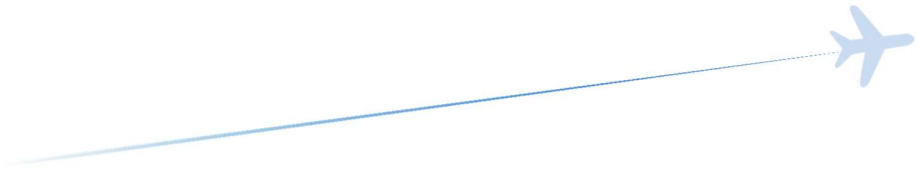


SESAR 2020 PJ.07-01
D2.2.020 TS/IRS

Deliverable ID:	**D2.2.020**
Dissemination Level:	**[PU/CO/CL]**
Project Acronym:	**OAUO**
Grant:	**733020**
Call:	**H2020-SESAR-2015-2**
Topic:	**PJ.07-01**
Consortium Coordinator:	**EUROCONTROL**
Edition Date:	**30 Sep 2019**
Edition:	**00.01.00**
Template Edition:	**02.00.02**

Founding Members

EUROPEAN UNION EUROCONTROL

SESAR JOINT UNDERTAKING

Authoring & Approval

Authors of the document

Name/Beneficiary	Position/Title	Date
Mehtap KARAARSLAN / EUROCONTROL	PJ.07-01 TS/IRS Task Leader and Contributor	31/08/2019
Daniel MULLER / Thales	PJ.07-01 Contributor	12/11/2018
Patrick MICHELS / ATOS	PJ.07-01 Contributor	01/10/2018
Frederic ROUSSEAU / ATOS	PJ.07-01 Contributor	01/10/2018
Craig LINDSAY / EUROCONTROL	PJ.09-03 Contributor	12/11/2018

Reviewers internal to the project

Name/Beneficiary	Position/Title	Date
Daniel CHIESA / Airbus	PJ.07-01 Contributor	24/09/2019
Francis DECROLY / EUROCONTROL	PJ.07-01 Contributor	24/09/2019
Amalia GARCIA ALONSO / ENAIRE	PJ.07-01 Contributor	24/09/2019
Augustin GHEORGHE / EUROCONTROL	PJ.07-01 Contributor	24/09/2019
Eduardo GONI-MODREGO / EUROCONTROL	PJ.07-01 Contributor	24/09/2019
Cyrille GRIMALDI / Dassault Aviation	PJ.18-02c Contributor	24/09/2019
Morad HRIPANE / DSNA	PJ.07-01 Contributor	24/09/2019
Gerard MAVOIAN / EUROCONTROL	PJ.07-01 Solution Leader	24/09/2019
Marie-Jo RIBERA / EUROCONTROL	PJ.07-01 Contributor	24/09/2019
Stella SALDANA / EUROCONTROL	PJ.09-03 Solution Leader	24/09/2019
Frederic ROUSSEAU / ATOS	PJ.07-01 Contributor	24/09/2019
Urban WEISSHAAR / Lufthansa Systems	PJ.18-02c Contributor	24/09/2019

Approved for submission to the SJU By - Representatives of beneficiaries involved in the project

Name/Beneficiary	Position/Title	Date
Daniel MULLER / Thales	PJ.07-01 Contributor	
Gerard MAVOIAN / EUROCONTROL	PJ.07-01 Solution Leader	
Kris DELCOURTE / EUROCONTROL	PJ.07 Project Manager	

Frederic ROUSSEAU / ATOS	PJ.07-01 Contributor

Rejected By - Representatives of beneficiaries involved in the project

Name/Beneficiary	Position/Title	Date

Document History

Edition	Date	Status	Author	Justification
00.00.01	30/05/2018	Draft	Mehtap KARAARSLAN Patrick MICHELS Daniel MULLER Frederic ROUSSEAU	First edition
00.00.02	30/06/2018	Draft	Mehtap KARAARSLAN Craig LINDSAY Patrick MICHELS Daniel MULLER Frederic ROUSSEAU	First internal review comments
00.00.03	10/07/2018	Draft	Mehtap KARAARSLAN	Modifications to the enabler definitions, clarification on the OSED requirements coverage
00.00.04	30/11/2018	Draft	Mehtap KARAARSLAN	Create the enablers, link the requirements with the enablers
00.00.05	20/12/2018	Draft	Mehtap KARAARSLAN	Edition for SJU
00.00.06	25/01/2019	Draft	Mehtap KARAARSLAN	Updated with Oznur Uygur comments
00.00.07	12/04/2019	Draft	Mehtap KARAARSLAN	Updated with the results of the DS19 campaign
00.00.08	23/09/2019	Draft	Mehtap KARAARSLAN	Updated with the validation results, for review
00.00.09	03/10/2019	Draft	Mehtap KARAARSLAN	For approval
00.01.00	30/09/2019	Final	Mehtap KARAARSLAN	Submission to SJU

OAUO

OPTIMISED AIRSPACE USER OPERATIONS

This Technical Specifications is part of a project that has received funding from the SESAR Joint Undertaking under grant agreement No 733020 under European Union's Horizon 2020 research and innovation programme.

Abstract

The PJ.07-01 solution technical architecture enables the "FF-ICE Planning with Enriched DCB Information" and "AU Simple Preferences" operational requirements by defining the technical requirements for

- Definition of the data elements realising the enriched DCB information and AU simple preferences (with PJ.09-03)
- Enhancements to the FF-ICE Planning, FF-ICE Trial, FF-ICE Filing, FF-ICE Flight Information, and AOWIR SWIM services to provide the DCB constraint data and enriched DCB data
- Enhancements to the FF-ICE Filing service to provide the flight delay criticality related data to support AU Simple Preferences
- Description of the updated Regional ATFCM functions to provide the DCB constraint data and enriched DCB information data in the context of the enhanced FF-ICE and AOWIR SWIM services
- Description of the new and updated Civil AU Operations Centre functions to consume the enhanced FF-ICE and AOWIR SWIM services; and use the DCB constraint data and enriched DCB constraint data during their flight-planning phase
- Description of the functional blocks and data exchanges in between related to the AU simple preferences

Table of Contents

List of Tables

1 Executive summary

The PJ.07-01 technical architecture describes the enhancements to the Civil AU Operations Centre and Regional ATFCM capability configurations to enable the use cases as described in the PJ.07-01 V2 OSED/INTEROP.

The solution modifies the

- FF-ICE Planning, FF-ICE Trial, FF-ICE Filing and FF-ICE Flight Information and AOWIR SWIM services to
    - Provide the Demand and Capacity Balancing (DCB) constraints
    - Provide enriched DCB data
    - Use the request/reply and publish/subscribe exchange patterns
- FF-ICE Filing and Flight Plan Distribution services to contain the flight delay criticality indicator related data
- Regional ATFCM capability configuration to
    - Provide the DCB constraint data in the context of the FF-ICE and AOWIR services
    - Provide the enriched DCB data in the context of the FF-ICE and AOWIR services
    - Receive and distribute the flight delay criticality indicator related data
- Civil AU Operations Centre capability configuration to
    - Consume the FF-ICE and AOWIR Services to obtain the DCB constraint and enriched DCB data on a trajectory via a PFP or eFPL
    - Consume the AOWIR service to obtain alternative trajectories proposed by Regional ATFCM with their DCB constraint and enriched DCB data
    - Integrate the DCB constraint and enriched DCB data into their flight planning functions
    - Provide the flight delay criticality indicator related data

The solution uses the Regional ATFCM functions and the data elements defined in PJ.09-03 for the provision of the DCB constraints and enriched DCB data in collaboration with PJ.07-01 solution.

2 Introduction[1]

2.1 Purpose of the document

This document provides the technical architecture and specifications, covering functional, non-functional, and service requirements related to SESAR Solution 07-01.

2.2 Scope

This TS/IRS covers functional, non-functional requirements related to SESAR Solution 07-01 in terms of capability configurations, functional blocks, functions, roles, data exchanges and services.

Please consult the 6 Assumptions section for the assumptions taken in building the requirements in this document regarding the future FF-ICE services.

2.3 Intended readership

PJ.07-01 Solution Team

PJ.09-03 Solution Team

PJ.18-02c Solution Team

PJ.19 Project Team

PJ.07 PCIT

2.4 Background

2.4.1 Collaboration with PJ09.03

The PJ.07-01 technical architecture follows the same principle of collaboration with PJ.09-03 as described in the PJ.07-01 OSED ([5]). The two solutions share and complement the architecture elements.

The Demand and Capacity functional block architecture and requirements are in the scope of PJ.09-03 solution.

The AOWIR service is in the encompassing both 07-01 and 09-03 solutions scope since it combines the DCB responses into AU flight re-planning service.

[1] The opinions expressed herein reflect the author's view only. Under no circumstances shall the SESAR Joint Undertaking be responsible for any use that may be made of the information contained herein.

The Traffic Demand Management FB, FF-ICE and Flight Plan Distribution services, and the Civil AU Operations Centre FB's are in the scope of PJ.07-01 solution.

2.4.2 EFPL Transition to eFPL

The PJ.07-01 technical architecture is building on the SESAR 1 EFPL technical architecture ([5]). The SESAR 1 defined EFPL.

In the meantime, ICAO ATMRPP is defining the eFPL with its data elements in the FF-ICE context (refer to [7]). The FIXM CCB (FIXM Change Control Board) and the working groups are adapting FIXM with the mandate of implementing the FF-ICE requirements. Within the FIXM tasks, there is the development of the FIXM Implementation Guidance ([9]) task, which includes the definition of FF-ICE services.

From the PJ.07-01 solution perspective, the eFPL is the successor of EFPL. It contains almost all elements of EFPL. The eFPL data definition and the related services are out of the scope of PJ.07-01 solution. However, the PJ.07-01 solution intends to propose enhancements to FF-ICE and FIXM definitions, based on the validation outcomes.

We shall also note that both the FF-ICE provisions are draft and the published FIXM Implementation Guidance document describes the partial high-level definitions at the time of the writing of this document.

Therefore, as a principle, the solution architecture uses the FF-ICE services, as much as possible; if not available then uses the EFPL services as they are defined in SESAR 1. The solution also follows the evolution of the FF-ICE services until the production of the final edition of this document.

2.4.3 FF-ICE Trial Service and AOWIR Service

At the time of the writing of this document, there is no service design that exists for the FF-ICE Trial Service. The Network Manager has already implemented two services, IFPUV and AOWIR that provide the basis for the FF-ICE trial service. The AOWIR service in particular provides a good basis with a few DCB impact data elements incorporated into the responses to the AUs.

Due to the R&D focus DCB aspects (there are no R&D questions related to IFPUV functions), the PJ07-01 solution, together with the PJ.09-03 solution decided to focus on architecture elements and requirements related to the AOWIR service.

Therefore, this PJ.07-01 TS/IRS uses the AOWIR service represent FF-ICE Trial Service until there is a definition of FF-ICE Trial Service available.

2.4.4 PFP Processing versus eFPL Processing

Although, the focus of the PJ.07-01 solution is to enhance the FF-ICE Planning Service with the DCB constraint data and enriched DCB data provision, this data provision is not limited only to the Preliminary Flight Plans. It is also applicable for the eFPLs. Therefore, in the technical architecture both PFP and eFPL are used.

The solution assumes that the eFPL processing rules of the Regional ATFCM equally apply to the PFP processing as well. It is understood that the only main difference between the PFP and eFPL processing

on the Regional ATFCM side is that the PFP is *not* distributed to ATC for requesting ATC services. This part is out of the scope of the 07-01 solution.

Therefore, only what is added, i.e. DCB Data and Enriched DCB Data and its' usage are described in this technical specifications document.

The PFP to eFPL transition is also out of the scope of PJ.07-01 solution.

