement area is the production of a rolling airfield plan with added layers or resilience and architectural consolidations. The AOP is an up-to-date plan or "on the day schedule" with pre-tactical provisions from the pre-tactical DCB (covered under another call submission within AF4). It is the airfield part of the Airport Operations Plan (AOP), known here as the 'airfield plan'. The solution builds on the pre-requisite ACDM Concept and tooling and expands inline with the future SESAR APOC/AOP concept. By sharing this rolling plan with the Airport Operations Centre (APOC) and other stakeholders, the use of resources can be optimized. The production of a common and optimized rolling airfield plan will cover three main steps: • The ability to create a plan (based initially on the schedule, updated with the latest information) that can be shared among all stakeholders. • The ability to evaluate and then update the airfield plan using different scenarios (known as Demand Capacity Balancing, DCB) to optimise it. • The ability to take into account user preferences – in all operational circumstances and not only during disruptions, as is the case today. This is known as User Driven Prioritisation Process (UDPP). The vision for the airport and stakeholders to operate in line with a rolling airfield plan which is up to-date and reflects external factors and user preferences will be a major cultural change. In Summary an AOP is: • An integrated operating environment to improve efficiency, effectiveness and resilience against disruptions • A common shared truth to facilitate timely and focused collaborative decision making		

	• Empowering the workforce to make a real difference with the right information at the right time Why AOP? • To aide decision making in complex landscape of airport operations • To optimise allocation of limited Airport resources • To support enhanced passenger experience

2015_060_AF2 - Airport Operating Plan AOP			
Start Date	16/02/2016	**End Date**	30/09/2018
Project Leader	Heathrow Airport limited		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.4
Project Objective	• AOP • Sharing the plan with the airports' operational stakeholders (Airlines, Ground Handlers, APOC) • Consuming the plan generated by the DCB system: • Ensuring that exchanged data is being processed for better predictability and improving rolling plans on NM and Airport Sides • Assisting NMOC provide guidance material for other airports for later implementationi of AOP-NOP link and on Collaborative Decision Making in order to provide quality input data • Setting up B2B AOP-NOP (as will be defined in 2016 call) Interfacing for data exchange with NMOC (NOP)		

2015_083_AF2 - iAOP implementation			
Start Date	24/11/2016	**End Date**	31/12/2020
Project Leader	Aéroports de la Côte d'Azur		
Contributors			
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.4
Project Objective	• Making the systems more reliable and efficient • Adapting the tools to the operations changes • Developing an iAOP perspective for the SESAR Deployment • Improving the management of data and resources		

2015_135_AF2 - CDG and ORLY - Initial Airport Operational Plan (AOP)			
Start Date	01/03/2016	**End Date**	31/12/2020
Project Leader	Aéroports de Paris		
Contributors	Air France		
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.4
Project Objective	• Airside and Landside Plan/Operational data collection • MET data collection • Operational Repository MDM • Data warehouse / Big data • AOP data exchange with NOP & Centralized Services		

2015_178_AF2 - Implementation of AOP Schiphol Airport			
Start Date	01/09/2017	**End Date**	31/12/2019
Project Leader	Amsterdam Airport Schiphol		
Contributors	KLM, KNMI		
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.4
Project Objective	• Preparing execute and monitor the AOP (Airport Operations Plan) • Optimizing the information exchange between airport stakeholders and network management (NMOC)		

2015_225_AF2 - Initial Airport Operations Plan @ FRA			
Start Date	16/01/2017	**End Date**	31/12/2019
Project Leader	Fraport AG		
Contributors			
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.4
Project Objective	• Providing a common picture of the actual flight operation at Frankfurt airport • Providing common parameters for monitoring and examination • Supporting the decision-making-process of stakeholders • improving predictability and resilience		

2015_244_AF2 - APOC implementation ✓			
Start Date	01/03/2016	**End Date**	30/11/2017
Project Leader	Operations Department Brussels Airport		
Contributors	Brussels Airport Company NV/SA		
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.4
Project Objective	• Implementation of the Airport Operations Center with all stakeholders to increase the puntuality of passengers & bags flows • Process alignment with all stakeholders • Determination of common Performance Indicators		

2015_245_AF2 – AIRSTAT			
Start Date	01/03/2016	**End Date**	31/03/2019
Project Leader	Brussels Airport Company NV/SA		
Contributors			
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.4
Project Objective	• Status and availability of the stand equipment such as boarding bridges, DGS, 400Hz, PCA and fuel pits. This can be an added value for handlers, and will improve handling activities at the aircraft. • The Vehicle Tracking System (VTS) is already in use at ANSP, and analysis of the use of the data should be investigated in order to use it in Airstat		

2015_282_AF2 - Initial APOC and AOP			
Start Date	21/03/2016	**End Date**	14/04/2017
Project Leader	Munich Airport		
Contributors			
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.4
Project Objective	• Unifying Baggage handling, Passenger and Aircraft processes and recources • Developing joint communiucation and decision making tools and strctures • Enabling efficient and timely congruent information sharing • Preparing initial AOP structures for NOP integration		

2015_290_AF2 - Initial AOP			
Start Date	01/10/2016	**End Date**	31/12/2019
Project Leader	Swedavia		
Contributors			
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.4
Project Objective	• Creation of an Airport Operation Plan based initially updated with the latest information regarding KPI in airport processes, that can be shared among all stakeholders • Ability to evaluate and then update the airport plan using different scenarios (known as Demand Capacity Balancing, DCB) to optimise it.		

2015_292_AF2 - DMAN Stockholm Arlanda Airport			
Start Date	01/10/2016	**End Date**	31/12/2019
Project Leader	Swedavia		
Contributors			
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.4
Project Objective	• Definition of operational conditions • Development of algorithms and interfaces towards other systems • Flight safety assessment and operational implementation		

2015_299_AF2 - Integrated Ground Management (GMAN)			
Start Date	01/04/2016	**End Date**	31/12/2019
Project Leader	Gatwick Airport		
Contributors			
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.4
Project Objective	• Optimising airside ground management performance by integrating and dynamically allocating stands • Delivering improvements in stand utilization, On-Time Arrival (OTA) and On-Time Departure (OTD) performance • Providing a critical architectural component to subsequently deliver optimized flow management enabled by integrated A-SMGCS Routing & Planning function • Providing relevant operational data in easy to consume formats that include mobile device offerings for information access at users' fingertips • Delivering a solution that enables the integration of data feeds from movement tracking devices used on airside assets • Optimising airside ground management performance by integrating and dynamically allocating critical resources (stands, coaching, towing, PRM, arrival baggage carousels)		

2016_137_AF2 – Initial AOP DUS			
Start Date	15/02/2017	**End Date**	28/10/2019
Project Leader	Flughafen Düsseldorf GmbH		
Contributors	DFS Deutsche Flugsicherung GmbH		
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.4
Project Objective	• Implementation of an Initial AOP to enhance common situational awareness and efficiency of operations • Implementation of an Initial AOP to be ready to connect the AOP with the NOP (Family 4.2.4.) • Improved predictability and resilience • Improved decision-making-process of stakeholders due to provision of common parameters for monitoring and examination		

2017_022_AF2- Synchronized stakeholder decision on process optimization at airport level			
Start Date	12/04/2018	**End Date**	31/12/2020
Project Leader	Brussels Airport Company NV/SA		
Contributors	Aeroporti di Roma S.p.A.; | Aéroports de la Côte d'Azur; | Aéroports De Paris (ADP); | Belgocontrol; | DAA plc; | ENAV S.p.A.; | Flughafen München GmbH; | Fraport AG Frankfurt Airport Services Worldwide; | Københavns Lufthavne A/S; | Manchester Airport PLC; | London Stansted ; | Società per Azioni Esercizi Aeroportuali - SEA; | Swedavia AB		
Main AF/Sub-AF/Family	AF2	S-AF 2.1	Family 2.1.4
Project Objective	The Implementation Project aims to: • Implement an Initial AOP at 13 airports, 2 ANSP's and 1 Airspace User to enhance common situational awareness and efficiency of operations, connected with the NOP (Family 4.2.4.) • Develop new KPIs (Key Performance Indicators) to measure both planned and executed operations • Define the type, quality and quantity of the NOP / AOP data exchange with the relevant stakeholders (ANSP/Airspace Users).		

Family 2.2.1 – A-SMGCS Level 1&2

023AF2 – SMAN-Vehicle			
Start Date	01/08/2014	**End Date**	30/06/2020
Project Leader	Aéroports de Paris: CDG Airport & ORLY Airport		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.2	Family 2.2.1
Project Objective	Upgrade and Extend the A-SMGCS L2 for all relevant ground vehicles moving on the manoeuvring area by providing new functionalities for the drivers: alerts, geo-fencing.		

042AF2a – A-SMGCS Düsseldorf			
Start Date	30/04/2013	**End Date**	30/06/2019
Project Leader	DFS		
Contributors	Flughafen Düsseldorf GmbH (Düsseldorf Airport)		
Main AF/Sub-AF/Family	AF2	S-AF 2.2	Family 2.2.1
Project Objective	The A-SMGCS-Düsseldorf project comprises the implementation of an A-SMGCS Level 2, including RIM function, at Düsseldorf Airport to improve runway safety and throughput and to support the provision of air traffic services and apron services. The project covers the following activities: • Replacing/exchanging the current primary sensor • Setting up the new cooperative sensor (MLAT) • Provision of the required infrastructure • Implementation of a tracker and a ground situation display • Safety assessments The realisation of this project will be the preparatory work for the further A-SMGCS Level 3 and 4. Implementation of the routing function is not part of the described project.		

058AF2a – Fulfillment of the prerequisite A-SMGCS 2 for the PCP AF2 Sub-Functionality: Airport Integration and Throughput (Phase A) ✓			
Start Date	01/01/2014	**End Date**	23/12/2016
Project Leader	ENAIRE		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.2	Family 2.2.1
Project Objective	Partial fulfilment of the IR 716/2014 "Pilot common project", and in special the AF2 functionality which identifies the implementation and deployment of A-SMGCS 2 as a prerequisite for the Airport Safety Nets function. ENAIRE´s Family 2.2.1 A-SMGCS 2 will focus on Runway Incursion Alerts. The function shall integrate the surveillance information (regarding all relevant aircraft and vehicles on the area) and controller runway related clearances, to generate and distribute the		

	appropriate alerts. The following Spanish airports will implement Runway Incursion Alerts based on A-SMGCS 2: 1. Adolfo Suárez Madrid-Barajas 2. Barcelona El Prat 3. Palma de Mallorca This proposal includes all the development activities, to be carried out from 2014 to 2016, prior to the operational validation of the new function. The operational validation and deployment of the functionality in the above-mentioned airports will be performed 2017 onwards.

103AF2 – Standardization of A-SMGCS			
Start Date	01/10/2014	**End Date**	19/05/2017
Project Leader	Københavns Lufthavne A/S		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.2	Family 2.2.1
Project Objective	With this project Copenhagen Airport will upgrade the existing A-SMGCS to a newer and standardized version. The standardization of the existing A-SMGCS will facilitate the future procurement of ad-on modules necessary for the implementation of the A-SMGCS advanced functions, cf. point 2 of the Annex to the PCP regulation 716/2014. Furthermore, it will enable Copenhagen Airport to enter into a partnership with other EU airports, which are also looking to upgrade to the standardized expansion module to A-SMGCS. The project is also part of Copenhagen Airport's strategy "Expanding CPH", which objective is to facilitate the expected future growth in operations at Copenhagen Airport.		

115AF2 – A-SMGCS Renewal of the Surface Movement Radar (BORA)			
Start Date	24/01/2014	**End Date**	31/12/2015
Project Leader	Munich Airport		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.2	Family 2.2.1
Project Objective	The Surface Movement Radar enables exact positioning including identification of all aircraft and other vehicles on all relevant operation areas. The original system was purchased and installed in 2003 and has thus concluded an uninterrupted operating time of 10 years. Main parts of this much differentiated technology are no longer available to order, which means a continued and operationally necessary maintenance can no longer be guaranteed. Only the specified modernization will enable a continuous availability of the operationally essential SMR, and thus avoid security relevant gaps in the service. In the short term and long term, the Surface Movement Radar shall enable the following objectives: • 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. • Thus enabled, A-SMGCS shall provide optimized taxi by monitoring of real surface traffic and by considering updated taxi times in departure management regardless of meteorological or other impacting conditions.		

	In a further step, planned routing and planning function free as possible of conflicts which permits the aircraft to go from stand to runway, from runway to stand or any other surface movement. This protect supports Family 2.2.1 A-SMGCS Level 1/2.

130AF2 – BOREAL- Orly			
Start Date	01/02/2015	**End Date**	15/11/2018
Project Leader	Aéroports de Paris: Orly Airport		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.2	Family 2.2.1
Project Objective	• Improve safety by upgrading knowledge of surface state and reaction time. • Enabler to sub-functionalities defined into the IR 716/2014: A-SMGCS Level 1/2 (2.2.1) SAF 2.5/2.4 Boreal is the control and visualization station of the state of the runways and taxiways lights in Paris-Orly. Replacement of existing equipment is designed to enhance the robustness and the level of knowledge of information on state of the lights, in order to improve the reaction time of operational maintenance team and to upgrade or extend the tools which allow managing and monitoring information of the airfield area.		

137AF2 – Enhancement of Airport Safety Nets at Stockholm Arlanda Airport			
Start Date	01/08/2015	**End Date**	31/08/2018
Project Leader	Swedavia		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.2	Family 2.2.1
Project Objective	• Improve the performance of the surveillance function of the A-SMGCS system at Stockholm Arlanda airport, in order to enable to provision of high-quality, reliable surveillance data for integration in the advanced Airport Safety Nets function. • Keep the implementation of the surveillance function up-to-date to enable future expansion of the ASMGCS system, to enable future functionality of the A-SMGCS system and to ensure interoperability with new components in the future. The main steps to reach this objective are: • Upgrade of SMR stations • Enhancement of Airport Safety Nets • Operational validation and introduction of Airport Safety Nets		

2015_016_AF2 - ASMGCS Level 1 & 2			
Start Date	01/03/2016	**End Date**	03/12/2019
Project Leader	Heathrow Airport limited		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.2	Family 2.2.1
Project Objective	ASMGCS Level 1 & 2 baseline		

2015_211_AF2 - Fulfillment of the prerequisite A-SMGCS 2 for the PCP AF2 Subfunctionality: Airport Integration and Throughput (2017-2019)			
Start Date	01/01/2017	**End Date**	31/12/2019
Project Leader	ENAIRE		
Contributors			
Main AF/Sub-AF/Family	AF2	S-AF 2.2	Family 2.2.1
Project Objective	• Partial fulfilment of the IR 716/2014 "Pilot common project", and in particular the AF2 functionality, which identifies the implementation and deployment of A-SMGCS 2 as a prerequisite for the Airport Safety Nets function • This project will focus on Runway Incursion Alerts • The function shall integrate the surveillance information (regarding all relevant aircraft and vehicles on the area) and controller runway related clearances, to generate and distribute the appropriate alerts		

2015_291_AF2 - A-SMGCS Level 2 implementation			
Start Date	01/03/2016	**End Date**	30/06/2019
Project Leader	Swedavia		
Contributors			
Main AF/Sub-AF/Family	AF2	S-AF 2.2	Family 2.2.1
Project Objective	• Upgrading A-SMGCS for Level 2 incl training and changes of procedures • Upgrading MLAT to fulfill requirements for Level 2 • Identifing potential need for additional sensors to reduce false incursion alarms • Installed and fully operational Solid State SMR		

2016_117_AF2 – ENAV Implementation of A-SMGCS Level 1 and 2 with Safety Nets in MXP and FCO			
Start Date	07/02/2017	**End Date**	31/12/2020
Project Leader	ENAV S.p.A		
Contributors	Aeroporti di Roma S.p.A., Società per Azioni Esercizi Aeroportuali – SEA		
Main AF/Sub-AF/Family	AF2	S-AF 2.2	Family 2.2.1
Project Objective	• To fulfill A-SMGCS Level 1 in MXP and FCO by extending MLAT coverage; • To Integrate SNET foreseen for A-SMGCS Level 2 in MXP and FCO; • To equip Roma FCO and Milano MXP vehicles with ADS-B technology and Graphic Display enabling the visualisation of the vehicles position with the airport map, the surrounding traffics and SNET alerts; • To equip Milano MXP and Roma FCO control rooms with Graphic Display enabling the visualisation of the vehicles position on the airport map, the surrounding traffics and SNET alerts.		

Family 2.3.1 – Time Based Separation (TBS)

094AF2 – Time-Based Separation for Final Approach			
Start Date	30/01/2014	**End Date**	31/12/2016
Project Leader	Gatwick Airport Limited		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.3	Family 2.3.1
Project Objective	The high-level objectives of the project are as follows: • Implement initial spacing monitor to support air traffic controller to deliver optimum separation between arriving aircraft • Improve utilization of existing RWY capacity • Increase landing rates, especially during strong headwind conditions and reduce arrival and knock-on delays		

097AF2 – Time Based Separation			
Start Date	04/01/2014	**End Date**	29/02/2016
Project Leader	Heathrow Airport Limited		
Contributors	NATS, British Airways		
Main AF/Sub-AF/Family	AF2	S-AF 2.3	Family 2.3.1
Project Objective	• Deployment of Time-based separation (TBS) at Heathrow Airport in order to address the biggest single cause of delay to Heathrow arrivals - strong headwinds on final approach. • Time Based Separation is expected to reduce this delay by as much as 50% of all strong wind regulations applied at Heathrow (equating to c.20% reduction in overall Heathrow ATFM delay) with a projected benefit to the airlines in the range £6m to £7.5m per annum. Any reduction in spacing during strong wind conditions will not result in aircraft being closer than minimum radar separation of 2.5nm. As noted by Eurocontrol the European Network Manager, London Heathrow airport remained a delay hot spot in 2013 due to our significant impact to aircraft operations under adverse weather conditions. Strong winds is the most impacting condition to Heathrow flights operations thus knocking on to wider global operations. The TBS concept aims to improve resilience to the impact of high head wind conditions by: • Reducing the cost of wind-related arrival delay • Improving the consistency of spacing (for wake pairs) (TBS) is a pioneering new system plus operational methodology aimed at organizing the separation of arriving aircraft at Heathrow by time instead of distance. This will radically cut flight delays and reduce cancellations due to high headwinds. Supported in the Airports Commission's interim report in December 2013, the delivery of TBS comes after three years of exhaustive analysis from co-members of the Single European Sky Research ATM Research and development programme (SESAR). The introduction of a time-based separation method at Heathrow will help maintain the landing rate under strong headwind conditions and thus deliver an average improvement of 4 flights per hour beyond today's rate. Every year halving the current delay figure under strong wind conditions while significantly reducing the need for airlines to cancel flights due to the effects of strong headwinds.		

2015_220_AF2 - AF2_MET-Compliance-Program			
Start Date	01/03/2016	**End Date**	31/12/2020
Project Leader	Austro Control		
Contributors			
Main AF/Sub-AF/Family	AF2	S-AF 2.3	Family 2.3.1
Project Objective	• Developing distance-based separation to time-based separation • Recovering and improving loss of capacity due to bad weather conditions • Supporting automatic observer functions • Improve exchange of meteorological information		

2015_232_AF2 - TBS4LOWW (Time Based Separation for Vienna Airport)			
Start Date	22/02/2016	**End Date**	31/12/2019
Project Leader	Austro Control		
Contributors	Eurocontrol		
Main AF/Sub-AF/Family	AF2	S-AF 2.3	Family 2.3.1
Project Objective	• Establishing Procedural Time Based Separation concept (P-TBS) • Preparation of Safety, HP and Business Cases supporting full TBS System Based deployment		

2017_037_AF2 – TBS deployment at Paris CDG			
Start Date	12/04/2018	**End Date**	30/03/2021
Project Leader	DSNA		
Contributors	Eurocontrol; | Meteo France		
Main AF/Sub-AF/Family	AF2	S-AF 2.3	Family 2.3.1
Project Objective	As a stepping stone to implement and bring into service TBS at CDG, this IP will Implement the two first steps of the gradual approach towards LORD, and prepare the two last steps through deriving the CONOPS for steps 3 and 4. • Objectives Step 1: RECAT-EU is already in operation at CDG. The objective of step 1 then is an improved support of safe and more efficient RECAT-EU separations through direct visualization on the ATC surveillance HMI of the Final Target Distance (FTD indication of the RECAT-EU separation minima applicable behind the lead aircraft in sequence on final approach). This allows in addition a first familiarization with the TBS HMI principles. • Objective Step 2: Reduced separation at runway threshold, using a wind-based procedural reduction of separation (TBS REDSEP procedure ref. EUROCONTROL designed and developed with contribution of Austro Control for Vienna airport). It consists in applying, at and above certain wind conditions, the current distance-based separation at a displaced separation delivery point located at a given distance from the runway threshold. The obtained separation is		

	eventually reduced at runway threshold thanks to the compression effects between successive aircraft. • Objective CONOPS:The TBS LORD concept is to be adapted to CDG operational traffic and methods environment. Generic guidance and generic safety case documents for the LORD concept are to be published by EUROCONTROL. They will be the basis of a joint effort between CDG and EUROCONTROL to develop the precise concepts to be implemented at CDG for step 3 and 4.

Family 2.4.1 – A-SMGCS Routing and Planning Functions

027AF2 – SMAN-Airport			
Start Date	01/01/2015	**End Date**	30/11/2017
Project Leader	Aéroports de Paris: CDG Airport & ORLY Airport		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.4	Family 2.4.1

Project Objective	• Develop and integrate Airport Surface Management Tool which allows managing and monitoring information of the airfield area under the responsibility of the airport operator.
	  ○ Enhance Initial AOP to airfield area
	  ○ Improve Airport Safety Nets functionalities
	  ○ Facilitate A-SMGCS planning functions by improving predictability of Take-Off times
	• The system will share information with all stakeholders/Systems and in particular with the ATC ASMGCS
	• The system is currently used by the ATC tower supervisor and apron managers.		

087AF2 – Apron Controller Working Position			
Start Date	01/01/2014	**End Date**	31/12/2017
Project Leader	FRAPORT		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.4	Family 2.4.1
Project Objective	Fraport AG is responsible for apron management services at Frankfurt Airport and as such subject to a number of provisions in Commission Implementing Regulation (EU) No 716/2014 ("Pilot Common Project"). These are: • Departure Management Synchronised with Pre-Departure Sequencing (in particular with regard to 'variable taxi-times'), • Departure Management integrating Surface Management Constraints ('routing'), • Automated Assistance to Controller for Surface Movement Planning and Routing, • Airport Safety Nets and • 2.5 Essential prerequisites. The latter concern particularly A-SMGCS Level 1 and 2, EFS and DMAN. Consequently, the implementation project is linked to the following sections of the Preliminary Deployment Programme (PDP): • SMGCS Level 1 (Surveillance) (Family 2.2.1 (A-SMGCS Level 1/2)), • SMGCS Level 2 (Alerting) (Family 2.2.1 (A-SMGCS Level 1/2) and Family 2.5.1 (Airport Safety Nets Associated with A-SMGCS Level 2)), • A-SMGCS Level 2+ (Routing) (S-AF 2.4 (Automated Assistance to Controller for Surface Movement Planning and Routing)) and • —as a prerequisite—EFS (Family 2.1.2 Electronic Flight Strips (EFS)). Underlying objectives of the project are:			

	• The implementation of an Advanced Surface Movement Guidance and Control System (A-SMGCS) providing routing, guidance and surveillance for the control of aircraft and vehicles in order to maintain the declared surface movement rate under all weather conditions while maintaining the required level of safety. • 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. • The apron controller working position shall allow the controller to manage surface route trajectories. • 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. • The system shall also be complemented by a function providing controllers with appropriate alerts when potential conflicts primarily on taxiways and intrusions to restricted areas are detected. Conflicts on runways are of secondary interest in this implementation project as the runway system is controlled by the local Air Navigation Service Provider. • The controller working position shall host warnings and alerts with an appropriate human-machine interface (HMI) including support for cancelling the alert. Digital systems, such as electronic flight strips (EFSs), shall integrate the instructions given by the controller with other data such as flight plan, surveillance, routing, published rules and procedures

2015_043_AF2 - AF2.4 A-SMGCS - Routing & Planning			
Start Date	01/01/2017	**End Date**	18/12/2020
Project Leader	Københavns Lufthavne (Copenhagen Airports AS)		
Contributors	Naviair		
Main AF/Sub-AF/Family	AF2	S-AF 2.4	Family 2.4.1
Project Objective	Implementing routing and planning functions in A-SMGCS, which will provide ATC with optimized route designation for each aircraft or vehicle within the movement area, as well as preventing route conflicts on the movement area and improve capacity, predictibility, and safety		

2016_021_AF2 – TANGe (Tower ATS-System Next Generation) Phase 1			
Start Date	01/06/2017	**End Date**	09/09/2019
Project Leader	DFS Deutsche Flugsicherung GmbH		
Contributors			
Main AF/Sub-AF/Family	AF2	S-AF 2.4	Family 2.4.1
Project Objective	The project TANGe (Tower ATS-system Next Generation) will have to its main objectives the implementation of core PCP functionalities with regard to deploying A-SMGCS Routing and Planning Functions as well as significantly improving the associated Airport Safety Nets at the airports of Frankfurt (EDDF), Munich (EDDM), Düsseldorf (EDDL) and Berlin (EDDB). Project TANGe is structured into three phases of which the dedicated project objectives are as follows:		

	• Phase 1: System design for DFS in-house development of the TANGe PCP compliant tower-ATS system. Therewith, TANGe Phase 1 will provide a site independent system specification in order to ensure that the system and requirements meet operational needs and to ready the system for safe and reliable air traffic management operations at all German PCP airports. Phase 1 will conclude by describing PCP IR S-AF 2.4 and S-AF 2.5 compliance for German PCP Towers. • Phase 2: The TANGe system fully readied for operational roll-out at all German PCP airports will be deployed and taken into operational use at the airports of Frankfurt (EDDF), Munich (EDDM), Düsseldorf (EDDL) and Berlin (EDDB). Phase 2 will conclude by achieving full PCP IR S-AF 2.4 and S-AF 2.5 compliance for EDDF, EDDM, EDDL and EDDB. • Phase 3: The TANGe system will be migrated on to SWIM services in line with the PCP IR (EU No. 716/2014) requirements for AF5 Initial SWIM. The implemented interfaces will be based on yellow profile definition.

2016_150_AF2 – Enablers for Airport Surface Movement related to Safety Nets [50% & 20%]			
Start Date	07/02/2017	**End Date**	31/12/2021
Project Leader	Aéroports De Paris (ADP)		
Contributors	Aéroports de la Côte d'Azur; Société Air France; Schiphol Nederland B.V.; Brussels Airport Company NV/SA; Københavns Lufthavne A/S; the French Republic – Ministry of the Environment, Energy and the Sea, DGAC (Direction générale de l'aviation civile), DSNA (Direction des services de la navigation aérienne); DAA plc; Fraport AG Frankfurt Airport Services Worldwide; STAL – Stansted Airport Limited; Manchester Airport PLC; Flughafen München GmbH; Aeroporti di Roma S.p.A.; Swedavia AB; Naviair		
Main AF/Sub-AF/Family	AF2	S-AF 2.4	Family 2.4.1
Project Objective	As from the 2016 CEF Transport Calls for Proposals airport operators and SDAG have opted for a coordinated and synchronized approach to the priority families in IR 716/204 ATM functionality 2 : Airport Integration and throughput. This is a coordinated approach to 4 families in the SESAR Deployment Programme: • 2.2.1: A-SMGCS Levels 1 and 2 • 2.4.1: A-SMGCS routing and planning functions • 2.5.1: Airport safety nets associated with A-SMGCS (Level 2) • 2.5.2: Aircraft and vehicle systems contributing to airport safety nets; The aim of this unprecedented coordinated project is to improve ATM performance in Europe through the modernisation and harmonisation of ATM systems that will enhance the safety for the passengers at our airports. Consequently, the present joint application brings relevant benefits in terms of safety (contributing to the EC high level SES goal of increasing it by a factor 10). Thanks to this collaboration which sees involvement of 13 airport operators (all members of SDAG), 4 Air Navigation Service Provides (DSNA, NATS, Naviair (Naviair only contribute pro bono) and Skyguide) and 1 Airspace User (Air France) the following aspects will be ensured: • Enhanced level of synchronization • Sharing of the best practises among of the participants • Reduced fragmentation • Enhance cross-border connections, international (9 EU Countries plus 1 third country covered in the project), national and regional traffic • Professional management		

2017_032_AF2 – TANGe (Tower ATS-System Next Generation) Phase 1+ incl. Service Architecture			
Start Date	12/04/2018	**End Date**	23/12/2019
Project Leader	DFS Deutsche Flugsicherung GmbH		
Contributors			
Main AF/Sub-AF/Family	AF2	S-AF 2.4	Family 2.4.1
Project Objective	TANGe PHASE 1: (Please refer to CEF funding with 2016_021_AF2) TANGe PHASE 1+ (scope of this implementing project) Phase 1+ of the TANGe project produces the following results: • Iterative Validation and Review of functional Requirements • Iterative Validation and Review of human machine interface (HMI) requirements • Execution of Safety Assessments • Creation and Update of an Architecture concept aligned with a new established DFS program ZAAS "Future ATS System Architecture" • Creation and Update of a Migration concept aligned with a new established DFS program ZAAS "Future ATS System Architecture" • Creation and Update of a Maintenance Concept for the new ATS System aligned with a new established DFS program ZAAS "Future ATS System Architecture" • Creation of a Concept for Service orientated Software development • Refinement of services and technical requirements (Follow-Up of Phase 1) • Deployment/Implementation of Basic Services • Transition and Rollout concept • Phase 1+ is a planning activity to achieve the PCP IR S-AF 2.4 and S-AF 2.5 compliance for German PCP Towers. TANGe PHASE 2 (scope of future funding applications): • The TANGe system is ready for operational rollout (deployment) and will be compliant with PCP IR S-AF 2.4 and S-AF 2.5 at all mandated German PCP airports (towers). • The TANGe system will be deployed and taken into full operational use at the airports of EDDF, EDDM, EDDL and EDDB, Furthermore, the full deployment of the PCP compliant enhanced new tower ATS system with the focus on the "Airport Integration and Throughput" functions will be conducted. The deployment covers all activities like the technical and operational migration as well as the organizational needs like the adaptations of air traffic controller directives and manuals. These tasks are essential for all German PCP airports Upgrade of the TANGe system to SWIM. The objective of the second phase is • the compilation of the detailed specification, satisfying the local conditions in respect to the local operations as well as the specific infrastructure and system-partners with the associated interfaces (e.g. Airport Operators) • the upgrade and full implementation of appropriate SWIM service / interfaces in accordance with all relevant system-partners. Therefore, the existing service interfaces will be migrated to future standards.			

2017_058_AF2 – ITWP4LOWW (Integrated Tower Working Position for Vienna Schwechat)			
Start Date	12/04/2018	**End Date**	30/06/2019
Project Leader	Austro Control GmbH		
Contributors	Eurocontrol		
Main AF/Sub-AF/Family	AF2	S-AF 2.4	Family 2.4.1
Project Objective	Building on the work already undertaken in SESAR R&D (WP6, P6.7.1/2/3, P6.9.2, WP 12), the proposed project "ITWP4LOWW (Integrated Tower Working Position for Vienna Schwechat)" focusses on the following three streams of work, with the objective of producing a solid basis for local deployment: 1. The proposed project will firstly review the EUROCONTROL A-SMGCS Specification and ITWP HMI Description and aims to identify operational and functional requirements applicable to LOWW in the context of the PCP. 2. Secondly, LOWW will be prototyped on the ITWP platform in order to fine-tune software requirements and assess future CWP requirements (Screens, TID etc.). 3. Lastly, a safety assessment by the Local Safety Committee (LSC) will be conducted within the proposed project.		

