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SESAR SOLUTION PJ.07-W2-38 CONTEXTUAL NOTE V3

Deliverable ID:	**D2.1.013**
Dissemination Level:	**PU**
Project Acronym:	**OAUO**
Grant:	**874465**
Call:	**H2020-SESAR-2019-1**
Topic:	**PJ.07-W2-38**
Consortium Coordinator:	**EUROCONTROL**
Edition date:	**12 Apr 2023**
Edition:	**00.01.01**
Template Edition:	**02.00.04**

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Authoring & Approval

Authors of the document

Beneficiary	Date
EUROCONTROL	12 Apr 2023

Reviewers internal to the project

Beneficiary	Date
AIRBUS	1 Mar 2023
DASSAULT	1 Mar 2023
METRON	1 Mar 2023
NAVBLUE	1 Mar 2023
THALES	1 Mar 2023
ENAV	1 Mar 2023
DSNA	1 Mar 2023

Reviewers external to the project

Beneficiary	Date

Approved for submission to the S3JU By - Representatives of all beneficiaries involved in the project

Beneficiary	Date
EUROCONTROL	15 Mar 2023
DASSAULT	15 Mar 2023
METRON	15 Mar 2023
NAVBLUE	15 Mar 2023
THALES	15 Mar 2023
ENAV	15 Mar 2023
DSNA	15 Mar 2023

Rejected By - Representatives of beneficiaries involved in the project

Beneficiary	Date

Document History

Edition	Date	Status	Beneficiary	Justification

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00.00.01	1 Mar 2023	Draft	EUROCONTROL	Initial version for review and approval
00.01.00	23 Mar 2023	Final	EUROCONTROL	Submitted to SJU
00.01.01	12 Apr 2023	Final	EUROCONTROL	Update with SJU comments

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This contextual note is part of a project that has received funding from the SESAR3 Joint Undertaking under grant agreement No 874465 under European Union's Horizon 2020 research and innovation programme.

Abstract

This V3 Contextual note provides SESAR Solution PJ.07-W2-38 "**Enhanced integration of AU trajectory definition and network management processes**" solution description for industrialisation consideration.

The objective of the solution is to reduce the impact of ATM planning on Airspace Users' costs of operations, by providing them a better access to ATM resource management and allowing them to better cope with ATM constraints. This shall improve Airspace Users flight planning and network management through improved FOC participation into the ATM network collaborative processes, more specifically by introducing protection hotspots and Proactive-FDCI concepts.

The solution covers two operational improvements:

- Use of Enriched DCB Information and Enhanced What-Ifs to Improve AU Flight Planning: This includes the protection hotpots information sharing and use by Airspace Users, Regional Network Operations and Local Network Operations.
- Use of Simple AU Preferences in DCB Processes: This improvement considers more specifically the Pro-active Flight Delay Criticality Indicator (FDCI) information sharing and use by Airspace Users, Regional Network Operations and Local Network Operations.

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1 Purpose

This contextual note provides to any interested reader (external and internal to the SESAR programme) an introduction to the SESAR Solution PJ.07-W2-38 “Enhanced integration of AU trajectory definition and network management processes” solution in terms of scope, main operational and performance benefits, and relevant system impacts.

This contextual note contains, as well, additional activities to be conducted during the industrialization phase or as part of deployment.

This document introduces the technical data pack comprising the SESAR JU deliverables to support deployment.

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2 Improvements in Air Traffic Management (ATM)

The SESAR Solution "**Enhanced integration of AU trajectory definition and network management processes**" aims to reduce the impact of ATM planning on Airspace Users' costs of operations, by providing them a better access to ATM resource management and allowing them to better cope with ATM constraints. This shall improve Airspace Users flight planning and network management through improved FOC participation into the ATM network collaborative processes.

More precisely, the solution includes two topics as detailed in the following sections.

2.1 Use of Enriched DCB Information and Enhanced What-Ifs to Improve AU Flight Planning

Enriched DCB information encompasses DCB constraints/measures information like ATFCM regulations/CTOT/STAM; and additional DCB information such as hotspots. Enriched DCB information is provided either for the trajectory planned by the AU as part of a submitted flight plan or for alternative trajectories considered in the context of advanced what-if.