2.5 Structure of the document

2.6 Glossary of Terms

Term	Definition	Source of the definition
4D Trajectory	A four-dimensional (x, y, z, and time) trajectory of an aircraft from gate-to-gate, at the level of fidelity required for attaining the agreed ATM system performance levels.	Draft FF-ICE Manual ref. [8]
Airspace User Trajectory Constraint	Airspace user's trajectory constraint on the acceptable solutions.	Draft FF-ICE Manual ref. [8]
AirspaceUserTrajectoryConstraint Data	The airspace user constraints data consists of the Rerouting Constraints as described in the AOWIR services.	This document
Aircraft Trajectory	The aircraft trajectory is the trajectory that the aircraft intends to fly (and has flown). *Expected use:* The aircraft trajectory is always what the aircraft is intending to fly or has flown. It is not necessarily the agreed trajectory. In normal operations, it is expected that the aircraft trajectory will remain with the trajectory tolerances of the agreed trajectory.	Draft FF-ICE Manual ref. [8]
Congestion Level Indicators	Congestion Level Indicators are categorized ratios of traffic counts (entry or occupancy type) over declared capacity values on airports or monitored airspaces along the Route/Trajectory of the PFP.	PJ07.01 OSED V2 ref. [5]
DCB Constraint	Activated ATM constraints (for DCB reasons) that impact a trajectory. (Example of DCB constraints: ATFCM regulations, scenarios applied to the flight)	PJ07.01 OSED V2 ref. [5]

DCB Constraint Data	The DCB constraint data consists of the ATFCM Regulation, ATFCM Delay and STAM (cherry picking) that is applicable to a trajectory.	This document
DCB Measure	Trajectory change that is notified to an AU for a flight due to DCB constraints. (Example of DCB measures: CTOT or Target time, re-routing or level-capping imposed in the context of scenarios or STAMs)	PJ07.01 OSED V2 ref. [5]
eASP	An Air Traffic Management Service Provider that is capable of receiving and responding to FF-ICE Messages, as required	ATMRPP/2-WP/718 ref. [7]
eAU	An Airspace User that is capable of sending and receiving FF-ICE Messages, as required	ATMRPP/2-WP/718 ref. [7]
eFPL	Filed Flight Plan	Draft FF-ICE Manual ref. [8]
EFPL	Extended Flight Plan as defined in SESAR 1. The EFPL concept is superseded by eFPL which is defined at the global level. Gradually the eFPL concept shall replace the EFPL.	SESAR 1 P07.06.02 OSED
Enriched DCB Information	Information provided to AU (in addition to DCB constraints and measures) to give awareness of DCB situation along the trajectory (and possibly nearby the trajectory depending on AU requirements). This includes for example hotspot information, congestion level indicators, provisional CTOT/TT (CTOT/TT information before officially published).	PJ07.01 OSED V2 ref. [5]
Enriched DCB Data	The enriched DCB constraint data consists of the CongestionIndicator and HotSpot data that is applicable to a trajectory.	This document
Executed 4D Trajectory	The actual 4D trajectory of the aircraft from the start-up to the present position. *Explanation:* The executed 4D trajectory is what was executed and is not necessarily the desired or agreed 4D trajectories. The executed trajectory relates only to the current flight of the aircraft (and does not contain information from previous flights, even with an en-route to en-route perspective). The executed 4D trajectory information can be used for performance and operational analysis.	Draft FF-ICE Manual ref. [8]

Extended Flight Plan	The Extended Flight Plan consists of • ICAO FPL data: all data to be provided in a filed flight plan as specified in the ICAO Doc 4444, including the Field 15 route information. • 4D Trajectory: is one of the following depending on the service interaction • Filed Trajectory: Present in the EFPL Submission (validate, create or update) request sent by the AU to NM. • Accepted Trajectory: Present in the EFPL Submission (validate, create or retrieve) reply from NM Flight Specific Performance Data: The FSPD may be provided either as climb and descent performance profile or as the total weight of aircraft as part of the Filed Trajectory, in the EFPL Submission (validate, create or update) request to NM.	SESAR 1 P07.06.02 Technical Specifications (ref [5])
Hotspot	A hotspot is defined as a location of high complexity where one or more controllers will need to pay extra attention to ensure the safe flow of aircraft.	Network Manager
Negotiating 4D Trajectory	A 4D trajectory proposed by airspace user or ASP as a potential agreed 4D trajectory. *Explanation:* For trajectory planning purposes, multiple trajectories may be required however; each participant would be allowed only one negotiating 4D trajectory at a time which represents their most recent proposal in the negotiation. These trajectories may not necessarily be a gate-to-gate trajectory. These trajectories are intended to be transitory.	Draft FF-ICE Manual ref. [8]
Planning Status	A Planning Status response is provided by the eASP to the message originator (in addition to the Submission Response) to indicate the status in terms of flight plan acceptability and any relevant constraints for a Preliminary Flight Plan. The Planning Status response is triggered either by the submission by the operator of a Planning related message or as a consequence of the Flight Plan Re-Evaluation process.	Draft FF-ICE Manual ref. [8]

Preliminary Flight Plan	Specified information submitted by an operator to conduct collaborative planning of a flight prior to submission of a Filed Flight Plan.	FF-ICE Provisions ref. [7]
Provisional Delay	The indicative and non-final ATFCM delay incurred by a flight subject to a CASA regulation before the time at which the slot is issued 2 hours before EOBT. This delay may vary as a result of, for instance, slot revision which re-assigns the slots dynamically in function of the changing traffic demand; or The indicative and non-final ATFCM delay caused by a CASA Regulation providing an approximate and non-final delay a flight would incur in the context of AOWIR; but which is not guaranteed to be neither the eventual nor the final ATFCM delay incurred when the flight plan is submitted to confirm the reroute.	Network Manager

2.7 Acronyms and Terminology

Term	Definition
ADD	Architecture Description Document
AOWIR	Aircraft Operator What If Reroute
ATFCM	Air Traffic and Flow Capacity Management
ATM	Air Traffic Management
AU	Airspace User
B2B	Business To Business
CC	Capability Configuration
CDM	Collaborative Decision Making
DCB	Demand and Capacity Balancing
EATMA	European ATM Architecture
EAUP	European Airspace Use Plan
EFPL	Extended Flight Plan

E-ATMS	European Air Traffic Management System
FF-ICE	Flight and Flow — Information for a Collaborative Environment
FMP	Flow Management Position
FOC	Flight Operations Centre
IER	Information Exchange Requirement
IFPS	Initial Flight Planning System
IFPUV	IFPS Validation System
IRS	Interface Requirements Specification
ISRM	Information Services Reference Model
LTM	Local Traffic Manager
MCP	Mandatory Cherry Picking
NAF	NATO Architecture Framework
NM	Network Manager
NMF	Network Management Function
NSV	NAF System View
PFP	Preliminary Flight Plan
QoS	Quality of Service
SDD	Service Description Document
SESAR	Single European Sky ATM Research Programme
STAM	Short Term ATFCM Measure
SWIM	System Wide Information Model
TRL	Technology Readiness Level
TS	Technical Specification

Table 1: Acronyms and terminology

3 SESAR Solution Impacts on Architecture

3.1 Target Solution Architecture

3.1.1 SESAR Solution(s) Overview

PJ.07-01: AU Processes for Trajectory Definition

As specified in the latest FF-ICE Provisions: “The FF-ICE Planning Service is provided to facilitate ATM and operator planning for flights in airspaces where significant constraints exist, and/or where air traffic demand at times exceeds, or is expected to exceed, the declared capacity of the air traffic control services concerned. The Planning Service shall provide operational acceptability, applicable constraints and, when possible, viable alternatives in response to submitted flight plan information”

The request for the FF-ICE Planning Service is an option for the airspace user, but it is highly recommended when the flight is planned to traverse airspace of medium or high traffic complexity, or depart/land at airports having to manage high complexity departures and arrivals. It is also up to the airspace user to decide for which category of flights (short-haul, long-haul etc) will request the service, depending on the benefits that this will bring according to prior airspace user’s business analysis. The provision of the Planning Service introduces a new phase in the flight planning process where a preliminary flight plan is prepared in coordination, via a CDM process, with the Planning Service provider for operational acceptance prior to flight plan filing and distribution to the relevant ATC Units.

This solution is focusing on refining operational requirements for the Planning Service, so as to provide additional benefits to the Airspace Users for requesting the Planning Service from the Network Management Function, with the assumption that the Network Management Function will become the FF-ICE Planning Service Provider for the ICAO European Region.

This solution includes refining timing operational requirements for submitting preliminary flight plan desired 4D trajectory information to the Network Management Function, so as to improve the outcome of the ATFCM/ASM process for the benefit of the Airspace User.

This solution also includes detailing operational requirements for the provision of ATFCM measures/constraints, their impact on the Airspace User’s desired 4D trajectory and the expected behaviour from the Airspace User upon notification of this information and in particular if the Airspace User would like to engage in a 4D trajectory negotiation process.

This solution also analyses the provision of enriched DCB information like Hotspots and Congestion Level Indicators along alternative (negotiating) 4D trajectories that the Airspace User may submit to the Network Management Function during a 4D trajectory negotiation; this enriched DCB feedback could assist the Airspace User’s alternative 4D trajectory choice following a 4D trajectory negotiation.

OI Step	OI description	Open CR
AUO-0207	Preliminary flight planning	

	EN code	EN description	Open CR
	SWIM-APS-20	Consumption of the FF-ICE Planning service	
	SWIM-APS-21	Provision of the FF-ICE Flight Information Service	
	SWIM-APS-22	Consumption of the FF-ICE Flight Information Service	
	EN code	EN description	Open CR
	NIMS-61	Enhance the DCB functions to provide the DCB constraint data for a flight trajectory	CR 02615 Create NIMS-61 (PJ09-03 - DCB-0217)
	NIMS-58	Enhance the DCB functions to provide the enriched DCB data for a flight trajectory	CR 02616 Create NIMS-58 (PJ09-03 - DCB-0217)
	AOC-ATM-25	Integration of PFP submission in the flight planning	CR 03447 Update AOC-ATM-25 (PJ.07-01)
	NIMS-57	Integration of PFP processing into Traffic Demand Management	CR 03448 Update NIMS-57 (PJ.07-01)
	SWIM-APS-19	Provision of the FF-ICE Planning Service	CR 03449 Update SWIM-APS-19 (PJ.07-01)
AUO-0208		Use of Simple AU Preferences in DCB Processes	CR 03451 Update AUO-0208 (PJ.07-01)
	EN code	EN description	Open CR
	NIMS-21a	Initial Flight Planning management enhanced to support 4D for Step 1	
	EN code	EN description	Open CR
	SENA01170	Enhance FlightPlanDataDistribution service to contain flight delay criticality data elements	CR 03509 Create enabler SVC-xxx (PJ.07-01)
	SENA01171	Enhance FF-ICEFilingService to contain flight delay criticality data elements	CR 03510 Create enabler SVC-xxx (PJ.07-01)
	SENA01172	Provision of the FF-ICEFilingService service with the flight delay criticality data	CR 03511 Create enabler SWIM-APS-xxx (PJ.07-01)
	SENA01173	Provision of the FlightPlanDataDistribution service with the flight delay criticality data	CR 03512 Create enabler SWIM-APS-xxx (PJ.07-01)
	SENA01174	Consumption of the FF-ICEFilingService service with the flight delay criticality data	CR 03513 Create enabler SWIM-APS-xxx (PJ.07-01)
	SENA01175	Consumption of the FlightPlanDataDistribution service with the flight delay criticality data	CR 03514 Create enabler SWIM-APS-xxx (PJ.07-01)
AUO-0219		Use of Enriched DCB Information and Enhanced What-Ifs to Improve AU Flight Planning	
	EN code	EN description	Open CR

	AOC-ATM-24	Integration of the AOWIR service provisions	
	HUM-019	New task to analyse the DCB impact and decide on the next action for the flight plan	
	SVC-006	FF-ICE Planning Service updated for the provision of the DCB data and enriched DCB data for a preliminary flight plan	
	SVC-007	FF-ICE Flight Information Service updated for the provision of the DCB data and enriched DCB data for a PFP and eFPL.	
	SVC-011	Enhance AOWIR SWIM service with the DCB constraint data for the AU or proposed trajectories	
	SVC-012	Enhance AOWIR SWIM service with enriched DCB data	
	SWIM-APS-20	Consumption of the FF-ICE Planning service	
	SWIM-APS-21	Provision of the FF-ICE Flight Information Service	
	SWIM-APS-22	Consumption of the FF-ICE Flight Information Service	
	SWIM-APS-23	Consumption of the AOWIR service	
	SWIM-APS-24	Provision of the AOWIR service with the DCB constraint data	
	SWIM-APS-25	Provision of the AOWIR service with the enhanced DCB data	
	EN code	EN description	Open CR
	NIMS-61	Enhance the DCB functions to provide the DCB constraint data for a flight trajectory	CR 02615 Create NIMS-61 (PJ09-03 - DCB-0217)
	NIMS-58	Enhance the DCB functions to provide the enriched DCB data for a flight trajectory	CR 02616 Create NIMS-58 (PJ09-03 - DCB-0217)