2017_063_AF2 – A-SMGCS High Performance Surveillance enhancement in view to support routing & planning functions implementation			
Start Date	12/04/2018	**End Date**	01/11/2021
Project Leader	Luchtverkeersleiding Nederland (LVNL)		
Contributors			
Main AF/Sub-AF/Family	AF2	S-AF 2.4	Family 2.4.1
Project Objective	The A-SMGCS surveillance system will use co-operative airport surveillance sensors at Schiphol which provide both Multi LATeration (MLAT) and Automatic Dependent Surveillance Broadcast (ADS-B) updates. MLAT uses Time Difference Of Arrival (TDOA) measurements to determine the position of transponder equipped aircraft and vehicles. ADS-B forwards the position measured on board of the aircraft or vehicle (usually a GPS position). The implementation project ensures optimal A-SMGCS surveillance coverage at Schiphol Airport by the right number of sensors and optimal sensor locations, installing state of the art sensors which support multiple central surveillance processing systems. The sensor locations are selected in consultation with Amsterdam Airport Schiphol. The installation of additional antennas and communication cables is carried out in good cooperation with Schiphol Airport. High availability of the sensor information is guaranteed by using a redundant data communication infrastructure, and a redundant central surveillance processing system. Then sufficient quality of surveillance data can be obtained for further A-SMGCS processing and use by the tower system.		

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

018AF2 – Enhancement of Airport Safety Nets for Brussels Airport (EBBR)			
Start Date	02/06/2014	**End Date**	13/04/2017
Project Leader	BELGOCONTROL		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.5	Family 2.5.1
Project Objective	The main objective of this project is to upgrade the existing Airport Safety Nets function, associated with the A-SMGCS system at Brussels Airport (EBBR), to obtain (or even exceed) the level of performance as envisaged under ATM functionality AF 2 as defined in the PCP Regulation (see ANNEX, section 2.1.5). Two related sub-projects are defined: • Sub-project 1: Validation and Operational introduction of the Advanced Safety Nets function, developed by Belgocontrol, at Brussels Airport (Control Tower). • Sub-project 2: Further enhancement (by Belgocontrol) of the Advanced Safety Nets function by adding a "Taxi Route conformance monitoring" functionality.		

054AF2 – CDG2020 Step1			
Start Date	01/01/2014	**End Date**	31/12/2016
Project Leader	DSNA		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.5	Family 2.5.1
Project Objective	• Improve runway safety against runway intrusion • Improve runway throughput at peak arrival period A 2020 action plan has been set up to improve performance at CDG, following a balanced approach in the areas of safety and capacity. Step1 of the action plan is targeting improvement of the performance level at the horizon of 2017 by implementing new systems and procedures identified as quick wins. The deployment of those actions is coordinated with Aéroports de Paris (ADP) and the airport users.		

064AF2 – ENAV Airport System upgrade			
Start Date	01/01/2014	**End Date**	31/07/2019
Project Leader	ENAV		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.2	Family 2.5.1
Project Objective	The main objective is to increase the efficiency and safety of operations at Malpensa and Fiumicino, the two main Italian airports, by improving the surveillance coverage, quality and accuracy in order to extend its capabilities over the all movement area (including most of the suitable apron areas), with a view to implement functionalities that shall facilitate and enable the deployment of Airport Safety Nets as requested within Reg. 716/2014 The enhancement of surveillance is needed in order to fully satisfy the requirements for ASMGCS level 1 and for laying down the bases for ASMGCS Level 2. In particular, the aim of this project is to achieve the Implementation of A-SMGCS level 2 at Malpensa airport and full A-SMGCS level 1 at Fiumicino airport. The project modularity will reflect the different requirements at airport level, allowing each working package to be further decomposed in different modules. In particular, the surveillance functionality will be improved through: • The implementation of a new multi-sensor data fusion that will be able to integrate all the contributions coming from different surveillance sensors (ADS-B, Multilateration, SMR,) • The enhancement of the current Surface Movement Radar (SMR) • the upgrade of the Multilateration system (MLAT), enhancing the actual coverage by adding and integrating other MLAT ground stations. The new tower system will provide the: • Electronic Flight Progress Strips (EFPS). • New Airport Surveillance Data presentation • Basic safety (Conflicting clearances through the use of EFPS).		

088AF2 – Airport Safety Net: Mobile Detection of Air Crash Tenders			
Start Date	01/07/2014	**End Date**	08/11/2017
Project Leader	FRAPORT		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.5	Family 2.5.1
Project Objective	• Equipage of Air Crash Tenders with a Moving Map based on A-SMGCS surveillance data • Identification of deviations from routes and procedures of Air Crash Tenders (PDP Family 2.5.1 Airport Safety Nets associated with A-SMGCS Level 2) • Improvement of situational awareness of Air Crash Tenders (PDP Family 2.5.1 Airport Safety Nets associated with A-SMGCS L2) • Early prediction of situations that would end up in hazardous situations (PDP Family 2.5.1 Airport Safety Nets associated with A-SMGCS Level 2)		

092AF2 – Enhanced Departure Management integrating airfield surface assets			
Start Date	01/03/2015	**End Date**	31/12/2017
Project Leader	Gatwick Airport Limited		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.5	Family 2.5.1
Project Objective	The high-level objectives of the project are as follows: • Achieve 100% equipage of ground service vehicles with tracking technology • Increase airside safety by providing visibility of appropriate vehicles and equipment to Air Traffic Control Tower • Enable further implementation of Airport Safety Nets (ATM Sub-Functionality 2.5) • Improve taxi conflict prediction to reduce number of stop-and-go taxiing • Improve efficiency of airside operations by providing real-time information about location of ground service equipment and vehicles to Ground Handling Agents (GHAs) and Airport Flow Centre		

100AF2 – Airport Safety Nets associated with A-SMGCS Level 2 - Preparation for SMAN			
Start Date	01/04/2014	**End Date**	31/12/2015
Project Leader	Heathrow Airport Limited		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.5	Family 2.5.1
Project Objective	• Concept of Operation has been developed to clarify the AGL and field infrastructure component design and architecture requirements for an integrated ASMGCS level 4/5 Surface manager (SMAN). • A holistic Options analysis and selection process is being undertaken to assess the functional and safety integrity requirement of the Ground Movement Control System as a system design that is fully congruent and potentially pre-integrated with the ASMGSC4/5 Surface Manager. • Primary Cable specification, distribution and operational architecture is being surveyed to scope design and installation of an airfield-wide GMCS primary cabling matrix to allow floating separation and necessary system integrity for automatic/.semi-automatic operation. • Existing AGL system architecture is undergoing resilience and communication architecture modification to allow for validation testing of floating separation and seamless operational transition to the new GMCS/SMAN function.		

2015_046_AF2 - AF 2.5 A-SMGCS - Safety Nets			
Start Date	01/01/2017	**End Date**	18/12/2020
Project Leader	Københavns Lufthavne (Copenhagen Airports AS)		
Contributors	Naviair		
Main AF/Sub-AF/Family	AF2	S-AF 2.5	Family 2.5.1
Project Objective	• Implementing EFS conflict detection • Implementing runway clearence monitoring • Implementing holding point monitoring • Implementing route adherence monitoring		

2015_187_AF2 - TWR System at Amsterdam Schiphol			
Start Date	01/03/2016	**End Date**	31/12/2020
Project Leader	LVNL		
Contributors			
Main AF/Sub-AF/Family	AF2	S-AF 2.5	Family 2.5.1
Project Objective	• Deploying a state-of-the-Art tower system at Schiphol Airport to support the implementation of the European ATM Master Plan and the Pilot-Common-Project (PCP) in accordance with the deployment plan of the SESAR Deployment Manager • Realising PCP requirements in the TWR domain with a due date in 2021 namely S-AF 2.1 Departure Management Synchronised with Pre-departure sequencing, S-AF 2.2 Departure Management integrating Surface Management Constraints and S-AF 2.5 Airport Safety Nets • Enabling the extension of the TWR System with remaining PCP requirements		

2015_298_AF2 - A-SMGCS upgrade to provide airport safety nets and routing & planning functions			
Start Date	01/01/2017	**End Date**	30/09/2021
Project Leader	Gatwick Airport		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.5	Family 2.5.1
Project Objective	• Increasing safety on the manoeuvring area - reducing the risk of runway incursions and conflicts / incidents on the manoeuvring area whilst maintaining declared ground movement rates • Reducing controllers' workload by providing system support for monitoring of traffic and its conformance to clearances on the manoeuvring area, and by providing automated routing and planning functions • Reducing potential conflicting routing for arrivals, departures and other ground movements and thus increase efficiency of ground operations • Optimising controller working position by more advanced integration of systems and improving Human Machine Interface (HMI)		

	• Implementing airport safety nets associated with A-SMGCS (Level 2) (Family 2.5.1) in line with Commission Regulation (EU) No 716/2014 and SESAR Deployment Programme • Implementing A-SMGCS routing and planning functions (Family 2.4.1) in line with Commission Regulation (EU) No 716/2014 and SESAR Deployment Programme

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

022AF2 – Vehicle Tracking System (VTS)			
Start Date	01/01/2012	**End Date**	31/12/2016
Project Leader	Brussels Airport		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.5	Family 2.5.2
Project Objective	Goal Display position and identification of all vehicles entering manoeuvring area on a regular basis on the ground radar display to controller. Motivation • Improve safety airport ground movements (additional safety net) • Comply with Level-1 A-SMGCS requirement (SES Legislation – ESSIP initiative)		

030AF2 – Equipment of ground vehicles to supply the A-SMGCS			
Start Date	28/02/2014	**End Date**	27/05/2016
Project Leader	Aéroports de la Cote d'Azur		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.5	Family 2.5.2
Project Objective	• Supply the A-SMGCS with accurate information • Allow the efficient deployment of the A-SMGCS Level 1 & 2 by providing the location of the vehicle and the identification • Improve the safety on the platform with knowing the location of the vehicles and the possibility to identify runway incursion • Be compliant with the regulation		

135AF2 – Ryanair RAAS Programme			
Start Date	01/12/2015	**End Date**	31/12/2016
Project Leader	Ryanair		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.5	Family 2.5.2
Project Objective	Implement aircraft systems contributing to airport safety nets. (ref: Family 2.5.2) The objective is to equip all Ryanair aircrafts with Honeywell Runway Awareness and Advisory Systems (RAAS) 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 main benefit is related to the increase of runway usage awareness, and consequently an increase of runway safety. On-board systems and technology uses airport data coupled with on-board sensors to monitor the movement of an aircraft around the airport and provide relevant information to the flight crew. Further applications of on-board systems are related to continuous monitoring of aircraft landing performance, providing pilots with a real-time, constantly updated picture. The on-board systems detect potential and actual risk of collision with other traffic during runway operations and provide the Flight Crew with the appropriate alert. An on-board airport safety net will improve safety in runway operations, mostly at airports where no safety net is provided to controllers.

2015_031_AF2 - Vehicle Transponder A-SMGCS Düsseldorf			
Start Date	01/06/2016	**End Date**	30/06/2019
Project Leader	Flughafen Düsseldorf GmbH		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.5	Family 2.5.2
Project Objective	Transponder for vehicles A-SMGCS Level 2 Düsseldorf		

2015_222_AF2 - Advanced Airport Moving Map (AAMM) Prototype Implementation			
Start Date	17/02/2016	**End Date**	31/10/2018
Project Leader	Fraport AG		
Contributors	Deutsche Lufthansa AG		
Main AF/Sub-AF/Family	AF2	S-AF 2.5	Family 2.5.2
Project Objective	• Performing a joint study by an airport and an airline to extend the currently static Airport Moving Map functionalities into a real-time dynamic data traffic information application. • Developing a new innovative solution and testing its feasibility and suitability as well as its added value before deploying it on a larger scale. These pilot activities of the study include the deployment of prototype software extensions on a limited scale to test and validating the viability. • Improving Airport Moving Map application as part of a safety system helps to detect risk of collision with other traffic in the manoevering area and alerert the cockpit by consuming and displaying real-time airport traffic information (A-SMGCS Data) to improve pilots situational awareness. • Enhancing taxi efficiency, especially during low-visibility, heavy rain, snow and nighttime operations. Therefore, AAMM represents a contribution to an environmentally friendly and safe operation • Contributing to the standardisation of the ATM infrastructure in Europe by know how transfer to all relevant SESAR (SJU/SDM) and EUROCAE projects led or under the participation of project contributors.		

2015_226_AF2 - Airport Safety Net: Mobile Detection of Marshaller Vehicles			
Start Date	17/02/2016	**End Date**	31/12/2018
Project Leader	Fraport AG		
Contributors	-		
Main AF/Sub-AF/Family	AF2	S-AF 2.5	Family 2.5.2
Project Objective	• Equipage of Marshaller Vehicles with a Moving Map based on A-SMGCS surveillance data • Implementation of a new allocation tool • Improvement of situational awareness		

2016_069_AF2 – Runway Overrun Prevention System (ROPS) bundled application for TAP Portugal [50% & 20%]			
Start Date	07/02/2017	**End Date**	31/12/2020
Project Leader	TRANSPORTES AEREOS PORTUGUESES SA (TAP Portugal)		
Contributors			
Main AF/Sub-AF/Family	AF2	S-AF 2.5	Family 2.5.2
Project Objective	The objective of the proposed Action is to equip TAP Portugal fleet with ROPS functionality. This covers retrofit of the existing fleet, and also forward fit for the newly delivered aircraft.		

AF3 Flexible ASM and Free Route

The following table encompasses the list of implementation initiatives associated to ATM Functionality #3 that were awarded under all CEF Transport Calls for Proposals.

CEF Call Designator	Title	Family	IP Description Page Number
056AF3	ASM tool implementation	3.1.1	72
122AF3	Family 3.1.1 NAV Portugal - Initial ASM tool to support AFUA	3.1.1	72
2015_202_AF3	ASM tool Implementation	3.1.1	73
2015_239_AF3	Flexible ASM and Free Route	3.1.1	73
2016_037_AF3	Deployment of LARA System in Spain	3.1.1	74
015AF3	LARA integration in CANAC 2	3.1.2	75
2016_133_AF3	NM system management of real time airspace data	3.1.2	75
2017_041_AF3	ASM - LARA Enhancement - Implementation in Italy	3.1.2	75
2017_074_AF3	Hungarian ATM system upgrade for AF3-AF4	3.1.2	76
080AF3	ASM AFUA Implementation	3.1.3	77
2016_134_AF3	Implementation of rolling ASM/ATFCM	3.1.3	77
2017_029_AF3	Deployment of Centralized Interoperable Center Information Service (Step 1)	3.1.3	77
2017_053_AF3	Implementation of rolling ASM/ATFCM	3.1.3	88
2015_051_AF3	VARP - VoIP ATC Radio Project	3.1.4	79
2015_132_AF3	VoIP Programme	3.1.4	79
2015_159_AF3	Deployement of IP/VOIP technology to enable Management of Dynamic Airspace Configurations	3.1.4	79
2015_195_AF3	Deployment of next Generation and VoIP Capable Centre Voice Communication System	3.1.4	80
2015_221_AF3	Implementation of Voice over IP (VoIP) systems and services in ENAIRE	3.1.4	80
2015_236_AF3	VHF Concept Implementation 2020	3.1.4	81
2015_320_AF3	Implementation of VoIP	3.1.4	81
2016_043_AF3	VCS-IP - Upgrade of Voice Communication Systems to support ATM VoIP communications	3.1.4	81
2016_075_AF3	FAB CE wide Study of DAM and STAM [Part A & B]	3.1.4	82
2016_135_AF3	Implementation of pre-defined airspace configuration	3.1.4	83

CEF Call Designator	Title	Family	IP Description Page Number
2017_400_BLD	Implementation of Voice over IP (VoIP) in Barcelona ACC	3.1.4	83
004AF3	Traffic Flow Restriction (TFR) – LIDO planning system	3.2.1	84
005AF3	FREE FLIGHT- DIRECT OPTIMIZATION	3.2.1	84
053AF3	4-Flight deployment in DSNA pilot ACCs	3.2.1	85
081AF3	NM DCT/FRA Implementation and support	3.2.1	85
131AF3	1st part of the upgrade of the P_21 PEGASUS system to SESAR unctionalities - Test and Validation Platform	3.2.1	86
2015_029_AF3	Procurement of new DPS/ATM and VCRS systems to support DCTs and FRA	3.2.1	87
2015_034_AF3	ATM System (MATIAS) upgrade for cross-border free route operation	3.2.1	87
2015_062_AF3_I	4-Flight Deployment in PARIS Area, Upgrade in Marseille and Aix ACCs - Phase I	3.2.1	87
2015_062_AF3_II	4-Flight Deployment in PARIS Area, Upgrade in Marseille and Aix ACCs - Phase II	3.2.1	88
2015_107_AF3	NM Systems upgrades in support of DCTs and FRA	3.2.1	88
2015_190_AF3	Deployment of Air Traffic Control System iCAS: Implementation of ATM PCP Functionalities at LVNL and DFS	3.2.1	89
2015_204_AF3_I	4-Flight deployment in Italy - Phase I	3.2.1	90
2015_204_AF3_II	4-Flight deployment in Italy - Phase II	3.2.1	90
2015_207_AF3	Harmonisation of Technical ATM Platform in 5 ANSP including support of free Route Airspace and preparation of PCP program. (COOPANS B3.3 , B3.4 and B4.1)	3.2.1	90
2015_242_AF3	Free Route implementation into ATM system of ANS CR	3.2.1	91
2015_247_AF3	4Flight deployment in military En-route ACC (CMCC)	3.2.1	91
2015_269_AF3	Mil MTCD Advanced Controller Tools (FOURSIGHT)	3.2.1	91
2016_026_AF3	System Procurement for Deployment of PCP Air Traffic Control System iCAS at DFS and LVNL	3.2.1	92
2016_036_AF3	Deployment of SACTA-iTEC	3.2.1	93
2016_040_AF3	Upgrade of trajectory management in SACTA-iTEC	3.2.1	94
2016_055_AF3	FR_Upgrade of French Military Control and Reporting Centres (CRC) for civil-military interoperability	3.2.1	95
2016_085_AF3	ATM System Upgrade Towards Free Route Airspace	3.2.1	95

CEF Call Designator	Title	Family	IP Description Page Number
2016_087_AF3	iTEC Tests, Validations and Planning (iTEC-TVP)	3.2.1	95
2016_110_AF3	ENAV Automated ENV Data Interchange for FDP/ERATO	3.2.1	96
2016_115_AF3	ENAV 4-Flight Deployment in Italy - Third Stage 2017-2018	3.2.1	96
2016_121_AF3	Free Route	3.2.1	97
2017_031_AF3	Procurement and Deployment of PCP Air Traffic Control System iCAS at DFS Munich and Bremen and LVNL Amsterdam	3.2.1	97
2017_042_AF3	Automatic Tactical Controller Tool implementation	3.2.1	97
2017_043_AF3	Coflight-eFDP Development (Step 2)	3.2.1	98
2017_049_AF3	Electronic Flight Strip (EFS) in En-Route and TMA in SACTA system	3.2.1	99
2017_050_AF3	Controller Working Position (CWP) upgrade	3.2.1	99
2017_055_AF3	NM Systems upgrades in support of FRA	3.2.1	100
020AF3	Implementation Project 2.6 - Borealis Free Route Airspace (Part 1)	3.2.4	101
063AF3	ENAV implementation of Free Route	3.2.4	101
095AF3	Implementation of FRA in Greece	3.2.4	102
102AF3	Free Route Airspace from the Black Forest to the Black Sea	3.2.4	102
2015_050_AF3	SIMULATION SEAFRA H24	3.2.4	103
2015_189_AF3	Free Route Airspace (Full FRA) in German and SWISS Airspace	3.2.4	103
2015_227_AF3	Borealis FRA Implementation (Part 2)	3.2.4	104

Family 3.1.1 – (Initial) ASM Tool to support AFUA

056AF3 – ASM tool Implementation			
Start Date	01/01/2014	**End Date**	30/12/2017
Project Leader	EANS		
Contributors	-		
Main AF/Sub-AF/Family	AF3	S-AF 3.1	Family 3.1.1
Project Objective	Air Space Management (ASM) tool implementation is a prerequisite for Free Route Airspace Implementation of AF3 – Flexible Airspace Management and Free Route of the Commission Implementing Regulation (EU) No 716/2014 on the establishment of the Pilot Common Project (PCP) supporting the implementation of the European Air Traffic Management Master Plan. The Eurocontrol LARA ASM tool will: • enhance Civil-Military ATM performance; • provide real-time exchange of airspace management data; • enhance situational awareness • facilitates collaborative decision-making • improve safety		

122AF3 – Family 3.1.1 NAV Portugal - Initial ASM tool to support AFUA			
Start Date	01/01/2014	**End Date**	30/06/2019
Project Leader	NAV Portugal		
Contributors	-		
Main AF/Sub-AF/Family	AF3	S-AF 3.1	Family 3.1.1
Project Objective	Airspace Management (ASM) and Advanced Flexible Use of Airspace (A-FUA) aims to provide the possibility to manage airspace reservations more flexibly in response to airspace user requirements. Changes in airspace status shall be shared with all concerned users, in particular Network Manager, air navigation service providers and airspace users (Flight Operations Centre/Wing Operations Centre (FOC/WOC)). ASM procedures and processes shall cope with an environment where airspace is managed dynamically with no fixed-route network. Data-sharing shall be enhanced by the availability of airspace structures in support of a more dynamic ASM and Free Routing Airspace (FRA) implementation. FRA is the airspace defined laterally and vertically, allowing free routing with a set of entry/exit features. Within this airspace, flights remain subject to air traffic control. ASM solutions shall support all airspace users, including enabling the alignment of FRA, Conditional Route (CDR) and published Direct Routing (DCT). These ASM solutions shall be based on forecast demand received from the local Air Traffic Flow and Capacity Management (ATFCM) function and/or the Network Manager. Establish a collaborative civil-military airspace planning at Lisbon FIR integrated on the European Network level through an integrated Airspace Management/Air Traffic Flow Capacity Management (ASM/ATFCM) process and an extended planning phase into the day of operations. Ensure full exploitation of capacity becoming available through the identification of efficient combinations of areas allocation, routes		

	availability, including CDRs, and Lisbon ACC sector configurations able to cope with traffic demand. The process will be applied also for improving the planning activities related to the updates to airspace status. Foster a consistent application of the Flexible Use of Airspace (FUA) Concept across the European network, and support a safe, efficient and accurate flow of ASM data. The improved planning process refers to the use of specific procedures allowing Airline Operators (AOs) to optimise their flight planning in order to achieve a more efficient utilization of available airspace through more dynamic responses to specific short notice or real-time airspace status changes, requirements and route optimization at the pre-tactical and/or tactical levels. Develop, validate and implement ASM/ATFCM processes, procedures and supporting tools at national, sub-regional and the European Network level to ensure that airspace is used more flexibly, capacity is better balanced and predictability is enhanced through greater adherence to planned activities as a result of better planning and notification. Ultimately, the ASM operations continue until the real-time activation of airspaces in the Lisbon ACC or routes (below FL 240, since above that level the FIR airspace is full free route). The alignment between both ASM/ATFCM processes shall continue to ensure the assessment of the network impact, the identification of flights affected by real-time modifications, as well as the timely dissemination of the decisions. Airspace uses (allocations, activations, deactivations) are issued from the ASM tools (LARA,) via B2B.

2015_202_AF3 - ASM tool Implementation			
Start Date	16/02/2016	**End Date**	31/12/2019
Project Leader	ENAV		
Contributors			
Main AF/Sub-AF/Family	AF3	S-AF 3.1	Family 3.1.1
Project Objective	• Enhancing the civil-miltary collaborative decision-making process • Enhancing ASM process and National procedures • Enhancing situational awareness and increasing safety		

2015_239_AF3 - Flexible ASM and Free Route			
Start Date	01/08/2016	**End Date**	31/12/2020
Project Leader	ANS/CR		
Contributors	-		
Main AF/Sub-AF/Family	AF3	S-AF 3.1	Family 3.1.1
Project Objective	• Increasing airspace capacity due to better airspace organisation and planning • Reducing the effort on ATCOs by allowing a more cost-effective approach, while keeping the highest level of safety • New tool to be implemented will lead to better awareness of airspace users via NM service provided		

2016_037_AF3 – Deployment of LARA System in Spain			
Start Date	07/02/2017	**End Date**	31/10/2019
Project Leader	Entidad Pública Empresarial ENAIRE		
Contributors	Spanish Air Force		
Main AF/Sub-AF/Family	AF3	S-AF 3.1	Family 3.1.1
Project Objective	• The project aims at the installation and deployment of a common ASM (Airspace Management) civil-military co-ordination system (LARA) interoperable with NM (Network Manager), at national level in Spain • With the implementation of this Management Tool, the ASM/ATFCM national structure palliate greatly the lack of a proper tool to support the FUA, and the subsequent implementation of AFUA, as well as facilitate airspace real time management, and promote the process of ASM information sharing • To implement civil-military performance monitoring system (PRISMIL) at national level as direct enabler of AF# 3. • With the implementation of this performance monitoring system, the performance measurement and KPIs (Key Performance Indicators) production will be achieved • To enhance civil-military interoperability		

Family 3.1.2 – ASM management of real time data

015AF3 – LARA integration in CANAC 2			
Start Date	01/01/2014	**End Date**	10/02/2017
Project Leader	BELGOCONTROL		
Contributors	-		
Main AF/Sub-AF/Family	AF3	S-AF 3.1	Family 3.1.2
Project Objective	• Providing ATCO's (Air Traffic Controller) with military information about areas reservation in order to optimise the use of airspace • Automate the display of airspace reservation in the EUROCAT (in the ODS (Operational input and Display System) of the FDP (Flight Data Processing) system) • Provide information about status of airspace reservation in the ADIDS-c (Aeronautical Data Information Display System)		

2016_133_AF3 – NM system management of real time airspace data			
Start Date	01/04/2017	**End Date**	31/12/2020
Project Leader	Eurocontrol / Network Manager		
Contributors			
Main AF/Sub-AF/Family	AF3	S-AF 3.1	Family 3.1.2
Project Objective	• Upgrades of NM systems related to real time data exchanges • Ensure the interoperability of NM systems with civil and military ANSPs, joint ASM bodies, Airspace Users, and CFSPs systems in the field of real time airspace data as agreed in the NMF cooperative decision-making process		

2017_041_AF3 – ASM - LARA Enhancement - Implementation in Italy			
Start Date	01/05/2018	**End Date**	31/12/2021
Project Leader	ENAV S.p.A.		
Contributors	Italian Air Force (MoD)		
Main AF/Sub-AF/Family	AF3	S-AF 3.1	Family 3.1.2
Project Objective	To align use of the local ASM tool for both the civil and military authorities, in compliance with military and civilian security requirements , through the adaptation of ITAF specific tools. Further enhancement of LARA in order to meet Reg. (EU) 716/2014 requirements, with particular reference to the automated exchange services of ASM data during the tactical and execution phases, continuously and in real time.		

2017_074_AF3 – Hungarian ATM system upgrade for AF3-AF4			
Start Date	16/04/2018	**End Date**	30/06/2021
Project Leader	Hungaro Control		
Contributors			
Main AF/Sub-AF/Family	AF3	S-AF 3.1	Family 3.1.2
Project Objective	This proposed Implementation Project aims to upgrade Hungaro Control ATM system, to: • ASM Management of real time airspace data: Adapt ATM systems to exchange airspace reservation (ARES) messages containing real time (tactical) activation status of predefined airspace structures with local ASM support systems and to display airspace status data at the CWP. • Management of Dynamic Airspace Configurations: System improvements supporting the management of dynamic airspace configuration including DCTs and FRA • Interface ATM systems to NM systems: Upgrade the ATM system with the capability to receive and process EFPL information via FF-ICE/1 and develop the associated procedures.		

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

080AF3 – ASM and A-FUA implementation			
Start Date	01/01/2014	**End Date**	31/01/2019
Project Leader	Eurocontrol / Network Manager		
Contributors	-		
Main AF/Sub-AF/Family	AF3	S-AF 3.1	Family 3.1.3
Project Objective	• Improve Network performance and support a better utilisation of the Free Route Airspace and fixed route structure through enhanced ASM processes and tools • Enhance performance driven ASM/ATFCM processes (including those ATS processes that are linked to the ASM/ATFCM processes); • Introduce more dynamic and flexible ASM/ATFCM/ATS processes; • Production of key performance indicators for AFUA		

2016_134_AF3 – Implementation of rolling ASM/ATFCM			
Start Date	01/04/2017	**End Date**	31/12/2020
Project Leader	Eurocontrol / Network Manager		
Contributors	Société Air France; Deutsche Lufthansa AG; Lufthansa Systems GmbH & Co. KG; Sabre Austria GmbH		
Main AF/Sub-AF/Family	AF3	S-AF 3.1	Family 3.1.3
Project Objective	• Upgrades of NM system related to full rolling ASM/ATFCM process • Procedural changes related to full rolling ASM/ATFCM process • Upgrade of SABRE solution for an automatic processing of AUP • Upgrade of SABRE solution to receive and read in real time data • Evaluation of real time exchanges in Sabre solution with support of dedicated Airspace Users (Austrian Airlines) • Upgrade of Lufthansa Systems Lido/Flight software to manage the ASM information as provided by the NM for Lufthansa (including its daughter companies using Lido/Flight) and Air France		

2017_029_AF3 – Deployment of Centralized Interoperable Center Information Service (Step 1)			
Start Date	12/04/2018	**End Date**	30/06/2023
Project Leader	DFS Deutsche Flugsicherung GmbH		
Contributors			
Main AF/Sub-AF/Family	AF3	S-AF 3.1	Family 3.1.3
Project Objective	Step 1 (scope of this funding application): CICIS System Project • Step 1 will undertake the definition of the dedicated system and service requirements, the adaptation and migration of these to a new centralized system platform as well as the procurement of the new system as well as ensuring its operational readiness. The new system within the control center (clients) shall thus make use of centrally provided data. Step 1 implementation will conclude with the Factory and Site Acceptance Tests of the new system/ service.		

	Step 2 (scope of future funding application): CICIS Deployment Project • Step 2 will build on the Step 1 implementation and its operational readiness of the procured system and take the Centralized Interoperable Center Information Service into operation at the DFS control centers (i.e. clients) Karlsruhe, Munich, Bremen and Langen from a centralized and redundant location.