The information can be used in two use-cases:

- Proactive management of fleet ATFCM delays by an Airspace User
- CDM processes triggered by Flow Managers (e.g., STAM/Cherry picking measures).

Main objectives of the improvement are:

- Minimise impact of flow measures on AU flight costs – Increase flight efficiency
- Better use spare network capacity
- Reduce operator's workload through increased automation
- Increase network planning stability in the day of operations

The following diagram illustrates the information exchanges.

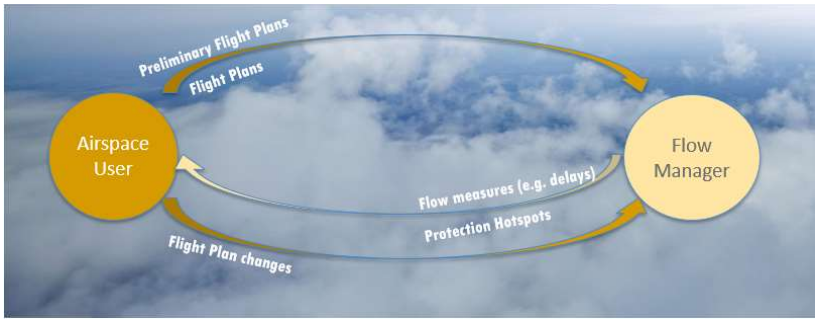

Figure 1: Enriched DCB Information Exchanges

This improvement has introduced the notion of "protection hotspot" associated to a traffic volume usually close to saturation. The protection hotspot can be used by NMF for several purposes:

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- Avoid an increase of network instability: in particular, the creation of last-minute airspace overloads due to AUs re-routings inducing new DCB constraints and further re-rerouting.
- Keep spare capacity in some specific airspace when needed to increase safety and efficiency of tactical DCB flow measures.

2.2 Use of Simple AU Preferences in DCB Processes

Flight Delay Criticality Indicator (FDCI) is a parameter provided by the Airspace User to indicate the importance for the flight to progress on time. Hence, the flight should preferably not be assigned any or much delay and it should even be tried to decrease an allocated delay if possible.

For critical flights, the FDCI can be used by the Network Management Function for slot improvement, to reduce the allocated delay or to avoid providing STAM during the cherry-picking selection to create a DCB measure.

As the AU fleet situation is changing along the day, FDCI can be issued at any time. Two types were identified:

- Proactive FDCI (P-FDCI) (validated during Wave2, V3 maturity): for critical flights, in advance of any DCB measure allocated to the flight. The intention is that NMF consider this information before implementing any measure.
- Reactive FDCI (R-FDCI) (validated during Wave1, deployed in operations): issued when a DCB measure is already affecting the flight with the aim that NMF can take any corrective action to reduce the impact.

The following diagram provides an overview of actors and information exchanges concerned by the P-FDCI.

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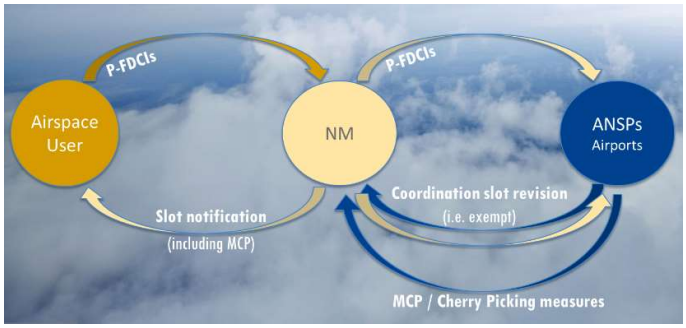

Figure 2: P-FDCI Information exchanges

NMOC operators and FMPs have the P-FDCI information and take it into account to:

- Coordinate for slot exemptions or force slots in regulations
- Use P-FDCI information to determine which type of DCB measures (e.g., regulation vs re-routing/level capping measures) should be applied to solve a DCB problem.
- Propose flight to which to propose in priority a re-routing to avoid ATFCM delay.

2.3 Relevant Operating Environment

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This solution covers all traffic in ECAC area subject to ATFCM regulations including departure, en-route, and airport regulations.

Regarding AUO-0219 Use of Enriched DCB Information and Enhanced What-Ifs to Improve AU Flight Planning, the focus is on traffic subject to ATFCM en-route regulations.