Type	Element	EN Code	EN/CR Title	Coverage
		AOC-ATM-24	Integration of the AOWIR service provisions	
FB	Flight Management (PJ.07-01)			considered
		HUM-019	New task to analyse the DCB impact and decide on the next action for the flight plan	
Role	Flight Dispatcher (PJ.07-01)			considered

		SVC-006	FF-ICE Planning Service updated for the provision of the DCB data and enriched DCB data for a preliminary flight plan	
Serv	FF-ICEPlanningService			considered
		SVC-007	FF-ICE Flight Information Service updated for the provision of the DCB data and enriched DCB data for a PFP and eFPL.	
Serv	FF-ICEFlightInformationService			considered
		SVC-011	Enhance AOWIR SWIM service with the DCB constraint data for the AU or proposed trajectories	
		SVC-012	Enhance AOWIR SWIM service with enriched DCB data	
		SWIM-APS-20	Consumption of the FF-ICE Planning service	
		SWIM-APS-21	Provision of the FF-ICE Flight Information Service	
FB	Traffic Demand Management (PJ.07-01)			considered
		SWIM-APS-22	Consumption of the FF-ICE Flight Information Service	
		SWIM-APS-23	Consumption of the AOWIR service	
FB	Flight Management (PJ.07-01)			considered
		SWIM-APS-24	Provision of the AOWIR service with the DCB constraint data	
		SWIM-APS-25	Provision of the AOWIR service with the enhanced DCB data	
		AOC-ATM-25	CR 03447 Update AOC-ATM-25 (PJ.07-01)	
FB	Flight Management (PJ.07-01)			considered
		NIMS-57	CR 03448 Update NIMS-57 (PJ.07-01)	
FB	Traffic Demand Management (PJ.07-01)			considered
		SWIM-APS-19	CR 03449 Update SWIM-APS-19 (PJ.07-01)	

FB	Traffic Demand Management (PJ.07-01)			considered
			CR 03450 Delete AOC-ATM-26 duplicate enabler (PJ.07-01)	

3.1.1.1 Deviations with respect to the SESAR Solution(s) definition

Enabler	Opt/Req	Deviation
SWIM-APS-20_Consumption of the FF-ICE Planning service	Required	
SWIM-APS-21_Provision of the FF-ICE Flight Information Service	Required	
SWIM-APS-22_Consumption of the FF-ICE Flight Information Service	Required	
NIMS-61_Enhance the DCB functions to provide the DCB constraint data for a flight trajectory	Required	
NIMS-58_Enhance the DCB functions to provide the enriched DCB data for a flight trajectory	Required	
AOC-ATM-25_Integration of PFP submission in the flight planning	Required	
NIMS-57_Integration of PFP processing into Traffic Demand Management	Required	
SWIM-APS-19_Provision of the FF-ICE Planning Service	Required	
NIMS-21a_Initial Flight Planning management enhanced to support 4D for Step 1	Optional	
SENA01170_Enhance FlightPlanDataDistribution service to contain flight delay criticality data elements	Required	
SENA01171_Enhance FF-ICEFilingService to contain flight delay criticality data elements	Required	
SENA01172_Provision of the FF-ICEFilingService service with the flight delay criticality data	Required	
SENA01173_Provision of the FlightPlanDataDistribution service with the flight delay criticality data	Required	

SENA01174_Consumption of the FF-ICEFilingService service with the flight delay criticality data	Required	
SENA01175_Consumption of the FlightPlanDataDistribution service with the flight delay criticality data	Required	
AOC-ATM-24_Integration of the AOWIR service provisions	Required	
HUM-019_New task to analyse the DCB impact and decide on the next action for the flight plan	Required	
SVC-006_FF-ICE Planning Service updated for the provision of the DCB data and enriched DCB data for a preliminary flight plan	Required	
SVC-007_FF-ICE Flight Information Service updated for the provision of the DCB data and enriched DCB data for a PFP and eFPL.	Required	
SVC-011_Enhance AOWIR SWIM service with the DCB constraint data for the AU or proposed trajectories	Required	
SVC-012_Enhance AOWIR SWIM service with enriched DCB data	Required	
SWIM-APS-20_Consumption of the FF-ICE Planning service	Required	
SWIM-APS-21_Provision of the FF-ICE Flight Information Service	Required	
SWIM-APS-22_Consumption of the FF-ICE Flight Information Service	Required	
SWIM-APS-23_Consumption of the AOWIR service	Required	
SWIM-APS-24_Provision of the AOWIR service with the DCB constraint data	Required	
SWIM-APS-25_Provision of the AOWIR service with the enhanced DCB data	Required	
NIMS-61_Enhance the DCB functions to provide the DCB constraint data for a flight trajectory	Required	
NIMS-58_Enhance the DCB functions to provide the enriched DCB data for a flight trajectory	Required	

3.1.1.2 Relevant Use Cases

The following operational use case is in the scope of this TS/IRS.

Operational Use Case	Description

[NOV-5] AU Flight Planning via FF-ICE Planning Services Enhanced with DCB Constraints and Enriched DCB Information in ATFM regulations context (D)	This use case describes the submission of a PFP for a scheduled IFR flight operating within the ECAC area, after the publication of the EAUP and ATFCM Daily Plan for D day. This covers the tactical phase, but also in current operations a part of the pre-tactical phase. This use case is triggered when the AU prepares and submits a PFP to the NMF, after the publication of the EAUP and ATFCM Daily Plan for D day.
[NOV-5] Flight Level Capping or Mandatory Cherry Picking to solve a small overload	AU preference can be used to help the LTM to take a better decision when selecting the flight for a Short Term ATFCM Measure (STAM) to solve an overload situation. Flight Level Capping Short Term ATFCM Measure (STAM) consists in keeping one or several aircrafts out of an overloaded sector by altering their vertical route. It can be done during the climb, by maintaining the aircraft under the overloaded sector until it can climb again, or during the descent by anticipating it before the aircraft enters the overloaded sector. In case there are several flights of the same company that are candidate for a Flight Level Capping, the information provided by the Airspace User can help the LTM to select the flights that are less penalizing for the AU. Mandatory Cherry Picking consists in selecting one or several flights among those that take part in an overload situation. It is chosen when the underneath sectors are also congested and Flight Level Capping is not an option, or when the congestion is known several hours before the peak. Once the flights are selected, a delay is applied to them, which takes them out of the overload situation. As new SESAR operating method, the AU''s Delay priorities allows the FMP to pick the flights which are less sensible to delay, which in counterpart has a positive effect on the flights that are more sensible to delay, as they are less likely to be affected by the overload situation, which will be either solved or reduced. In this Use Case, the preference is materialized by the selection by the AU of a certain number of flights to be ""protected"" when it is possible in Flight Level or in Delay. This information provided by the Airspace User to the NMF are the FDCI attributes: - Criticality. - Reason. - Time tolerance (maximum acceptable delay). When possible this information will be integrated in the FMP decision related to the Level Cap and MCP. This use case is triggered when · An overload situation arises

	· The FMP has time to examine it · Candidates for FL/MCP are identified · Some candidates have different preferences
[NOV-5] Regulation Mitigation	When a standard regulation ATFM measure has been taken or is about to be requested by the LTM, Delay preference can be used by the LTM to propose an alternate route for a flight that is either caught in an existing regulation, or at risk to be caught in an oncoming regulation. That alternate route will mostly consist in a variation of vertical profile (FL STAM), in order to avoid the sectors impacted by the regulation. As new SESAR operating method, flights that have been tagged as important can be selected in preference for a STAM that will mitigate the impact of the regulation, since for those flight the delay aspect is more important than the flight level aspect. This information provided by the Airspace User to the NMF are the FDCI attributes: - Criticality. - Reason. - Time tolerance (maximum acceptable delay). When possible this information will be integrated in the FMP decision related to the regulation. This use case is triggered when: · A standard regulation is about to be requested/has been published · There are limited alternate routing possibilities · Candidates for alternate routing are identified · Some candidates have different delay preference declaration

The following use case is not yet in the scope of this TS/IRS.

Operational Use Case	Description
[NOV-5] Preliminary Flight Plan with Route/Trajectory submission in pre-tactical phase (D-1)	This use case describes the submission of a PFP, for a scheduled IFR flight operating within the ECAC area, in the pre-tactical phase. PFP is submitted by the AU FOC to the NMF, on D-1 (D being the Estimated Off-Block Date) and a few hours prior to the publication of the EAUP and ATFCM Daily Plan (prior to 12 UTC on D-1). If the PFP is not impacted by any Static Airspace Constraints, NMF will send a Planning Status reply indicating that the PFP is operationally acceptable. The PFP will be used in the ASM/ATFCM process related to the preparation of the EAUP and the ATFCM Daily Plan. In particular, the PFP will update the forecasted traffic demand

	and will contribute to the ATFCM Decisions for the day of operations. The AU must be aware that the PFP may become negotiable at a later stage (following the EAUP/ATFM Daily Plan publication) if FUA Constraints, Dynamic Airspace Constraints or DCB Constraints were applied. The use case is triggered on D-1, when the AU considers that weather information (upper air weather forecast, departure and destination airport TAF) and the payload are considered as a minimum reliable to compute a PFP and submit to the NMF. This use case should be triggered prior to 12 UTC on D-1.

System Process	Description
[NSV-4] Airspace User Simple Preferences	This system process describes the data exchanges between the functional blocks belonging to Regional ATFCM, FOC, EN ACC and APP ACC capability configurations for the exchange and use of the Airspace User Simple Preferences and related data. The functions in the concerned functional blocks are not yet developed.
[NSV-4] FF-ICE Planning Services with DCB Constraints and Enriched DCB Information	This system process describes the functions and data exchanges for the functional blocks belonging to Regional ATFCM and FOC capability configurations for the exchange and use of the DCB constraint data and enriched DCB data in the context of AOWIR, FF-ICE Planning and FF_ICE Filing services.

3.1.1.3 Applicable standards and regulations

3.1.2 Capability Configurations required for the SESAR Solution

[NSV-1] Airspace User Simple Preferences				
CC	**Op Env**	**Capability**	**Node**	**Stakeholder**
APP ACC (PJ.07-01)		Collaborative Trajectory Planning; Demand and Capacity Balancing (airspace); SWIM-based Information Dissemination;	Air Traffic Flow and Capacity Management; Airspace Management; Airspace Organisation; En-	Civil ATS Approach Service Provider; Military ATS Approach Service Provider;

			Route/Approach ATS;	
Civil AU Operations Centre (PJ.07-01)		Air Traffic Demand Provision (Airspace); Collaborative Trajectory Planning; SWIM-based Information Dissemination;	Airspace User Ops Support; Flight Deck;	Civil Flight Operations Centre;
ER ACC (PJ.07-01)		Collaborative Trajectory Planning; Demand and Capacity Balancing (airspace); SWIM-based Information Dissemination;	Air Traffic Flow and Capacity Management; Airspace Management; Airspace Organisation; En-Route/Approach ATS;	Civil ATS En-Route Service Provider; Military ATS En-Route Service Provider;
Regional ATFCM (PJ.07-01)		Air Traffic Demand Provision (Airspace); Air Traffic Flow Management; Airspace Capacity Information Provision (incl. Capacity Changes); Collaborative Network Management; Collaborative Trajectory Planning; SWIM-based Information Dissemination;	Air Traffic Flow and Capacity Management;	Network Manager;

[NSV-1] FF-ICE Planning Service with DCB Constraints and Enriched DCB Information				
CC	**Op Env**	**Capability**	**Node**	**Stakeholder**
Civil AU Operations Centre (PJ.07-01)		Air Traffic Demand Provision (Airspace); Collaborative Trajectory Planning; SWIM-based Information Dissemination;	Airspace User Ops Support; Flight Deck;	Civil Flight Operations Centre;
Regional ATFCM (PJ.07-01)		Air Traffic Demand Provision (Airspace); Air Traffic Flow Management; Airspace Capacity Information Provision (incl. Capacity Changes); Collaborative Network Management; Collaborative Trajectory Planning; SWIM-based Information Dissemination;	Air Traffic Flow and Capacity Management;	Network Manager;