2017_053_AF3 – Implementation of rolling ASM/ATFCM			
Start Date	01/01/2019	**End Date**	31/12/2021
Project Leader	Eurocontrol / NM		
Contributors	Deutsche Lufthansa AG; | Lufthansa Systems GmbH & Co. KG; | Lufthansa Systems Poland Sp. z o.o; | Sabre Austria GmbH; | SABRE France SARL; | Sabre Airline Solutions GmbH; | SABRE Polska SP Z.o.o; | Société Air France		
Main AF/Sub-AF/Family	AF3	S-AF 3.1	Family 3.1.3
Project Objective	• Upgrades of NM system related to full rolling ASM/ATFCM process • Procedural changes related to full rolling ASM/ATFCM process • Upgrade of SABRE System solution in coherence with rolling ASM/ATFCM process • Upgrade of Lufthansa Systems Lido/Flight and NetLine/Ops software software in coherence with the rolling ASM/ATFCM process process and the NM releases (this includes data provision (including implementation of available B2B services) and applications using the data) • Usage of updated rolling ASM ATFCM processes and ASM information sharing by Lufthansa Group Airlines and Air France (airline companies). • Business process management and management-of-change to allow procedural adaptions in the complex operational environment • Implementing innovative full rolling ASM ATCM and ASM information sharing business processes in LH Group Airlines OCCs		

Family 3.1.4 – Management of Dynamic Airspace Configurations

2015_051_AF3 - VARP - VoIP ATC Radio Project			
Start Date	16/02/2016	**End Date**	05/11/2020
Project Leader	Croatia Control		
Contributors	-		
Main AF/Sub-AF/Family	AF3	S-AF 3.1	Family 3.1.4
Project Objective	• Implementation of modern IP-based VHF/UHF radio network		

2015_132_AF3 - VoIP Programme ✓			
Start Date	01/03/2016	**End Date**	31/12/2018
Project Leader	Naviair		
Contributors			
Main AF/Sub-AF/Family	AF3	S-AF 3.1	Family 3.1.4
Project Objective	• Main VCS upgrading to support VoIP thereby enabling flexible Air Space Management (ASM) • Replacing existing VHF radios by VoIP capable VHF radios thereby enabling flexible ASM		

2015_159_AF3 - Deployement of IP/VOIP technology to enable Management of Dynamic Airspace Configurations			
Start Date	01/01/2016	**End Date**	31/12/2020
Project Leader	Irish Aviation Authority		
Contributors			
Main AF/Sub-AF/Family	AF3	S-AF 3.1	Family 3.1.4
Project Objective	• Deploying VOIP technology for all IAA VHF / UHF transmitters and receivers to enable the Air/GND role allocation adoption of the VOIP 4G VCS in order to facilitate the Management of Dynamic Airspace configurations • Deploying a new VOIP 4G VCS for the new Enroute Contingency Centre to enable dynamic role allocation adoption in order to facilitate the Management of Dynamic Airspace configurations • Deploying a new IAA IP Data Communications network for inter-connecting of VHF Radio sites and ATC Centres to enable the Management of Dynamic Airspace configurations • Deploying enhancements to existing operational voice communications switches to enable VOIP connectivity between all IAA ATC Centres and Towers to enable dynamic role allocation adoption in order to facilitate the Management of Dynamic Airspace configurations across all IAA sites		

2015_195_AF3 - Deployment of next Generation and VoIP Capable Centre Voice Communication System			
Start Date	16/02/2016	**End Date**	31/12/2018
Project Leader	DFS		
Contributors			
Main AF/Sub-AF/Family	AF3	S-AF 3.1	Family 3.1.4

Project Objective	• Deploying a new state-of-the-art Voice-over-IP capable Voice Communication System as a technical prerequisite in line with the Interoperability IR (EU No. 552/2004 incl. its amendment by EU No. 1070/2009) for the implementation of dynamic airspace
	• Enabling the introduction of advanced operational concepts of the PCP (EU No. 716/2014) for flexible airspace management and dynamic airspace management to enable a higher cost effectives of the air navigation service provision for airspace users and to increase operational performance. The deployment project will contribute (enabler project) to closing the Gap for Family 3.1.4 identified by the SESAR Deployment Manager within the Deployment Programme 2015.
	• The dedicated deployment objectives of the technical prerequisites are:
	  ○ Deployment of Primary Voice-Communication Systen (VCS) for ACC Bremen
	  ○ Deployment of a last-resort VCS for ACC Munich and renewing of related radio sites
	  ○ Deployment of a last-resort VCS for ACC Bremen and renewing of related radio sites
	  ○ Deployment of a last-resort VCS for UAC Karlsruhe and renewing of related radio sites		

2015_221_AF3 - Implementation of Voice over IP (VoIP) systems and services in ENAIRE			
Start Date	01/03/2016	**End Date**	30/06/2020
Project Leader	ENAIRE		
Contributors			
Main AF/Sub-AF/Family	AF3	S-AF 3.1	Family 3.1.4
Project Objective	• Evolution of the ENAIRE Voice Communication Systems and Air to Ground radio equipment to comply with EUROCAE specifications • Integration of the ATC Voice over IP netwoks • Reductions of maintenance and operation costs		

2015_236_AF3 - VHF Concept Implementation 2020			
Start Date	01/03/2016	**End Date**	30/11/2020
Project Leader	Austro Control		
Contributors			
Main AF/Sub-AF/Family	AF3	S-AF 3.1	Family 3.1.4
Project Objective	• Implementing Voice COM System as an enabler for PCP AF3 regards to Regulation No 716/2014 - Flexible Airspace Management and Free Route • Valdidating and verifying system safety		

2015_320_AF3 - Implementation of VoIP			
Start Date	01/04/2016	**End Date**	31/12/2021
Project Leader	LFV		
Contributors			
Main AF/Sub-AF/Family	AF3	S-AF 3.1	Family 3.1.4
Project Objective	• Enabling dynamic sectorisation and therefore flexible AirSpace Management within LFV through the implementation of a VoIP compliant system • Developing and implementing VoIP capable end-systems within LFV • Upgrading the VCS within Arlanda's terminal and terminal control centre and of backup VCCS to support VoIP • Enabling the implementation of a VoIP compliant system via the implementation of an IP based network		

2016_043_AF3 – VCS-IP - Upgrade of Voice Communication Systems to support ATM VoIP communications			
Start Date	01/03/2017	**End Date**	31/12/2020
Project Leader	Croatia Control Ltd.		
Contributors			
Main AF/Sub-AF/Family	AF3	S-AF 3.1	Family 3.1.4
Project Objective	• Upgrade of all main and backup Voice Communication Systems to comply with EUROCAE ATM VoIP standards as a prerequisite for implementation of PCP AF3 Flexible Airspace Management (ASM) and Free Route; • Safety Assessment of the upgraded main and backup Voice Communication Systems.		

2016_075_AF3_A – FAB CE wide Study of DAM and STAM - General Call **2016_075_AF3_B – FAB CE wide Study of DAM and STAM - Cohesion Call**			
Start Date	07/02/2017	**End Date**	31/12/2018
Project Leader	FABCE, Aviation Services, Ltd. (FABCE, Ltd.)		
Contributors	Austro Control Österreichische Gesellschaft für Zivilluftfahrt mit beschränkter Haftung (Austro Control GmbH); Slovenia Control, Slovenian Air Navigation Services, Limited (Slovenia Control, Ltd)		
Main AF/Sub-AF/Family	AF3	S-AF 3.1	Family 3.1.4
Project Objective	The objective of the DAM/STAM project to define a FAB CE wide high level operational concept and related implementation plan for the application of STAM and FUA. In particular, the project aims to close the gaps in the following Deployment Programme families for FAB CE States: • 3.1.1 ASM Tool to support AFUA • 3.1.2 ASM management of real time airspace data • 3.1.3 Full rolling ASM/ATFCM process and ASM information sharing • 3.1.4 Management of Dynamic Airspace con • 4.1.2 STAM Phase 2 • 4.4.2 Traffic Complexity Tools The main objective of the DAM/STAM study project is to produce a FAB CE key high-level document that contains all relevant elements required for a consequent FAB CE wide implementation of DAM and STAM processes. As such the DAM/STAM final report can be seen as an implementation roadmap for all involved FAB CE ANSP, a FAB CE ASM document that defines the high level operational concept for FAB CE DAM/STAM by describing the collaboration, processes, procedures and tools needed for later implementation. The second main objective of the DAM/STAM study is to provide the involved ANSP with all required information necessary to plan for closing existing gaps to PCP/Deployment Plan on a local level. As a FAB CE wide assessment revealed gaps to the DP 2016 among the ANSP in all the related AF families, the DAM/STAM study is the FAB CE led activity to coordinate the closure of these remaining gaps. Furthermore, it is a stated goal of the DAM/STAM study to describe and prepare the conditions required to allow for a FAB CE wide harmonization of ASM-, FUA-, DAM and STAM processes. The effect of this is seen to be FAB CE wide ASM that will allow to unlock the full operational benefits associated to FAB CE FRA implementation as well as to a GO FRA implementation. A FAB CE wide future implementation of DAM/STAM processes and procedures following the study is seen to yield the following additional goals : • Enable equitable treatment of all airspace users in the allocation of airspace and required trajectories on short notice and increased flexibility in dealing with short term adjustments of airspace configurations (achieved through data-sharing and collaboration mechanisms); • Provide proactive route/trajectory activation/ airspace reservation or restriction allocation through a collaborative (cross-border) decision making process to accommodate short term changes; • Provide supporting processes and tools (requirements) that allow for the FAB CE FRA to achieve optimal operational efficiency • Overall increase of airspace capacity through optimized utilization of airspace configurations and scenarios, as STAM will provide more opportunities to balance demand and available capacity; • More robust and reliable planning for the Airspace Users through a common view amongst all stakeholders on the availability of		

	airspace and a larger selection of airspace configurations tailored towards different scenarios; • Enable airspace users to make informed decisions and to increase their benefits by offering a larger choice of possible routeing and (until full FRA implementation is completed) airspace options.

2016_135_AF3 – Implementation of pre-defined airspace configuration			
Start Date	01/04/2017	**End Date**	31/12/2020
Project Leader	Eurocontrol / Network Manager		
Contributors			
Main AF/Sub-AF/Family	AF3	S-AF 3.1	Family 3.1.4
Project Objective	• Upgrades of NM system related to predefined and dynamic airspace configurations • Procedural changes related to predefined and dynamic airspace configurations		

2017_400_BLD - Implementation of Voice over IP (VoIP) in Barcelona ACC			
Start Date	01/01/2018	**End Date**	31/12/2021
Project Leader	ENAIRE		
Contributors			
Main AF/Sub-AF/Family	AF3	S-AF 3.1	Family 3.1.4
Project Objective	The Implementing Project consist of the supply in operational status of Voice over Internet Protocol (VoIP) based Voice Communication System in En Route, TMA and simulation/contingency dependencies in Barcelona ACC. The supply includes Hardware (HW) equipment and Software (SW) development. The system will be redundant and diverse to improve the availability of the current system. The implementing Project aims to define the overall solution, prepare the calls for tenders, deploy the systems, field tests, operational validation and safety assessments.		

Family 3.2.1 – Upgrade of ATM systems to support DCTs and FRA

004AF3 – AZA Traffic Flow Restriction (TFR) – LIDO planning system			
Start Date	05/05/2014	**End Date**	20/12/2016
Project Leader	Alitalia		
Contributors	-		
Main AF/Sub-AF/Family	AF3	S-AF 3.2	Family 3.2.1
Project Objective	TFR (Traffic Flow Restriction) is a LIDO FLIGHT LUFTHANSA SYSTEMS module that allows integrating traffic flow restriction document (RAD) and the EUP/UUP into the flight planning process within Lido/Flight. The RAD is the document published by Central Flow Management Unit (CFMU) of Eurocontrol and describes routes on which restrictions are imposed for a specific period. By this Lido tool Alitalia will be able to plan usually closed segments (CDR) obtaining in this way important optimization to company routes and also be able to catch the opportunity to plan over new segments whose availability will be unveiled day by day. The main objectives are: • Improve the route efficiency pursuing the minimum cost (Total cost = fuel costs + ATC costs + time cost). • Automation on the research of the best routing • Research of the best routing looking at the daily availability of DCT and RAD restriction removal • Reduction of CO_2 and other emissions due to optimized flight plans.		

005AF3 – AZA Free Flight – Direct Optimization			
Start Date	25/05/2015	**End Date**	20/12/2016
Project Leader	Alitalia		
Contributors	-		
Main AF/Sub-AF/Family	AF3	S-AF 3.2	Family 3.2.1
Project Objective	The feature "Free Flight – Direct Optimization" lets users define arbitrary waypoints by their coordinates and dynamically trigger a calculation of the missing segment between the newly defined Free Flight waypoint and any other Free Flight or system-known waypoint, or between two systems known waypoints. The feature can be used as part of the regular flight planning process. It is also suitable for the modification of re-clearance procedures or as in flight assistance. With the aid of graphical maps, flight dispatchers can visualize and evaluate a given calculated route, select a waypoint, replace it with a Free Flight waypoint, eliminate waypoints deemed superfluous and reconnect the Free Flight waypoint with existing route objects. The application plots the missing segment between a designated Free Flight waypoint and the designated next waypoint. Main objective is: • Improve the route efficiency pursuing the minimum cost (Total cost = fuel costs + ATC costs + time costs). • Reduction of CO_2 and other emissions due to optimized flight plans.		

053AF3 – 4-Flight deployment in DSNA pilot ACCs			
Start Date	01/01/2014	**End Date**	01/04/2022
Project Leader	DSNA		
Contributors	-		
Main AF/Sub-AF/Family	AF3	S-AF 3.2	Family 3.2.1
Project Objective	• Replace the current operational CAUTRA ATM System for Reims and Marseille ACCs and major APP, by a modern SESAR compliant and interoperable full ATM system based on the brand new Coflight Flight Data Processing System (FDPS), in order to increase DSNA's performance • Support the implementation of the European ATM Master Plan for France and of the SESAR concept • Comply with the Single European Sky (SES) and FABEC rules • Switch to "stripless" environment and up-to-date technologies • Reduce total cost of ownership, by sharing development and evolution costs and risks for the new system, with other ANSP partners		

081AF3 – NM DCT/FRA Implementation and support ✓			
Start Date	01/01/2014	**End Date**	30/06/2017
Project Leader	Eurocontrol / Network Manager		
Contributors	-		
Main AF/Sub-AF/Family	AF3	S-AF 3.2	Family 3.2.1
Project Objective	This project contributes directly to the implementation of AF3 / S-AF3.2 Free Route: • Family 3.2.2 Upgrade NM Systems to support Direct Routing Operation (DCT) • Family 3.2.3 Implement Direct Routes The project allows to: • Ensure and co-ordinate the gradual implementation, in a harmonized way, of Free Route Airspace, including DCT based, throughout the European airspace. • Adapt NM systems to cope with Free route developments The project is a key contributor to the following Strategic Objectives mentioned in the Network Strategy Plan (NSP): • SO 3: Implement a seamless and flexible airspace • SO 4: Plan optimum capacity and flight efficiency • SO 5: Facilitate business trajectories and cooperative traffic management		

131AF3 – 1st part of the upgrade of the P_21 PEGASUS system to SESAR functionalities - Test and Validation Platform			
Start Date	01/09/2015	**End Date**	31/12/2017
Project Leader	PANSA		
Contributors	-		
Main AF/Sub-AF/Family	AF3	S-AF 3.2	Family 3.2.1
Project Objective	The P_21 system transition to iTEC has the following objectives: • Deployment of Preliminary Deployment Plan functionalities of the ATM System, mostly the ATM. Functionality 3 - Flexible Airspace Management and Free Route (Family 3.2.1), with references to: ○ Pilot Common Project – Technical Annex for the AF 03: 3.1.1. Airspace Management and Advanced Flexible Use of Airspace: ▪ The ATC system shall support flexible configuration of sectors so that their dimensions and operating hours can be optimized according to the demands of the NOP ▪ The system shall allow a continuous assessment of the impact of changing airspace configurations on the network ▪ ATC systems shall correctly depict the activation and de-activation of configurable airspace reservations and the change of a volume of airspace from a fixed route network to FRA ▪ The ASM, ATFCM and ATC systems shall securely interface in a way that allows the provision of air navigation services based on a common understanding of the airspace and traffic environment. The ATC systems shall be modified to enable this functionality to the extent necessary to comply with Regulation (EC) No 552/2004, point 4 of Part A of Annex II. ○ 3.2.1. Free Route - ATC systems shall implement the following: ▪ Flight data processing system, including HMI, to manage trajectory/flight planning without reference to the fixed ATS network ▪ Flight planning systems to support FRA and cross-border operations ▪ ASM/ATFCM to manage FRA — for FRA, Medium Term Conflict Detection (MTCD) including Conflict Detection Tools (CDT), Conflict Resolution Assistant (CORA), Conformance Monitoring, and APW for dynamic airspace volumes/sectors; Trajectory prediction and de-confliction shall support an automated MTCD tool adapted to operate in FRA airspace and, when required, on DCT ▪ Flight Data Processing System (FDPS) shall support FRA, DCT and A-FUA ▪ The controller working position shall support the operating environments, as appropriate ○ Baltic FAB CONOPS - 3.3.6 FRA (Free Route Airspace) ▪ The deployment of FRA will initially require the introduction of a number of key enablers - System support – enhancement for the purposes of flight planning, flight data processing, flight data display and exchange, coordination, conflict detection and resolution; ○ Deployment at the same time of elements of other ATM Functionalities: ▪ Enable the ATM System to support RNP operations (Family 1.2.3)		

	▪ Electronic Flight Strips (Family 2.1.2) ▪ Interface to NMS (Family 4.2.3) ▪ FDP system adaptation to interface with NOP (Family 4.4.1) ▪ ATM system adaptation to support AIXM 5.1 (Family 5.3.2) ▪ FDPS upgrade preparing for IOP Flight Object exchanges (Family 5.6.1) • Alignment of the PEGASUS ATM system to further joint development within the iTEC cooperation and with the FAB partner

2015_029_AF3 – Procurement of new DPS/ATM and VCRS systems to support DCTs and FRA			
Start Date	01/01/2017	**End Date**	31/12/2021
Project Leader	HCAA		
Contributors			
Main AF/Sub-AF/Family	AF3	S-AF 3.2	Family 3.2.1
Project Objective	• New DPS/ATM system • New VCRS System • Sectors adaptation to accommodate the changes in traffic flows where needed		

2015_034_AF3 - ATM System (MATIAS) upgrade for cross-border free route operation			
Start Date	16/02/2016	**End Date**	31/03/2019
Project Leader	HungaroControl		
Contributors			
Main AF/Sub-AF/Family	AF3	S-AF 3.2	Family 3.2.1
Project Objective	• Achieving the prerequisites for cross-border free route operation at a local level • Contributing to the future FAB CE wide FRA implementation • Improving the controllers effectiveness and increase safety with enhanced functionalities • Contributing to the reduction of fuel consumption by allowing airspace users to plan and fly their preferred trajectories		

2015_062_AF3_Phase I – 4-Flight Deployment in PARIS Area, Upgrade in Marseille and Aix ACCs – Phase I			
Start Date	16/02/2016	**End Date**	31/12/2019
Project Leader	DSNA		
Contributors			
Main AF/Sub-AF/Family	AF3	S-AF 3.2	Family 3.2.1
Project Objective	• Replacing the current operational CAUTRA System for PARIS ACC by a modern SESAR compliant interoperable line of product, in order to increase DSNA Performance, upgrade already operational 4-Flight sites (Marseille and Aix ACC), deploy civil miltary coordinations in all 4-Flight sites		

	• Supporting the implementation of the European ATM Master Plan for France and of the SESAR concept • Respecting the Single European Sky (SES) and FABEC rules • Switching to "stripless" environment and up-to-date technologies in Paris-ACC • Reducing total cost of ownership, by sharing development and evolution costs and risks for the new system, with ANSP partners

2015_062_AF3_Phase II – 4-Flight Deployment in PARIS Area, Upgrade in Marseille and Aix ACCs – Phase II			
Start Date	31/12/2020	**End Date**	31/03/2023
Project Leader	DSNA		
Contributors			
Main AF/Sub-AF/Family	AF3	S-AF 3.2	Family 3.2.1
Project Objective	• Replacing the current operational CAUTRA System for PARIS ACC by a modern SESAR compliant interoperable line of product, in order to increase DSNA Performance , upgrade already operational 4-Flight sites (Marseille and Aix ACC), deploy civil miltary coordinations in all 4-Flight sites • Supporting the implementation of the European ATM Master Plan for France and of the SESAR concept • Respecting the Single European Sky (SES) and FABEC rules • Switching to "stripless" environment and up-to-date technologies in Paris-ACC • Reducinge total cost of ownership, by sharing development and evolution costs and risks for the new system, with ANSP partners		

2015_107_AF3 - NM Systems upgrades in support of DCTs and FRA			
Start Date	01/10/2016	**End Date**	31/12/2020
Project Leader	Eurocontrol / Network Manager		
Contributors	Swiss International Airlines Ltd., Sabre		
Main AF/Sub-AF/Family	AF3	S-AF 3.2	Family 3.2.1
Project Objective	• Adapting NM systems in line with FRA requirements contained in DP 2015 family 3.2.1 • Implementing and using Free Route Airspace in Flight Planning system		

2015_190_AF3 - Deployment of Air Traffic Control System iCAS: Implementation of ATM PCP Functionalities at LVNL and DFS			
Start Date	16/02/2016	**End Date**	31/12/2020
Project Leader	DFS		
Contributors	LVNL		
Main AF/Sub-AF/Family	AF3	S-AF 3.2	Family 3.2.1
Project Objective	• iCAS will deploy up to 18 so-called Families as laid down by the SESAR Deployment Manager within the Deployment Programme 2015 on the basis of implementing the Pilot-Common-Project Regulation EU No. 716/2014. Therewith, deploying advanced operational concepts such as but not limited to Free Route, Extended Arrival Management and extended information exchange with other systems / partners in a timely, coordinated and synchronized effort to raise capacity, improve safety and cutting costs and thus enabling a significant performance increase at DFS and LVNL. Furthermore, iCAS enables improved flight efficiencies in fuel and in time for the airspace users. • iCAS is the deployment of a new State-of-the-Art, harmonized and interoperable ATS system at DFS and LVNL which is compatible and supports the deployment of the SESAR and Single European Sky concept in Germany and the Netherlands. • In addition to the current mandatory implementing scope of the Pilot-Common-Project Regulation EU No. 716/2014, iCAS implements the European ATM Master Plan within the rules of the Single European Sky regulations. • iCAS will be deployed within the framework of reduce total cost of ownership by sharing costs and risks for the new ATS system amongst DFS, LVNL and the iTEC Consortium Partners within which the iCAS project is embedded. By means of the iTEC Consortium, which includes the ANSPs of Spain (ENAIRE) and United Kingdom (NATS), the implementing partners ensure that the future iCAS/iTEC ATS system is also fully in line with the Interoperability Regulation EU No. 552/2004 (incl. its amendment by EU No. 1070/2009). Several European ANSPs have shown a keen interest to join the iTEC Consortium and currently iTEC partners are talking with PANSA (Poland), Oro Navegacia (Lithuania) and two additional ANSPs in order to explore their iTEC interest and to elaborate the best way to join iTEC. • It is the objective of DFS and LVNL to deploy iCAS in accordance with the deployment plan of this coordinated 2015 CEF funding application through the SESAR Deployment Manager. The potential utilization of funding through the Connecting Europe Facilities (CEF) will offset additional deployment cost for DFS and LVNL which result from an effort to enable a timely implementation of Pilot-Common-Project Functionalities and therewith facilitating an early realization of benefits for airspace users.		

2015_204_AF3_Phase I – 4-Flight deployment in Italy - Phase I			
Start Date	16/02/2016	**End Date**	30/06/2018
Project Leader	ENAV		
Contributors			
Main AF/Sub-AF/Family	AF3	S-AF 3.2	Family 3.2.1
Project Objective:	• Designing, developing and provide operational deployment of a modern interoperable ATM system fully SESAR compliant and based on the brand new Coflight FDPS • Enabling the implementation of free route operations in the whole Bluemed FAB Airspace • Allowing Airspace Users to fly preferred trajectories on regional/Bluemed FAB basis		

2015_204_AF3_Phase II – 4-Flight deployment in Italy – Phase II			
Start Date	01/01/2019	**End Date**	31/12/2020
Project Leader	ENAV		
Contributors			
Main AF/Sub-AF/Family	AF3	S-AF 3.2	Family 3.2.1
Project Objective	• Designing, developing and provide operational deployment of a modern interoperable ATM system fully SESAR compliant and based on the brand new Coflight FDPS • Enabling the implementation of free route operations in the whole Bluemed FAB Airspace • Allowing Airspace Users to fly preferred trajectories on regional/Bluemed FAB basis		

2015_207_AF3_A – Harmonisation of Technical ATM Platform in 5 ANSP including support of free Route Airspace and preparation of PCP program. (COOPANS B3.3 , B3.4 and B4.1) 2015_207_AF3_B – Harmonisation of Technical ATM Platform in 5 ANSP including support of free Route Airspace and preparation of PCP program. (COOPANS B3.3 , B3.4 and B4.1)			
Start Date	16/02/2016	**End Date**	31/12/2020
Project Leader	COOPANS		
Contributors	Austro Control, Irish Aviation Authority, LFV, Naviair. The project implementation scope depends on the coordinated work of all 5 partners (ACG, Croatia Control, IAA, LFV and Naviair) and is split into a cohesion and non-cohesion part.		
Main AF/Sub-AF/Family	AF3	S-AF 3.2	Family 3.2.1
Project Objective	• Harmonisation of ATM platforms in 5 ANSP's to gain economy of scale for PCP implementations • Platform support for AF3 Free Route Airspace • Preparation of other PCP related implementations		

2015_242_AF3 - Free Route implementation into ATM system of ANS CR			
Start Date	01/03/2016	**End Date**	31/03/2020
Project Leader	ANS/CR		
Contributors	-		
Main AF/Sub-AF/Family	AF3	S-AF 3.2	Family 3.2.1
Project Objective	• Implementation of system functions and tools allowing safe and efficient cross-border Free Route operations		

2015_247_AF3 - 4Flight deployment in military En-route ACC (CMCC)			
Start Date	16/02/2016	**End Date**	31/12/2023
Project Leader	French Ministry of Defence		
Contributors			
Main AF/Sub-AF/Family	AF3	S-AF 3.2	Family 3.2.1
Project Objective	• Replacing the current operational system for miitary EnRoute ATC services, by a modern SESAR compliant and interoperable line of product • Enhancing full interoperability of civilian and military En Route ATC systems • Allowing co-location of Civilain and military En Route ATC services • Implementing ground/ground automated coordination process between civilian and military En Route Systems • Switching to stripless environment and up to date technologie • Implementing the tools which would allow the Free Route in French Airspace		

2015_269_AF3 – Mil MTCD Advanced Controller Tools (FOURSIGHT)			
Start Date	01/03/2016	**End Date**	14/11/2020
Project Leader	UK Ministry of Defence		
Contributors			
Main AF/Sub-AF/Family	AF3	S-AF 3.2	Family 3.2.1
Project Objective	• Providing Flight Path Montioring (FPM), Trajectory Prediction (TP) and Medium Term Conflict Detection (MTCD) Tools within all UK Sovereign Airspace to the same geographic boundaries as UK Civil ATM En-Route Operations		

2016_026_AF3 – System Procurement for Deployment of PCP Air Traffic Control System iCAS at DFS and LVNL			
Start Date	07/02/2017	**End Date**	31/12/2020
Project Leader	DFS Deutsche Flugsicherung GmbH		
Contributors	Luchtverkeersleiding Nederland (LVNL)		
Main AF/Sub-AF/Family	AF3	S-AF 3.2	Family 3.2.1
Project Objective	• iCAS will deploy up to 19 so called Families as laid down by the SESAR Deployment Manager within the Deployment Programme 2016 on the basis of implementing the Pilot-Common-Project Regulation EU No. 716/2014. Therewith, deploying advanced operational concepts such as but not limited to Free Route, Extended Arrival Management and extended information exchange with other systems/partners in a timely, coordinated and synchronized effort to raise capacity, improve safety and cutting costs and thus enabling a significant performance increase at DFS and LVNL. Furthermore, iCAS enables improved flight efficiencies in fuel and in time for the airspace users. • iCAS is the deployment of a new State-of-the-Art, harmonized and interoperable ATS system at DFS and LVNL which is compatible and supports the deployment of the SESAR and Single European Sky concept in Germany and the Netherlands. • In addition to the current mandatory implementing scope of the Pilot-Common-Project Regulation EU No. 716/2014, iCAS implements the European ATM Master Plan within the rules of the Single European Sky regulations. • iCAS will be deployed within the framework of reduce total cost of ownership by sharing costs and risks for the new ATS system amongst DFS, LVNL and the iTEC Consortium Partners within which the iCAS project is embedded. By means of the iTEC Consortium, which includes the ANSPs of Spain (ENAIRE) and United Kingdom (NATS), the implementing partners ensure that the future iCAS/iTEC ATS system is also fully in line with the Interoperability Regulation EU No. 552/2004 (incl. its amendment by EU No. 1070/2009). Several European ANSPs have shown a keen interest to join the iTEC Consortium and currently iTEC partners are talking with PANSA (Poland), Oro Navigacija (Lithuania) and two additional ANSPs in order to explore their iTEC interest and to elaborate the best way to join iTEC. • It is the objective of DFS and LVNL to deploy iCAS in accordance with the deployment plan of this coordinated 2016 CEF funding application through the SESAR Deployment Manager. The potential utilization of funding through the Connecting Europe Facilities (CEF) will offset additional deployment cost for DFS and LVNL which result from an effort to enable a timely implementation of Pilot-Common-Project Functionalities and therewith facilitating an early realization of benefits for airspace users. • The project contributes to the free movement of people within the European Union by enabling safe and reliable transport within which passengers put their trust. With a total of more than three million flights and over 450 million passengers flying through the European core airspace affected by this project, the benefits of the implementation are immense towards the European public as well to the European economic growth generated and facilitated via air transport.		

2016_036_AF3 – Deployment of SACTA-iTEC			
Start Date	07/02/2017	**End Date**	31/12/2020
Project Leader	Entidad Pública Empresarial ENAIRE		
Contributors			
Main AF/Sub-AF/Family	AF3	S-AF 3.2	Family 3.2.1
Project Objective	The project objective is the deployment of the iTEC (Interoperability Through European Cooperation) version of the SACTA system, that is aimed at the fulfillment of several ATM (Air Traffic Management) functionalities linked to the PCP (Pilot Common Project) requirements. SACTA is the Spanish Air Traffic Control (ATC) system. SACTA-iTEC will be deployed in all 5 Spanish ACCs (Area Control Center) and all TMAs (Terminal Maneuvering Area). Therefore, it will provide the operational improvements in the whole Spanish airspace. SACTA-iTEC is being deployed within the iTEC (Interoperability Through European Cooperation) collaboration framework in order to attain a very high level of interoperability within European systems. This means that, in order to attain a very high level of interoperability and commonality, all iTEC partners, namely five main European Air Navigation Service Providers (NATS (United Kingdom), DFS (Germany), LVNL (Holland), AVINOR (Norway) and ENAIRE (Spain)) are closely working together in the deployment of a common FDP(Flight Data Processing) and CWP(Controller Working Position) system. The objectives of this Implementing Project are: • Enable the Implementation of DCTs • iTEC FDP (Flight Data Processing) and CWP (Controller Working Position) license acquisition • Deployment of Tactical Trajectory Module (TTM) within the Spanish ATC system SACTA, as an enabler of FRA (Free Route). It will provide the tactical MTCD (Medium Term Conflict Detection) function. • HW acquisition and deployment for the TTM • Operational training for DCTs (Direct Routes) and TTM • Deployment of Mode S DAPs (Downlinked Aircraft Parameters), as an enabler for 4D trajectory improvements and alerts enhancements • Commissioning of the TTM and Mode S DAPs by 31/12/2020 This Implementing Project will improve air traffic management reducing costs and delays in the whole ATM network. In addition, it will have a positive impact on the environment by a reduction of emissions through more efficient routes (shorter routes). This project is presented alongside project " Upgrade of trajectory management in SACTA-iTEC". The final products implemented within both projects will merge afterwards (after CEF2016 eligibility period) to produce the final SACTA system version that will be able to fully comply with families 1.1.2, 3.2.1 and 3.2.4. There is no activities nor investment overlap between the both projects awarded in CEF2016 call.		