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3 Operational Improvement Steps (OIs) & Enablers

OI Step code	OI Step title	OI Step coverage
AUO-0219	Use of Enriched DCB Information and Enhanced What-Ifs to Improve AU Flight Planning	Full

Enriched DCB information will be available to improve AUs decision process when planning or re-planning trajectories. Enriched DCB information encompasses DCB constraints/measures information like ATFCM regulations/CTOT/STAM; and additional DCB information such as hotspots. Enriched DCB information is provided either for the trajectory planned by the AU as part of a submitted flight plan or for alternative trajectories considered in the context of advanced what-if. The information can be used in different use-cases: proactive management of fleet delays by AUs, CDM processes triggered by flow managers (e.g., STAM/Cherry picking measures).

Enriched DCB information and advanced what-if functions can be accessible via SWIM services to enable full integration of flight planning and ATFCM information in AU systems and further automation of AU decisions related to flow management constraints.

EN code	Title	Coverage
AOC-ATM-24	Integration of the DCB constraint data to the flight planning functions	Required/Develop
AOC-ATM-26	Integration of the enriched DCB constraint data to the flight planning functions	Required/Develop
HUM-019	New task to analyse the DCB impact and decide on the next action for the flight plan	Required/Develop
NIMS-58	Enhance the regional DCB functions to provide the enriched DCB data for a flight trajectory	Required/Develop
NIMS-61	Enhance the regional DCB functions to provide the DCB constraint data for a flight trajectory	Required/Develop
NIMS-77	Enhanced local DCB traffic monitoring functions	Required/Develop

OI Step code	OI Step title	OI Step coverage
AUO-0208	Use of Simple AU Preferences in DCB Processes	Full

As part of CDM processes, the AU can provide preferences information even before the publication of DCB constraints. This information is considered in the DCB processes to define or refine measures to reduce the impact on the AU costs, when possible. Simple preferences refer more specifically to light information like proactive flight delay criticality indicators that can be considered by NMF human operators and systems - either at regional, sub-regional or local levels - to avoid ATFCM delay (e.g., slot exemption or level capping/re-routing proposal to avoid an ATFCM regulation) for critical flights.

EN code	Title (EA Project)	Coverage

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AOC-ATM-28	Enhance AU flight planning systems to integrate the proactive flight criticality data	Required/Develop
NIMS-72	Enhance NM flight planning and DCB functions to integrate the proactive flight criticality data	Required/Develop
NIMS-78	Enhance local ATFCM system to integrate the proactive flight criticality data.	Required/Develop

Applicable Integrated Roadmap Dataset is DS23.

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4 Background and validation process

The Solution addressed, at V3 maturity level, the two topics described in the first section:

- Use of Enriched DCB Information and Enhanced What-Ifs to Improve AU Flight Planning.
- Use of Simple AU Preferences in DCB Processes.

The following diagram provides an overview of the validation roadmap.