3.2 Changes imposed by the SESAR Solution on the baseline Architecture

Enabler	Element type	Element name	Impact	Change
AOC-ATM-24	Integration of the AOWIR service provisions			
	Function	Alert Flight Dispatcher	Introduce	
	Function	Assess Trajectory and Impact	Introduce	
	Function	Update PFP/eFPL	Update	
HUM-019	New task to analyse the DCB impact and decide on the next action for the flight plan			
	Role	Flight Dispatcher (PJ.07-01)	Update	
SVC-006	FF-ICE Planning Service updated for the provision of the DCB data and enriched DCB data for a preliminary flight plan			
	Service	FF-ICEPlanningService	Update	
SVC-007	FF-ICE Flight Information Service updated for the provision of the DCB data and enriched DCB data for a PFP and eFPL.			
	Service	FF-ICEFlightInformationService	Update	
SWIM-APS-21	Provision of the FF-ICE Flight Information Service			
	Function	Integrate PFP/eFPL in Traffic Demand	Update	
SWIM-APS-23	Consumption of the AOWIR service			
	Function	Request Route Proposals	Update	
	Function	Request What If Reroute	Update	
AOC-ATM-25 (CR)	Integration of PFP submission in the flight planning			
	Function	Preliminary Flight and Trajectory Planning	Update	
	Function	Update PFP/eFPL	Update	
NIMS-57 (CR)	Integration of PFP processing into Traffic Demand Management			
	Function	Integrate PFP/eFPL in Traffic Demand	Update	
SWIM-APS-19 (CR)	Provision of the FF-ICE Planning Service			
	Function	Validate PFP/eFPL	Update	
SENA01171 (CR)	Enhance FF-ICEFilingService to contain flight delay criticality data elements			
	Service	FF-ICEFilingService	Update	

SENA01172 (CR)	Provision of the FF-ICEFilingService service with the flight delay criticality data			
	FB	Traffic Demand Management (PJ.07-01)	Update	
SENA01173 (CR)	Provision of the FlightPlanDataDistribution service with the flight delay criticality data			
	FB	Traffic Demand Management (PJ.07-01)	Update	
SENA01174 (CR)	Consumption of the FF-ICEFilingService service with the flight delay criticality data			
	Sys	Civil AU Flight Operations Centre (FOC) (PJ.07-01)	Update	
SENA01175 (CR)	Consumption of the FlightPlanDataDistribution service with the flight delay criticality data			
	FB	Local Air Traffic Complexity Management (PJ.07-01)	Update	

4 Technical Specifications

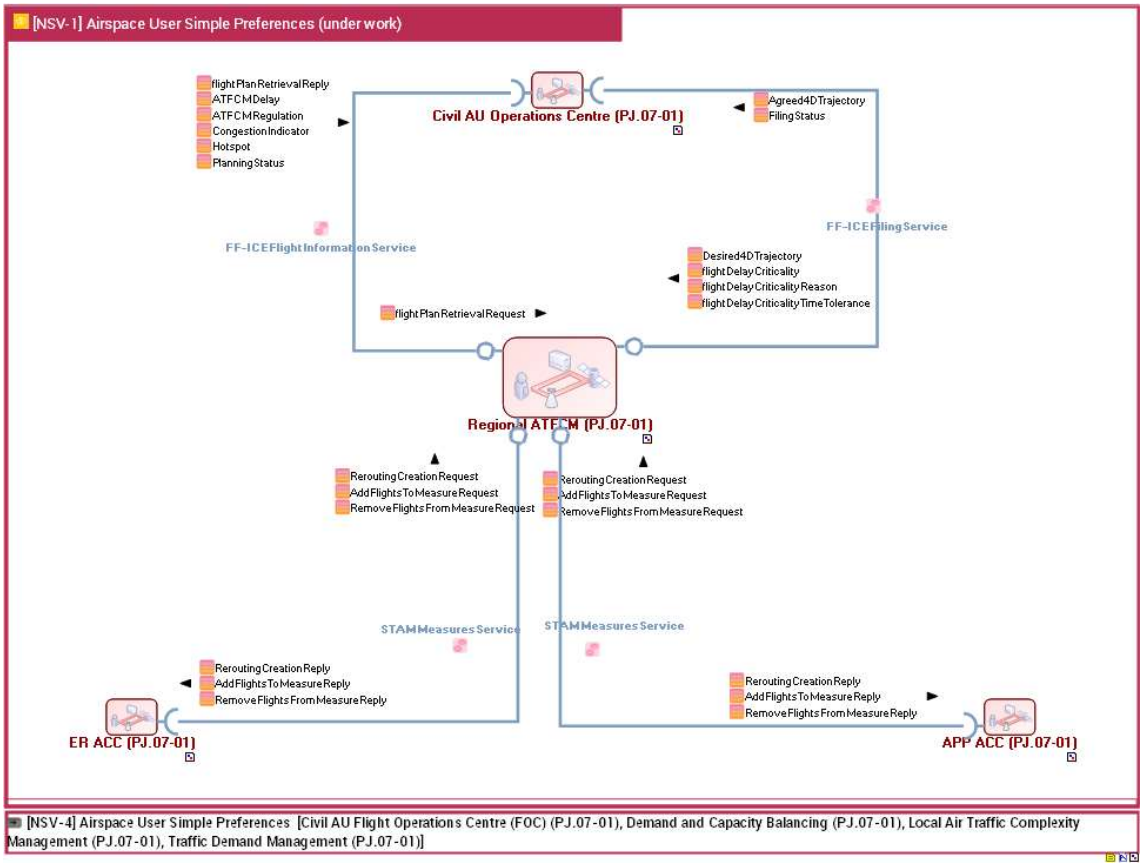
4.1 Functional architecture overview

Functions required to perform needed Operational Activities can be allocated to Resources of a different type: Human Role, Infrastructure System or Functional Block.

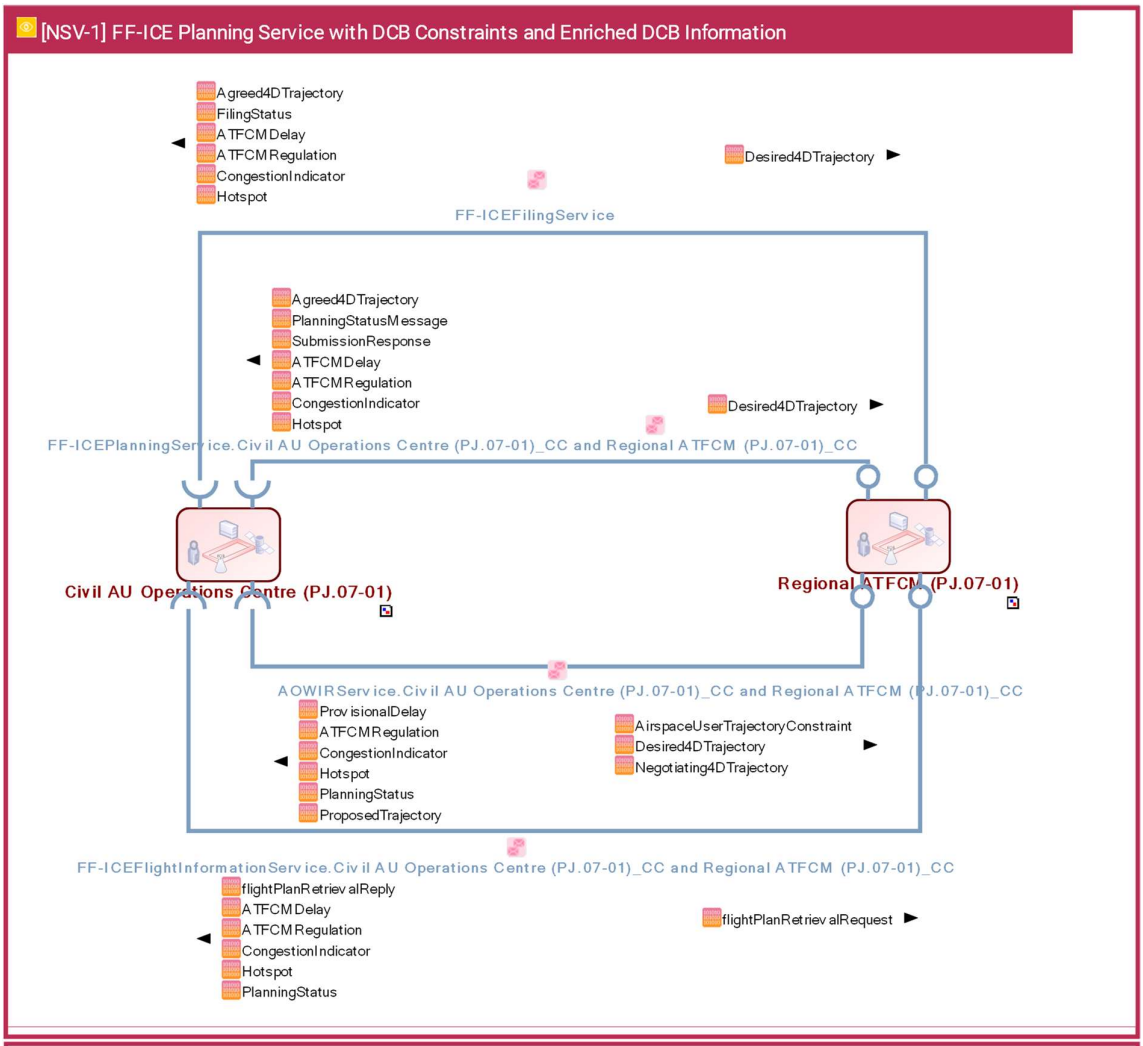
Role	Functional Block	Function
[NSV-4] Airspace User Simple Preferences		
[NSV-4] FF-ICE Planning Services with DCB Constraints and Enriched DCB Information		
	Demand and Capacity Balancing (PJ.07-01)	Assess Traffic Demand with ATFCM Situation; Assess Trajectory (What-If); Provide ATFCM Situation; Provide Rerouting Opportunity (Propose Routes);
Flight Dispatcher (PJ.07-01)		Decide on the next action;
	Flight Management (PJ.07-01)	Alert Flight Dispatcher; Assess Trajectory and Impact; ATM Exchange; Monitor Flights; Preliminary Flight and Trajectory Planning; Request Route Proposals; Request What If Reroute; Update PFP/eFPL;
	Traffic Demand Management (PJ.07-01)	Integrate PFP/eFPL in Traffic Demand; Validate PFP/eFPL;

4.1.1 Resource Connectivity Model

This connectivity diagram describes the capability configurations and data exchanges for the Airspace User Simple Preferences system processes.



This connectivity diagram describes the capability configurations and data exchanges to provision and consumption of the DCB constraint data and enriched DCB data in the context of FF-ICE Planning and Filing services.



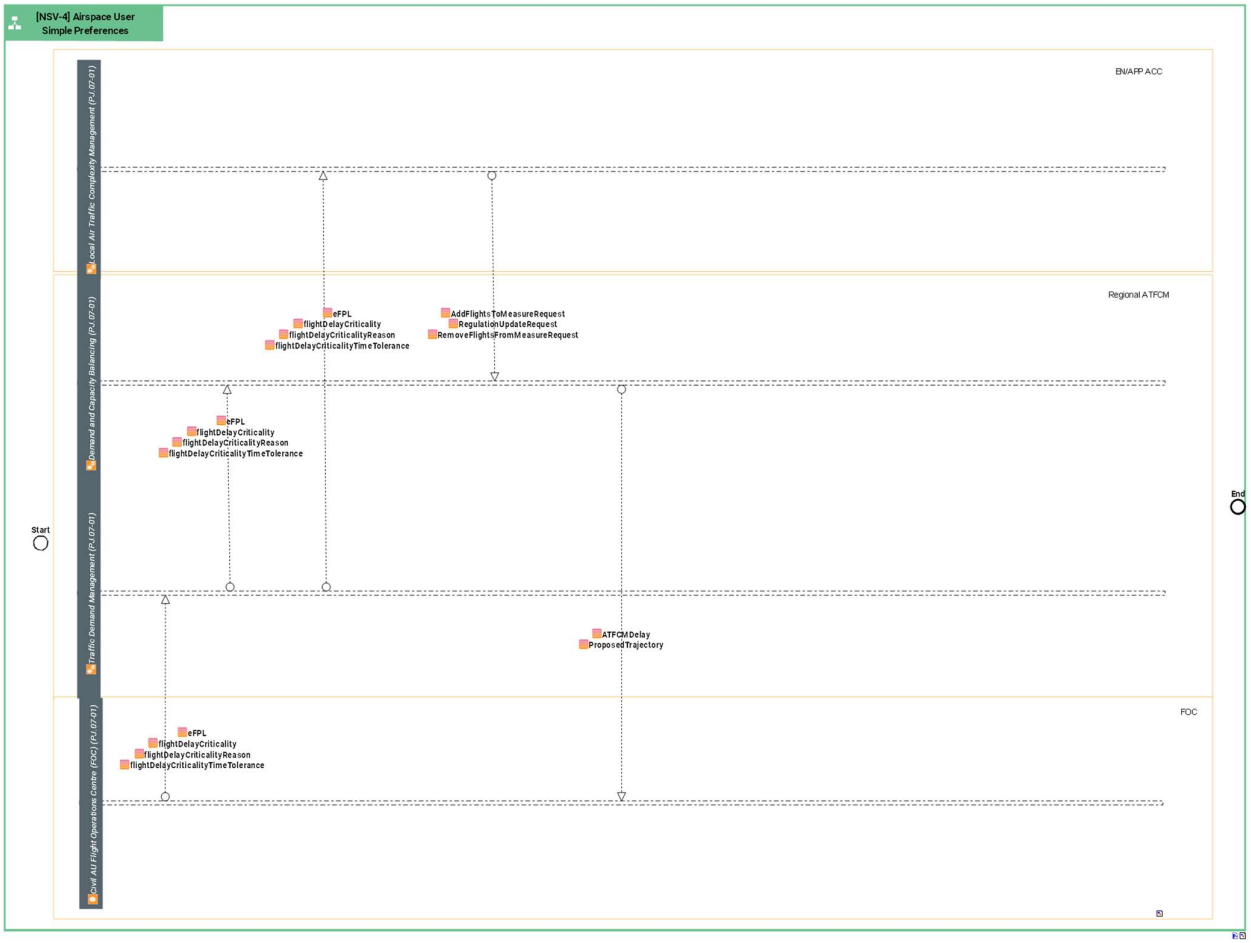
[NSV-4] FF-ICE Planning Services with DCB Constraints and Enriched DCB Information [Demand and Capacity Balancing (PJ.07-01), Flight Dispatcher (PJ.07-01), Flight Management (PJ.07-01), Traffic Demand Management (PJ.07-01)]