2016_040_AF3 – Upgrade of trajectory management in SACTA-iTEC			
Start Date	01/01/2018	**End Date**	31/12/2020
Project Leader	Entidad Pública Empresarial ENAIRE		
Contributors			
Main AF/Sub-AF/Family	AF3	S-AF 3.2	Family 3.2.1
Project Objective	The project objective is the deployment of the iTEC (Interoperability Through European Cooperation) version of the SACTA system, that is aimed at the fulfilment of several ATM functionalities linked to the PCP requirements.SACTA-iTEC will be deployed in all 5 Spanish ACCs (Area Control Center) and all TMAs (Terminal Manoeuvring Area). So it will provide the operational improvements hereinafter described in the whole Spanish airspace. SACTA-iTEC is being deployed within the iTEC (Interoperability Through European Cooperation) collaboration framework in order to attain a very high level of interoperability within European systems. This means that, in order to attain a very high level of interoperability and commonality, all iTEC partners, namely five main European Air Navigation Service Providers (NATS (United Kingdom), DFS (Germany), LVNL (Holland), AVINOR (Norway) and ENAIRE (Spain)) are closely working together in the deployment of a common FDP(Flight Data Processing) and CWP(Controller Working Position) system. In line with this common framework, this proposal is very closely related to some implementation projects which also include the upgrade of iTEC partners' ATC systems, such us 2015_190_AF3 (DFS and LVNL) and 2015_227_AF3_A (NATS within Borealis), that were awarded in previous 2015 CEF Call. The objective of this Implementation Project is the implementation of a new version of SACTA-iTEC that is aimed at the fulfillment of several ATM functionalities linked to the PCP requirements, i.e. the following families: • Family 1.1.2 AMAN upgrade to include Extended Horizon function. Provision of arrival sequence time and management of AMAN constraints • Family 3.2.1 Upgrade of ATM systems (NM, ANSPs, AUs) to support DCTs and FRA This project aims at the technical upgrade of SACTA-iTEC system by improving trajectory management for covering aditional PCP objectives such us: • Planner MTCD (Medium Term Conflict Detection) • MONA (Monitoring Aids) • 4D Trajectory FDP (Flight Data Processing) • ATC (Air Traffic Control) to ATC Flight Data Exchange (OLDI and SYSCO) • Dynamic sectorization • Cross-border DCTs (Direct Routes) • Enhance conflict management tools and controller HMI (Human Machine Interface) functions to support conflict detection and resolution (such as What-if and What-else) • Capability for initial Multi Sector Planner • Extended AMAN (Arrival Manager) The project submitted under Call CEF2016 Upgrade of trajectory management in SACTA-iTEC, covers the integration of iTEC FDP (Flight Data Processing) and CWP (Controller Working Position) into SACTA system. This project will end up with a factory PQT (Pre QualificationTest) of the integration. This project is presented alongside project "Deployment of SACTA-iTEC". The final products implemented within both projects will merge afterwards (after CEF2016 eligibility period) to produce the final SACTA system version that will be able to fully comply with families 1.1.2, 3.2.1 and 3.2.4. There is no activities nor investment overlap between the projects submitted to CEF2016 call.		

2016_055_AF3 – FR_Upgrade of French Military Control and Reporting Centres (CRC) for civil-military interoperability			
Start Date	07/02/2017	**End Date**	30/06/2020
Project Leader	French Ministry of Defence - DGA		
Contributors			
Main AF/Sub-AF/Family	AF3	S-AF 3.2	Family 3.2.1
Project Objective	• Assure the preservation of interoperability services between military CRC and civil en-route control center during FRA control • Pave the way to the civil-military coordination for implementation of Free-routing		

2016_085_AF3 – ATM System Upgrade Towards Free Route Airspace			
Start Date	07/02/2017	**End Date**	17/06/2019
Project Leader	Polska Agencja Żeglugi Powietrznej (PANSA - Polish Air Navigation Services Agency)		
Contributors	-		
Main AF/Sub-AF/Family	AF3	S-AF 3.2	Family 3.2.1
Project Objective	The main projects objective is implementation of ATM system upgrade, which will enable efficient operation in DCT and FRA. The PANSA upgrade project will be a continuation of series of planned upgrades of PANSA ATM system. The systems already have some functionality supporting DCTs/FRA. This Upgrade project will include FDPS, Safety-Net Server and system HMI modifications to fully support DCTs/FRA operations. Additionally the PANSA upgrade is including PANSA system functionalities for Berlin XMAN. In order to reach the goal of the PCP in the entire EU airspace, the inclusion of the upper airspace usage the FRA implementation within neighbouring FIRs is necessary. Otherwise the FRA functionality within the EU airspace directly prior to the external boundaries will be hampered through the fixed transfer points.		

2016_087_AF3 – iTEC Tests, Validations and Planning (iTEC-TVP)			
Start Date	01/03/2017	**End Date**	31/12/2020
Project Leader	Polska Agencja Żeglugi Powietrznej (PANSA - Polish Air Navigation Services Agency)		
Contributors	State Enterprise "Oro Navigacija"		
Main AF/Sub-AF/Family	AF3	S-AF 3.2	Family 3.2.1
Project Objective	The iTEC Test, Validation and Planning project concerns the second phase of the PANSA migration to the iTEC-based ATM system. The project will have the following objectives: • Determination of requirements for the PANSA iTEC-based system along with the transfer of PEGASUS P_21 system achieved FRA support to the TEC-based system; • Validation of iTEC system requirements for support of DCT/FRA;		

	• Transfer and validation of PANSA DCT/FRA CONOPS developed in P_21 (and its upgrade) system to next ATM system; • Minimization of the risk of the system rejection by the operational personnel, through their involvement into the requirements validation using a test platform (risk identified in 2014/15, mitigation through this project, based on the project 131AF3 - 1st part of the upgrade of the P_21 PEGASUS system to SESAR functionalities - Test and Validation Platform); • Preparation of PANSA requirements for the next iTEC-based ATM system fully supporting cross-border DCT and FRA; • Practical preparation of PANSA (iTEC platform and staff) for collaborative work over iTEC in the future. iTEC Test, Validation and Planning project is a next step in a way of PANSA towards full deployment of cross-border DCT and FRA. Before that PANSA need to support constant development of actual ATM System Pegasus_21. Oro Navigacija, which is, with PANSA, member of Baltic FAB and together with PANSA will access DFS iTEC Collaboration Group, will contribute to the project. Especially in the matter of cross-border DCT and FRA concept. PANSA and Oro Navigacija expert will work together to achieve sufficient level of cooperation between both ATM Systems: future iTEC Based PANSA System and Oro Navigacija iTEC System, improving interoperability. PANSA develops currently the ATM System in two parallelized paths: • Path 1 – Achievement of the PCP-required functionalities, in particular DCT/FRA (AF 3.2.1) in the current P_21 system till 2018/2019; • Path 2 – Transfer of the achieved P_21 functionalities to the iTEC-based system and further joint developments within the iTEC Collaboration.

2016_110_AF3 – ENAV Automated ENV Data Interchange for FDP/ERATO			
Start Date	01/06/2017	**End Date**	31/05/2019
Project Leader	ENAV S.p.A		
Contributors			
Main AF/Sub-AF/Family	AF3	S-AF 3.2	Family 3.2.1
Project Objective	Implement automatic interchange of data to improve operations of FDP and MTCD.		

2016_115_AF3 – ENAV 4-Flight Deployment in Italy - Third Stage 2017-2018			
Start Date	07/02/2017	**End Date**	31/12/2019
Project Leader	ENAV S.p.A		
Contributors			
Main AF/Sub-AF/Family	AF3	S-AF 3.2	Family 3.2.1
Project Objective	• Design, develop and operational deployment of a modern interoperable ATM system fully SESAR compliant and based on the brand new Coflight FDPS • Enable the implementation of free route operations in the whole Bluemed FAB Airspace • Allow Airspace Users to fly preferred trajectories on regional / Bluemed FAB basis		

2016_121_AF3 – Free Route			
Start Date	07/02/2017	**End Date**	31/12/2020
Project Leader	Deutsche Lufthansa AG		
Contributors	Société Air France; Lufthansa Systems GmbH & Co. KG		
Main AF/Sub-AF/Family	AF3	S-AF 3.2	Family 3.2.1
Project Objective	• Introduce full Free Route flight planning capabilities at Lufthansa (including its daughter companies Eurowings, Germanwings, Lufthansa Cargo, Lufthansa Cityline (all using the Lufthansa Systems Lido/Flight software) • Introduce full Free Route flight planning capabilities at Air France		

2017_031_AF3 – Procurement and Deployment of PCP Air Traffic Control System iCAS at DFS Munich and Bremen and LVNL Amsterdam			
Start Date	12/04/2018	**End Date**	31/12/2023
Project Leader	DFS Deutsche Flugsicherung GmbH		
Contributors	Luchtverkeersleiding Nederland (LVNL)		
Main AF/Sub-AF/Family	AF3	S-AF 3.2	Family 3.2.1
Project Objective	Main scope of this proposal is to achieve the complete deployment of the iCAS-II system at the Amsterdam, Bremen and Munich Control Centers by executing all necessary activities during the years 2021-2023. All 3 Control Centers are scheduled to start operational service based on iCAS-II before the mandated date of 1st. January 2022. All activities after that mandated date are needed to complete the deployment process by decommissioning the old ATC systems.The proposal also describes the planning for rolling out iCAS-II at the DFS control center Karlsruhe. Note: The operational transition towards iCAS based operations is different for DFS and LVNL. Main difference is that LVNL ATCOs work already today without paper strips or electronic strips. One consequence from this is that the LVNL ATCOs require less iCAS training than the DFS ATCOs.		

2017_042_AF3 - Automatic Tactical Controller Tool implementation			
Start Date	01/01/2019	**End Date**	31/01/2023
Project Leader	ENAV S.p.A		
Contributors	Italian Air Force (MoD)		
Main AF/Sub-AF/Family	AF3	S-AF 3.2	Family 3.2.1
Project Objective	• Support the Air Traffic Control Operator in the management of the airspace. • Reduce the potential number of STCA alerts and reduce the potential risk of separation minima infringement. The automaticTactical Controller Tool implementation over the 4 italian ACCs will help the Air Traffic Control Officer to detect potential conflicts in his/her assigned portion of airspace. In heavy traffic situation the Air Traffic Control Operator has little reaction time and		

	requires tailored assistance. The prime aim of automatic TCT is to give support to the Air Traffic Control Operatorsin order to improve safety and operational efficiency reducing ATCO workload. • aTCT will provide accurate support in the vertical and horizontal profiles. aTCT will not be solely dependent on efficient trajectory update (as is the case for MTCD planning trajectory). • aTCT will be aware of the traffic situation in terms of aircraft observed behavior (surveillance) and forecasted behaviour (planned trajectory). - aTCT will operate within the borders of the sector and will complement the planning controller's MTCD tool. • aTCT will alert the controller about potential conflicts (separation minima infringements), that are likely to occur in the near term.In providing this advise the tool will consider both the planned trajectory and the aircraft's current behaviour. • aTCTis a separation assurance aid.

2017_043_AF3 – Coflight-eFDP Development (Step 2)			
Start Date	12/04/2018	**End Date**	31/07/2019
Project Leader	ENAV S.p.A		
Contributors	DSNA		
Main AF/Sub-AF/Family	AF3	S-AF 3.2	Family 3.2.1
Project Objective	The planned release of Coflight shall allow: • the implementation of the new operational concepts defined by SESAR in the future ATM systems. • to facilitate the integration of advanced tools in the global ATM system, with a view to provide a final • assessment of the Free Route implementation in accordance with the PCP outcomes. • to contribute to the wider programme that involves the renewal of the whole National ATM System, 4-Flight, for ENAV and DSNA.		

2017_049_AF3 – Electronic Flight Strip (EFS) in En-Route and TMA in SACTA system			
Start Date	01/01/2019	**End Date**	31/12/2021
Project Leader	Entidad Pública Empresarial ENAIRE		
Contributors			
Main AF/Sub-AF/Family	AF3	S-AF 3.2	Family 3.2.1
Project Objective	This SACTA version will also integrate some of the tools that will be developed within the frame of project 2016_040_AF3 (Upgrade of trajectory management in SACTA-iTEC), that will support the elimination of the current paper strips, such as: • Planner MTCD (Medium Term Conflict Detection) • MONA (Monitoring Aids) • Enhance conflict management tools and controller HMI (Human Machine Interface) functions to support conflict detection and resolution (such as What-if and What-else) • Electronic management of special strips (OCM (Oceanic Clearance Message), wrong OLDIs (On-Line Data Interchange)) Within the project timeframe (2019 - 2021) the new SACTA version will be specified, developed by the SW manufacturing company and verified by ENAIRE. The project will end up with the acceptance tests based on functional verification in the ENAIRE´s test center. Later test phases in the operational centers (such as stress, stability, transition, etc) are not part of the project´s scope.		

2017_050_AF3 - Controller Working Position (CWP) upgrade			
Start Date	12/04/2018	**End Date**	31/12/2021
Project Leader	Entidad Pública Empresarial ENAIRE		
Contributors			
Main AF/Sub-AF/Family	AF3	S-AF 3.2	Family 3.2.1
Project Objective	Deployment of new CWPs, that are able to manage tools/functions such as: • Electronic Flight Strip (EFS) • Medium Term Conflict Detection (MTCD) • Tactical Controller Tool (TCT) • or Voice over IP Communications Systems (VoIP VCSs), among others. Within the project timeframe (2018-2021), the HW and SW will be procured, and the new equipments will be deployed at the following ATC centers: • Canarias • Seville • Madrid		

2017_055_AF3 - NM Systems upgrades in support of FRA			
Start Date	01/05/2018	**End Date**	31/12/2021
Project Leader	Eurocontrol / NM		
Contributors			
Main AF/Sub-AF/Family	AF3	S-AF 3.2	Family 3.2.1
Project Objective	• to continue and and finalise the implementation / deployment of NM Systems upgrades related to Family 3.2.1 - Upgrade of ATM systems (NM, ANSPs, AUs) to support Free Routing Airspace (FRA). • to facilitate ANSPs' FRA deployment in supporting the harmonisation and adaptation of FRA enablers as needed by implementing ANSPs (e.g. operational procedures, airspace design...)		

Family 3.2.4 – Implement Free Route Airspace

020AF3– Borealis Free Route Airspace (Part 1)			
Start Date	01/01/2014	**End Date**	25/05/2017
Project Leader	BOREALIS Alliance		
Contributors	Avinor, EANS, ANS Finland, IAA, LFV, LGS, NATS, NAVIAIR		
Main AF/Sub-AF/Family	AF3	S-AF 3.2	Family 3.2.4
Project Objective	The Borealis Alliance will implement Free Route Airspace (FRA) within the NEFRA region that consists of the two functional airspace blocks (FAB) of Denmark-Sweden and North European Functional Airspace Block (Estonia, Finland, Latvia, Norway). Free Route Airspace is a key element of the Pilot Common Project and NEFRA is a cross-border inter-FAB region of Europe. This project will be broken down into airspace design, fast and real-time simulations and finally implementation. A second part is planned at a later stage to cover also the airspaces of UK, Ireland and Iceland.		

063AF3 – ENAV implementation of Free Route			
Start Date	01/01/2014	**End Date**	30/11/2017
Project Leader	ENAV		
Contributors	-		
Main AF/Sub-AF/Family	AF3	S-AF 3.2	Family 3.2.4
Project Objective	The project aims to implement free route operations in Italy through a seamless integration of the four Italy ACCs enabling airspace users to flight-plan their preferred trajectories within the whole Italian airspace. The deployment will address both technical systems and operational airspace design and procedures. ENAV and BLUE MED FAB partners have been implementing Free Route Airspace concept according to the agreed BLUE MED FAB Implementation Programme, within which the Free Route Airspace concept will be applied in all its stages: from the implementation of night DCTs, up to more ambitious Free Route scenarios on regional scale. The project aims to implement free route operations in Italy through a seamless integration of the four Italy ACCs enabling airspace users to flight-plan their preferred trajectories within the whole Italian airspace. The deployment will cover technical systems, operational airspace design and procedures addressing the following objectives: • Enable users preferred trajectories within whole Italian airspace • Upgrade of ATM Systems • Seamless integration of four Italy ACCs • ATS-route network optimization, including arrival and departure procedures • Sectors adaptation to accommodate the changes in traffic flows where needed		

095AF3 – Implementation of FRA in Greece			
Start Date	01/11/2015	**End Date**	31/12/2018
Project Leader	HCAA		
Contributors	-		
Main AF/Sub-AF/Family	AF3	S-AF 3.2	Family 3.2.4
Project Objective	HANSP and BLUE MED FAB partners have been implementing Free Route Airspace concept according to the agreed BLUE MED FAB Implementation Program, within which the Free Route Airspace concept will be applied in all its stages: from the implementation of night DCTs, up to more ambitious Free Route scenarios on regional scale. The project aims to implement free route operations in Greece through a seamless integration of the two Greek ACCs enabling airspace users to flight-plan their preferred trajectories within the airspace of HELLAS UIR. The deployment will cover technical systems, operational airspace design and procedures addressing the following objectives: • Enable users preferred trajectories within the airspace of HELLAS UIR • Upgrade of ATM Systems • Seamless integration of two Greek ACCs • ATS-route network optimization, including arrival and departure procedures • Sectors adaptation to accommodate the changes in traffic flows where needed		

102AF3 – Free Route Airspace from the Black Forest to the Black Sea			
Start Date	01/09/2015	**End Date**	21/04/2017
Project Leader	Hungarocontrol		
Contributors	Austro Control, BHANSA, Croatia Control, ANS CR, LPS SR, Slovenia Control		
Main AF/Sub-AF/Family	AF3	S-AF 3.2	Family 3.2.4
Project Objective	• development of the cross-border FRA concept within FAB CE • validation of the cross-border FRA concept within FAB CE • development of the FRA concept intra-FAB CE (throughout the FAB) • validation of the FRA concept intra-FAB CE (throughout the FAB) • increase airspace capacity • reduce the environmental footprint • via flexible/shorter routes improve the sustainability of aviation		

2015_050_AF3 - SIMULATION SEAFRA H24			
Start Date	17/02/2016	**End Date**	31/12/2016
Project Leader	Croatia Control		
Contributors	-		
Main AF/Sub-AF/Family	AF3	S-AF 3.2	Family 3.2.4
Project Objective	• Proving safe implementatation of SEAFRA H24 • Assessing and validate the cross border H24 Free Route Airspace; • Validating the new and existing sector configuration • Validating ATC procedures with regard to new and existing configuration and ATM system capabilities • Validating ATC procedures with regard to technical shortcomings of the ATM system(MTCD Area) • Safety assesment		

2015_189_AF3 – Deploy free Route Airspace (Full FRA) in German and SWISS Airspace			
Start Date	16/02/2016	**End Date**	31/12/2021
Project Leader	DFS		
Contributors	-		
Main AF/Sub-AF/Family	AF3	S-AF 3.2	Family 3.2.4
Project Objective	• The Free Route Airspace (FRA) project will implement the operational functionalities of Family 3.2.4 Free Route Airspace as laid down by the SESAR Deployment Manager within the Deployment Programme 2015 on the basis of implementing the Pilot-Common-Project Regulation EU No. 716/2014. Therewith, deploying advanced operational concepts in a timely, coordinated and synchronized effort to raise capacity, improve safety and cutting costs and thus enabling a significant performance increase at DFS. Furthermore, the Free Route Airspace (FRA) project enables improved flight efficiencies in fuel and in time for the airspace users thus, also reducing the environmental footprint of commercial aviation. • It is the objective of DFS to deploy Free Route Airspace in German airspace in accordance with the deployment plan of this coordinated 2015 CEF funding application through the SESAR Deployment Manager. The potential utilization of funding through the Connecting Europe Facilities (CEF) will enable DFS to pursuit a timely implementation of Free Route Airspace and therewith facilitating an early realization of benefits for airspace users. The DFS Free Route Airspace project is also set-up as a first mover project with regard to deploying the Free Route Airspace functionalities within high-traffic and complex airspaces at Europe's core a full four years prior to the formal requirements as set out by the European Commission within the PCP IR. • Deploying Free Route Airspace (FRA) in DFS AoR (UIR Rhein, FIR Muenchen, FIR Bremen, parts of FIR Wien), available during night from FL245 and above, as from 1.3.2018 • Deploying Free Route Airspace (FRA), available H24 from FL285 and above (or lower) in NE Germany (parts of UIR Rhein, FIR Muenchen), as from 1.3.2018 • Deploying Free Route Airspace (FRA) in DFS AoR (UIR Rhein, FIR Muenchen, parts of FIR Wien), available H24 from FL245/FL285 and above, as from 10.10.2019		

	• Reduce the extent of time/structural limitation to the maximum possible by 03.12.2020

2015_227_AF3_A – Borealis FRA Implementation (Part 2) 2015_227_AF3_B – Borealis FRA Implementation (Part 2)			
Start Date	16/02/2016	**End Date**	31/12/2020
Project Leader	Borealis		
Contributors	Avinor Flysikring AS, ANS Finland, Irish Aviation Authority, LFV, NATS, Naviair, Ryanair, LGS, EANS, Isavia The project implementation scope depend on the coordinated work of all 9 partners (Avinor Flysikring AS, ANS Finland, IAA, LFV,LGS, NATS, Naviair, EANS, Isavia, Ryanair) and is split into a cohesion and non-cohesion part.		
Main AF/Sub-AF/Family	AF3	S-AF 3.2	Family 3.2.4
Project Objective	• Implementing FRA, which is a key element of ATM Functionality (AF3) - Flexible Airspace Management and Free Route, across three functional airspace blocks (FABs). Namely, NEFAB, DK-SE FAB and UK-IRE FAB • The implementation will support the achievement of the flight efficiency targets for RP2 of the performance scheme. The Performance Review Body (PRB) and the Network Manager (NM) has highlighted the need to pay particular attention to interfaces between the Functional Airspace Blocks (FABs) and the deployment of FRA initiatives to achieve these targets • Reducing fuel consumption by allowing users to flight-plan their preferred trajectories • Introducing seamless integration among ACCs • Reducing the effort on ATCOs by allowing a more cost-effective approach, while keeping the highest level of safety • The implementation also includes EANS (Estonia) who are applying for funding their contribution towards implementation through the Cohesion fund		

AF4 Network Collaborative Management

The following table encompasses the list of implementation initiatives associated to ATM Functionality #4 that were awarded under all CEF Transport Calls for Proposals.

CEF Call Designator	Title	Family	IP Description Page Number
078AF4	ATFCM measures (STAM)	4.1.1	107
2016_039_AF4	STAM Phase 1 Implementation in Spain	4.1.1	107
2015_110_AF4	STAM Phase 2 (NM)	4.1.2	108
2016_010_AF4	STAM Phase 2	4.1.2	108
2016_123_AF4	STAM Phase 2 in combination with Target Times	4.1.2	108
2017_038_AF4	Enablers of Network Collaborative Management for En Route and Airports at DSNA	4.1.2	109
077AF4	Interactive Rolling NOP	4.2.2	110
2015_105_AF4	Interactive Rolling Network Operations Planning	4.2.2	110
2015_179_AF4	Implementation of APOC Schiphol Airport	4.2.2	110
2016_008_AF4	Flight evolution and upgrade of interfaces with NM stakeholders	4.2.2	111
2017_054_AF4	Network Collaborative Management	4.2.2	111
062AF4	ENAV initiative for the identification of Network Collaborative Management requirements	4.2.3	112
123AF4	Family 4.2.3 NAV Portugal Interface to NMS AFP	4.2.3	112
2015_021_AF4	Slot Manager for PCP airports	4.2.3	113
2015_106_AF4	Flight evolution and upgrade of interfaces with NM stakeholders	4.2.3	113
2016_100_AF4	Provision of EFPL data and initial FF-ICE/ 1 readiness	4.2.3	113
2015_113_AF4	AOP-NOP Integration	4.2.4	115
2016_131_AF4	AOP-NOP Integration Extended Implementation	4.2.4	115
2017_052_AF4	AOP-NOP Integration Extended Implementation	4.2.4	115
2015_114_AF4	Implementation of Target Times for ATFCM purposes (NM)	4.3.1	116
079AF4	Trajectory accuracy and traffic complexity	4.4.2	117
2015_115_AF4	Traffic Complexity Management	4.4.2	117
2015_167_AF4	Workload model for Amsterdam Area Control and Approach Control operations	4.4.2	118
2015_217_AF4	tCAT implementation in Sofia ACC	4.4.2	118

CEF Call Designator	Title	Family	IP Description Page Number
2015_240_AF4	Traffic Complexity Tools	4.4.2	118
2016_024_AF4	Deployment of an Automated Support Tool for Traffic Complexity Assessment at DFS	4.4.2	119
2016_114_AF4	ENAV Traffic Complexity Tool Implementation	4.4.2	119
2017_045_AF4	ENAV Deployment of traffic complexity tool and STAM phase 2	4.4.2	119
2017_057_AF4	Local traffic complexity management	4.4.2	120
2017_062_AF4	Traffic Complexity Assessment and Simulations Tool - TCAST	4.4.2	120

Family 4.1.1 – STAM Phase 1

078AF4 – ATFCM measures (STAM)			
Start Date	01/01/2014	**End Date**	31/12/2017
Project Leader	Eurocontrol / Network Manager		
Contributors	-		
Main AF/Sub-AF/Family	AF4	S-AF 4.1	Family 4.1.1
Project Objective	• Minimizing ATFCM delay by reducing the need for ATFCM regulations and its impact on operations. • Improve the balance between demand and available capacity through cooperation between ATFCM and ATS processes, through targeted measures on (an) individual flight(s). • Delivery of a complete package of system support and operational procedures, to enable the harmonised and effective deployment of Short Term ATFCM Measures throughout the European airspace. • Support the network coordination between stakeholders and provide the network view for the elaboration, decision and execution of STAM measures. • Provide the collaborative environment to stakeholders during the elaboration, decision and execution of STAM measures The project is a key contributor to the following Strategic Objectives mentioned in the Network Strategy Plan (NSP): • SO 4: Plan optimum capacity and flight efficiency • SO 5: Facilitate business trajectories and cooperative traffic management		

2016_039_AF4 – STAM Phase 1 Implementation in Spain			
Start Date	07/02/2017	**End Date**	17/01/2019
Project Leader	Entidad Pública Empresarial ENAIRE		
Contributors			
Main AF/Sub-AF/Family	AF4	S-AF 4.1	Family 4.1.1
Project Objective	Achieve Full STAM Phase 1 implementation in Spain by: • Developing STAM Phase 1 Concept of Operations • Developing STAM Procedures for Spanish Control Centers • Developing Operational Guidance Material • Performing Training of Operational Personnel		

Family 4.1.2 – STAM Phase 2

2015_110_AF4 - STAM Phase 2 (NM)			
Start Date	01/10/2016	**End Date**	31/12/2020
Project Leader	Eurocontrol / Network Manager		
Contributors	Swiss International Airlines Ltd., Sabre		
Main AF/Sub-AF/Family	AF4	S-AF 4.1	Family 4.1.2
Project Objective	• Delivering a complete package of system support and operational procedures, to enable the harmonised and effective deployment of Short Term ATFCM Measures (pahse 2) throughout the European airspace • Implementing NM System changes necessary to support the STAM phase 2 Operations • STAM connection between Airline NOC and NM • Integrating STAM input (TTA/TTO) in FPM/FE and PROVIDENCE product • Pre-tactical - Slot Management and reaction to TTA coming from STAM • Tactical adapted CI or rerouting based on STAM phase 2 requirements		

2016_010_AF4 – STAM Phase 2			
Start Date	01/07/2017	**End Date**	31/12/2020
Project Leader	Austrian Airlines AG		
Contributors	Deutsche Lufthansa AG		
Main AF/Sub-AF/Family	AF4	S-AF 4.1	Family 4.1.2
Project Objective	• Upgrade the flight planning system SABRE with regard to the STAM Phase 2 concept • Upgrade the flight planning system SABRE with regard to the Target Time concept • Upgrading the Operations control system Netline Ops with regard to the Target Time concept (slot swapping) • Update the operational procedures of the respective LH Group airlines in accordance with the STAM Phase 2 procedures • Update the operational procedures of the respective LH Group airlines in accordance with the target Times procedures including slot swapping • Integrate the new operational concepts (systems, procedures) of STAM phase 2 and Target Times into the respective LH group airlines procedures		

2016_123_AF4 – STAM Phase 2 in combination with Target Times			
Start Date	07/02/2017	**End Date**	31/12/2020
Project Leader	Deutsche Lufthansa AG		
Contributors	Société Air France; Lufthansa Systems GmbH & Co. KG		
Main AF/Sub-AF/Family	AF4	S-AF 4.1	Family 4.1.2

Project Objective	• Upgrade the flight planning system Lido/Flight with regard to the STAM Phase 2 concept • Upgrade the flight planning system Lido/Flight with regard to the Target Time concept • Upgrading the Operations control system Netline Ops with regard to the Target Time concept (slot swapping) • Update the operational procedures of the respective LH Group and AF airlines in accordance with the STAM Phase 2 procedures • Update the operational procedures of the respective LH Group and AF airlines in accordance with the target Times procedures including slot swapping • Integrate the new operational concepts (systems, procedures) of STAM phase 2 and Target Times into the respective LH group and AF airlines procedures

2017_038_AF4 - Enablers of Network Collaborative Management for En Route and Airports at DSNA			
Start Date	12/04/2018	**End Date**	31/12/2021
Project Leader	DSNA		
Contributors	Aéroports De Paris (ADP); | Société Air France		
Main AF/Sub-AF/Family	AF4	S-AF 4.1	Family 4.1.2
Project Objective	The objective in the En Route environment is to develop advanced functionalities of the SALTO system that will help enhancing the European ATM network performance: • by making it possible for flow managers to better evaluate the workload of the controllers with the help of complexity assessment tools. These tools will greatly help optimizing capacity; • by developing functionalities and procedures to ensure an efficient working relationship between NM, FMP and airspace users. Hotspot detection and declaration tools as well as STAM preparation, coordination and dissemination support tools will be developed to reach that goal. • by disseminating relevant ATFCM information to the Control Working Positions. The objective in the Airports and Approach environment is to enhance BigSky with tools and processes enabling ATC operators to participate to AOP/NOP information sharing. Making use of SWIM concepts, BigSky will interface AOP and NOP systems and deliver to Tower and Approach operators a set of dedicated decision tools supporting processes such as slot management, runway balancing, satellite airport traffic flow integration. Regarding DSNA Collaborative Operational Portal, the objective is to enlarge the scope of the hosted information, to enrich information by cross-referencing between different sources and to offer to external customers a register of suitable API to enable B2B access in addition to the existing HMI, which provides only an end user oriented access. Additionally some adaptations to interface the ATM legacy system with the collaborative tools will be necessary.		