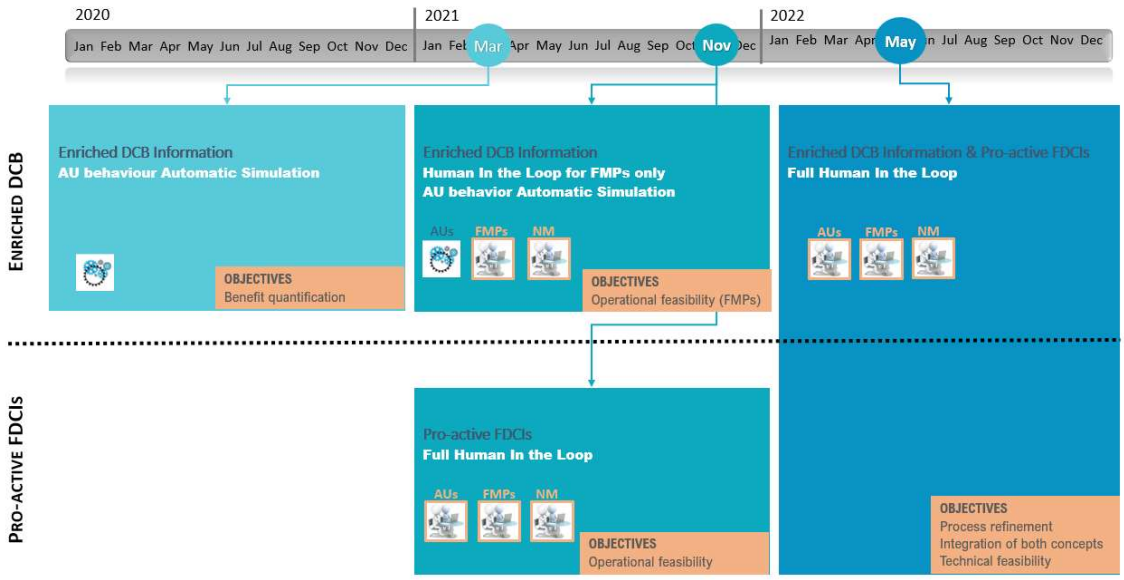

Figure 3: Validation roadmap

Four exercises, described below, were performed to address stakeholders' needs and validation objectives.

- One automatic simulation in replay mode covering the first topic only. It performed automated runs simulating AU behaviours to assess the feasibility to automate (fully or partially) AU trajectory re-planning processes considering dynamic DCB constraints. It also allowed to obtain results at wide scale being able to have representable quantitative measure on network stability and key performance areas. It was carried out in March 2021 using the automatic simulator of the EUROCONTROL PLANTA prototype (no user involved).Then, three human-in-the-loop (HIL) real-time simulations in shadow mode were run. The two first ones were considered as preparatory exercise for the third one.

- One HIL exercise covering the first topic only. As the objective was to refine requirements on Protection Hotspot definition and associated procedures, roles and responsibilities, FMPs were involved using the EUROCONTROL PLANTA prototype. AU behaviours were simulated as in the previous exercise to evaluate the impact of protection hotspots publication on network stability. This validation activity was carried out in November 2021.

- One HIL exercise covering the second topic only. The objective was to refine requirements on P-FDCI definition, associated rules, roles, and responsibilities. AUs (using the METRON AVIATION or SWISS prototypes), FMPs and NMOC (using EUROCONTROL PLANTA Prototype) were involved in this validation activity carried out end of November / beginning December 2021.

- One HIL exercise covering both topics. The main objectives were to:
  - Reassess, in a more realistic operational environment the performance benefits and disbenefits/risks of the concept and validate that procedures ensure safety and equity.
  - Assess the integration of both concepts (management of critical flight in protection hotspots, trajectory optimisation considering P-FDCI information).
  - Assess Human Performance for all actors (Roles, Responsibilities, and Operating Methods, Workload, and Situation awareness, Communication between actors, HMI & technical system adequacy).
  - Assess the technical feasibility.

This last exercise was carried out in May 2022. It involved both Network operations (local and regional) who used THALES or EUROCONTROL PLANTA prototypes and AUs who were connected to the validation platform via METRON AVIATION, NAVBLUE, DASSAULT, SWISS or EUROCONTROL PLANTA prototypes.

HIL exercises involved a significant panel of AUs (Air France, Transavia, El Al, Air Baltic, Ryanair, Swiss and Dassault), ANSPs (DSNA and ENAV) and an operational NM expert playing several roles from the NM Operational Centre (Flow and AOLO roles).

5 Results and Performance Achievements

The main findings from the overall validation exercises as reported in the D2.1.011 – SESAR Solution PJ.07-W2-38: Validation Report (VALR), Edition 00.02.00, 20 February 2023, can be summarised as follows.

5.1 Use of Enriched DCB Information and Enhanced What-Ifs to Improve AU Flight Planning

- From AUs' point of view:
  - Protection hotspot information are considered useful as they impact AUs' decisions depending on the criticality of the flight, the level of delay on the initial route, and the existence of alternative route avoiding the hotspot not too penalising.

- From FMPs' point of view:
  - Protection hotspot information are considered useful:
    - To avoid activating new regulations due to AU re-routings.
    - To keep spare capacity to manage DCB problems in adjacent airspace.
    - To keep spare capacity for some critical flights caught in regulation in adjacent airspaces.
  - Infringer information would be considered to penalise those flights in priority in normal workload situation (this information may not be considered under very high workload situations).