4.1.2 Resource Orchestration View

4.1.2.1 [NSV-4] Airspace User Simple Preferences

This system process describes the data exchanges between the functional blocks belonging to Regional ATFCM, FOC, EN ACC and APP ACC capability configurations for the exchange and use of the Airspace User Simple Preferences and related data.

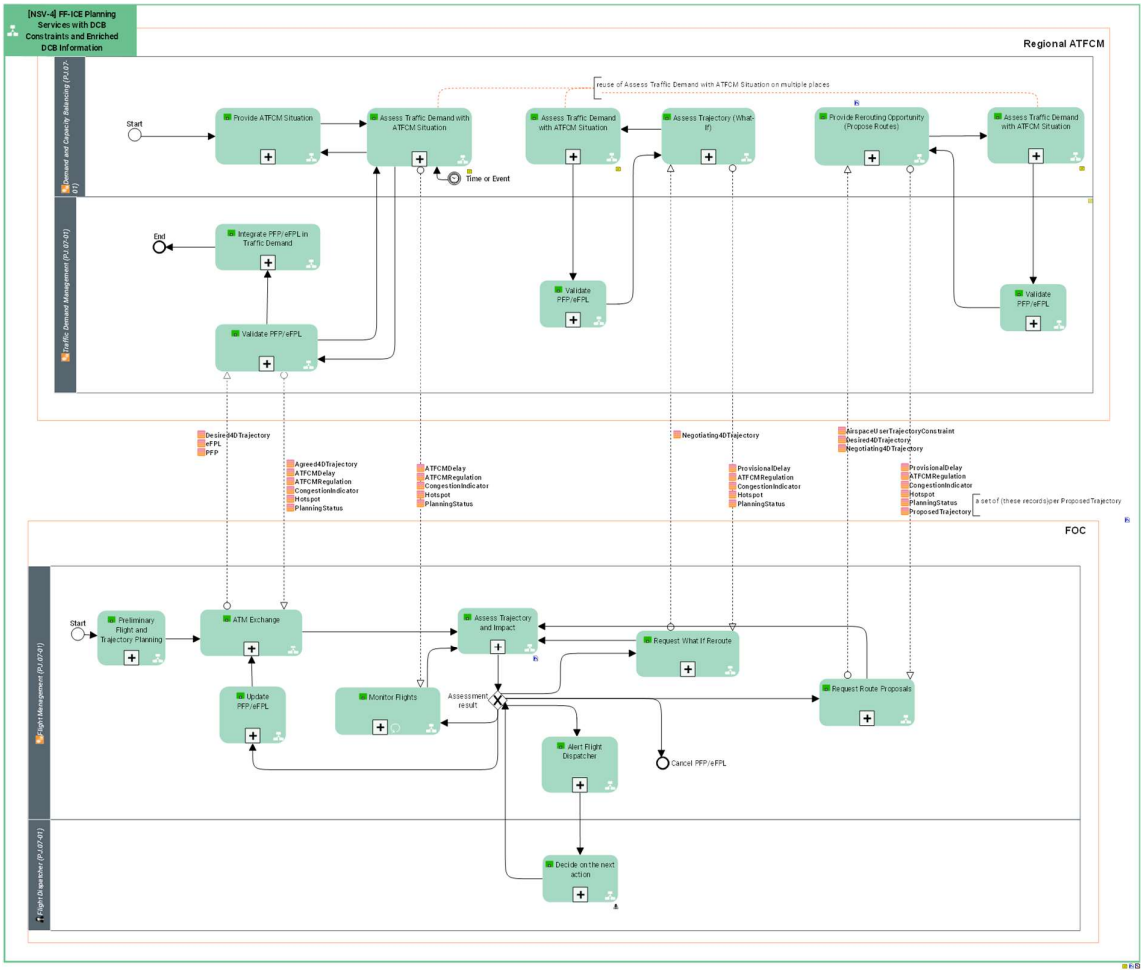
The functions in the concerned functional blocks are not yet developed.



Function	Description

4.1.2.2 [NSV-4] FF-ICE Planning Services with DCB Constraints and Enriched DCB Information

This system process describes the functions and data exchanges for the functional blocks belonging to Regional ATFCM and FOC capability configurations for the exchange and use of the DCB constraint data and enriched DCB data in the context of AOWIR, FF-ICE Planning and FF_ICE Filing services.

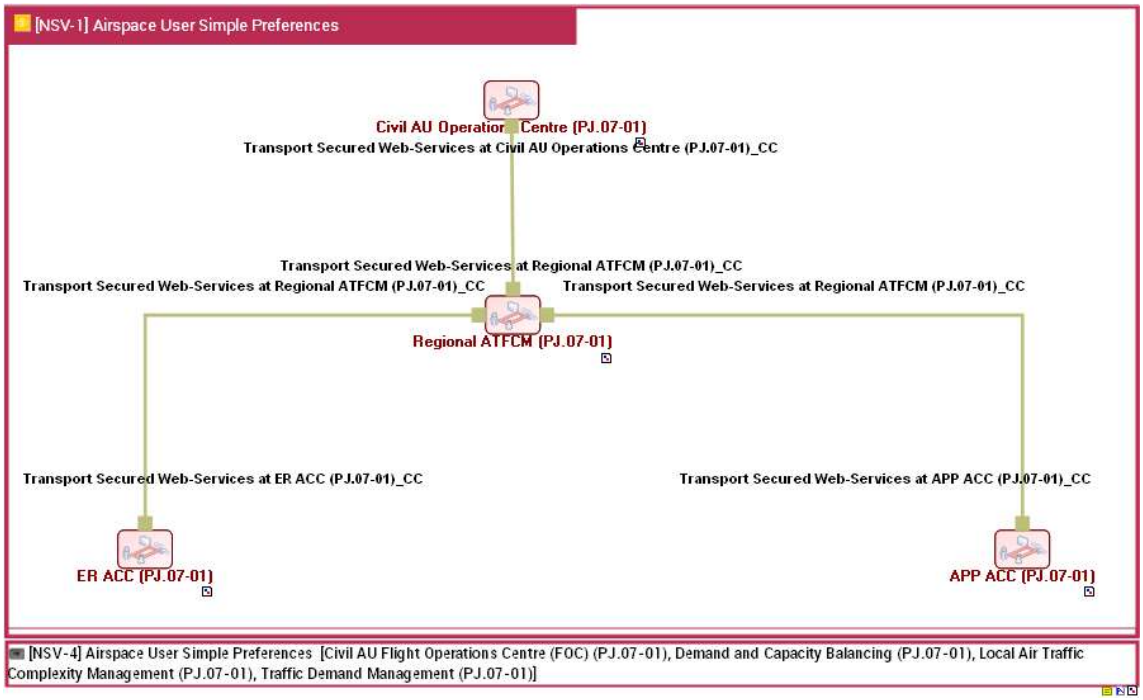


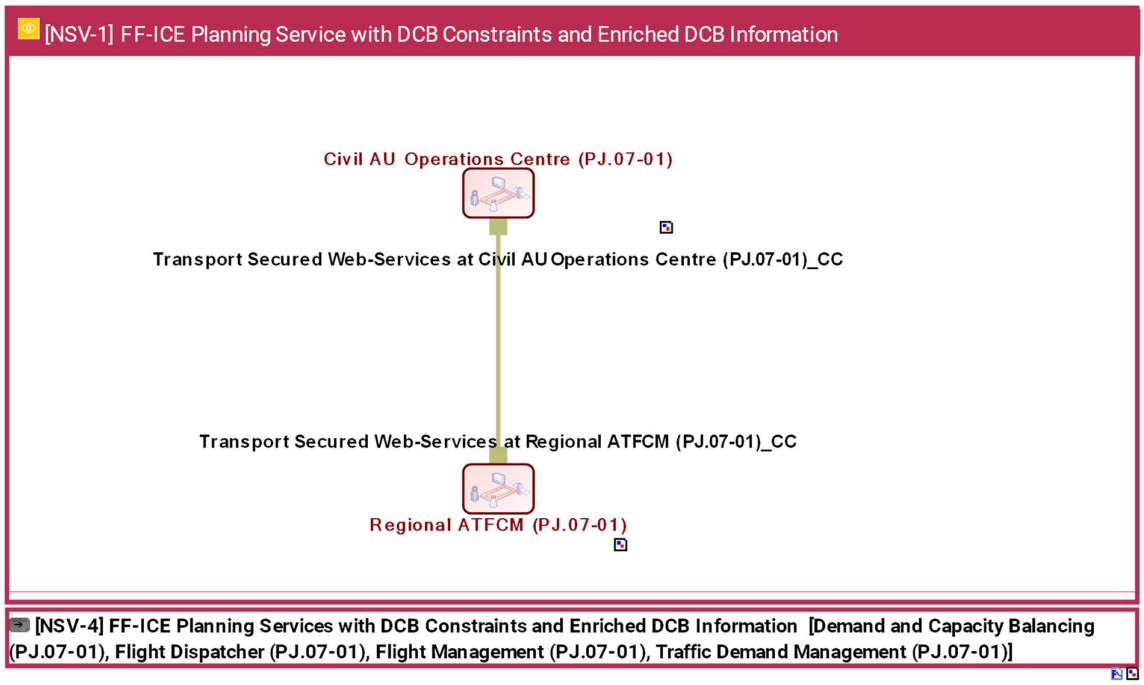
Function	Description
Assess Trajectory and Impact	Compute an "Airline satisfaction index" Recommend decision to: · Continue / wait & do nothing · OK / file PFPL as FPL · NOK / Launch a what else (alternative proposal by ECTL + NM assessment) · NOK / Launch a what-if (alternative proposal by CFSP + NM assessment) · NOK / alert to flight dispatcher

Alert Flight Dispatcher	When the system cannot take a decision automatically by using the airline satisfaction index, the system alerts the flight dispatcher to take an action.
Assess Traffic Demand with ATFCM Situation	The Regional ATFCM assesses the traffic demand versus available capacity. This function is triggered · When a scheduled time arrives, then the system re-assesses the filed flight plans with the constraints applicable at the scheduled time. · When there is a new airspace constraint · When there is a new filed flight plan or an update to a filed flight plan
Assess Trajectory (What-If)	Assess a trajectory against the known DCB constraints, without changing the traffic demand picture with this trajectory. Report on the DCB constraints and enriched DCB data applicable through the trajectory.
ATM Exchange	Exchange data with the Regional ATFCM via SWIM web services.
Integrate PFP/eFPL in Traffic Demand	Integrate the valid PFP or eFPL in the traffic demand picture. The result of this integration is available through the NOP interfaces.
Monitor Flights	Update PFPL assessment over time (from D-1…… until H-3) · In: PFPL (possibly updated) · Out: updated NM feedback (cf ATM exchange)
Preliminary Flight and Trajectory Planning	Compute the Preliminary Flight Plan by using the available data at this point in time.
Provide ATFCM Situation	The regional ATFCM compiles the known ATM constraints at a specific time.
Provide Rerouting Opportunity (Propose Routes)	Calculate alternative trajectories by taking into account the input trajectory parameters and Airspace User constraints to respect.
Request Route Proposals	Request route proposals by optionally providing a trajectory portion and constraints to be respected, and receive the reply.
Request What If Reroute	Request what-if impact analysis by providing a new trajectory and constraints to be respected, and receive the reply.
Update PFP/eFPL	Update the preliminary flight plan or filed flight plan by taking into account the DCB constraints.