Family 4.2.2 – Interactive Rolling NOP

077AF4 – Interactive Rolling NOP			
Start Date	01/01/2014	**End Date**	30/06/2017
Project Leader	Eurocontrol / Network Manager		
Contributors	-		
Main AF/Sub-AF/Family	AF4	S-AF 4.2	Family 4.2.2
Project Objective	• Extension and improvement of the process referred to as the interactive rolling NOP. • Replacing the existing interfaces (NOP Portal, CHMI and EHMI) into a single interface • Provision of the common interface to all Stakeholders to enable the collaborative decision-making processes used to build and execute the Network Operations Plan. The project is a key contributor to the following Strategic Objectives mentioned in the Network Strategy Plan (NSP): • SO 4: Plan optimum capacity and flight efficiency • SO 5: Facilitate business trajectories and cooperative traffic management		

2015_105_AF4 - Interactive Rolling Network Operations Planning			
Start Date	01/03/2016	**End Date**	31/12/2020
Project Leader	Eurocontrol / Network Manager		
Contributors			
Main AF/Sub-AF/Family	AF4	S-AF 4.2	Family 4.2.2
Project Objective	• Improving Network situational awareness and increasing operational CDM efficiency for all network stakeholders • Providing a common HMI for all Network Stakeholders (NMOC and external), customisable and flexible enough to meet the needs of the different user roles and different organisations' ways of working • Enabling the timely implementation of the NM service interfaces required by the NM Strategic Projects, addressing both their functional and non-functional requirements, thus supporting the PCP deployment in the short term and paving the way for the longer term evolutions • NSP-SO2 Deploying interoperable and effective information management systems		

2015_179_AF4 - Implementation of APOC Schiphol Airport			
Start Date	01/11/2016	**End Date**	31/12/2020
Project Leader	Amsterdam Airport Schiphol		
Contributors	KNMI, KLM		
Main AF/Sub-AF/Family	AF4	S-AF 4.2	Family 4.2.2
Project Objective	• Optimizing the information exchange between airport stakeholders (A-CDM)		

	• Optimizing the information exchange between airport stakeholders and network management (NMOC) • Preparing, executing and monitoring the AOP (Airport Operations Plan)

2016_008_AF4 – Flight evolution and upgrade of interfaces with NM stakeholders			
Start Date	01/01/2018	**End Date**	31/12/2020
Project Leader	Austrian Airlines AG		
Contributors	Deutsche Lufthansa AG		
Main AF/Sub-AF/Family	AF4	S-AF 4.1	Family 4.2.2
Project Objective	The aim of this project is to prepare and upgrade the message exchange between NM systems and SABRE flight plan filing systems in respect of collaborative flight planning. Focus on implementation of the EFPL including the planned 4D trajectory of the flight, as well as, flight performance data. To include all potential interfaces with the data linked system in order to access to the aircraft flight data and the adaptation of the trajectory prediction sub system to integrate such additional information in SABRE flight planning system. The project includes: • Preparation and delivery of FPL (4d trajectory) according pre-tactical request of airline • Inflight transmission of tactical decision from the airline NOC and/or aircrafts to NM • Integration of the NM information (e.g. hot spots information, target times) to improve the tactical steering inflight		

2017_054_AF4 - Network Collaborative Management			
Start Date	01/10/2019	**End Date**	31/12/2021
Project Leader	Eurocontrol / NM		
Contributors			
Main AF/Sub-AF/Family	AF4	S-AF 4.2	Family 4.2.2
Project Objective	• to achieve the deployment of interfaces related to the new AF4 concepts onto the new platform (i.e. n-CONECT) • to implement any upgrade to the NM Systems as regards the STAM multi-actors coordination in the context of local implementations interfacing with NM Systems in the period 2020 - 2021 • to implement any upgrade to the NM Systems as regards Network impact assessment (NM "what-if" facilities and interfacing with local tools) and Traffic complexity indicators • to implement any upgrade to the NM Systems as regards the Target Time for ATFCM.		

Family 4.2.3 – Interface ATM systems to NM systems

062AF4 – ENAV initiative for the identification of Network Collaborative Management requirements			
Start Date	01/01/2014	**End Date**	31/12/2018
Project Leader	ENAV		
Contributors	-		
Main AF/Sub-AF/Family	AF4	S-AF 4.2	Family 4.2.3
Project Objective	ENAV will develop a study in order to identify all requirements and provisions to meet the demands set for AF4 under Reg. 716/2014. The study will identify measures in order to implement: • Optimized management of traffic demand, including high-level/peak hours traffic requests. Some enhancement through reduction in controller workload. • Enhanced by improved sharing of the network situation • Better use of the available network capacity • Increased through suppression of flight ATFM regulations thanks to local ATFCM measures with the same ATC sector manning • Small benefits through improved use of the airport and airspace capacity resulting from a better knowledge of the airspace availability and of the traffic demand. • Reduction of costs induced by delays • Reduction of flight delays Enhanced through use of cost effective tools to access network information instead of expensive local tools or procedures and through the improved capacity		

123AF4 – Family 4.2.3 NAV Portugal Interface to NMS AFP			
Start Date	01/05/2015	**End Date**	31/10/2019
Project Leader	Nav Portugal		
Contributors	-		
Main AF/Sub-AF/Family	AF4	S-AF 4.2	Family 4.2.3

Project Objective	• The purpose of this national project (action), on the Lisbon FIR, is to contribute for the European wide objectives of the IR 716/2014 AF#4, namely on the Improvement of the collaboration between the NM and ANS providers, airports and airspace users in flight plan filing.
	• The Lisbon FIR ATM system should automatically provide AFP message for:
	  ○ 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 APL and ACH messages sent by IFPS and AFP messages are automatically processed		

2015_021_AF4 - Slot Manager for PCP airports			
Start Date	01/06/2016	**End Date**	31/12/2019
Project Leader	Deutsche Lufthansa AG		
Contributors	Swiss International Airlines Ltd., Sabre, Brussel Airlines Ltd.		
Main AF/Sub-AF/Family	AF4	S-AF 4.2	Family 4.2.3
Project Objective	• Removing bottlenecks by closing missing information exchange links between NM and airlines for SWIM compliance. • Contributing to a high performing ATM by improving an essential prerequisite capacity and delay management with an improved slot and arrival management. • Supporting tactical replaning, by considering airway restrictions based on additional real time information delivered via NM increasing the capacity in the European airspace and safety level. • Support in the establishment of governance by executing SWIM compliance activities: e.g. AIRM, ISRM rules; B2B over PENS (yellow profile) • Contributing to the standardisation of the ATM infrastructure in Europe by know how transfer to all relevant SESAR (SJU/SDM) and EUROCAE projects led by or with participation of LH Group.		

2015_106_AF4 - Flight evolution and upgrade of interfaces with NM stakeholders			
Start Date	01/03/2016	**End Date**	31/12/2021
Project Leader	Eurocontrol / Network Manager		
Contributors	Swiss International Airlines Ltd., Sabre		
Main AF/Sub-AF/Family	AF4	S-AF 4.2	Family 4.2.3
Project Objective	• Integrating 4DT into pre-departure flight planning operations • Implementing functions associated to FF-ICE/1 • Harmonising military OAT flight planning procedures • Supporting mixed mode operations • FO Implementation Strategy • NSP SO5: Facilitating business trajectories and cooperative traffic management		

2016_100_AF4 – Provision of EFPL data and initial FF-ICE/ 1 readiness			
Start Date	02/01/2018	**End Date**	31/12/2020
Project Leader	Deutsche Lufthansa AG		
Contributors	Eurocontrol / Network Manager; Société Air France; Lufthansa Systems GmbH & Co. KG;		
Main AF/Sub-AF/Family	AF4	S-AF 4.1	Family 4.2.3
Project Objective	• Upgrade the flight planning system Lido/Flight to enable the EFPL exchange with NM operationally • Upgrade the flight planning system Lido/Flight in accordance with FF/ICE 1/FIXM provisions as far as applicable • Update the operational procedures of the respective LH Group airlines and Air France in accordance the procedures of collaborative flight planning and 4D flight plan filing (EFPL and FF/ICE eFPL/ FIXM)		

	• Integrate the new operational concepts (systems, procedures) of collaborative flight planning and 4D flight plan filing (EFPL/ FF-ICE 1 eFPL/ FIXM) into LH group airlines procedures

Family 4.2.4 – AOP/NOP Information Sharing

2015_113_AF4 – AOP-NOP Integration			
Start Date	01/03/2016	**End Date**	31/12/2020
Project Leader	Eurocontrol / Network Manager		
Contributors	Heathrow Airport Ltd., Aéroports de Paris, Fraport AG		
Main AF/Sub-AF/Family	AF4	S-AF 4.2	Family 4.2.4
Project Objective	• Setting up B2B AOP-NOP Interfacing for data exchange with selected airports • Ensuring that exchanged data is being processed for better predictability and improved rolling plans on NM and Airport Sides • Providing guidance material for other airports for later implementation of AOP-NOP link and on Collaborative Decision Making in order to provide quality input data		

2016_131_AF4 – AOP-NOP Integration - Extended Implementation			
Start Date	01/03/2017	**End Date**	31/12/2020
Project Leader	Eurocontrol / Network Manager		
Contributors	Aena S.A.; Schiphol Nederland B.V.; Brussels Airport Company NV/SA; Swedavia AB		
Main AF/Sub-AF/Family	AF4	S-AF 4.1	Family 4.2.4
Project Objective	• Adapt/harmonize interfacing for data exchange • Adapt data processing to type of airport for better predictability and improved rolling plans on NM and Airport sides • Implement and test AOP-NOP exchange		

2017_052_AF4 – AOP-NOP Integration - Extended Implementation			
Start Date	12/04/2018	**End Date**	31/12/2021
Project Leader	Eurocontrol / NM		
Contributors	Aeroporti di Roma S.p.A.; | Aéroports de la Côte d'Azur; | Flughafen Düsseldorf GmbH; | Flughafen Wien AG; | Manchester Airport PLC; | Società per Azioni Esercizi Aeroportuali - SEA; | Stansted Airport Limited		
Main AF/Sub-AF/Family	AF4	S-AF 4.2	Family 4.2.4
Project Objective	The project will focus on the data exchange for efficient cooperation between NMOC and local collaborative structures for improved Network Management It will: • a) review the Interface Control Document being produced in 2015_113_AF4 AOP-NOP and investigate need for adaptation to ensure harmonization across all airports • b) adapt system change requirements for processing the exchanged data in NM and setting up requirements for airport systems of different airport types • c) deliver fully tested AOP-NOP interfaces at the participation airports		

Family 4.3.1 – Target Time for ATFCM purposes

2015_114_AF4 - Implementation of Target Times for ATFCM purposes (NM)			
Start Date	07/02/2017	**End Date**	31/12/2020
Project Leader	Eurocontrol / Network Manager		
Contributors	Swiss International Airlines Ltd., Sabre		
Main AF/Sub-AF/Family	AF4	S-AF 4.3	Family 4.3.1
Project Objective	• Refining the elements of Concept of operations for Target Time Operations (TTO) for ATFCM purposes and develop associated procedures • Adapting NM Systems to implement TTO • Pre-tactical: preparing and delivering requested TTA/TTO (like iStream) according pre-tactical request of airline • Inflight transmission of tactical informations and exchange of TTA/TTO between airline FOC (and/or aircrafts) with NM • AFLEX procedure if neccesary (SWAP inside the company or Deutsche Lufthansa AG)		

Family 4.4.2 – Traffic Complexity Tools

079AF4 – Trajectory accuracy and traffic complexity			
Start Date	01/01/2014	**End Date**	29/12/2017
Project Leader	Eurocontrol / Network Manager		
Contributors	-		
Main AF/Sub-AF/Family	AF4	S-AF 4.4	Family 4.4.2
Project Objective	This IP addresses the Family 4.4.1 'FDP System adaptation and EFD (EFTMS flight data message)' and contributes to the S-AF4.4 'Automated Support for Traffic Complexity Assessment'. • The accuracy of demand assessment will be significantly improved by the use of the Extended Flight Plan (EFPL) in the planning phase, meaning a Flight Plan enriched with detailed trajectory and flight performance information. This will also positively impact the ETFMS flight data (EFD) messages process. • The better accuracy of the initial trajectory information provided by NM will improve traffic predictability in general, and more specifically facilitate the traffic complexity assessment both at local and central level. • The implementation of Network Traffic Scenario management tools at NM level will also directly contribute to manage traffic complexity. • Improved trajectory/constraint accuracy/awareness will also result in potential improvements to flight efficiency.		

2015_115_AF4 – Traffic Complexity Management			
Start Date	01/05/2017	**End Date**	31/12/2020
Project Leader	Eurocontrol / Network Manager		
Contributors			
Main AF/Sub-AF/Family	AF4	S-AF 4.4	Family 4.4.2
Project Objective	• Enhancing the network scenario management in support of the collaborative planning • Supporting local tools in the traffic complexity assessment • Supporting local actors in decision making by providing simulation facilities at network level • Providing facilities for complexity management at network level to support FMPs not having local tools		

2015_167_AF4 – Workload model for Amsterdam Area Control and Approach Control operations			
Start Date	16/02/2016	**End Date**	31/12/2020
Project Leader	LVNL		
Contributors			
Main AF/Sub-AF/Family	AF4	S-AF 4.4	Family 4.4.2
Project Objective	• Introduction of WLM to support ATFC Measures decisionmaking • Advanced simulations features for predicting workload to support staffing and ATFC Measures decision making • Advanced workload assesment tools to support the use of Short Term ATFC Measures (STAM) and Flexible Use of Airspace (FUA) • Integrated WLM infrastructure and interoperable with operational ATC-systems • Support tool for runway configuration and capacity planning Schiphol Airport • Workload methodology for APP operations		

2015_217_AF4 – tCAT implementation in Sofia ACC			
Start Date	04/04/2016	**End Date**	30/09/2020
Project Leader	State Enterprise "Air Traffic Services Authority" (BULATSA)		
Contributors	-		
Main AF/Sub-AF/Family	AF4	S-AF 4.4	Family 4.4.2
Project Objective	• Monitoring sector air traffic demand and evaluating traffic complexity (by applying complexity metrics) according to a qualitative scale • Allowing timely action to adjust capacity, or request the traffic profile changes in coordination with NM • Allowing effective capacity management of sectors and their dynamic management by means of different suitable configurations having taken into account the complexity of expected traffic situation • Allowing effective planning of ATCO resources • Allowing effective management of ATCO workload • Providing additional mitigation measures for unplanned / unprecedented increase of traffic volume / workload (e.g. airspace restrictions in adjacent airspace, weather avoidance, etc.)		

2015_240_AF4 - Traffic Complexity Tools ✓			
Start Date	15/02/2016	**End Date**	02/11/2018
Project Leader	ANS/CR		
Contributors	-		
Main AF/Sub-AF/Family	AF4	S-AF 4.4	Family 4.4.2
Project Objective	• Reducing traffic complexity over LKAA FIRs • Reducing workload on LKAA Sectors • Eliminating the use of regulations		

2016_024_AF4 – Deployment of an Automated Support Tool for Traffic Complexity Assessment at DFS			
Start Date	07/02/2017	**End Date**	31/12/2020
Project Leader	DFS Deutsche Flugsicherung GmbH		
Contributors			
Main AF/Sub-AF/Family	AF4	S-AF 4.1	Family 4.4.2
Project Objective	• To deploy an Automated Support for Traffic Complexity Assessment Tool on all DFS Control Centers (Langen, Munich, Bremen, Karlsruhe) • To provide "what if" functionality for local flow management based on fast-time simulation ensuring accurate trajectory based traffic-forecasts • To support local traffic complexity management entailing federated dynamic demand and capacity balancing taking into account current and expected traffic load and estimating controllers´ workload • To integrate timely information from various domains (e.g. NM, weather, A-CDM, FUA) aiming at supporting FMPs and Supervisors in decision making.		

2016_114_AF4 – ENAV Traffic Complexity Tool Implementation			
Start Date	07/02/2017	**End Date**	31/12/2020
Project Leader	ENAV S.p.A		
Contributors			
Main AF/Sub-AF/Family	AF4	S-AF 4.1	Family 4.4.2
Project Objective	Main objective is to implement Traffic Complexity Tool within the four Italian ACCs.		

2017_045_AF4 – ENAV Deployment of traffic complexity tool and STAM phase 2			
Start Date	01/11/2018	**End Date**	31/12/2021
Project Leader	ENAV S.p.A		
Contributors			
Main AF/Sub-AF/Family	AF4	S-AF 4.1	Family 4.4.2
Project Objective	• To allow the implementation of the new operational concepts defined by Deployment Programme in the future ATM systems. • To facilitate the integration of advanced tools in the global ATM system. • To monitor and evaluate current and expected traffic loads and estimated controller's workload in order to optimise the use of available capacity. • To Involve the Network Manager in the initiative to exchange information. Main objective, after the implementation of the Traffic Complexity tool, is to design and develop the STAM phase 2.		

2017_057_AF4 – Local traffic complexity management			
Start Date	12/04/2018	**End Date**	31/12/2022
Project Leader	PANSA		
Contributors	State Enterprise "Oro Navigacija		
Main AF/Sub-AF/Family	AF4	S-AF 4.1	Family 4.4.2
Project Objective	1. To deploy a Traffic Complexity Tool and procedures aimed at continuous monitoring of traffic demand and evaluation of traffic complexity in Warsaw and Vilnius ACCs, required under the PCP IR (EU 716/2014) 2. To provide an automated and dynamic traffic forecasting and sectorisation planning concerning in particular tactical adjustments for efficient planning of the capacity and staffing at the Warsaw ACC and Vilnius ACC, with the use of periodical fast-time "what-if" simulations for optimised sectorisation and ATSU resources planning, based on capacity parameters such as controllers' workload and sector occupancy. 3. To enable integration with the Network Manager, including Collaborative Traffic Management, airport planning, Flexible Use of Airspace and neighbouring FMPs for the planning optimisation. 4. To provide mitigation measures, when needed, for unexpected increase of traffic volume/workload. 5. To enable an early deployment, in co-ordination with the Network Manager, of the revised Network Function IR requirements.		

2017_062_AF4 – Traffic Complexity Assessment and Simulations Tool - TCAST			
Start Date	12/04/2018	**End Date**	28/06/2019
Project Leader	Belgocontrol		
Contributors			
Main AF/Sub-AF/Family	AF4	S-AF 4.1	Family 4.4.2
Project Objective	The implementation project will ensure: 1) The acquisition and implementation of a support system capable for real time monitoring, assessment and forecasting of air traffic complexity. 2) The integration of up-to-date and SWIM compliant information coming from several data sources (NM-B2B webservices, local systems). 3) The redesign of the overall ATFCM concept and processes applied within Belgocontrol by considering the impact of traffic complexity in the decision-making process with regard to Demand-Capacity Balancing (DCB).		

AF 5 Initial SWIM

The following table encompasses the list of implementation initiatives associated to ATM Functionality #5 that were awarded under all CEF Transport Calls for Proposals.

CEF Call Designator	Title	Family	IP Description Page Number
2015_174_AF5	NewPENS Stakeholders contribution for the procurement and deployment of NewPENS	5.1.2	125
2016_118_AF5	ENAV Network enhancement toward NewPENS	5.1.2	125
2016_129_AF5	NewPENS Stakeholders contribution for the procurement and deployment of NewPENS	5.1.2	126
073AF5	SWIM Common Components	5.1.3	127
2015_319_AF5	SWIM Common Components - Phase 2	5.1.3	127
2016_141_AF5	Deploy SWIM governance	5.1.3	128
2017_084_AF5	SWIM Common PKI and policies & procedures for establishing a Trust framework	5.1.4	129
014AF5	MPLS WAN Project	5.2.1	130
059AF5	Implementation of an IP-based G/G data communication network in ENAIRE	5.2.1	130
127AF5	National WAN Infrastructure - CANDI-IP preparation project	5.2.1	131
2015_035_AF5	LAN network upgrade	5.2.1	131
2015_047_AF5	Modernization of IP based G/G Data Network in CCL - CaRT/iWAN-NG	5.2.1	131
2015_049_AF5	CCL cyber security architecture - ExCO-NG	5.2.1	132
2015_098_AF5	Implementing redundant WAN	5.2.1	132
2015_131_AF5	CANDI-IP (execution phase)	5.2.1	132
2015_192_AF5	RAPNET NG	5.2.1	133
2016_038_AF5	Implementation of an IP-based G/G data communication network in ENAIRE (REDAN)	5.2.1	133
2016_044_AF5	Modernization of IP based G/G Data Network in CCL - CaRT/iWAN-NG - Phase II. – Implementation	5.2.1	134
2016_071_AF5	PT_Implement a PT Air Force IP Backbone connected into NewPENS	5.2.1	134
2016_092_AF5	ITAF WAN	5.2.1	134
2016_109_AF5	BLUEMED FAB IP Network deployment	5.2.1	135
2016_143_AF5	ATM Network 2.0 Amsterdam	5.2.1	135
2017_065_AF5	LVNL Nation wide managed network supporting SWIM	5.2.1	135

CEF Call Designator	Title	Family	IP Description Page Number
2017_080_AF5	PATRUS niveau 2 - Gateway Upgrade for 4Flight compliance	5.2.1	136
117AF5	Implementation of Initial Capability SWIM across NATS	5.2.2	137
2015_038_AF5	The ECG Communication System upgrade	5.2.2	137
2015_117_AF5	Improve NM SWIM Infrastructure	5.2.2	137
2015_197_AF5	Centralized DFS "Yellow Profile" SWIM Node	5.2.2	138
2015_198_AF5	Implementation of ENAV "LAN Servizi"	5.2.2	139
2015_210_AF5	AMHS/SWIM gateway	5.2.2	139
2015_249_AF5	PATRUS	5.2.2	139
2016_034_AF5	Upgrade/Replace Infrastructure to facilitate SWIM	5.2.2	140
2016_149_AF5	Austro Control iSWIM Capability Infrastructure	5.2.2	140
2017_018_AF5	SWIM-enabled OCC	5.2.2	140
2017_035_AF5	Deploying SWIM infrastructure at DSNA	5.2.2	141
2017_040_AF5	AERONET/ENET2 Interoperability	5.2.2	141
2017_066_AF5	Implementing harmonised SWIM (Y) solution in COOPANS ANSPs and general PCP compliance	5.2.2	142
2016_062_AF5	Creating Local Security Operation Center	5.2.3	142
2016_116_AF5	ENAV Security Operational Centre (iSOC) Upgrade	5.2.3	143
2017_020_AF5	Initial SWIM security deployment	5.2.3	144
2017_025_AF5	Stakeholders' SWIM PKI and cyber security	5.2.3	144
2017_026_AF5	PKI and Cybersecurity	5.2.3	145
2017_034_AF5	Deploying Cyber Infrastructure at DSNA	5.2.3	145
2017_061_AF5	Application of cyber security to ANSP and SWIM services at LFV	5.2.3	146
2017_075_AF5	SWIMARN - SWIM with Cyber Security at Stockholm Arlanda Airport	5.2.3	146
006AF5	ATM Data Quality (ADQ)	5.3.1	147
009AF5	Integrated Briefing System New (IBSN)	5.3.1	148
040AF5	ADQ - Aeronautical Data Quality	5.3.1	148
041AF5	EASI - EAD AIM System Integration	5.3.1	149
066AF5	ENAV AIS system Upgrade to support AIXM5.1	5.3.1	149

CEF Call Designator	Title	Family	IP Description Page Number
084AF5	Implementation of Prerequisites for the Provision of Aerodrome Mapping Data and Airport Maps as Data Originator (Aeronautical Information Exchange)	5.3.1	150
2015_099_AF5	DK-SE FAB Aeronautical Data Quality (ADQ)	5.3.1	150
2015_112_AF5	Integrate the Aeronautical Information Exchange Services in NM Systems	5.3.1	151
2015_138_AF5	5.3.1 NAV Portugal - Implementation of a solution for eletronic Terrain and Obstacle Data management	5.3.1	151
2015_145_AF5	AIM Deployment Toolkit	5.3.1	151
2015_160_AF5	Aeronautical Information exchange and management	5.3.1	152
2015_168_AF5	Implementation of Aeronautical Data Quality (ADQ) at LVNL	5.3.1	152
2015_194_AF5	STANLY_ACOS iSWIM for Free-Route and NM	5.3.1	152
2015_201_AF5	Transition of current Aeronautical Information Management System to EAD	5.3.1	153
2015_230_AF5	AF5 AIM Compliance Program	5.3.1	153
2015_243_AF5	Aeronautical Information Distribution Service	5.3.1	154
2015_262_AF5	Aeronautical Data Quality and Exchange	5.3.1	154
2015_288_AF5	ADQ implementation Stockholm Arlanda	5.3.1	154
2016_035_AF5	ENAIRE exchange of Aeronautical Information data in AIXM5.1	5.3.1	155
2016_064_AF5	AIMSIL - AIM Systems Integration Layer	5.3.1	155
2016_108_AF5	ENAV ADQ - Aeronautical Data Quality system interface evolution (ADQ2)	5.3.1	155
2017_002_AF5	Aeronautical Information Exchange system for Airlines Flight Operation Centre (FOC) at Lufthansa & Air France	5.3.1	156
2017_039_AF5	SEPIA - Deploying SWIM based AIM services in French Airspace	5.3.1	156
2017_060_AF5	ADQ Components in the SWIM Infrastructure - upstream data inclusion in the full data chain solution - ANSP and Airport	5.3.1	157
2017_069_AF5	Italian Air Force Integrated Briefing	5.3.1	157
016AF5	Initial WXXM Implementation on Belgocontrol systems	5.4.1	158
110AF5	Meteorological Information Exchange by MET ANSP KNMI to support non-safety-critical and safety-critical aviation applications for Amsterdam Schiphol	5.4.1	158
134AF5	PILOT PLATFORM for access services to OPMET (worldwide/ECAC) data (METAR, TAF, SIGMET) in WXXM format	5.4.1	159
2015_025_AF5	Sub-regional SWIM MET deployment to support NEFRA	5.4.1	159

CEF Call Designator	Title	Family	IP Description Page Number
2015_067_AF5	European Weather Radar Composite of Convection Information Service	5.4.1	160
2015_068_AF5	European Harmonised Forecasts of Adverse Weather (Icing, Turbulence, Convection and Winter weather)	5.4.1	160
2015_069_AF5	European MET Information Exchange (MET-GATE)	5.4.1	161
2015_137_AF5	European Meteorological Aircraft Derived Data Center (EMADDC)	5.4.1	161
2015_169_AF5	Initial (I)WXXM implementation on CCIS Amsterdam ACC and Schiphol	5.4.1	161
2015_231_AF5	METSW-DB PCP Evolution	5.4.1	162
2015_241_AF5	Meteorological Information Exchange Service	5.4.1	162
2016_119_AF5	ENAV Airport MET System and UPM-MET database upgrade	5.4.1	162
2016_148_AF5	Implementation of Automated Meteorological Information Exchange	5.4.1	163
2017_076_AF5	Meteorological Information Exchange service for Airlines Flight Operation Centre at Lufthansa & Air France	5.4.1	163
082AF5	SWIM compliance of NM systems	5.5.1	164
2015_045_AF5	AF5 iSWIM	5.5.1	164
2015_118_AF5	More efficient Flight Planning	5.5.1	164
2015_143_AF5	Improve Cooperative Network Information Exchange Services	5.5.1	165
2016_033_AF5	Use SWIM methods to replace AFTN feeds for A-CDM	5.5.1	165
067AF5	Coflight-eFDP System Development	5.6.1	166
2015_141_AF5	Improve NM Flight Information Exchange Services	5.6.1	166
2016_065_AF5	SWIM implementation into ATS INFO/ARO system of ANS CR	5.6.1	167
2017_056_AF5	Towards Shared Business Trajectory / Trajectory Based Operations	5.6.1	167
2016_027_AF5	European Deployment Roadmap for Flight Object Interoperability	5.6.2	168

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

2015_174_AF5_A – NewPENS Stakeholders contribution for the procurement and deployment of NewPENS – Part A: General Call 2015_174_AF5_B – NewPENS Stakeholders contribution for the procurement and deployment of NewPENS – Part B: Cohesion Call			
Start Date	16/02/2016	**End Date**	31/12/2020
Project Leader	Eurocontrol		
Contributors	Austro Control, Avinor Flysikring AS, DSNA, ENAIRE, ANS Finland, Irish Aviation Authority, LFV, LVNL, MNAV, NATS, Naviair, SMATSA, NAV Portugal, Aéroports de Paris, Belgocontrol, Slovenia Control, BULATSA, ROMATSA. The project implementation scope depend on the coordinated work of all 19 partners (Eurocontrol, AUSTROCONTROL (Austria), Avinor Flysikring AS (Norway), DSNA (France), ENAIRE (Spain), ANS Finland (Finland), IAA (Ireland), LFV (Sweeden), LVNL (The Netherlands), MNAV (Macedonia), NATS (UK), NAVAIR(Denmark), SMATSA (Serbia & Montenegro), NAV Portugal (Portugal), Aéroports de Paris (France), Belgocontrol (Belgium), SLOVENIA CONTROL (Slovenia), BULATSA (Bulgaria), ROMATSA (Romania)) and is split into a cohesion and non-cohesion part.		
Main AF/Sub-AF/Family	AF5	S-AF 5.1	Family 5.1.2
Project Objective	• Deploying an Internet Protocol (version6 and version4) Network Service necessary to support the SWIM Exchanges • Deploying within the ICAO EUR/NAT Region a unique Pan European Network Service to support the information exchange needs of all ATM stakeholders, ANSPs (almost users of PENS1) but also Airports, Airspace Users, MET Providers and Military • Replacing PENS1 terminating in June 2018		

2016_118_AF5 – ENAV Network enhancement toward NewPENS ✓			
Start Date	07/02/2017	**End Date**	31/12/2018
Project Leader	ENAV S.p.A		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.1	Family 5.1.2
Project Objective	ENAV is already a PENS user. In order to fully complete its transition to NewPENS (ENAV proposed its national network to the future contractors of NewPENS) an enhancement of the current italian IP network connectivity is required. The ENAV national communication infrastructure (WAN) is constituted by the ENET network with POP (Point of Presence) for the delivery of PENS services. In each POP there are also present the related MSE (Security Modules for ENET) in order to guarantee security for any connection and data transmission/reception. Toward NewPENS, the overall ENET connectivity to PENS shall have to be upgraded in order to comply with the new NewPENS requirements, this implies: • The upgrade of the current ENET design and architecture; • The update of the network configuration up to remote sites; • The update of ENET software components (including Security Modules) that work as an interface from the sites towards ENET/NewPENS.		

2016_129_AF5 – NewPENS Stakeholders contribution for the procurement and deployment of NewPENS			
Start Date	15/02/2017	**End Date**	31/12/2020
Project Leader	Eurocontrol / Network Manager		
Contributors	Polska Agencja Żeglugi Powietrznej (PANSA - Polish Air Navigation Services Agency)		
Main AF/Sub-AF/Family	AF5	S-AF 5.1	Family 5.1.2
Project Objective	• Deploy an Internet Protocol (version6 and version4) Network Service necessary to support the SWIM Exchanges • Deploy within the ICAO EUR/NAT Region a unique Pan European Network Service to support the information exchange needs of all ATM stakeholders, ANSPs (almost users of PENS1) but also Airports, Airspace Users, MET Providers and Military • Replace PENS1 terminating in June 2018		

Family 5.1.3 – Common SWIM Infrastructure Components

073AF5 – SWIM Common Components			
Start Date	01/01/2016	**End Date**	31/12/2020
Project Leader	Eurocontrol		
Contributors	-		
Main AF/Sub-AF/Family	AF5	S-AF 5.1	Family 5.1.3
Project Objective	The objective of this project is twofold: *1. SWIM Data Models - deployment toolkit:* The goal is to have common rules for the data capturing/mapping/interpretation. It will include: • Development of an AIXM Coding Guidelines Service. This service will update the AIXM 5.1 coding guidelines better reflecting the needs of a wider range of stakeholders, such as NM sub-systems, ATC, procedure designers, etc. • Provide AIXM Data Validation Services, ensuring that data sets are syntactically valid (against the XML Schema) and semantically correct and can be used in confidence for a particular application. The initial set of AIXM 5.1 Business Rules needs to be maintained and enhanced, considering the feedback from the implementations and the needs of the various stakeholder groups. • Provide a Web Based Training (WBT) Service for the latest AIXM version. The existing AIXM 4.5 WBT is outdated and there is a strong need for a new AIXM 5.1 WBT Service. The deployment toolkits will be updated based on further versions of the following specifications: • Aeronautical Information Exchange Model (AIXM) version 5.2 • Weather Exchange Model (WXXM) and ICAO Weather Exchange Model (IWXXM) version 3 • Flight Information Exchange Model (FIXM) version 4 *2. Registry:* The SWIM Registry will provide a platform for the service providers to find information about SWIM (SWIM Reference Management) and will provide a limited support for the end-users, including minor changes to the look and feel of the SWIM registry and allow updates of the SWIM references when needed.		