Validate PFP/eFPL	Validate the Preliminary Flight Plan (PFP) or Filed Flight Plan (eFPL) according to the syntax and semantic rules defined, as well as against the known airspace constraints.

4.1.3 Infrastructure connectivity model





Service View

4.1.4.1 Service Description

Service	Service description
FF-ICEFilingService	The Filing Service enables the submission of filed flight plans (eFPL) in order to obtain air traffic services. The operational need for this service is expressed by the following purpose statements: · An eFPL should be filed in order to obtain air traffic services. To cover such needs, the Filing Service provides the following functionalities: · The ability to submit a filed flight plan and associated messages (Update, Cancel) and to provide the appropriate response messages (Submission Response, Filing Status) in accordance with FF-ICE procedures. REF: FIXM Implementation Guidance V4.1.0 Note: The service definition is out of scope of SESAR. SESAR solutions enhance the service definition. Therefore, this definition covers only what is relevant for the scope of the solution as well as what the solution adds to the service. The FF-ICE filing service is the successor of the ExtendedFlightPlanSubmission service.

FF-ICEFlightInformationService	The Flight Information Service enables the eAU and the eASP(s) access to or be notified for a flight plan data. To cover such needs, the Flight Information Service provides the following functionalities: · The ability for the eAU or eASP to retrieve a preliminary flight plan and it's planning status · The ability for the eASP to be notified when there is a preliminary flight plan submitted or updated and it's planning status REF: FIXM Implementation Guidance V4.1.0 Note: The service definition is out of scope of SESAR. SESAR solutions enhance the service definition. Therefore, this definition covers only what is relevant for the scope of the solution as well as what the solution adds to the service.
STAMMeasuresService	The STAMMeasures service supports the Short-Term ATFCM Measures (STAM) concept by providing the concerned stakeholders with capabilities for managing cherry-picked ATFCM measures (Regulation, Reroutings, MCDM Only).
AOWIRService	The service proposes possible reroutes and the DCB impact of a trajectory with flight planning and enhanced DCB information. It allows the consumer to: - request and assess the validity of available alternative trajectories proposed by the provider with their DCB impact - request the validity and DCB impact of one of the consumer's trajectories
FF-ICEPlanningService	The Planning Service enables a CDM process between the eAU and the eASP(s) concerning the intended operation of a flight. The operational need for this service is expressed by the following purpose statements: · Assist the operator in determining the optimal route/trajectory for a flight by identifying the operational environment and ATM constraints applicable to the flight as proposed. · Enable ATM service providers to obtain an earlier, more detailed and more accurate assessment of the anticipated traffic demand. To cover such needs, the Planning Service provides the following functionalities: · The ability to submit a preliminary flight plan and associated messages (Update, Cancel) and to provide the appropriate response messages (Submission Response, Planning Status) REF: FIXM Implementation Guidance V4.1.0 Note: The service definition is out of scope of SESAR. SESAR solutions enhance the service definition. Therefore, this definition covers only what is relevant for the scope of the solution as well as what the solution adds to the service.

4.1.4.2 Service Provisioning

Interaction	Consumer CC	Consumer System	Provider CC	Provider System
FF-ICEPlanningService.Civil AU Operations Centre (PJ.07-01)_CC and Regional ATFCM (PJ.07-01)_CC	Civil AU Operations Centre (PJ.07-01)	Civil AU Flight Operations Centre (FOC) (PJ07.01);	Regional ATFCM (PJ.07-01)	ATFCM (PJ.07.01);
FF-ICEFilingService	Civil AU Operations Centre (PJ.07-01)	Civil AU Flight Operations Centre (FOC) (PJ07.01);	Regional ATFCM (PJ.07-01)	ATFCM (PJ.07.01);
STAMMeasuresService	APP ACC (PJ.07-01)	En-Route / Approach ATC;	Regional ATFCM (PJ.07-01)	ATFCM (PJ.07.01);
STAMMeasuresService	ER ACC (PJ.07-01)	En-Route / Approach ATC;	Regional ATFCM (PJ.07-01)	ATFCM (PJ.07.01);
AOWIRService.Civil AU Operations Centre (PJ.07-01)_CC and Regional ATFCM (PJ.07-01)_CC	Civil AU Operations Centre (PJ.07-01)	Civil AU Flight Operations Centre (FOC) (PJ07.01);	Regional ATFCM (PJ.07-01)	ATFCM (PJ.07.01);
FF-ICEFlightInformationService.Civil AU Operations Centre (PJ.07-01)_CC and Regional ATFCM (PJ.07-01)_CC	Civil AU Operations Centre (PJ.07-01)	Civil AU Flight Operations Centre (FOC) (PJ07.01);	Regional ATFCM (PJ.07-01)	ATFCM (PJ.07.01);

4.1.4.3 Service Realization

4.1.4.3.1 Interaction FF-ICEFilingService

4.1.4.3.2 Interaction FF-ICEFlightInformationService

4.1.4.3.3 Interaction STAMMeasuresService

Service Interface Definition	
ProvidedSTAMMeasures	
Standard	**MEP, Security Configuration, Interface Bindings**

STAMMeasuresInterface.Transport Secured Web-Services	MEPs Supported: SRR PSPUSH PSPULL Security Configuration: Interface Binding Traceability: REQ-14.01.04-TS-0901.0790 REQ-14.01.04-TS-0901.0795 REQ-14.01.04-TS-0901.0304 REQ-14.01.04-TS-0901.0305 REQ-14.01.04-TS-0901.0325

4.1.4.3.4 Interaction AOWIRService.Civil AU Operations Centre (PJ.07-01)_CC and Regional ATFCM (PJ.07-01)_CC

4.1.4.3.5 Interaction FF-ICEPlanningService.Civil AU Operations Centre (PJ.07-01)_CC and Regional ATFCM (PJ.07-01)_CC

System Port: Transport Secured Web-Services at Regional ATFCM (PJ.07-01)_CC

Protocol Stack	Protocol

System Port: Transport Secured Web-Services at Civil AU Operations Centre (PJ.07-01)_CC

Protocol Stack	Protocol

4.2 Functional and non-Functional Requirements

4.2.1 OSED Requirements Coverage

There are OSED requirements, which are not covered in this TS/IRS since they are in the scope of the NM FF-ICE deployment. These requirements are:

- REQ-07.01-SPRINTEROP-PF01.0001 PFP Submission Request ahead of time
- REQ-07.01-SPRINTEROP-PF01.0002 PFP on D-1 contribution to the daily plan preparation

The following OSED requirements are not yet in the scope of this TS/IRS

- REQ-07.01-SPRINTEROP-DCB01.0005 Flight Plan validation and traffic demand update
- REQ-07.01-SPRINTEROP-DCB01.0006 FDCI monitoring

4.2.2 FF-ICE Planning Services with DCB Constraints and Enriched DCB Information

4.2.2.1 Service Requirements

4.2.2.1.1 DCB Constraint Data

[REQ]

Identifier	REQ-07-01-TS-SVC.0001
Title	FF-ICE Planning and FF-ICE Flight Information service replies provide DCB constraint data
Requirement	The Regional ATFCM shall provide the ATFCMDelay, ATFCMRegulation and STAM Cherry Picking data that is applicable to the submitted PFP or eFPL in the FF-ICEPlanning or FF-ICEFlightInformation service reply.
Status	<in progress>
Rationale	To extend the FF-ICE Planning and Flight Information services with the DCB impact information in the NM area.
Category	<Functional>

[REQ Trace]

Relationship	Linked Element Type	Identifier
< ALLOCATED_TO >	<SESAR Solution>	PJ.07-01
<SATISFIES>	<ATMS Requirement>	REQ-07.01-SPRINTEROP-PL01.0001
< ALLOCATED_TO >	<Enabler>	SVC-006 SVC-007

[REQ]

Identifier	REQ-07-01-TS-SVC.0002
Title	AOWIR whatIfReroute service operation reply provides DCB constraint data
Requirement	The Regional ATFCM shall provide the ProvisionalDelay and ATFCMRegulation data that is applicable to the Negotiating4DTrajectory in the AOWIR service whatIfReroute operation reply.
Status	<in progress>
Rationale	To extend the FF-ICE Planning and Flight Information services with the DCB impact information in the NM area.
Category	<Functional>

[REQ Trace]

Relationship	Linked Element Type	Identifier
< ALLOCATED_TO >	<SESAR Solution>	PJ.07-01
<SATISFIES>	<ATMS Requirement>	REQ-07.01-SPRINTEROP-PL01.0003

< ALLOCATED_TO >	<Enabler>	SVC-011

[REQ]

Identifier	REQ-07-01-TS-SVC.0003
Title	AOWIR proposeRoutes service operation reply provides DCB constraint data
Requirement	The AOWIR service shall provide the ProvisionalDelay and ATFCMRegulation data that is applicable to the ProposedTrajectory in the proposeRoutes operation reply.
Status	<in progress>
Rationale	To extend the AOWIR service with the DCB impact information in the NM area.
Category	<Functional>

[REQ Trace]

Relationship	Linked Element Type	Identifier
< ALLOCATED_TO >	<SESAR Solution>	PJ.07-01
<SATISFIES>	<ATMS Requirement>	REQ-07.01-SPRINTEROP-PL01.0003
< ALLOCATED_TO >	<Enabler>	SVC-011

4.2.2.1.2 CongestionIndicator Data

[REQ]

Identifier	REQ-07-01-TS-SVC.0004
Title	FF-ICE Planning and FF-ICE Flight Information service replies provide the CongestionIndicator data
Requirement	The FF-ICE Planning and FF-ICEFlightInformation replies shall provide the CongestionIndicator and Hotspot data that is applicable to the submitted PFP or eFPL.
Status	<in progress>
Rationale	To extend the FF-ICE Planning and FF-ICE Flight Information services with the DCB impact information in the NM area.
Category	<Functional>

[REQ Trace]

Relationship	Linked Element Type	Identifier
< ALLOCATED_TO >	<SESAR Solution>	PJ.07-01
<SATISFIES>	<ATMS Requirement>	REQ-07.01-SPRINTEROP-PL01.0004

< ALLOCATED_TO >	<Enabler>	SVC-006 SVC-007

[REQ]

Identifier	REQ-07-01-TS-SVC.0005
Title	AOWIR whatIfReroute service operation reply provides CongestionIndicator data
Requirement	The Regional ATFCM shall provide the CongestionIndicator data that is applicable to the Negotiating4DTrajectory in the AOWIR service whatIfReroute operation reply.
Status	<in progress>
Rationale	To extend the AOWIR service with the DCB impact information in the NM area.
Category	<Functional>

[REQ Trace]

Relationship	Linked Element Type	Identifier
< ALLOCATED_TO >	<SESAR Solution>	PJ.07-01
<SATISFIES>	<ATMS Requirement>	REQ-07.01-SPRINTEROP-PL01.005
< ALLOCATED_TO >	<Enabler>	SVC-012

[REQ]

Identifier	REQ-07-01-TS-SVC.0006
Title	AOWIR proposeRoutes service operation reply provides CongestionIndicator data
Requirement	The Regional ATFCM shall provide the CongestionIndicator data that is applicable to the ProposedTrajectory in the AOWIR service proposeRoutes operation reply.
Status	<in progress>
Rationale	To extend the AOWIR service with the DCB impact information in the NM area.
Category	<Functional>

[REQ Trace]

Relationship	Linked Element Type	Identifier
< ALLOCATED_TO >	<SESAR Solution>	PJ.07-01
<SATISFIES>	<ATMS Requirement>	REQ-07.01-SPRINTEROP-PL01.005