2015_319_AF5 - SWIM Common Components - Phase 2			
Start Date	01/01/2017	**End Date**	31/12/2020
Project Leader	Eurocontrol		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.1	Family 5.1.3
Project Objective	• Providing "deployment toolkits" in order to enable a harmonised implementation of the SWIM data exchange models (AIXM/(I)WXXM/FIXM). The goal is to have common rules for the data capturing/mapping/interpretation. Real data interoperability is only possible if all involved parties adhere to both same structure (provided by the XM) and same semantics (data capturing rules) • Update the deployment toolkits based on further versions of the following specifications:		

	○ Aeronautical Information Exchange Model (AIXM) ○ Weather Exchange Model (WXXM) and ICAO Weather Exchange Model (IWXXM) ○ Flight Information Exchange Model (FIXM) • The SWIM Registry will provide a platform for the service providers to find information about SWIM (SWIM Reference Management). • Supporting partial mitigation (for the part associated with the exchange of Aeronautical Information and data) of the PCP implementation gap mainly in Familly 5.3.1, but also others, ultimately benefitting operational stakeholders across the entire PCP applicability area.

2016_141_AF5 – Deploy SWIM governance			
Start Date	07/02/2017	**End Date**	31/12/2019
Project Leader	The French Republic – Ministry of the Environment, Energy and the Sea, DGAC (Direction générale de l'aviation civile), DSNA (Direction des services de la navigation aérienne)		
Contributors	Société Air France; Austrian Airlines AG; Austro Control Österreichische Gesellschaft für Zivilluftfahrt mit beschränkter Haftung (Austro Control GmbH); BULATSA; Københavns Lufthavne A/S; Deutsche Lufthansa AG; DFS Deutsche Flugsicherung GmbH; Entidad Pública Empresarial ENAIRE; ENAV S.p.A; GIE EUMETNET; Eurocontrol; ANS Finland; Fraport AG Frankfurt Airport Services Worldwide; French Ministry of Defence – DGA; HungaroControl Hungarian Air Navigation Services Pte.Ltd.Co.; Luftfartsverket (LFV); Letové prevádzkové služby Slovenskej republiky, štátny podnik, (v skratke „LPS SR, š. p."); Flughafen München GmbH; NATS (En Route) plc; Navegação Aérea de Portugal - NAV Portugal, E.P.E.; Polska Agencja Żeglugi Powietrznej (PANSA - Polish Air Navigation Services Agency)		
Main AF/Sub-AF/Family	AF5	S-AF 5.1	Family 5.1.3
Project Objective	This project aims at implementing the phase 2 of the SDM SWIM Governance action plan defined in the Deployment Program 2016 (Addendum II as well as Families 5.1.3 and 5.1.4), thus ensuring a controlled evolution and a harmonized deployment of all SWIM elements. It can be considered as a ramp-up for the operational deployment of a solid and agile SWIM Governance. Based on the outputs of SESAR1 and of the Phase 1 of the SDM SWIM Action plan: • The project will define and set up an initial organizational structure with the related legal and financial framework, representative of all affected operational stakeholders, in order to execute the SWIM Governance within the context of the PCP. • The project will ensure a stable implementation and controlled evolution of SWIM standards, guidance material, foundation material, common components, the SWIM service lifecycle including service definitions and the compliance framework. • It will define SWIM policies, processes and functions to support the implementation of all aspects of SWIM, e.g. change control of SWIM Elements and assessment of compliance to SWIM standards. • The project will provide a collaborative platform for the communication and collaboration between all SWIM stakeholders and actors on all matters of SWIM Governance. • The project will deliver a set of tools and guidance supporting the contributors to SWIM deployment (service providers, information providers, IT specialists, etc.). • It will identify and refine the common security requirements necessary for giving trust to the SWIM deployment.		

	• It will coordinate with the SWIM implementations developed in the other projects dealing with SWIM common components.

Family 5.1.4 – Common SWIM PKI and Cybersecurity

2017_084_AF5 – SWIM Common PKI and policies & procedures for establishing a Trust framework			
Start Date	02/07/2018	**End Date**	31/12/2021
Project Leader	Eurocontrol		
Contributors	Aéroports De Paris (ADP); | ANS Finland; | Austro Control GmbH; | Belgocontrol; | BULATSA; | Deutsche Lufthansa AG; | DIRECTION GENERALE DE L'ARMEMENT (DGA); | DFS Deutsche Flugsicherung GmbH; | DSNA; | ENAV S.p.A.; | FABCE Ltd; | Hellenic Civil Aviation Authority (HCAA); | Hungaro Control; | Københavns Lufthavne A/S; | Luchtverkeersleiding Nederland (LVNL); | Luftfartsverket (LFV); | Manchester Airport PLC; | NATS En Route; | NAV Portugal, E.P.E.; | Naviar; | PANSA; | Ryanair DAC; | ROMATSA RA; | Serbia and Montenegro Air Traffic Services SMATSA llc; | Slovenia Control, Ltd; | Société Air France; | SPANISH AIR FORCE (ES AF); | State Enterprise "Oro Navigacija"; | Letové prevádzkové služby Slovenskej republiky, štátny podnik, (v skratke „LPS SR, š. p.")		
Main AF/Sub-AF/Family	AF5	S-AF 5.1	Family 5.1.4
Project Objective	The specific objectives of this project are to develop and deploy means to: • Secure the exchange of aviation related information, • Provide identification and authentication of providers and consumers of aviation related information, • Support the encryption when needed of aviation related information.		

Family 5.2.1 – Stakeholder Internet Protocol Compliance

014AF5 – MPLS WAN project			
Start Date	17/11/2014	**End Date**	31/12/2021
Project Leader	BELGOCONTROL		
Contributors	-		
Main AF/Sub-AF/Family	AF5	S-AF 5.2	Family 5.2.1
Project Objective	In the context of the Common Backbone Network Group (Germany, Belgium, Luxembourg and the Netherlands), the RAPNET (Regional Aeronautical Packet switched NETwork) is currently used by these ANSP's to connect to the PENS (Pan-European Network System). The evolution of this inter-ANSP network is based on MPLS (MultiProtocol Label Switching) and Belgocontrol needs to implement a compatible networking infrastructure. The specific goals of MPLS WAN project are: • to create a secure and performing IP-based Ground-Ground communication network for the transfer of both operational data (Radar, Voice, Meteo, Aeronautical and Flight Information) and administrative data (LAN and Telephony); • to share the different Belgocontrol applications on the network with the required data integrity; • to replace current SDH (Synchronous Digital Hierarchy) based by an MPLS based Wide Area Network (WAN) The project will allow compliance with EU 409/2013 and 716/2014.		

059AF5 – Implementation and operation of an IP-based G/G data communication network in ENAIRE			
Start Date	01/01/2014	**End Date**	31/12/2019
Project Leader	ENAIRE		
Contributors	-		
Main AF/Sub-AF/Family	AF5	S-AF 5.2	Family 5.2.1
Project Objective	Evolution of the existing ENAIRE's aeronautical data network (REDAN) in order to ensure an agreed level of Ground-Ground interconnectivity between ENAIRE ATSUs and stakeholders as required to facilitate information exchange with the communication requirements of new applications (SWIM based). This evolution will include voice and data integration and Alignment of REDAN technology with the current and future state-of-the-art. Benefits are expected through Reduction of maintenance and operation costs. The scope of the project includes deployment of the new network infrastructure in ACCs and remote sites (TWRs, radar and radio stations, etc.), user integration into new infrastructure, training and Safety studies and continuous supervision of the deployed network infrastructure.		

127AF5 – National WAN Infrastructure - CANDI-IP preparation project			
Start Date	03/02/2014	**End Date**	27/04/2015
Project Leader	NAVIAIR		
Contributors	-		
Main AF/Sub-AF/Family	AF5	S-AF 5.2	Family 5.2.1
Project Objective	The project aims at providing requirements for an adequate WAN infrastructure that will be compliant with the requirements of an IP g/g communications network is available. This WAN infrastructure will: • Ensure continuous availability of WAN data transport in EKDK FIR • Ensure logical and physical segregation of operationally critical data • Ensure that requirements on VoIP data transport are fulfilled • Ensure that rules and requirements on IPv6 data transport are fulfilled • Interface to PENS		

2015_035_AF5 - LAN network upgrade			
Start Date	16/02/2016	**End Date**	28/10/2020
Project Leader	Polish Air Navigation Services Agency (PANSA)		
Contributors	-		
Main AF/Sub-AF/Family	AF5	S-AF 5.2	Family 5.2.1
Project Objective	• Redesigning LAN in ACC building. Splitting of operational and non-operational services, based on network environment. • Improving network services for operational users by upgrading reliability and stability level.		

2015_047_AF5 - Modernization of IP based G/G Data Network in CCL - CaRT/iWAN-NG			
Start Date	16/02/2016	**End Date**	31/07/2017
Project Leader	Croatia Control		
Contributors	-		
Main AF/Sub-AF/Family	AF5	S-AF 5.2	Family 5.2.1
Project Objective	• Redesigning existing national IP-based ground-ground data communications network to support SWIM and VoIP based voice comunications • Validating the design through Proof of Concept		

2015_049_AF5 - CCL cyber security architecture - ExCO-NG			
Start Date	16/02/2016	**End Date**	31/05/2018
Project Leader	Croatia Control		
Contributors	-		
Main AF/Sub-AF/Family	AF5	S-AF 5.2	Family 5.2.1
Project Objective	• Implementation of the cyber security architecture which would enable acceptable level of security while supporting iSWIM information exchanges via IP based network by SWIM enabled ATM systems		

2015_098_AF5 - Implementing redundant WAN			
Start Date	01/01/2016	**End Date**	31/12/2021
Project Leader	LFV		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.2	Family 5.2.1
Project Objective	• Ensuring SWIM capability within LFV's communication systems • Ensuring redundancy in LFV's communication systems via the implementation of additional WAN services • Commissioning Second national WAN • Commissioning Third national WAN		

2015_131_AF5 - CANDI-IP (execution phase)			
Start Date	22/02/2016	**End Date**	31/12/2018
Project Leader	Naviair		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.2	Family 5.2.1
Project Objective	• Implementation of fully IP4- and IP6-based, dual redundant ground-to-ground communication network • Implementation of fully IP4- and IP6-based, separate back-up network • Implementation of the communication infrastructure required for Voice over IP communication (VoIP) and SWIM • Implementation of the infrastructure required for information exchange and services via PENS and NewPENS • Ensuring continuous availability of WAN data transport in EKDK FIR • Ensuring logical and physical segregation of operationally critical data		

2015_192_AF5 - RAPNET NG			
Start Date	16/02/2016	**End Date**	31/12/2018
Project Leader	DFS		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.2	Family 5.2.1
Project Objective	• Deploying up to four so called Families as laid down by the SESAR Deployment Manager within the Deployment Programme 2015 on the basis of implementing the Pilot-Common-Project Regulation EU No. 716/2014. By this, deploying internet protocol compliant infrastructure for exchange of information as an interoperable baseline/prerequisite for the future deployment of SWIM functionalities and ATM system information exchange all the while ensuring further conformity to EU No. 633/2007 • Providing a common WAN infrastructure for all DFS sites to ensure future IP communications compliance with external stakeholders. This fulfills the provision of stakeholder SWIM Infrastructure components as required in AF 5.2.1. DFS external partners like Airlines, Airports, Military and MET will be connectd to RAPNET NG utilizing gateways to the RAPNET NG infrastructure (PENS or billateral connections) • Ensuring cost efficiency of SWIM deployment by replacement of the current and end-of-life Ericsson PPX based Multiservice WAN Infrastructure at all DFS sites by a state of-the-art MPLS based WAN infrastructure		

2016_038_AF5 – Implementation of an IP-based G/G data communication network in ENAIRE (REDAN)			
Start Date	01/01/2018	**End Date**	31/12/2020
Project Leader	Entidad Pública Empresarial ENAIRE		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.2	Family 5.2.1
Project Objective	• Evolution of the existing ENAIRE's aeronautical data network (REDAN) in order to ensure an agreed level of Ground-Ground interconnectivity between ENAIRE ATSUs and stakeholders as required to facilitate information exchange with the communication requirements of new applications • Integrate new users (SWIM based) and new voice users		

2016_044_AF5 – Modernization of IP based G/G Data Network in CCL - CaRT/iWAN-NG - Phase II – Implementation			
Start Date	02/05/2017	**End Date**	09/10/2020
Project Leader	Croatia Control Ltd.		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.2	Family 5.2.1
Project Objective	The present project addresses 3 major objectives: • Upgrade of existing national IP-based ground-ground data communications network; • To enable advanced QoS functionality to support VoIP based voice communications; • Support of information exchange (SWIM).		

2016_071_AF5 – PT_Implement a PT Air Force IP Backbone connected into NewPENS			
Start Date	01/07/2017	**End Date**	30/12/2019
Project Leader	Portuguese Air Force		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.2	Family 5.2.1
Project Objective	PRTAF currently has no direct connection to PENS, and relies on dated technology to communicate with national ANSP (NAV Portugal) using IPv4. Radios and Voice Communications System (VCS) on PRTAF Airbases are not yet VoIP capable.		

2016_092_AF5 – ITAF WAN			
Start Date	15/02/2017	**End Date**	31/12/2020
Project Leader	Italian Air Force (MoD)		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.2	Family 5.2.1
Project Objective	The Project objective is: • Achieve IP compliance to support future SWIM information exchange through Yellow and blue Profiles; • Enable ITAF to Exchange ATM, AIS and MET information over IP with external users (e.g. ENAV, EAD); • Enable ITAF to support VoIP services; • Implement adequate efficiency and resilience requirements to support above mentioned services/information exchange		

2016_109_AF5 – BLUE MED FAB IP Network deployment			
Start Date	01/04/2017	**End Date**	31/12/2020
Project Leader	ENAV S.p.A		
Contributors	Department of Civil Aviation Ministry of Transport, Communications and Works Republic of Cyprus (DCAC); Malta Air Traffic Services (MATS)		
Main AF/Sub-AF/Family	AF5	S-AF 5.2	Family 5.2.1
Project Objective	Main objectives of the project are: • Achieving IP compliance • Enable SWIM infrastructures and profiles • PENS preparation • Support operational data and SWIM information exchanges		

2016_143_AF5 – ATM Network 2.0 Amsterdam			
Start Date	07/02/2017	**End Date**	31/12/2020
Project Leader	Luchtverkeersleiding Nederland (LVNL)		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.2	Family 5.2.1
Project Objective	• The objective of the project "ATM Network 2.0 Amsterdam" is to deploy Family 5.2.1 – Stakeholders Internet Protocol Compliance as laid down by the SESAR Deployment Manager within the Deployment Programme 2016 on the basis of implementing the Pilot-Common-Project Regulation EU No. 716/2014. Aiming at implementing Internet Protocol Network connectivity for the Amsterdam ACC and Amsterdam Schiphol TMA to be able to exchange ATM information. The ATM Network 2.0 Amsterdam supports future SWIM information exchanges through SWIM Yellow and Blue profiles based on Internet Protocol • Network infrastructure for iCAS Deployment • To integrate the military network (NAFIN) in the Network 2.0 Amsterdam infrastructure		

2017_065_AF5 – LVNL Nation wide managed network supporting SWIM			
Start Date	12/04/2018	**End Date**	30/06/2021
Project Leader	Luchtverkeersleiding Nederland (LVNL)		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.2	Family 5.2.1
Project Objective	The deployment of the LVNL Nation wide managed network includes: • An Internet Protocol-compliant (Ipv6) centrally managed and secured network interconnecting all civil airports in The Netherlands (WAN) to be able to support future information exchanges through SWIM profiles. • The components required for supervision, monitoring and control • Networks at the Airports (MAN / LAN / Fiber cabling) areas interconnecting systems (i.e. sensors, voice communication, surveillance and other data systems)		

	• Every used component or technique needs to be severely tested and designed based upon common LVNL architectural standards.

2017_080_AF5 – PATRUS niveau 2 – Gateway Upgrade for 4Flight compliance			
Start Date	01/05/2018	**End Date**	31/07/2020
Project Leader	DIRECTION GENERALE DE L'ARMEMENT (DGA)		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.2	Family 5.2.1
Project Objective	Upgrade the French PATRUS interface will keep interoperability with the French DSNA system 4flight at its highest and will provide more performance to the EU Network. This project will finally allow the migration to IP protocol. This project is essential to enabling the exchange of data between civil ATC system and military AD system. The work will allow an initial one-way capability of data reception for the correct data processing by the AD FDPS, IP-capable and interoperable with the new ATC civil system. It is a project adjacent to the PATRUS Gateway project (REF: 2015_249_AF5). This second part (PATRUS2) completes the Gateway requirements identified by the FR MOD for the complete and successful interoperability of the civil and military ATC systems. So, in order to maintain interoperability from the outset of 4Flight implementation plan(including test phases) military must deploy a solution enabling the interoperability between the civil and military control systems. 4Flight only way of data exchange is under IP protocol while the military CRC systems handle these flows only under X25 protocol. PATRUS2 will enable the mapping and conversion of protocol of 4Flight flows for the benefit of the CRC systems before arrival of PATRUS (IP compliant) and also adaptation of PATRUS itself for the new need (4Flight data treatment). NB: This project has already started in the FR MOD though for the purposes of this call we declare the start of the project at 1st of May 2018		

+

Family 5.2.2 – Stakeholder SWIM Infrastructure components

117AF5 – Implementation of Initial SWIM Capability (AF5) across NATS			
Start Date	01/01/2014	**End Date**	31/12/2020
Project Leader	NATS		
Contributors	-		
Main AF/Sub-AF/Family	AF5	S-AF 5.2	Family 5.2.2
Project Objective	The objective is to enable iSWIM as an enabler for other PCP elements that deliver benefits in safety, capacity, cost-effectiveness and environment. 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 and will be delivered in the following blocks: Common Infrastructure Components (Sub AF 5.1);SWIM Technical Infrastructure and Profiles (Sub AF 5.2); Aeronautical information exchange (Sub AF 5.3) ; Meteorological information exchange (Sub AF 5.4); Cooperative network information exchange (Sub AF 5.5) and Flight information exchange (Sub AF 5.6)NATS proposal is to deliver a core Enterprise Information Service (EIS) capability to interconnect ATM services within centres, with Airports and other users and to underpin and enable later stages of information exchange by Flight Object. Delivery of the core EIS is the prime action in this 2014 funding call to enable information exchanges of this nature, a number of NATS core systems (primarily Networks, FDP, AIS and Meteo) also require update and enhancement. By their nature, these enhancements need to be carried out first and form the other sub-action elements of this 2014 funding call. Provision of full Flight Object exchange and IOP are expected to be part of future funding requests.		

2015_038_AF5 - The ECG Communication System upgrade			
Start Date	01/07/2016	**End Date**	11/02/2020
Project Leader	Polish Air Navigation Services Agency (PANSA)		
Contributors	-		
Main AF/Sub-AF/Family	AF5	S-AF 5.2	Family 5.2.2
Project Objective	• Improving reliability level for AMHS. • Upgrading AMHS functionality for Warsaw AMHS COM Center		

2015_117_AF5 - Improve NM SWIM Infrastructure			
Start Date	01/01/2017	**End Date**	31/12/2020
Project Leader	Eurocontrol / Network Manager		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.2	Family 5.2.2
Project Objective	• Enhancing NM SWIM Yellow Profile infrastructure components • Upgrading security management, infrastructure and processes • NSP - SO2 Deploying interoperable and effective information management systems • NSP - SO7 Ensuring network safety, security and robustness		

2015_197_AF5 - Centralized DFS "Yellow Profile" SWIM Node			
Start Date	01/08/2016	**End Date**	31/12/2020
Project Leader	DFS		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.2	Family 5.2.2

Project Objective	• Deploying the Family 5.2.2 as laid down by the SESAR Deployment Manager within the Deployment Programme 2015 on the basis of implementing the Pilot-Common-Project Regulation EU No. 716/2014. Therewith, deploying stakeholder SWIM infrastructure components for information exchange in a timely, coordinated and synchronized effort to raise capacity, improve safety and cutting costs while minimizing aviation's environmental footprint
	• Ensuring that the operational benefits of SWIM are realised by enabling DFS systems to provide and consume SWIM services deployed on the "Yellow profile" SWIM infrastructure
	• Ensure that DFS is able to satisfy the legal provisions of EU No. 716/2014 by
	  ○ providing the DFS contribution to the SWIM service infrastructure subject to the requirements and standards in the PCP Implementing Rule
	  ○ subjecting all industrialization and operations to pertinent requirements of the Interoperability Implementing Rule EU No. 552/2004
	  ○ fully integrating with the SWIM "Common Components" applicable to the "Yellow Profile"
	• Ensuring cost efficiency of SWIM deployment by
	  ○ providing a single DFS implementation of SWIM "Yellow Profile" technology that
	  - integrates into the DFS systems operations infrastructure and
	  - minimises integration cost by providing an open standard integration platform to the DFS ATM systems
	  ○ coordinating the DFS internal SWIM deployment activities to realise synergies
	  ○ ensuring efficient and effective communications with DFS in "Yellow Profile" matters by establishing a clear DFS unique point of access (gateway) to external SWIM Stakeholders.
	• Minimizing risk and contributing to timeliness of the European SWIM implementation effort by continuous coordination of deployment activities with all external implementation initiative stakeholders:
	  ○ SWIM service partners (NM, ANSPs, MET providers, ...)
	  ○ SWIM Governance
	  ○ SWIM "Common Components" providers
	This includes activities ranging from planning coordination to day-to-day cooperation during technical integration and transition.		

2015_198_AF5 - Implementation of ENAV "LAN Servizi"			
Start Date	01/06/2016	**End Date**	31/12/2019
Project Leader	ENAV		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.2	Family 5.2.2
Project Objective	• Identification of interventions required for the implementation of a a new "LAN Servizi" at Rome ACC • Upgrade FDP operational systems • Upgrade RDP operational systems		

2015_210_AF5 - AMHS/SWIM gateway			
Start Date	03/01/2016	**End Date**	30/12/2019
Project Leader	ENAIRE		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.2	Family 5.2.2
Project Objective	• Developing a gateway that allows routing/converting AMHS messages into SWIM messages (based in Web Services) • Updating Spanish COM Center in order to be ready to receive new messages (based in Web Services) and to manage them appropriately		

2015_249_AF5 – PATRUS (Secured real time gateway) for data exchange between civil and military systems			
Start Date	16/02/2016	**End Date**	30/08/2020
Project Leader	French Ministry of Defence		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.2	Family 5.2.2
Project Objective	• Implementing Internet Protocol for military control centers • Allowing interoperability between military controls centers, civilian centers and SWIM • Implementing a secured gateway between from civilian centers to miliatry control centers • Studying for a bidirectionnal secured gateway • Implementing a secured bidirectionnal gateway between military and civilain control center		

2016_034_AF5 – Upgrade/Replace Infrastructure to facilitate SWIM			
Start Date	01/05/2017	**End Date**	30/04/2020
Project Leader	DAA plc		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.2	Family 5.2.2
Project Objective	• Upgrade/Replace DAA's middleware Enterprise Service Bus(ESB) platform to ensure it conforms to the requirements as a very reliable SWIM infrastructure platform • Ensure the infrastructure conforms to SWIM's security Yellow profile • SWIM infrastructure to comply with SWIM governance recommended procedures and best practices • Allow for the migration of existing A-CDM services for flight information and NMOC data exchange and publishing/subscribing clients to new platform • Ensure it is scalable to cater for future airport traffic growth and resilient enough to cater for eventual full SWIM compliance - ie best of breed with a long life • Provide a platform for NM Interoperability Family 5.5.2 also included as a project in this call • Investigate whether Service Orientated Architecture(SOA), micro services or some other service architecture approach is the most suitable for DAA and SWIM. • Identify features of a middleware platform that DAA would require to support SWIM with the maximum flexibility and scalability and required security and governance into the future		

2016_149_AF5 – Austro Control iSWIM Capability Infrastructure			
Start Date	01/06/2017	**End Date**	31/12/2020
Project Leader	Austro Control Österreichische Gesellschaft für Zivilluftfahrt mit beschränkter Haftung (Austro Control GmbH)		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.2	Family 5.2.2
Project Objective	• Develop the SWIM target architecture for Austro Control • Implement infrastructure components required for SWIM TI Yellow Profile		

2017_018_AF5 – SWIM-enabled OCC			
Start Date	14/01/2019	**End Date**	07/03/2023
Project Leader	Ryanair DAC		
Contributors	Boeing Research & Technology Europe SLU		
Main AF/Sub-AF/Family	AF5	S-AF 5.2	Family 5.2.2
Project Objective	• Lay the foundation for Ryanair to be SWIM ready. • Improved operational efficiency through better information sharing.		

2017_035_AF5 – Deploying SWIM infrastructure at DSNA			
Start Date	12/04/2018	**End Date**	05/10/2023
Project Leader	DSNA		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.2	Family 5.2.2
Project Objective	The Implementation Project in DSNA aims to: • Identify features of a middleware platform supporting SWIM with the maximum flexibility and scalability, required security and governance into the future • Develop the SWIM target architecture for DSNA • Implement infrastructure components required for SWIM Yellow Profile • Ensure the infrastructure meets essential security requirements and is linked to a PKI environment • Ensure SWIM infrastructure complies with SWIM governance recommended standards and best practices.		

2017_040_AF5 – AERONET/ENET2 Interoperability			
Start Date	01/05/2018	**End Date**	31/12/2021
Project Leader	ENAV		
Contributors	Italian MOD		
Main AF/Sub-AF/Family	AF5	S-AF 5.2	Family 5.2.2
Project Objective	Modern ATM systems design is requiring enhanced connectivity and is using more and more common and open components, services and standards. This trend exposes systems to increased cybersecurity risks, it is therefore paramount to identify these risks, assess their possible impacts and mitigate them with appropriate measures. Some components concerned by the eNET2-AERONET interoperability need to be assessed in order to identify missing gaps and capabilities as well as risks in view of the upcoming SWIM requirements. This activity will allow identifying a local plan for upgrading local components up to available SWIM standard compliance to be activated and completed in the framework of the present initiative. In particular some of the activities to be undertaken in order to modernise the infrastructure with a view of paving the way of accommodating SWIM requirements are: - upgrade of communication circuits - extension of the transmissive band - technological upgrade of the equipment - opening to new communication standards. In addition to the above, relevant pieces of infrastructure will be upgraded with a view to improve the eNET2-AERONET interoperability, with a new functional architecture which will facilitate the overall local SWIM information management.		

2017_066_AF5 – Implementing harmonised SWIM (Y) solution in COOPANS ANSPs and general PCP compliance			
Start Date	15/04/2018	**End Date**	01/07/2023
Project Leader	COOPANS		
Contributors	Austro Control GmbH; | Croatia Control Ltd.; | Irish Aviation Authority; | Luftfartsverket (LFV); | Naviair		
Main AF/Sub-AF/Family	AF5	S-AF 5.2	Family 5.2.2
Project Objective	1. Develop and implement a COOPANS harmonised SWIM yellow profile infrastructure in all 5 participating ANSPs, based on Luftfartsverket (LFV) experience and connection of the common Topsky environment. 2. Develop and implement a harmonised Cyber Security and PKI Management for this harmonised SWIM infrastructure and the connection of COOPANS Topsky platform. For security reasons it can probably not be standardised, but shall ensure option for future collaboration on services. 3. Develop and implement a SWIM Ext AMAN service capability, both as suppli er and subscriber 4. Develop and implement a technical baseline for a later TBS project, where required, ensuring the technical capabilities, based on SESAR standard and ensure early improvements of RWY throughput at all COOPANS sites. 5. Improve system support for Free route airspace, ensuring and increasing peak hour capacities, as FRA operations grows European wide. 6. Implement sufficient monitoring capabilities for the new SWIM technology 7. Ensure sufficient training of inhouse competence, to operate a SWIM environment, and enable a high agility in development of future services and maintenance hereof. 8. Ensure international standards during development of SWIM environment, by hiring temporary external expertise for specific tasks.		

Family 5.2.3 - Stakeholders' SWIM PKI and cyber security

2016_062_AF5 – Creating Local Security Operation Center			
Start Date	10/02/2017	**End Date**	31/08/2019
Project Leader	BULATSA		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.2	Family 5.2.3
Project Objective	The main objective of the project is the implementation of a platform (hardware and software) for monitoring, analysis and control of logs, network traffic, system files and incident management. The solution should enable building a Security Operations Center (SOC) in BULATSA based on it. The platform shall consolidate and manage the network and critical systems cyber-security events/incidents in a centralised capability. The SOC shall be built in a way to allow collecting and sharing cyber-security events/incidents with EATM-CERT and the national CERT. The SOC will increase the level of protection of BULATSA critical		

	infrastructure against cyber-threats and will protect data integrity, confidentiality and maintain the ATM service availability.

2016_116_AF5 – ENAV Security Operational Centre (iSOC) Upgrade			
Start Date	07/02/2017	**End Date**	31/12/2019
Project Leader	ENAV S.p.A		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.2	Family 5.2.3
Project Objective	Main objectives fo the project are: • To desing of the new SOC architecture that will be in high availability and will target business continuity scenario; • To achieve the CERT international certification for ENAV Security department; • To deploy the new SOC network that will be in parallel with the existing one to facilitate migration activities; • To deploy the new server infrastructure (servers, storage, backup systems etc) that will host SOC Security services after migration; • To migrate the existing SOC services from the legacy architecture to the new one and to provide training for SOC concerned staff; • To manage all certification aspects of the project.		

2017_020_AF5 – Initial SWIM security deployment			
Start Date	12/04/2018	**End Date**	31/12/2020
Project Leader	Aeroporti di Roma S.p.A.		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.2	Family 5.2.3
Project Objective	The Implementation Project aims to: • Assess the current status of Rome FCO internal architecture and Cyber security defences, duly considering the foreseen future capabilities and technical features of SWIM infrastructure • Identify gaps to be closed and elaborate a detailed plan for the gap closure, taking into account the business objectives from other families • Define how PKI is intended to be used, identifying the connection to be established • Define requirements for external service providers and interrelation • Select cyber security framework • Reach an initial level of Cybersecurity standard by implementing two initiatives at local level.		

2017_025_AF5 – Stakeholders' SWIM PKI and cyber security			
Start Date	12/04/2018	**End Date**	31/12/2021
Project Leader	Manchester Airport PLC		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.2	Family 5.2.3
Project Objective	Detailed objectives can be split into four key areas Plan: • Define and scope critical operational business priority systems, functions and their interdependencies, including risk assessments and identification of key assets, information exchange and related environment. • Identification and threat modelling of cyber risks on critical operations assets, systems and processes. • Development of a governance framework to support SWIM interfaces. Prevent: • hardening of critical systems, penetration and vulnerability assessments, use of encrypted traffic. Detect: • Deploy detection technologies, Monitoring through an establish Security Operations Centre (SOC) to monitor and detect a cyber-attack against Airport Operational and Air Navigation IT critical systems. • SOC integration, with bespoke use case development of critical areas identified in objectives above, to protect and mitigate against the risk of cyber-attack. Response: • This work will further utilised through information exchange with other security operations centre and NM to provide reliable information about attacks, risks and controls.		

2017_026_AF5 – PKI and Cybersecurity			
Start Date	12/04/2018	**End Date**	31/12/2021
Project Leader	Københavns Lufthavne A/S		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.2	Family 5.2.3
Project Objective	The first main objective is to build a security management system based on ISO 27001 for the aeronautical part of the airport, and perform all the necessary tasks to achieve an appropriate level of maturity. The second objective is also to ensure that all internal communication is protected by certificates that are issued by CPH. External interfaces will use certificates that are signed by an external CA, preferably a central EATMN PKI CA.		

2017_034_AF5 – Deploying Cyber Infrastructure at DSNA			
Start Date	12/04/2018	**End Date**	31/12/2023
Project Leader	DSNA		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.2	Family 5.2.3
Project Objective	To reach the global objectives and cover new challenges about SWIM, the SI CYBER project is built on the following detailed objectives: • Ensure the traceability of access to IT systems, by implementing identity and access management through a PKI infrastructure, • Detect security incidents or attempted attacks, • Analyse and process cybersecurity incidents, • Map DSNA's IT systems, • Define cybersecurity policy in coherence with NIS directive, CIIP law and SWIM profiles • Define and design tools, systems and infrastructure to cover global objectives • Deploy and implement these solutions on DSNA sites • Define the organization linked to the operation, maintenance and monitoring of these tools and infrastructure.		

2017_061_AF5 – Application of cyber security to ANSP and SWIM services at LFV			
Start Date	30/08/2018	**End Date**	30/09/2021
Project Leader	Luftfartsverket (LFV)		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.2	Family 5.2.3
Project Objective	1 Develop a cyber security policy and roadmap to protect Swedish air navigation services, which will be performed in coordination with IP 2017_066_AF5 (Implementing harmonised SWIM (Y) solution in COOPANS ANSPs and general PCP compliance) 2 Enable initial SWIM services within the Yellow Profile at LFV 3 Fill the gaps in PCP Family 5.2.3 in Sweden 4 Enable the implementation of safe and secure SWIM-compliant FIXM, AIXM and WIXM data exchange* *Note that the implementation of FIXM has already begun within LFV.		

2017_075_AF5 – SWIMARN - SWIM with Cyber Security at Stockholm Arlanda Airport			
Start Date	12/04/2018	**End Date**	31/12/2023
Project Leader	Swedavia AB		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.2	Family 5.2.3
Project Objective	The projects also aims at developing the systems needed to operate a PKI and its associated trust framework in order to produce and manage digital certificates, e.g. Certification Authorities, validation services such as OCSP (Online Certificate Status Protocol) or CRL (Certificate Revocation List), user interfaces, systems supporting the Registration Authority and Policy Management Authority roles.		

Family 5.3.1 – Upgrade/Implement Aeronautical Information Exchange System / Service

006AF5 – ATM Data Quality (ADQ)			
Start Date	01/01/2014	**End Date**	26/11/2015
Project Leader	AUSTROCONTROL		
Contributors	-		
Main AF/Sub-AF/Family	AF5	S-AF 5.3	Family 5.3.1
Project Objective	The project aims to migrate Austro Control's aeronautical data base to support AIXM 5.1, ensuring the data quality to be high enough to be compatible with System Wide Information Management (SWIM). This migration will support the enhancement of security, data integrity and capacity, as well as promotion of ATM automation. The proposed action is therefore instrumental to the fulfilment of the requirements according to ICAO Annex15 and ESSIP INF05, as well as for creating the basis for a smooth implementation of SES/ADQ, more specifically aiming at: • Compliance to ICAO Annex 15 and Commission Regulation (EU) No 73/2010 ensured • Validation and integrity checks introduced • Workflow management system introduced to the service delivery management domain (SDM) • Stream for internal and external data delivery digitalized • National legislation aligned		

009AF5 – Integrated Briefing System New (IBSN)			
Start Date	01/01/2014	**End Date**	31/01/2018
Project Leader	Austro Control		
Contributors	-		
Main AF/Sub-AF/Family	AF5	S-AF 5.3	Family 5.3.1
Project Objective	• AIDA (Aeronautical Information Data-handling-system Austria)/Integrated Briefing System (IBS) Legacy System (technology end of life as well as software architecture) replaced • "EAD customized" (EAD - European Aeronautical Database) implemented • Connection to existing Austro Control infrastructure (network, working positions, ECITs – EAD Connection Interface Terminal, BF (Briefing Facility)-Box, IBS Web services etc.) ensured • Data from legacy system transferred • AIDA/IBS legacy system cut out and sub-provider contracts cancelled • OPS (operations) training (AIM/VFSS) and briefing of technical personnel (ACG Service Control Center and experts) conducted • Nagios and Trouble Ticket System inserted • "EAD customized" set in operation after successful FAT and SAT Austro Control's Integrated Briefing Legacy System has reached end of life (of the technological product cycle)and needs to be replaced. The new briefing service will be prepared to be compliant with the System-Wide Information Management (SWIM) architecture. The upgrade of AIS services shall be seen as a SWIM prerequisite by using EAD core services (reference is made to ESSIP INF 05) New briefing functions introduced by the new system include: • Graphical display (FPL – Flight Plan & NOTAM – Notification to airman) • Mobile devices • Meteorological (MET) web interface • Webshop		

040AF5 – ADQ – Aeronautical Data Quality			
Start Date	02/01/2013	**End Date**	31/12/2017
Project Leader	DFS		
Contributors	-		
Main AF/Sub-AF/Family	AF5	S-AF 5.3	Family 5.3.1
Project Objective	The project consists of DFS migration of their relevant IT systems to AIXM5.1. The Project ADQ is the focal point for all technical issues Reg.73/2010 and establishing AIXM5.1-ability, which will allow: • receiving in conformity with Reg. 73/2010 aeronautical data in AIXM5.1 format, • exchange data between internally databases in AIXM5.1 format and also • providing external entities with aeronautical data in the AIXM5.1 format. In consultation with the German authority BAF, the implementation will be proved by ECTL Specification as Means of Compliance (MoC). One of these ECTL specifications for compliance of AIXM5.1 is the documentation of - Aeronautical information Exchange (Aix).		

041AF5 – EASI - EAD AIM System Integration			
Start Date	05/08/2013	**End Date**	31/12/2018
Project Leader	DFS		
Contributors	-		
Main AF/Sub-AF/Family	AF5	S-AF 5.3	Family 5.3.1
Project Objective	The DFS project EASI will replace the current DFS system DIAS by the centrally provided EAD system in the context of AIS/ARO functions. This step to a centralised system enables the direct provision of DFS NOTAM and flight plan information via this centralised service. As soon as implemented on the EAD, this DFS information will be available in AIXM-5.1-format and DFS will directly input this data in AIXM-5.1. The abdication of a DFS-specific AIS-system reduces the complexity for the launch of AIXM-5.1 as the number of interfaces and especially parallel AIXM-5.1-implementations is limited. The effort to implement AIXM-5.1 on an internal system can then be spent to support the AIXM-5.1-implementation by Eurocontrol on the central system. The migration to the central EAD-system is performed by the usage of standard-EAD-terminal-clients and EAD-standard-interfaces.		

066AF5 – ENAV AIS system Upgrade to support AIXM5.1			
Start Date	01/04/2014	**End Date**	30/11/2016
Project Leader	ENAV		
Contributors	-		
Main AF/Sub-AF/Family	AF5	S-AF 5.3	Family 5.3.1
Project Objective	The Aeronautical Information Exchange Model (AIXM) is designed to enable the management and distribution of Aeronautical Information Services (AIS) data in digital format. ENAV uses an IDS suite called AERODB for AIS static data storage, exchange, manipulation and AIP and Charts production, the actual DB use AIXM 4.5 protocol. The PIB producing system (AOIS Web) is actually based on a non-standard format environmental DB. The project will complete the AERODB migration to the new information exchange model and will change from AOIS web to a new application called EWADs, in order to ensure fully capability AIS system to support AIXM 5.1 data format.		

084AF5 – Implementation of Prerequisites for the Provision of Aerodrome Mapping Data and Airport Maps as Data Originator (Aeronautical Information Exchange)			
Start Date	01/01/2014	**End Date**	18/10/2016
Project Leader	FRAPORT		
Contributors	-		
Main AF/Sub-AF/Family	AF5	S-AF 5.3	Family 5.3.1
Project Objective	This implementation project will ensure that Frankfurt Airport can fulfil its role as data originator for aerodrome mapping data and airport maps as required by 5.1.3 Aeronautical Information Exchange, bullet point "provide aerodrome mapping data and airport maps" of Commission Regulation (EU) No 716/2014. The implementation of this project will allow the provision of aerodrome mapping data and airport maps by standard XML schema as per AIXM 5.1. In order to implement Regulation (EU) No 73/2010 and to be able to fulfil their role as data originator for aerodrome mapping data and airport maps German airports, their associations ADV and IDRF and DFS agreed upon a common process for the aeronautical data chain and the definition of the interface between airports and the air navigation services provider, DFS. The interface dealing with data and information provided by the originators (airports) to the receiver (DFS) will use the AIXM 5.x format (Aeronautical Information Exchange Model). Therefore, a tool is required which transforms the data formats used at airports in such a way that they are accepted by the interface provided by DFS and that they comply with the requirements of Commission Regulation (EU) No 73/2010 and Commission Implementing Regulation (EU) No 716/2014 ("Pilot Common Project"). The implementation project is a prerequisite for the exchange of information among operational stakeholders as required by Commission Regulation (EU) 716/2014.		

2015_099_AF5 – DK-SE FAB Aeronautical Data Quality (ADQ)			
Start Date	01/03/2016	**End Date**	31/12/2019
Project Leader	LFV		
Contributors	Naviair		
Main AF/Sub-AF/Family	AF5	S-AF 5.3	Family 5.3.1
Project Objective	• Migrating LFV's and Naviair´s aeronautical data to support AIXM 5.1 • Ensuring compliance to ICAO Annex 15 and Commission Regulation (EU) No 73/2010 • Enabling the first set of aeronautical SWIM compliant services; • Seeking efficiency improvements within DK-SE FAB in-line with SES objectives		

2015_112_AF5 – Integrate the Aeronautical Information Exchange Services in NM Systems			
Start Date	01/03/2016	**End Date**	31/12/2020
Project Leader	Eurocontrol / Network Manager		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.3	Family 5.3.1
Project Objective	• Improving data quality • Reducing NMOC workload		

2015_138_AF5 - 5.3.1 NAV Portugal - Implementation of a solution for eletronic Terrain and Obstacle Data management			
Start Date	16/02/2016	**End Date**	31/10/2019
Project Leader	NAV Portugal		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.3	Family 5.3.1
Project Objective	• Implementing a centralised solution for all eletronic terrain and obstacles data (eTOD)management in accordance with SWIM principles • Exchanging Aeronautical Information in compliance with the yellow SWIM TI Profile • Collecting, exchanging, managing and distributing the digital terrain (geoTIFF) and obstacles information (AIXM)		

2015_145_AF5_A – AIM Deployment Toolkit 2015_145_AF5_B – AIM Deployment Toolkit			
Start Date	01/10/2016	**End Date**	31/12/2020
Project Leader	Eurocontrol		
Contributors	Air Navigation Services of the Czech Republic (ANS CR)		
Main AF/Sub-AF/Family	AF5	S-AF 5.3	Family 5.3.1
Project Objective	• Ensuring a harmonised and coordinated deployment implementation by all European States for required AIS/AIM services to support the integration of airports into the aeronautical data provision • Contributing to the establishment of a framework enabling provision of Digital NOTAM pre-encoded data • Managing underlying aeronautical airport data and data products, including the airport mapping, terrain and obstacle aspect • Performing SWIM data translationss (e.g. between AMDB and Digital NOTAM format) • Enabling stakeholder compliance with Aeronautical Data Quality (ADQ) regulations • Supporting partial mitigation (for the part associated with the exchange of Aeronautical Information and data) of the PCP implementation gap mainly in Familly 5,3,1, but also others, ultimately benefitting operational stakeholders across the entire PCP applicability area.		

2015_160_AF5 - Aeronautical Information exchange and management			
Start Date	01/06/2016	**End Date**	30/04/2020
Project Leader	Irish Aviation Authority		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.3	Family 5.3.1
Project Objective	• Automating the esisting AIS functionality including eAIP publication and D-NOTAm management • Implementing an eTOD database for EISN • Migrating to AIXM/Swim Yelow format for all data exchanges • Meeting the requirements of 5.3.1 on an incremental basis		

2015_168_AF5 – Implementation of Aeronautical Data Quality (ADQ) at LVNL ✓			
Start Date	16/02/2016	**End Date**	21/04/2018
Project Leader	LVNL		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.3	Family 5.3.1
Project Objective	• Increasing the quality and integrity of the publication of static and dynamic aeronautical data • Increasing the productivity by automating data transfer		

2015_194_AF5 – STANLY_ACOS iSWIM for Free-Route and NM			
Start Date	15/04/2016	**End Date**	31/12/2020
Project Leader	DFS		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.3	Family 5.3.1

Project Objective	• Deploying up to four so called Families as laid down by the SESAR Deployment Manager within the Deployment Programme 2015 on the basis of implementing the Pilot-Common-Project Regulation EU No. 716/2014. The main objective of this project is to deploy services for exchange of aeronautical information in a timely, coordinated and synchronized effort in order to raise capacity, improve safety and cutting costs while minimizing aviation's environmental footprint by providing an integrated airspace management tool within the iCAS system environment and connecting to Network Manager systems as well as neigbouring ANSPs systems.
	• Ensuring that DFS is able to satisfy the legal provisions of EU No. 716/2014 by
	  ○ providing the DFS contribution to the SWIM service infrastructure subject to the requirements and standards in the PCP Implementing Rule
	  ○ subjecting all development and operations to pertinent requirements of the Interoperability Implementing Rule EU No. 552/2004.
	  ○ implementing aeronautical information services using the "Yellow SWIM TI Profile"
	• Ensuring cost efficiency of SWIM deployment by:			

	○ providing a single DFS implementation of SWIM "Yellow Profile" technology that - integrates into the DFS systems operations infrastructure and - minimises integration cost by providing an open standard integration platform to the DFS ATM systems ○ coordinating the DFS internal SWIM deployment activities to realise synergies ○ ensuring efficient and effective communications with DFS in "Yellow Profile" matters by establishing a clear DFS unique point of access (gateway) to external SWIM Stakeholders • Minimizing risk and contributing to timeliness of the European SWIM implementation effort by continuous coordination of deployment activities with all external implementation initiative stakeholders ○ SWIM service partners (NM, ANSPs, Airspace Users, ...) ○ SWIM Governance ○ SWIM "Common Components" providers This includes activities ranging from planning coordination to day-to-day cooperation during technical integration and transition • Contributing to the deployment of AF 5.3.1 by connection of DFS-Systems (Airspace management, Flight Data Processing systems, Airspace Management Tools) via temporal SWIM-Node to Network Manager

2015_201_AF5 – Transition of current Aeronautical Information Management System to EAD			
Start Date	02/05/2016	**End Date**	31/12/2019
Project Leader	ENAV		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.3	Family 5.3.1
Project Objective	• Replacing the current ENAV NOTAM System with the centrally provided EAD System • Using of AIXM5.1 as standard exchange data format • Provision of PIBs compliant with ADQ requirements		

2015_230_AF5 – AF5 AIM Compliance Pogram			
Start Date	01/03/2016	**End Date**	31/12/2020
Project Leader	Austro Control		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.3	Family 5.3.1
Project Objective	• Analysing, developing and upgrading or implementing AIM infrastrucuture to comply with iSWIM requirements • Ensuring continuous improvement of data distribution and aeronautical data quality according to iSWIM requirements • Upgrading and/or implementing and continuously improving the AMSS to comply with iSWIM requirements • Implementing ongoing enhancements to the AIMP		

2015_243_AF5 – Aeronautical Information Distribution Service

Start Date	01/06/2016	**End Date**	29/09/2020
Project Leader	ANS/CR		
Contributors	-		
Main AF/Sub-AF/Family	AF5	S-AF 5.3	Family 5.3.1
Project Objective	• Allowing direct digital aeronautical information exchange to enable ADQ IR 73/2010 implementation (distribution from AIS to users inside and outside the ANSP) • Allowing flexible on-demand aeronautical data provision and distribution • Reducing the effort on AIS staff for digital data provision and distribution • Introducing seamless AIM/SWIM operation by the AIS		

2015_262_AF5 – Aeronautical Data Quality and Exchange			
Start Date	15/02/2016	**End Date**	28/12/2018
Project Leader	Portoguese Air Force		
Contributors	-		
Main AF/Sub-AF/Family	AF5	S-AF 5.3	Family 5.3.1
Project Objective	• This project is paramount to accomplish the required level of data quality established by EC Regulation 73/2010. • Improving civil/military coordination towards Flexible Use of Airspace • Allowing Portuguese Air Force (PRTAF) to perform GROUND-GROUND coordination between military and adjacent ATC Units • Compliance with 73/2010 includes the implementation of ADQ levels when needed to sustain SESAR Deployment Programme families as it is the case with 1.2.2 and also for exchanges with EAD and other data repositories		

2015_288_AF5 – ADQ implementation Stockholm Arlanda			
Start Date	16/02/2016	**End Date**	31/10/2018
Project Leader	Swedavia		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.3	Family 5.3.1
Project Objective	• Stockholm Arlanda Airport ADQ compliant • Implementing Quality control		

2016_035_AF5 – ENAIRE exchange of Aeronautical Information data in AIXM5.1			
Start Date	07/02/2017	**End Date**	31/12/2020
Project Leader	Entidad Pública Empresarial ENAIRE		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.3	Family 5.3.1
Project Objective	• This project will upgrade ENAIRE AIS databases and systems to be compliant with SWIM data model (AIRM) by implementing the AIXM5.1 (Aeronautical Information Exchange Model) data exchange messages for static (AIP) and long temporal (SUP) data • It will enable ENAIRE to exchange AIP data with Eurocontrol systems by means of web services. Becoming EAD DP (EAD database Data Provider) and DU (EAD database Data User) over AIXM5.1 • It will enable the integration of ENAIRE's static and dinamic aeronautical data systems (AIP and NOTAM), to be interconnected by means of AIXM5.1 messages and web services, becoming a pre-Digital NOTAM implementation • The project will also include connection to NM web services to retrieve airspace activations		

2016_064_AF5 – AIMSIL - AIM Systems Integration Layer			
Start Date	01/05/2017	**End Date**	02/12/2020
Project Leader	Air Navigation Services of the Czech Republic (ANS CR)		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.3	Family 5.3.1
Project Objective	• To allow unificated data input (B2B communication) for AIS/AIM systems; • To allow unificated data input (interactive/GUI interfaces) for AIS/AIM systems; • To allow internal digital communication between relevant AIS/AIM systems; • Metadata management of input data/internal digital communication processes, incl. archiving and logging functionalities; • To introduce seamless AIM/SWIM operation by the AIS/AIM unit.		

2016_108_AF5 – ENAV ADQ - Aeronautical Data Quality system interface evolution (ADQ2)			
Start Date	07/02/2017	**End Date**	30/06/2020
Project Leader	ENAV S.p.A		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.3	Family 5.3.1
Project Objective	To align ENAV AIM Systems to new version 10 of EAD according to the provision of COMMISSION REGULATION (EU) No 73/2010 of 26 January 2010 laying down requirements on the quality of aeronautical data and aeronautical information for the single European sky, which has set obligatory specifications for dealing with aeronautical data and aeronautical information in Europe.		

2017_002_AF5 – Aeronautical Information Exchange system for Airlines Flight Operation Centre (FOC) at Lufthansa & Air France			
Start Date	01/05/2018	**End Date**	28/04/2023
Project Leader	Deutsche Lufthansa AG		
Contributors	Lufthansa Systems GmbH & Co. KG; | Lufthansa Systems Poland Sp. z o.o; | Société Air France		
Main AF/Sub-AF/Family	AF5	S-AF 5.3	Family 5.3.1
Project Objective	The implementation project aims to define, develop and deploy an AIXM 5.1 datastore that is able to store the digital aeronautical base data (especially the airspace structure data) identify and deploy the SWIM infrastructure components for the retrieval of the digital data by use of the SWIM Yellow Profile deploy and integrate the legacy data into the new datastore ensure implementation of software components that support the users in the quality assurance of the digital data deploy and migrate the software components for the processing of the legacy data into the new datastore update all software components using the data (e.g. for flight planning purposes) to use the digital data and to access the new datastore achieve a implementation of SWIM services that allow other consumers to access the digital data		

2017_039_AF5 – SEPIA - Deploying SWIM based AIM services in French Airspace			
Start Date	12/04/2018	**End Date**	30/12/2022
Project Leader	DSNA		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.3	Family 5.3.1
Project Objective	• Make AIM an enabler to support innovation and business transformation within DSNA. • Ease inter-operability essentially between DSNA systems. • Collaborate with other stakeholders at creating new SWIM services. • Improve exchanges with other European systems. • Improve performance for users. • Limit risks and ensure security of the whole AIM process.		

2017_060_AF5 – ADQ Components in the SWIM Infrastructure - upstream data inclusion in the full data chain solution - ANSP and Airport			
Start Date	12/04/2018	**End Date**	31/12/2021
Project Leader	Luftfartsverket (LFV)		
Contributors	Naviair; | Swedavia AB		
Main AF/Sub-AF/Family	AF5	S-AF 5.3	Family 5.3.1
Project Objective	This SWIM branch will be targeted to airports of larger scale in order to secure the integrity and efficiency in the data flow, by - in collaboration with project partner SWEDAVIA - designing data exchange over service interfaces. This SWIM service will include the feeding capability from an airport to AIM with standardized AIXM5.1 payload, but also as a tailored/limited data set as a GML profile of AIXM5.1. The direct involvement of a major Airport operator is crucial for designing and validating the concepts, and reaching sufficient maturity for further nationwide implementations. In this aspect the ANSPs LFV and Naviair are cooperating in planning and preparation for the full data chain solution implementation.		

2017_069_AF5 – Italian Air Force Integrated Briefing			
Start Date	12/04/2018	**End Date**	31/03/2020
Project Leader	Italian Air Force (MoD)		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.3	Family 5.3.1
Project Objective	The new system shall be seen as a SWIM prerequisite by joining EAD on a B2B principle sharing AIS database information. In particular the specific objectives are listed below: • proceed to the AIS and Met database integration; • implement a distributed Web based Digital Briefing capability according to ESSIP INF04; • implement Digital NOTAM generation and distribution; • enable AIS (Aeronautical Information Service) data exchange with EAD (European AIS database); • train all the different categories of users.		

Family 5.4.1 – Upgrade/Implement Meteorological Information Exchange System/Service

016AF5 – Initial WXXM Implementation on Belgocontrol systems			
Start Date	01/01/2014	**End Date**	20/07/2017
Project Leader	BELGOCONTROL		
Contributors	-		
Main AF/Sub-AF/Family	AF5	S-AF 5.4	Family 5.4.1

Project Objective	The main objectives of this project are:
	• Enabling the Brussels Regional OPMET DataBank (RODB) to:
	  ○ Receive and store ICAO OPMET data in IWXXM (ICAO Meteorological Information Exchange) format;
	  ○ handle requests from users and to exchange ICAO OPMET data in IWXXM format;
	• Enabling the issuance of Belgian OPMET data in IWXXM format to ensure conformity with the envisaged Amendment 77 to ICAO Annex 3;
	• Enabling the Belgocontrol ATS Messages Handling system (AMHS) to support exchange of messages in XML (Extensible Markup Language) data formats (IWXXM, …)		

110AF5 – Meteorological Information Exchange by MET ANSP KNMI			
Start Date	01/06/2015	**End Date**	31/12/2019
Project Leader	KNMI		
Contributors	-		
Main AF/Sub-AF/Family	AF5	S-AF 5.4	Family 5.4.1
Project Objective	The project aims at: • Implementation of a flexible and cost-effective interoperable exchange of MET information for Amsterdam TMA and ACC, Amsterdam Airport Schiphol, Airspace Users, Military and Network Manager compliant with the iSWIM data formats and interfaces. • Demonstration and verification of the operational deployment of iSWIM for MET information, and to provide feedback on the principles, standards and specifications currently defined for iSWIM in AF5 and the information and exchange models and schemes of ICAO (WXXM), WMO (METCE) and the Eurocontrol/FAA (WXCM-WXXM-WXXS). • The implementation and verification covers the standard MET products: TAFs for civil airports in Amsterdam TMA and ACC (WP1); AIRMETs and SIGMETs for the Amsterdam FIR (WP2); METARs and AUTO METARs for civil airports in Amsterdam TMA and ACC (WP4); (AUTO) MET reports and warnings for civil airports in Amsterdam TMA and ACC (WP5). It covers the provision of continuous sensor information for all available runways in Amsterdam TMA and ACC. • The development and implementation of a central database and web services to make the iSWIM compliant MET information easily available to users (WP3). • The realization of a cost-effective, secure and standard interface (PENS) for dissemination of safety critical MET information to ATM (WP6).		

	• The development and implementation of (geo)graphical user interfaces to facilitate the generation and monitoring of the MET products and the efficient maintenance of these data formats. • The embedding of the systems/applications (new and/or extended) for the above-mentioned provision of MET information in the operational production and monitoring chains of KNMI.

134AF5 – PILOT PLATFORM for access services to OPMET (worldwide/ECAC) data (METAR, TAF, SIGMET) in WXXM format			
Start Date	02/03/2015	**End Date**	15/09/2017
Project Leader	ROMATSA		
Contributors	-		
Main AF/Sub-AF/Family	AF5	S-AF 5.4	Family 5.4.1
Project Objective	Upgrade Meteo service to provide reliable actual and forecast Meteo data, wherever required across the ATM network, in WXXM format. The project consists in the achievement of a pilot platform as WEB Service for access to OPMET (worldwide/ECAC) data (METAR, TAF, SIGMET) in WXXM format.		

2015_025_AF5_A - Sub-regional SWIM MET deployment to support NEFRA (A) 2015_025_AF5_B - Sub-regional SWIM MET deployment to support NEFRA (B)			
Start Date	01/06/2016	**End Date**	31/10/2019
Project Leader	Finnish Meteorological Institute		
Contributors	Swedish Meteorological and Hydrological Institute, Danish Meteorological Institute The project implementation scope depends on the coordinated work of all 3 partners (Finnish Meteorological Institute, Swedish Meteorological and Hydrological Institute, Danish Meteorological Institute) and is split into a cohesion and non-cohesion part.		
Main AF/Sub-AF/Family	AF5	S-AF 5.4	Family 5.4.1
Project Objective	• Implementation of a flexible and cost-effective interoperable production and exchange of MET information for Northern European MET service providers compliant with the SWIM data formats and interfaces • Demonstration and verification of cost-effective multi-stakeholder operational deployment of SWIM for MET information • Implementation and verification covering TAFs and METARs for civil airports within the geographical scope of the project, AIRMETs and SIGMETs for Sondrestrom, Kobenhavn, Sweden and Finland (part A) and Tallinn and Riga FIRs (part B), METARs and AUTO-METARs for civil airports and Significant Weather Charts (SWCs) for Sweden and Finland (part A) and Estonia and Latvia (part B) covering the Scandinavian footprint • Development and implementation of a central database and web services for the exchange of MET information in SWIM compliant format and easy availability to users • Development and implementation of common user interfaces to facilitate the generation and monitoring of harmonised and coherent MET information • Embedding and implementing the systems/applications in the operational production and monitoring chains of all project contributors		

2015_067_AF5 – European Weather Radar Composite of Convection Information Service			
Start Date	18/11/2016	**End Date**	30/06/2020
Project Leader	EUMETNET EIG		
Contributors	Met Office (UK), DWD, Météo-France, Eurocontrol		
Main AF/Sub-AF/Family	AF5	S-AF 5.4	Family 5.4.1
Project Objective	• Originating resilient, single source real-time 3-dimensional (3D) weather radar information of convective weather events for high density TMA and Airport with 1) Departure Management Synchronised with Pre-departure sequencing, 2) Departure Management integrating Surface Management Constraints, or 3) Time-Based Separation for Final Approach • Originating resilient, single source real-time weather radar information of convective weather events for the European geographical footprint • Distributing weather radar information of convective weather events in a SWIM complaint format through the MET-GATE (069-AF5) service by applying SWIM compliant protocols, standards and governance principles • Enabling all aviation stakeholders (including ATC, NM, Airlines, Airports) to base decisions on a common reference and representation of convective weather events for the European geographical footprint • Raising awareness of new MET capabilities among stakholder groups		

2015_068_AF5 – European Harmonised Forecasts of Adverse Weather (Icing, Turbulence, Convection and Winter weather)			
Start Date	01/10/2016	**End Date**	31/12/2020
Project Leader	EUMETNET EIG		
Contributors	Met Office (UK), Météo France, Finnish Meteorological Institute, Eurocontrol, DWD		
Main AF/Sub-AF/Family	AF5	S-AF 5.4	Family 5.4.1
Project Objective	• Providing resilient, single source (with robust backup capability) and harmonized adverse weather forecast products (including convection, icing, turbulence and winter conditions) within the European domain. In particulr the MET information will cover high density TMA and Airports, as well as pan European network applications • Enabling all stakeholders (ATC, Airlines, Airports, AU, supporting actors) to base decisions on a common representation of adverse weather situations, thereby increasing safety in complex scenarios and facilitating collaborative reactions to hazardous weather events • Distributing forecast information of adverse weather via the MET-GATE (069-AF5) service, using protocols and governance compatible with SWIM architecure and principles • Enabling comprehensive assessments of the impact of adverse weather on all aspects of industry operations, providing a high degree of confidence and accuracy. A clearer understanding of uncertainty will assist in operational decision making • Raising awareness of new MET capabilities among stakholder groups		

2015_069_AF5 – European MET Information Exchange (MET-GATE)			
Start Date	01/10/2016	**End Date**	31/12/2020
Project Leader	EUMETNET EIG		
Contributors	Météo-France, Met Office (UK), DWD, Eurocontrol, DFS		
Main AF/Sub-AF/Family	AF5	S-AF 5.4	Family 5.4.1
Project Objective	Single source to request and receive customized MET information tailored for user's needs by applying smart functionalities Point of contact for requesting MET information services, using protocols and governance compatible with SWIM architecture and principles Enabling all stakeholders (ATC, Airlines, Airports, supporting actors) to base decisions on a common representation of meteorological situations		

2015_137_AF5 – European Meteorological Aircraft Derived Data Center (EMADDC)			
Start Date	01/03/2016	**End Date**	31/12/2020
Project Leader	Royal Netherlands Meteorological Institute (KNMI)		
Contributors	Met Office (UK)		
Main AF/Sub-AF/Family	AF5	S-AF 5.4	Family 5.4.1
Project Objective	• Setting up a governance model, in line with EU Open Data regulations, for collection of surveillance data/aircraft derived data and dissemination of obtained or derived meteorological information • Deploying operational European meteorological aircraft derived data center • Realising a collection of aircraft derived data from surveillance service providers or via deployment of local ADS-B/Mode-S receivers including the necessary infrastructure to maintain and operate these local receivers operationally • Providing service and disseminating derived meteorological information via services and PENS/(New)PENS		

2015_169_AF5 – Initial (I)WXXM implementation on CCIS Amsterdam ACC and Schiphol			
Start Date	01/06/2017	**End Date**	15/07/2019
Project Leader	LVNL		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.4	Family 5.4.1
Project Objective	• Implementation of the (I)WXXM model in the meteo gateway of LVNL, CCISv2 • Demonstration and verification of the operational deployment of iSWIM for MET information, in collaboration with the dutch MET office KNMI • Receiving and storing MET information coming from the dutch MET office KNMI, compliant with the iSWIM data formats and interfaces. • Simultaneously supporting legacy messaging exchanges		

2015_231_AF5 – METSW-DB PCP Evolution			
Start Date	16/02/2016	**End Date**	31/12/2020
Project Leader	Austro Control		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.4	Family 5.4.1
Project Objective	• Implementing a new METSW as technical enabler for iSWIM and ACG AF5 MET Compliance Program • Ensuring compliance through continuous system upgrades to ensure functionality and required performance needs • Evolutions will react on changes in developments and ensure fulfillment of new requirements		

2015_241_AF5 – Meteorological Information Exchange Service			
Start Date	01/03/2016	**End Date**	01/12/2020
Project Leader	ANS/CR		
Contributors	CHMI (Czech Hydrometeorological Institute)		
Main AF/Sub-AF/Family	AF5	S-AF 5.4	Family 5.4.1
Project Objective	• Generation of SWIM compliant MET information (IWXXM) from the Czech Republic - FIR LKAA • Building of communication interface for MET information exchange service (Yellow SWIM TI profile) • Provision of IWXXM MET information for ATM systems and international exchange		

2016_119_AF5 – ENAV Airport MET System and UPM-MET database upgrade			
Start Date	07/02/2017	**End Date**	31/12/2020
Project Leader	ENAV S.p.A		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.4	Family 5.4.1
Project Objective	Main objectives of the project are: • Upgrade Meteo service to provide reliable actual and forecast Meteo data, wherever required across the ATM network, in WXXM format • Implementation of a flexible and cost-effective interoperable exchange of MET information for Italian airports, TMAs and ACC, Airspace Users, Military and Network Manager compliant with the iSWIM data formats and interfaces • Enabling the issuance of Italian OPMET data in IWXXM format to ensure conformity with the envisaged Amendment 77 to ICAO Annex 3 • Enabling the ENAV OPMET DataBank (BDM) to Receive and store ICAO OPMET data in BUFR and IWXXM (ICAO Meteorological Information Exchange) format, and • Enabling the ENAV network (E-NET) to support exchange of messages in XML data formats		

2016_148_AF5 – Implementation of Automated Meteorological Information Exchange			
Start Date	07/02/2017	**End Date**	31/12/2020
Project Leader	Irish Aviation Authority		
Contributors	Met Éireann - Department of Housing, Planning, Community and Local Government		
Main AF/Sub-AF/Family	AF5	S-AF 5.4	Family 5.4.1
Project Objective	• To automate the collection of meteorological data for the provision of ATS services. • To distribute and update MET data in a format compliant with the SWIM Yellow profile • To display MET data for ATS services enriched with additional alert management functionality.		