< ALLOCATED_TO >	<Enabler>	SVC-012

4.2.2.1.3 Hotspot Data

[REQ]

Identifier	REQ-07-01-TS-SVC.0007
Title	FF-ICE Planning and FF-ICE Flight Information services replies provide the Hotspot data
Requirement	The FF-ICE Planning and FF-ICEFlightInformation replies shall provide the Hotspot data that is applicable to the submitted PFP or eFPL.
Status	<in progress>
Rationale	To extend the FF-ICE Planning and FF-ICE Flight Information services with the DCB impact information in the NM area.
Category	<Functional>

[REQ Trace]

Relationship	Linked Element Type	Identifier
< ALLOCATED_TO >	<SESAR Solution>	PJ.07-01
<SATISFIES>	<ATMS Requirement>	REQ-07.01-SPRINTEROP-PL01.0004
< ALLOCATED_TO >	<Enabler>	SVC-006 SVC-007

[REQ]

Identifier	REQ-07-01-TS-SVC.0008
Title	AOWIR whatIfReroute service operation reply provides Hotspot data
Requirement	The AOWIR service whatIfReroute operation reply shall provide the HotSpot data that is applicable to the Negotiating4DTrajectory.
Status	<in progress>
Rationale	To extend the AOWIR service with the DCB impact information in the NM area.
Category	<Functional>

[REQ Trace]

Relationship	Linked Element Type	Identifier
< ALLOCATED_TO >	<SESAR Solution>	PJ.07-01
<SATISFIES>	<ATMS Requirement>	REQ-07.01-SPRINTEROP-PL01.005

< ALLOCATED_TO >	<Enabler>	SVC-012

[REQ]

Identifier	REQ-07-01-TS-SVC.0009
Title	AOWIR proposeRoutes service operation reply provides the hotspot data
Requirement	The AOWIR service proposeRoutes operation reply shall provide the Hotspot data that is applicable to the ProposedTrajectory.
Status	<in progress>
Rationale	To extend the AOWIR service with the DCB impact information in the NM area.
Category	<Functional>

[REQ Trace]

Relationship	Linked Element Type	Identifier
< ALLOCATED_TO >	<SESAR Solution>	PJ.07-01
<SATISFIES>	<ATMS Requirement>	REQ-07.01-SPRINTEROP-PL01.005
< ALLOCATED_TO >	<Enabler>	SVC-012

4.2.2.1.4 AOWIR Service Additional Constraints

[REQ]

Identifier	REQ-07-01-TS-SVC.0010
Title	AOWIR service proposeRoutes operation accepts avoidRegulation as AU constraint data
Requirement	The FOC system shall be able to provide one or more regulation identifiers in the proposeRoutes request of the AOWIR service.
Status	<in progress>
Rationale	To enable the AU user to request for route proposals so that avoids one or more regulations.
Category	<Functional>

[REQ Trace]

Relationship	Linked Element Type	Identifier
< ALLOCATED_TO >	<SESAR Solution>	PJ.07-01
<SATISFIES>	<ATMS Requirement>	REQ-07.01-SPRINTEROP-DCB01.0002
< ALLOCATED_TO >	<Enabler>	SVC-011

		SVC-012

[REQ]

Identifier	REQ-07-01-TS-SVC.0011
Title	AOWIR service proposeRoutes operation returns routes by avoiding a regulation
Requirement	The AOWIR service proposeRoutes operation reply shall provide alternative routes that do not cross the regulation when the request includes a list of regulations to avoid.
Status	<in progress>
Rationale	To propose alternatives to avoid a regulation to an Airspace User.
Category	<Functional>

[REQ Trace]

Relationship	Linked Element Type	Identifier
< ALLOCATED_TO >	<SESAR Solution>	PJ.07-01
<SATISFIES>	<ATMS Requirement>	REQ-07.01-SPRINTEROP-DCB01.0002
< ALLOCATED_TO >	<Enabler>	SVC-011 SVC-012

[REQ]

Identifier	REQ-07-01-TS-SVC.0012
Title	AOWIR proposeRoutes operation returns only valid trajectories
Requirement	The AOWIR service proposeRoutes operation shall provide only IFPS validated ProposedTrajectory elements to the Airspace User.
Status	<in progress>
Rationale	The Airspace Users can only use operationally acceptable trajectories.
Category	<Functional>

[REQ Trace]

Relationship	Linked Element Type	Identifier
< ALLOCATED_TO >	<SESAR Solution>	PJ.07-01
<SATISFIES>	<ATMS Requirement>	REQ-07.01-SPRINTEROP-DCB01.0002

< ALLOCATED_TO >	<Enabler>	SVC-011 SVC-012

4.2.2.2 Regional ATFCM Requirements

4.2.2.2.1 Traffic Demand Management Requirements

[REQ]

Identifier	REQ-07-01-TS-TDM.0001
Title	Regional ATFCM AOWIR service provision
Requirement	The Regional ATFCM shall provide the AOWIR service as B2B web service using the SWIM Yellow Profile.
Status	<in progress>
Rationale	The AOWIR exists as a function in NM human machine interfaces but not as SWIM service. The SWIM service will facilitate AOWIR function integration in the FOC human machine interfaces.
Category	<Functional>

[REQ Trace]

Relationship	Linked Element Type	Identifier
< ALLOCATED_TO >	<SESAR Solution>	PJ.07-01
<SATISFIES>	<ATMS Requirement>	REQ-07.01-SPRINTEROP-DCB01.0001
< ALLOCATED_TO >	<Enabler>	SWIM-APS-24 SWIM-APS-25

[REQ]

Identifier	REQ-07-01-TS-TDM.0002
Title	Regional ATFCM FF-ICE Planning and FF-ICE Filing service provision
Requirement	The Regional ATFCM shall provide the modified FF-ICE Planning and FF-ICE Filing services as B2B web service using the SWIM Yellow Profile.
Status	<in progress>
Rationale	The FF-ICE services are prerequisites to provide enhanced DCB information.
Category	<Functional>

[REQ Trace]

Relationship	Linked Element Type	Identifier
< ALLOCATED_TO >	<SESAR Solution>	PJ.07-01
<SATISFIES>	<ATMS Requirement>	REQ-07.01-SPRINTEROP-DCB01.0001

< ALLOCATED_TO >	<Enabler>	SWIM-APS-19

[REQ]

Identifier	REQ-07-01-TS-TDM.0003
Title	PFP/eFPL validation, whatIfReroute and proposeRoutes obtains DCB constraint and enriched DCB data from Demand and Capacity Balancing
Requirement	The PFP/eFPL validation, whatIfReroute and proposeRoutes functions shall request the ATFCMDelay, ATFCMRegulation, STAM Cherry Picking, CongestionIndicator, and Hotspot data for a valid trajectory to the Demand and Capacity Balancing.
Status	<in progress>
Rationale	To align the traffic demand management and demand and capacity planning functional blocks.
Category	<Functional>

[REQ Trace]

Relationship	Linked Element Type	Identifier
< ALLOCATED_TO >	<SESAR Solution>	PJ.07-01
<SATISFIES>	<ATMS Requirement>	REQ-07.01-SPRINTEROP-DCB01.0001 REQ-07.01-SPRINTEROP-DCB01.0002
< ALLOCATED_TO >	<Enabler>	NIMS- 58 NIMS-61

4.2.2.2.2 Demand and Capacity Balancing Requirements

[REQ]

Identifier	REQ-07-01-TS-DCB.0001
Title	FF-ICEFlightInformation service notification on DCB Constraint Data
Requirement	The Regional ATFCM shall notify the AUs who subscribed to the flight data when there is a change in the ATFCMDelay, ATFCMRegulation and STAM Cherry Picking data related to a flight.
Status	<in progress>
Rationale	The AU needs to be informed on the changes to the DCB constraints on the flight
Category	<Functional>

[REQ Trace]

Relationship	Linked Element Type	Identifier
< ALLOCATED_TO >	<SESAR Solution>	PJ.07-01
<SATISFIES>	<ATMS Requirement>	REQ-07.01-SPRINTEROP-PL01.0003
< ALLOCATED_TO >	<Enabler>	SWIM-APS-21

[REQ]

Identifier	REQ-07-01-TS-DCB.0002
Title	FF-ICEFlightInformation Service notification on Hotspot Data
Requirement	The Regional ATFCM shall notify the AUs who subscribed to the flight plan data when there is a change in the Hotspots related to a flight plan.
Status	<in progress>
Rationale	The AU needs to be informed on the changes to the Hotspots on the flight plan
Category	<Functional>

[REQ Trace]

Relationship	Linked Element Type	Identifier
< ALLOCATED_TO >	<SESAR Solution>	PJ.07-01
<SATISFIES>	<ATMS Requirement>	REQ-07.01-SPRINTEROP-PL01.0005
< ALLOCATED_TO >	<Enabler>	SWIM_APS-25

[REQ]

Identifier	REQ-07-01-TS-DCB.0003
Title	CongestionIndicator Calculation
Requirement	The congestion level indicator shall be calculated per airspace as: Entry count: • NORMAL [0%, 90% capacity[• LOW [90%, 100% capacity[• HIGH [100%, 110% capacity[• OVERLOAD [110%, [Occupancy Count: • NORMAL [0, sustained] • LOW [sustained+1, peak] but no sustained alert • HIGH Sustained alert has occurred

	• OVERLOAD OTMV peak alert has occurred
Status	<in progress>
Rationale	To indicate the traffic load situation along the trajectory to the Airspace User
Category	<Functional>

[REQ Trace]

Relationship	Linked Element Type	Identifier
< ALLOCATED_TO >	<SESAR Solution>	PJ.07-01
<SATISFIES>	<ATMS Requirement>	REQ-07.01-SPRINTEROP-DCB01.0003
< ALLOCATED_TO >	<Enabler>	NIMS-58

[REQ]

Identifier	REQ-07-01-TS-DCB.0004
Title	Late updater status during rerouting
Requirement	The Regional ATFCM shall identify the rerouting requests with new trajectories crossing the airspaces where there is a hotspot declared or a regulation created. These flights when updated shall be marked as late updater and subject to the rules for a late updater.
Status	<in progress>
Rationale	To provide incentives for the Airspace Users avoiding congested areas.
Category	<Functional>

[REQ Trace]

Relationship	Linked Element Type	Identifier
< ALLOCATED_TO >	<SESAR Solution>	PJ.07-01
<SATISFIES>	<ATMS Requirement>	
< ALLOCATED_TO >	<Enabler>	NIMS-58 NIMS-61

4.2.2.3 Civil AU Operations Centre Requirements

4.2.2.3.1 Flight Management

4.2.2.3.1.1 PFP Initialisation

[REQ]

Identifier	REQ-07-01-TS-FM.0001
Title	Submission of a new PFP
Requirement	The “Flight Management” FB from the “Civil AU FOC” CC shall have the capability to create a PFP, submit it to the “Traffic Demand Management” FB from the “Regional ATFCM” CC, and get in return the corresponding “DCB constraints” and “enriched DCB constraints” data through the “FF-ICE planning” service.
Status	<in progress>
Rationale	To enable the AU to submit a new PFP to the Regional ATFCM.
Category	<Functional>

[REQ Trace]

Relationship	Linked Element Type	Identifier
< ALLOCATED_TO >	<SESAR Solution>	PJ.07-01
<SATISFIES>	<ATMS Requirement>	REQ-07.01-SPRINTEROP-PL01.0001
< ALLOCATED_TO >	<Enabler>	SWIM-APS-20

4.2.2.3.1.2 PFP Monitoring

[REQ]

Identifier	REQ-07-01-TS-FM.0002
Title	Monitoring submitted PFPs against non ATM external or internal constraints
Requirement	The “Flight Management” FB from the “Civil AU FOC” CC shall have the capability to monitor over time the consistency of submitted PFPs against changes in the external (e.g. weather) or internal (e.g. aircraft, crew …) situation.
Status	<in progress>
Rationale	The AU monitors the constraints potentially impacting submitted PFPs.
Category	<Functional>

[REQ Trace]

Relationship	Linked Element Type	Identifier
< ALLOCATED_TO >	<SESAR Solution>	PJ.07-01
<SATISFIES>	<ATMS Requirement>	REQ-07.01-SPRINTEROP-PL01.0002
< ALLOCATED_TO >	<Enabler>	AOC-ATM-25

		SWIM-APS-22

[REQ]