2017_076_AF5 – Meteorological Information Exchange service for Airlines Flight Operation Centre at Lufthansa & Air France			
Start Date	01/02/2019	**End Date**	31/03/2023
Project Leader	Lufthansa Systems GmbH & Co. KG		
Contributors	Deutsche Lufthansa AG; | Lufthansa Systems Poland Sp. z o.o; | Société Air France		
Main AF/Sub-AF/Family	AF5	S-AF 5.4	Family 5.4.1
Project Objective	The implementation project aims to • deploy a systems upgrade to support the exchange of Meteorological Information as service consumer using the IWXXM format • an AIXM 5.1 datastore that is able to store the digital meteorlogical data • identify and deploy the SWIM infrastructure components for the retrieval of the digital data by use of the SWIM Yellow Profile • ensure implementation of software components that support the users in the quality assurance of the IWXXM data • update all software components in the FOC using the IWXXM data for flight planning or flight Monitoring purposes • achieve a implementation of SWIM services that allow other consumers to access all MET Information.		

Family 5.5.1 – Upgrade/Implement Cooperative Network Information Exchange System/Service

082AF5 – SWIM compliance of NM systems			
Start Date	01/01/2014	**End Date**	30/06/2017
Project Leader	Eurocontrol / Network Manager		
Contributors	-		
Main AF/Sub-AF/Family	AF5	S-AF 5.5	Family 5.5.1
Project Objective	The project aims at extending NM systems technical capabilities to initiate SWIM compliance and at developing/deploying new NM B2B services to exchange network / flight plan information with the operational stakeholders. It aims compliance with the requirements of SWIM Yellow Profile and it includes: • the exchange of network / flight plan information using the Yellow SWIM TI Profile; • the new NM B2B services. This IP addresses the following Family (ies): • Family 5.5.1 Interface and Data requirements • Family 5.6.1 FDPS Upgrade preparing for IOP Flight Object Exchanges		

2015_045_AF5 – AF5 iSWIM			
Start Date	01/02/2016	**End Date**	31/12/2020
Project Leader	Københavns Lufthavne (Copenhagen Airports AS)		
Contributors	–		
Main AF/Sub-AF/Family	AF5	S-AF 5.5	Family 5.5.1
Project Objective	• Becoming part of the NOP and having a better basis for decision making, planning and execution of airport operations, short-term as well as long-term • Reducing CAPEX and OPEX by using standard infrastructure components, e.g. yellow profile • Gaining better quality of aeronautical data by being part of a pan-European network of extended stakeholders		

2015_118_AF5 - More efficient Flight Planning			
Start Date	01/01/2016	**End Date**	31/12/2019
Project Leader	LFV		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.5	Family 5.5.1
Project Objective	• Implementing an integration platform within Sweden, allowing for more efficient flight planning • Ensuring the necessary technology is in place for LFV's transition to SWIM Services • Supporting the streamlining of LFV AIM function and the introduction of ADQ		

	• Establishing the strategic ability to effectively utilize information in both operational and administrative systems

2015_143_AF5 – Improve Cooperative Network Information Exchange Services			
Start Date	01/01/2017	**End Date**	31/12/2020
Project Leader	Eurocontrol / Network Manager		
Contributors	Swiss International Airlines Ltd.		
Main AF/Sub-AF/Family	AF5	S-AF 5.5	Family 5.5.1
Project Objective	• Improving quality and timeliness of the information exchange with NM stakeholders • NSP SO2: Deploying interoperable and effective information management system • NSP/SO5: 5: Facilitating business trajectories and cooperative traffic management • NSP/SO6: Integrating airport and network operations		

2016_033_AF5 – Use SWIM methods to replace AFTN feeds for A-CDM			
Start Date	01/10/2017	**End Date**	30/10/2020
Project Leader	DAA plc		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.5	Family 5.5.1
Project Objective	Implement integration to Network Manager Operations Centre(NMOC) using Network Manager Business to Business(B2B) services to replace Aeronautical Fixed Telecommunications Network which is used as part of A-CDM. Subscribe for Network Manager's Flight Plans and Flight Update messages services - multiple message types to be consumed by DAAs A-CDM system. Publish Departure Planning Information messages from Dublin's A-CDM system via NMOC's B2B services. To be implemented on System Wide Information Management(SWIM) infrastructure and conform to SWIM Security Yellow Profile method. Comply with SWIM governance recommended procedures.		

Family 5.6.1 – Upgrade/Implement Flights Information Exchange System/Service

067AF5 – Coflight-eFDP System Development			
Start Date	01/01/2014	**End Date**	31/12/2017
Project Leader	ENAV		
Contributors	DSNA		
Main AF/Sub-AF/Family	AF5	S-AF 5.6	Family 5.6.1
Project Objective	The Coflight-eFDP System is the Flight Data Processing (FDP) System of new generation designed to meet the needs of European Air Navigation Service Providers (ANSPs) for the next decade, satisfying the need for the harmonisation and interoperability of air traffic management systems in Europe. The Coflight Programme is part of a wider programme that involves the renewal of the whole National ATM System, called 4-Flight, for ENAV and DSNA, through which they will develop their completely brand-new ATM system to meet all the requirements from the SES performance scheme as well as from all the relevant regulations for the coming years. 4-Flight will guarantee the optimal performances in terms of safety, capacity, environmental impact and cost efficiency, contributing to a significant improvement of the network performances in Europe. The 4-Flight's system core and infrastructure will be made available by the Coflight Programme, which will provide an overall ATM System Oriented architecture and sockets for the other internal components that will be developed according to SESAR compliant user requirements. Coflight will provide also the connections with most of the external systems through SESAR standardised Flight Object based Gate-To-Gate IOP.		

2015_141_AF5 – Improve NM Flight Information Exchange Services			
Start Date	01/01/2017	**End Date**	31/12/2020
Project Leader	Eurocontrol / Network Manager		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.6	Family 5.6.1
Project Objective	• Improving quality and timeliness of the information exchange with NM stakeholders • Improving predictability thru the automatic exchange of 4D trajectory • NSP SO2: Deploying interoperable and effective information management system • NSP SO5: Facilitating business trajectories and cooperative traffic management		

2016_065_AF5 – SWIM implementation into ATS INFO/ARO system of ANS CR			
Start Date	01/09/2017	**End Date**	01/12/2020
Project Leader	Air Navigation Services of the Czech Republic (ANS CR)		
Contributors			
Main AF/Sub-AF/Family	AF5	S-AF 5.6	Family 5.6.1
Project Objective	Implementation of the following services for exchange of flight information using the yellow SWIM TI Profile: • Validate flight plan and routes; • Flights lists and detailed flight data; • Flight update message related (departure information).		

2017_056_AF5 – Towards Shared Business Trajectory / Trajectory Based Operations			
Start Date	01/10/2019	**End Date**	31/12/2023
Project Leader	Eurocontrol / NM		
Contributors	Deutsche Lufthansa AG; | Lufthansa Systems GmbH & Co. KG; | Lufthansa Systems Poland Sp. z o.o; | Sabre Austria GmbH; | SABRE France SARL; | Sabre Airline Solutions GmbH; | SABRE Polska SP Z.o.o		
Main AF/Sub-AF/Family	AF5	S-AF 5.6	Family 5.6.1
Project Objective	The main focus of this new project is for NM the exchange and negotiation of 4D Trajectory (including flight performance information) between NM and ANSPs and airspace users via the implementation of the ICAO FF-ICE (FF-ICE/1 (Planning) and FF-ICE/2 (Execution)) provisions, procedures and processes in compliance with the yellow SWIM TI Profile. It also includes the further development of military OAT flight planning processes (for NM) through the integration of 4D mission trajectory information. SABRE will participate in this project to adapt their Systems and develop operational procedures aligned with the concept and compliant with NM releases. From Lufthansa Systems Lido/Flight perspective, this Implementation Project aims to implement upgrades to the flight planning system Lido/Flight to technically enable the FF-ICE/1 & FF-ICE/2 exchange with NM operationally and to implement upgrades to the logical procedures of the flight planning system Lido/Flight in accordance with missing FF-ICE/1 provisions not covered in project 2016_100_AF4 as well as FF-ICE/2 provisions. The implementation project at LH FOC system aims to define & develop use cases and user stories for flight Information exchange data between FOC and the Network Manager to support FF/-ICE processes to exchange trajectory related data and ATCFM measures or STAM needs. Furthermore, the project ensures implementation of software components that support the FOC to exchange ATFCM pre-tactical and tactical plans (regulations, re-routings, sector configurations, runway updates, monitoring values, capacities, traffic volume activations, scenarios.		

Family 5.6.2 – Upgrade/Implement Flights Information Exchange System/Service supported by Blue Profile

2016_027_AF5 – European Deployment Roadmap for Flight Object Interoperability			
Start Date	08/02/2017	**End Date**	22/12/2017
Project Leader	DFS Deutsche Flugsicherung GmbH		
Contributors	Austro Control Österreichische Gesellschaft für Zivilluftfahrt mit beschränkter Haftung (Austro Control GmbH); the French Republic – Ministry of the Environment, Energy and the Sea, DGAC (Direction générale de l'aviation civile), DSNA (Direction des services de la navigation aérienne); Entidad Pública Empresarial ENAIRE; ENAV S.p.A; ANS Finland; HungaroControl Hungarian Air Navigation Services Pte.Ltd.Co.; Irish Aviation Authority; Luftfartsverket (LFV); Luchtverkeersleiding Nederland (LVNL); NATS (En Route) plc; Navegação Aérea de Portugal - NAV Portugal, E.P.E.; Naviair; Polska Agencja Żeglugi Powietrznej (PANSA - Polish Air Navigation Services Agency); Croatia Control Ltd.; Eurocontrol / Network Manager		
Main AF/Sub-AF/Family	AF5	S-AF 5.6	Family 5.6.2
Project Objective	• Improve planning security for Flight Object Interoperability Deployment. • Synchronise Flight Object Interoperability Industrialisation Projects. • Synchronise Flight Object Interoperability Deployment Activities. • Study and identify best options for a Flight Object Deployment Governance. • Provide input into the review process of PCP Reg. EU 716/2014.		

AF6 – Initial Trajectory Information Sharing

The following table encompasses the list of implementation initiatives associated to ATM Functionality #6 that were awarded under all CEF Transport Calls for Proposals.

CEF Call Designator	Title	Family	IP Description Page Number
2016_030_AF6	Air Ground Datalink Implementation	6.1.1	170
2016_089_AF6	IT_ITAF ATC Control System Moving to i4D	6.1.1	170
2016_162_AF6	Implementation of Data Link Services for the ATM in FIR Warsaw	6.1.1	171
2016_163_AF6	CPDLC Implementation in the Riga FIR	6.1.1	171
2016_159_AF6	DLS Implementation Project - Path 2	6.1.3	172
2016_161_AF6	DLS Implementation Project - Path 1 "Ground" stakeholders	6.1.3	172
2017_089_AF6	IP1 - DLS European Target Solution assessment	6.1.3	173
2016_061_AF6	Deployment of ATN B1 capability within TAP Group [50% & 20%]	6.1.4	175
2016_125_AF6	ES_Airbus A310 ATN VDL2 Compliance [50% & 20%]	6.1.4	175
2016_126_AF6	ES_FALCON 900 compliance with Air Ground ATN VDL2 Data Link [50% & 20%]	6.1.4	175
2016_164_AF6	RYR Upgrade to ATN B1 to "best in class"	6.1.4	176
2016_165_AF6	Lufthansa Group & Air France Group Datalink upgrade to "best in class" avionics [50% & 20%]	6.1.4	176
2017_008_AF6	Air France Group Datalink upgrade to best in class avionics - Lot2	6.1.4	177
2017_083_AF6	Portugalia E195 - Deployment of ATN B1 capability	6.1.4	178

Family 6.1.1 – ATN B1 based services in ATSP domain

2016_030_AF6 – Air Ground Datalink Implementation			
Start Date	07/02/2017	**End Date**	31/12/2018
Project Leader	Slovenia Control, Slovenian Air Navigation Services, Limited (Slovenia Control, Ltd)		
Contributors			
Main AF/Sub-AF/Family	AF6	S-AF 6.1	Family 6.1.1
Project Objective	Objectives: • Set in operation Data Link Services in accordance with Commission Regulation (EC) No 29/2009 and 310/2015 as from 5 February 2018 within the airspace above FL 285 • Commission Regulation (EC) No 29/2009, amended with 310/2015 fulfilled • End to end acceptance test accomplished • Integration into the ATM System of Slovenia Control completed • CPDLC service set in operation • Communication Service Provider SITA and ARINC connected in order to be able to provide the services to all airspace users • Services of the Air Communication Service Provider (ACSP) ARINC/SITA procured		

2016_089_AF6 – IT_ITAF ATC Control System Moving to i4D			
Start Date	07/02/2017	**End Date**	31/05/2018
Project Leader	Italian Air Force (MoD)		
Contributors	ENAV S.p.A.		
Main AF/Sub-AF/Family	AF6	S-AF 6.1	Family 6.1.1
Project Objective	The Project objective is to update military ATC Area Control systems in order to • Correctly process and display Data Link Initiation Capabilities (DLIC) service messages • Correctly process and display Logon Forward (LOF) and Next Authority Notified (NAN) messages by the flight data processing system to support the transfer of air/ground data link communication between ATSUs • Correctly process and display ATC Communications Management (ACM) service messages to support the transfer of voice and data communications between sectors of the same ATSU and between different ATSUs • Correctly process and display ATC Clearances (ACL) service messages, including monitoring and supervision of dialogue states • Correctly process ATC Microphone Check (AMC) service messages to support controllers to simultaneously instruct all (data link connected) flight crews to check the status of their voice communication systems • Update operations manuals • Training of ATCOs and technical staff		

2016_162_AF6 – Implementation of Data Link Services for the ATM in FIR Warsaw			
Start Date	07/02/2017	**End Date**	30/04/2018
Project Leader	Polska Agencja Żeglugi Powietrznej (PANSA - Polish Air Navigation Services Agency)		
Contributors			
Main AF/Sub-AF/Family	AF6	S-AF 6.1	Family 6.1.1
Project Objective	The aim of the Project is to implement in FIR Warsaw above FL285 Data Link Services required by EC Regulation No 29/2009, namely: DLIC - Data Link Initiation Capability; ACM - ATC Communications Management; ACL - ATC Clearances; AMC - ATC Microphone Check. The Project include extending the functionality of the Polish ATM system (PEGASUS_21) of CPDLC. This project will be implemented in accordance with the Contract signed by PANSA with the Contractor. The start of upgrading the terrestrial communication infrastructure by PANSA will be within the multi-stakeholders' project "DLS Implementation Project - Path 1 "Ground" stakeholder". Detailed objectives: • Capacity & Throughput • Safety • Reduction of Delays • Normalization		

2016_163_AF6 – CPDLC Implementation in the Riga FIR			
Start Date	08/02/2017	**End Date**	03/04/2018
Project Leader	"Latvijas gaisa satiksme" SJSC (LGS)		
Contributors			
Main AF/Sub-AF/Family	AF6	S-AF 6.1	Family 6.1.1
Project Objective	• The project main objective is to meet the requirements of the Commission Regulation (EC) n. 29/2009; Commission Regulation (EC) n. 30/2009 and Commission Implementing Regulation (EU) n. 2015/310 • Deployment of corresponding infrastructure in ATSP domain (Front End Processor and ATN Ground / Ground Router)		

Family 6.1.3 – A/G and G/G Multi Frequency DL Network in defined European Service Areas

2016_159_AF6 – DLS Implementation Project - Path 2			
Start Date	02/03/2017	**End Date**	31/12/2020
Project Leader	ENAV S.p.A		
Contributors	Arinc incorporated, Austro Control Österreichische Gesellschaft für Zivilluftfahrt mit beschränkter Haftung (Austro Control GmbH), BULATSA, Croatia Control Ltd., Department of Civil Aviation Ministry of Transport, Communications and Works Republic of Cyprus (DCAC), Deutsche Lufthansa AG, DFS Deutsche Flugsicherung GmbH, the French Republic – Ministry of the Environment, Energy and the Sea, DGAC (Direction générale de l'aviation civile), DSNA (Direction des services de la navigation aérienne), "Latvijas gaisa satiksme" SJSC (LGS); Lennuliiklusteeninduse Aktsiaselts (EANS - Estonian Air Navigation Services), Entidad Pública Empresarial ENAIRE, European Satellite Services Provider (ESSP), European Organisation for the Safety of Air Navigation (Eurocontrol); ANS Finland, HungaroControl Hungarian Air Navigation Services Pte.Ltd.Co., Luftfartsverket (LFV), "Latvijas gaisa satiksme" SJSC (LGS), Letové prevádzkové služby Slovenskej republiky, štátny podnik, (v skratke „LPS SR, š. p."), Malta Air Traffic Services (MATS), NATS (En Route) plc, Navegação Aérea de Portugal - NAV Portugal, E.P.E., State Enterprise "Oro navigacija", Polska Agencja Żeglugi Powietrznej (PANSA - Polish Air Navigation Services Agency), RYANAIR DAC, SITA Information Networking Computing BV, TRANSPORTES AEREOS PORTUGUESES SA (TAP Portugal)		
Main AF/Sub-AF/Family	AF6	S-AF 6.1	Family 6.1.3
Project Objective	• Support SDM in its activities according to the DLS Recovery Plan and defining a European DLS Common Governance; • Identify the steps towards the envisaged target solution in order to grant the required performances needed to achieve full AF6 implementation, • Identification of the Service Areas; • Design of the system architecture.		

2016_161_AF6 – DLS Implementation Project - Path 1 "Ground" stakeholders ✓			
Start Date	07/02/2017	**End Date**	31/12/2018
Project Leader	Entidad Pública Empresarial ENAIRE		
Contributors	Arinc incorporated; Austro Control Österreichische Gesellschaft für Zivilluftfahrt mit beschränkter Haftung (Austro Control GmbH), Croatia Control Ltd., DFS Deutsche Flugsicherung GmbH, the French Republic – Ministry of the Environment, Energy and the Sea, DGAC (Direction générale de l'aviation civile), DSNA (Direction des services de la navigation aérienne), Lennuliiklusteeninduse Aktsiaselts (EANS - Estonian Air Navigation Services), ENAV S.p.A., HungaroControl Hungarian Air Navigation Services Pte.Ltd.Co., Luftfartsverket (LFV), "Latvijas gaisa satiksme" SJSC (LGS), Navegação Aérea de Portugal - NAV Portugal, E.P.E.; State Enterprise "Oro navigacija", Polska Agencja Żeglugi Powietrznej (PANSA - Polish Air Navigation Services Agency), SITA Information Networking Computing BV		

Main AF/Sub-AF/Family	AF6	S-AF 6.1	Family 6.1.3
Project Objective	• DLS Deployment/ upgrade towards Multi Frequency networks at Country/Region Level; • Transition from Model A to Model B and from model C to model C with multi frequency (following ELSA study nomenclature) from existing local implementations; • Achieve a harmonisation and interoperability between type 1 and type 2 infrastructures as within the SDM Recovery Plan		

2017_089_AF6 – IP1 - DLS European Target Solution assessment			
Start Date	16/04/2018	**End Date**	30/09/2019
Project Leader	ENAV S.p.A.		
Contributors	Airtel ATN Limited; | ALTYS Technologies S.A.S.; | Arinc incorporated; | Austro Control GmbH; | BULATSA; | Croatia Control Ltd.; | DFS Deutsche Flugsicherung GmbH; | DSNA; | Entidad Pública Empresarial ENAIRE; | ESSP; | Eurocontrol / NM; | Hungaro Control; | Inmarsat Navigation Ventures Limited; | Leonardo Società per Azioni; | Luftfartsverket (LFV); | Malta Air Traffic Services (MATS); | NATS En Route; | NAV Portugal, E.P.E.; | PANSA; | Paris Lodron Universitaat Salzburg; | SITA Information Networking Computing BV; | SITA IT Services France; | SITA INC BV Canada Branch; | SITA OnAir SARL (Switzerland); | THALES LAS France SAS		
Main AF/Sub-AF/Family	AF6	S-AF 6.1	Family 6.1.3
Project Objective	In particular, it will continue the studies and analyses on the technical (WP2) and non-technical (WP3) open points identified in Path II initiative and it has the following main objectives: • further analysis and definition on: • VME requirements, • system support interfaces requirements, • frequency planning scheme, • VGS requirements, • Business case, • support to SDM for the scenarios definition for the capacity assessment of Model B and Model D, • evaluation of the performance of Model D versus Model B based on analysis of real data, • design for a Common European ATN Ground Network. A capacity assessment (through simulations) related to the DLS European Target Solution and Model B will be performed outside this Project. The Project Team will be constantly in contact and in coordination with SDM during scenarios definition phase, in order to better support the solution of the identified 2016_159_AF6 - DLS Implementation Project - Path 2 – WP 2 open points. Also the evaluation of the performance of Model D (Target Solution) versus Model B, based on real data coming from Model B and Model D already implemented (in the case of this last Model has not been implemented in any European region, it will be possible to consider for the assessment the infrastructures of Model C/MF deployed in Europe, since the technical behaviours of this Model are totally similar to those of Model D). The activity of the design of common ATN ground network in Europe has been considered central for the effective achievement of DLS deployment. All of these activities have been grouped into three WPs (plus one dedicated to Project Management): • WP1 - Design for a Common European ATN Ground Network.		

	• WP2 - Further analysis and definition of the open points identified in WP2 (technical open points) of the 2016_159_AF6 (DLS Implementation Project Path 2). • WP3 - Further analysis and definition of the open points identified in WP3 (non-technical open points) of the 2016_159_AF6 (DLS Implementation Project Path 2) All the activities comprised in WP1, WP2 and WP3 shall be considered in support of SDM, which remains accountable of them.

Family 6.1.4 – ATN B1 capability in Multi Frequency environment in Aircraft domain

2016_061_AF6 – Deployment of ATN B1 capability within TAP Group [50% & 20%]			
Start Date	01/10/2017	**End Date**	31/01/2020
Project Leader	TRANSPORTES AEREOS PORTUGUESES SA (TAP Portugal)		
Contributors	PORTUGÁLIA – Companhia Portuguesa de Transportes Aéreos S.A.		
Main AF/Sub-AF/Family	AF6	S-AF 6.1	Family 6.1.4
Project Objective	• Conclude the fleet wide deployment of ATN B1 capability at TAP Portugal; • Modify Portugália fleet to enable ATN B1 capability; • Ensure TAP Portugal and Portugália readiness to comply with DLS IR mandate		

2016_125_AF6 – ES_Airbus A310 ATN VDL2 Compliance [50% & 20%]			
Start Date	01/09/2017	**End Date**	31/10/2020
Project Leader	Spanish Airforce		
Contributors			
Main AF/Sub-AF/Family	AF6	S-AF 6.1	Family 6.1.4
Project Objective	The aim of this project is to enable SAF A310 fleet with required capabilities to operate within the European Air Traffic Management Network, including ATN VDL-2 that will enable CPDLC and i4D. More specifically it will be used to enable ATN B1 and ATNB2 services. Trajectory data will be automatically downlinked from the airborne system according to contract terms. Then target times (TTO/TTA) will be used as inputs to ATM and TFCM constraints and for arrival sequencing. Inside milestones are identified for internal task progress monitoring.		

2016_126_AF6 –ES_FALCON 900 compliance with Air Ground ATN VDL2 Data Link [50% & 20%]			
Start Date	04/09/2017	**End Date**	19/10/2020
Project Leader	Spanish Airforce		
Contributors			
Main AF/Sub-AF/Family	AF6	S-AF 6.1	Family 6.1.4
Project Objective	The aim of this project is to enable SAF Falcon 900B aircraft with required capabilities to operate within the European Air Traffic Management Network, including ATN VDL-2 that will enable CPDLC and i4D. More specifically it will be used to enable ATN B1 and ATNB2 services. Trajectory data shall be automatically downlinked from the airborne system according to contract terms. Then target times (TTO/TTA) shall be used as inputs to ATM and TFCM constraints and for arrival sequencing.		

2016_164_AF6 – RYR Upgrade to ATN B1 to "best in class"			
Start Date	01/03/2017	**End Date**	06/02/2020
Project Leader	Ryanair DAC		
Contributors			
Main AF/Sub-AF/Family	AF6	S-AF 6.1	Family 6.1.4
Project Objective	• This SESAR project is addressing the following ELSA recommendations as identified in Annex 2 of the DLS Recovery Plan: ELSA Re. IDs Avionics 01 and 02; • This project would build on what ELSA's recommendations put forward as the immediately ready for deployment technology, i.e. Upgrade to ATN B1 MF not yet tested against "best in class" criteria defined by ELSA study; • Testing of ATN B1 Multi Frequency avionics against "best in class" criteria in ELSA, subject to demonstration of equivalent minimum level of performance as part of the proposal or commitment to demonstrate equivalent minimum level of performance prior to implementation; • Contribute to end to end certification if necessary; • "Procurement of all necessary hardware and software components required for the upgrade. Installation and integration in on-board systems of all aircraft in the RYR fleet (Boeing 737 NG and potentially Boeing 737 MAX)"; • Elaboration and approval process of operational and pilot procedures (IAA and EASA) and training packages, including training activities attended by crews focused on the use of the equipment and update the pilot procedures to avoid unnecessary avionics reset.		

2016_165_AF6 – Lufthansa Group & Air France Group Datalink upgrade to "best in class" avionics [50% & 20%]			
Start Date	07/02/2017	**End Date**	27/02/2020
Project Leader	Deutsche Lufthansa AG		
Contributors	Société Air France; Austrian Airlines AG; HOP!; Lufthansa Cargo AG; Lufthansa CityLine GmbH		
Main AF/Sub-AF/Family	AF6	S-AF 6.1	Family 6.1.4
Project Objective	• Upgrading LH Group and Air France Group aircraft to "Best in class" avionic configuration recommended by ELSA study and further alignment with DLS Recovery Plan • Modify LH Group and Air France Group aircraft to enable ATN B1 capability		

2017_008_AF6 – Air France Group Datalink upgrade to best in class avionics - Lot2			
Start Date	12/04/2018	**End Date**	31/01/2020
Project Leader	Société Air France		
Contributors	Transavia France		
Main AF/Sub-AF/Family	AF6	S-AF 6.1	Family 6.1.4
Project Objective	The datalink upgrade for Air France (A320 fleet) and HOP (EJET and CRJ Fleets) aircraft are already covered by the project 2016_165_AF6 funded by INEA through the Grant Agreement: INEA / CEF / TRAN / M2016 / 1349619. The first objective is to deploy ATN B1 capability to "Best in Class" avionics configuration on the remaining Air France Group Fleet i.e. Transavia Fleet that consists of 33 B737 (expected 40 by 2020, the 7 coming will be 2nd hand aircraft). These 40 B737 aircraft are already fitted with Datalink technology. The objective of this Implementation Project (IP) is to upgrade these 40 Transavia B737 aircraft to "Best in class" avionic configuration recommended by ELSA study and further alignment with DLS Recovery Plan by dec. 2019. The avionic configurations are considered as the set of airborne equipment to comply with the ATN/VDL2 performance expectations in multi-frequency (MF) environment following ELSA recommendations as identified in Annex 2 of the DLS Recovery Plan: ELSA Re. IDs Avionics 01 and 02. Testing of avionic software will be performed on vendor side. For all Transavia aircraft, the DLS avionics are already installed in on-board systems of the aircraft. The implementation project only includes the efforts for upgrading the avionics recommended by ELSA study (i.e CMU ACARS and the 3 VDR). The datalink upgrade will only focus on the 40 Transavia B737 aircraft types. Considering that the initially defined deadline to demonstrate compliance with Commission Regulation (EC) No 29/2009 was 5-February-2015 (airborne part), Transavia B737 aircraft already fulfilled the mandate since 2014. These aircraft were already retrofitted by Feb 2015 in order to comply with the 29/2009 Mandate.		

2017_083_AF6 – Portugalia E195 - Deployment of ATN B1 capability			
Start Date	12/04/2018	**End Date**	15/12/2019
Project Leader	PORTUGALIA - Companhia Portuguesa de Transportes Aéreos S.A.		
Contributors			
Main AF/Sub-AF/Family	AF6	S-AF 6.1	Family 6.1.4
Project Objective	The Implementation Project aims to upgrade all four E195 that are part of Portugália Airlines fleet for Datalink Services capability. Tasks: • Present IP contains the following tasks to modify ERJ 195 fleet to comply with Datalink • Project mandate: • Project Management; • Aircraft modification process consisting in hardware and software changes through maintenance intervention. Modifications planned are also under ELSA's "Best-in-Class" definition for software and hardware. This step is in line with previously DLS project ref.2016-061-AF6; • Elaboration and approval process of operational procedures and training packages. This step is in line with previously DLS project ref. 2016-061-AF6; • Flight Crew training. This step is in line with previously DLS project ref. 2016-061-AF6.		