Identifier	REQ-07-01-TS-FM.0003
Title	Monitoring submitted PFPs against ATFCM constraints
Requirement	The “Flight Management” FB from the “Civil AU FOC” CC shall have the capability to monitor over time the consistency of submitted PFPs against changes in the ATFM situation, through the “FF-ICE Flight Information” service.
Status	<in progress>
Rationale	The AU monitors the constraints (beyond ATM-related constraints) potentially impacting submitted PFPs.
Category	<Functional>

[REQ Trace]

Relationship	Linked Element Type	Identifier
< ALLOCATED_TO >	<SESAR Solution>	PJ.07-01
<SATISFIES>	<ATMS Requirement>	REQ-07.01-SPRINTEROP-PL01.0002
< ALLOCATED_TO >	<Enabler>	AOC-ATM-25 SWIM-APS-22

4.2.2.3.1.3 Decision Support

[REQ]

Identifier	REQ-07-01-TS-FM.0004
Title	Checking the “performance score” of submitted PFPs/eFPLs
Requirement	The “Flight Management” FB from the “Civil AU FOC” CC shall have the capability to assess a score measuring the applicability and efficiency of a PFP (“Submitted PFP”, “Negotiating 4D Trajectory”, or ”Proposed Trajectory”), given the external, internal and ATFM constraints.
Status	<in progress>
Rationale	The AU assesses the validity of submitted PFPs given the ongoing impacting constraints.
Category	<Functional>

[REQ Trace]

Relationship	Linked Element Type	Identifier

< ALLOCATED_TO >	<SESAR Solution>	PJ.07-01
<SATISFIES>	<ATMS Requirement>	REQ-07.01-SPRINTEROP-PL01.0002
< ALLOCATED_TO >	<Enabler>	AOC-ATM-24 AOC-ATM-25

[REQ]

Identifier	REQ-07-01-TS-FM.0005
Title	Alerting the Flight Dispatcher in case of degradation or improvement of the score of a PFP
Requirement	The "Flight Management" FB from the "Civil AU FOC" CC shall have the capability to alert the "Flight Dispatcher" in case the score will get below (or above) a threshold defined by the Airline.
Status	<in progress>
Rationale	The system alerts the Flight Dispatcher when a PFP is no longer acceptable or efficient for the AU, or when the risk of a degraded PFP performance is reduced or removed.
Category	<Functional>

[REQ Trace]

Relationship	Linked Element Type	Identifier
< ALLOCATED_TO >	<SESAR Solution>	PJ.07-01
<SATISFIES>	<ATMS Requirement>	REQ-07.01-SPRINTEROP-PL01.0002
< ALLOCATED_TO >	<Enabler>	HUM-019

4.2.2.3.1.4 AOWIR

[REQ]

Identifier	REQ-07-01-TS-FM.0006
Title	"whatIfReroute" PFP as a Negotiating 4D Trajectory
Requirement	Upon decision of the Flight Dispatcher, the "Flight Management" FB from the "Civil AU FOC" CC shall have the capability to support the creation of an alternative PFP, as ***Negotiating4DTrajectory***, to submit it to the "Demand & Capacity Balancing" FB from the "Regional ATFCM" CC, and get in return the corresponding "DCB constraints" and "enriched DCB constraints" data through the "AOWIR" service.
Status	<in progress>

Rationale	The Flight Dispatcher can decide to create and assess an alternative PFP, through a “whatIfReroute” function.
Category	<Functional>

[REQ Trace]

Relationship	Linked Element Type	Identifier
< ALLOCATED_TO >	<SESAR Solution>	PJ.07-01
<SATISFIES>	<ATMS Requirement>	REQ-07.01-SPRINTEROP-DCB01.0001
< ALLOCATED_TO >	<Enabler>	AOC-ATM-24 SWIM-APS-23 AOC-ATM-26

[REQ]

Identifier	REQ-07-01-TS-FM.0007
Title	“proposeRoutes” PFP as a Proposed Trajectory
Requirement	Upon decision of the Flight Dispatcher, the “Flight Management” FB from the “Civil AU FOC” CC shall have the capability to request the proposal for an alternative PFP from the “Demand & Capacity Balancing” FB of the “Regional ATFCM” CC, and get in return a ***ProposedTrajectory***, with the corresponding “DCB constraints” and “enriched DCB constraints” data through the “AOWIR” service.
Status	<in progress>
Rationale	The Flight Dispatcher can decide to request an alternative PFP from the Regional ATFCM, through a “proposeRoutes” function.
Category	<Functional>

[REQ Trace]

Relationship	Linked Element Type	Identifier
< ALLOCATED_TO >	<SESAR Solution>	PJ.07-01
<SATISFIES>	<ATMS Requirement>	REQ-07.01-SPRINTEROP-DCB01.0002
< ALLOCATED_TO >	<Enabler>	AOC-ATM-24 SWIM-APS-23 AOC-ATM-26

4.2.2.3.1.5 PFP Update

[REQ]

Identifier	REQ-07-01-TS-FM.0008
Title	Update of an existing submitted PFP
Requirement	Upon decision of the Flight Dispatcher, the “Flight Management” FB from the “Civil AU FOC” CC shall have the capability to revise a “submitted PFP”, through the submission of a new “Negotiating 4D trajectory” or “Proposed Trajectory”, using the “FF-ICE planning“ service.
Status	<in progress>
Rationale	The Flight Dispatcher can decide to update a submitted FPP, to replace with a “Negotiating 4D trajectory” or a “Proposed Trajectory”.
Category	<Functional>

[REQ Trace]

Relationship	Linked Element Type	Identifier
< ALLOCATED_TO >	<SESAR Solution>	PJ.07-01
<SATISFIES>	<ATMS Requirement>	REQ-07.01-SPRINTEROP-PL01.0002
< ALLOCATED_TO >	<Enabler>	AOC-ATM-25

4.2.3 Airspace User Simple Preferences

[REQ]

Identifier	REQ-07-01-TS-SVC.0013
Title	The FF-ICEFilingService enhanced with flight delay criticality data elements
Requirement	The FF-ICEFilingService shall enable the FOC to provide the FlightDataCriticality, FlightDataCriticalityReason and FlightDataCriticalityTimeTolerance values while submitting or updating a flight plan.
Status	<in progress>
Rationale	The Airspace User shall be able to share this data with the network actors.
Category	<Functional>

[REQ Trace]

Relationship	Linked Element Type	Identifier
< ALLOCATED_TO >	<SESAR Solution>	PJ.07-01
<SATISFIES>	<ATMS Requirement>	REQ-07.01-SPRINTEROP-DCB01.0004
< ALLOCATED_TO >	<Enabler>	CR3510

[REQ]

Identifier	REQ-07-01-TS-SVC.0014
Title	The FlightPlanDataDistribution service enhanced with flight delay criticality data elements
Requirement	The FlightPlanDataDistribution shall distribute the FlightDataCriticality, FlightDataCriticalityReason and FlightDataCriticalityTimeTolerance values to the concerned ACCs.
Status	<in progress>
Rationale	All NMF actors shall be aware of the AU simple user preferences
Category	<Functional>

[REQ Trace]

Relationship	Linked Element Type	Identifier
< ALLOCATED_TO >	<SESAR Solution>	PJ.07-01
<SATISFIES>	<ATMS Requirement>	REQ-07.01-SPRINTEROP-DCB01.0004
< ALLOCATED_TO >	<Enabler>	CR3509

[

4.2.4 Security Requirements

[REQ]

Identifier	REQ-07-01-TS-SEC.0001
Title	Service provision and consumption via SWIM Yellow Profile
Requirement	FF-ICEPlanning, FF-ICEFlightInformation and AOWIR services shall be provided and consumed via the SWIM Yellow Profile.
Status	<in progress>
Rationale	The consumer needs to be authenticated and authorised, and the data exchanges shall be protected and restricted only to the intended receivers.
Category	<Security>

[REQ Trace]

Relationship	Linked Element Type	Identifier
< ALLOCATED_TO >	<SESAR Solution>	PJ.07-01
<SATISFIES>	<ATMS Requirement>	REQ-07.01-SPRINTEROP-SE01.0001
< ALLOCATED_TO >	<Enabler>	SVC-006

		SVC-007 SVC-011 SVC-012

[REQ]

Identifier	REQ-07-01-TS-SEC.0002
Title	Regional ATFCM DCB data protection and integrity
Requirement	The Regional ATFCM shall protect and ensure the integrity of the DCB constraint and enriched DCB constraint data.
Status	<in progress>
Rationale	The data kept by the Regional ATFCM has to be trustable and maintain the original level of quality.
Category	<Security>

[REQ Trace]

Relationship	Linked Element Type	Identifier
< ALLOCATED_TO >	<SESAR Solution>	PJ.07-01
<SATISFIES>	<ATMS Requirement>	REQ-07.01-SPRINTEROP-SE01.0002
< ALLOCATED_TO >	<Enabler>	SWIM-APS-19 SWIM-APS-21 SWIM-APS-24 SWIM-APS-25

Identifier	REQ-07-01-TS-SEC.0003
Title	FOC DCB data protection and integrity
Requirement	The FOC shall protect and ensure the integrity of the DCB constraint and enriched DCB constraint data.
Status	<in progress>
Rationale	The data kept by the Airspace User has to be trustable and maintain the original level of quality.
Category	<Functional>

[REQ Trace]

Relationship	Linked Element Type	Identifier
< ALLOCATED_TO >	<SESAR Solution>	PJ.07-01
<SATISFIES>	<ATMS Requirement>	REQ-07.01-SPRINTEROP-SE01.0005
< ALLOCATED_TO >	<Enabler>	SWIM-APS-20 SWIM-APS-22 SWIM-APS-23

[REQ]

Identifier	REQ-07-01-TS-SEC.0002
Title	Regional ATFCM FDCI data protection and integrity
Requirement	The Regional ATFCM shall protect and ensure the integrity of the FDCI data.
Status	<in progress>
Rationale	The data kept by the Regional ATFCM has to be trustable and maintain the original level of quality.
Category	<Security>

[REQ Trace]

Relationship	Linked Element Type	Identifier
< ALLOCATED_TO >	<SESAR Solution>	PJ.07-01
<SATISFIES>	<ATMS Requirement>	REQ-07.01-SPRINTEROP-SE01.0004
< ALLOCATED_TO >	<Enabler>	

Identifier	REQ-07-01-TS-SEC.0003
Title	FOC FDCI data protection and integrity
Requirement	The FOC shall protect and ensure the integrity of the FDCI data.
Status	<in progress>
Rationale	The data kept by the Airspace User has to be trustable and maintain the original level of quality.
Category	<Functional>

[REQ Trace]

Relationship	Linked Element Type	Identifier
< ALLOCATED_TO >	<SESAR Solution>	PJ.07-01
<SATISFIES>	<ATMS Requirement>	REQ-07.01-SPRINTEROP-SE01.0003
< ALLOCATED_TO >	<Enabler>	

5 Implementation Options

N/A

6 Assumptions

As already described in the background section, the solution assumes that the eFPL processing of the Regional ATFCM apply to the PFP processing as well. These rules are inherited from the current network operations, and enhanced by the Extended Flight Plan requirements in SESAR 1.

It is also assumed that the only main difference between the PFP and eFPL processing on the Regional ATFCM side is, the PFP is *not* distributed to ATC for requesting ATC services.

7 References and Applicable Documents

7.1 Applicable Documents

Content Integration

[1] B.04.01 D138 EATMA Guidance Material, Edition 9.0

[2] EATMA Community pages, https://ost.eurocontrol.int/sites/eatmac/default.aspx

[3] SESAR ATM Lexicon, https://ext.eurocontrol.int/lexicon/index.php/SESAR

System Engineering

[4] SESAR 2020 Requirements and Validation Guidelines

7.2 Reference Documents

[5] D.1.2 SESAR Solution PJ07-1 Initial SPR-INTEROP/OSED for V2, Edition 00.00.15, 19 September 2019

[6] D92 Step 1 EFPL in NM Systems Technical Specification, Edition 00.01.01, 30 May 2016

[7] ATMRPP/2-WP/718 AIR TRAFFIC MANAGEMENT REQUIREMENTS AND PERFORMANCE PANEL (ATMRPP), SECOND MEETING, Montreal, Canada, 14 to 18 November 2016, draft working paper

[8] FF-ICE Manual ***Draft*** Version 0.8 for ATMRPP Review, 2017-12-22, draft edition on STELLAR

[9] FIXM Implementation Guidance_FIXM v4.1.0, Edition 2.0, 30 March 2018, available on www.FIXM.aero (download here).

-END OF DOCUMENT-