- From NMOC's point of view:
  - Protection hotspot information are considered useful:
    - To give them warnings to perform the network impact assessment.
    - To avoid a high number of inefficient AU re-routings.
  - Infringer Information may be useful in some specific cases (e.g., the percentage of infringers in an airspace may give an idea about the complexity).

- Technical feasibility of mandatory requirements has been demonstrated for all stakeholders.

- Concerning performance assessment, the validation has provided the following conclusions taking into account both quantitative (see section 5.3) and qualitative results:
  - The reduction of the number of inefficient re-filings effects positively Fuel Efficiency and may have a potential impact on Capacity due to reduced instability.
  - The reduction of the number of regulations and the ATFCM delay represents a benefit in terms of departure Punctuality and AU Cost-efficiency.
  - The impact is considered as marginal on other KPAs (Equity, Flight Times).

5.2 Use of Simple AU Preferences in DCB Processes

- All stakeholders agreed that:
  - P-FDCI is an information sharing and no strict rules have been defined to prioritise these critical flights. There is no obligation for NMF to treat a P-FDCI flight.

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- Role and responsibility along flight timeline been clearly defined.
- The notion of P-FDCI centrally and locally managed has been considered as irrelevant by all stakeholders.
- P-FDCI quota is required and shall correspond to 10% of total number of Flight Plans submitted per AU (with a minimum of 5) calculated dynamically throughout the day.

- Potential automation features were addressed:
  - The automatic submission for "repetitive" P-FDCIs is considered as very useful and could represent a significant percentage of the submissions.
  - In general, the AUs are not in favour of the automatic transfer to R-FDCI due to tight R-FDCI quota. This feature could be useful for some "small" airlines only.

- The technical feasibility has been proven in AU, FMP, and NM systems.

- Concerning performance assessment, the validation has provided the following conclusions taking into account both quantitative (see section 5.3) and qualitative results:
  - The reduction of the ATCFM delay has a positive impact on AU Cost Efficiency and Punctuality.
  - The impact on Equity will be limited thanks to implementation of quotas.
  - The impact is considered as null or marginal on other KPAs.

5.3 Quantitative results

The following table (extracted from the Performance Assessment Report), which gives the measured benefits per KPA, takes into account quantitative measures only, while the conclusions provided in Section 5.1 and 5.2 also include qualitative feedback. In addition, some benefits could have been put in various KPAs (e.g., the ATFCM delay impacts AU cost efficiency and punctuality), but in the Performance Assessment Report, they have been arbitrarily attributed to a single KPA to avoid double-counting.

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KPA	KPI/PI	Validation Targets – Network Level (ECAC Wide)	Performance Benefits at Network Level (ECAC Wide or Local depending on the KPI)[1]			Confidence in Results[2]
			AUO-0208	AUO-0219	SOLUTION	
FUEL EFFICIENCY	FEFF1: Actual average fuel burn per flight	Medium (4.19-14.87 kg/flight)	+0.02 kg/flight *0.00% (additional fuel)	+0.67 kg/flight +0.01% (additional fuel)	+0.69 kg/flight +0.01% (additional fuel)	Medium
FLIGHT TIMES	TEFF1: Gate-to-gate flight time	Medium (0.05-0.12 min/flight)	N/A	Neutral impact		Medium
PREDICTABILITY	PRD1: Average of Difference in actual & Flight Plan or RBT durations	Medium (0.28-2.49 %)	N/A	Neutral impact		High
PUNCTUALITY	PUN1: Average departure delay per flight	High (0.11-0.44 min)	N/A	0.24 min/flight 15.37	0.24 min/flight 15.37	High
AU COST EFFICIENCY	AUC3: Direct operating costs for an airspace user	N/A	191,625,000 EUR/year	N/A	191,625,000 EUR/year	Medium

Table 1: KPI Assessment Results Summary

[1] Negative impacts are indicated in red. Positive impacts indicated in green.
[2] High – the results might change by +/-10%
Medium – the results might change by +/-25%
Low – the results might change by +/-50% or greater
N/A – not applicable, i.e., the KPI cannot be influenced by the solution

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6 Recommendations and Additional activities

6.1 Recommendations

6.1.1 Use of Enriched DCB Information and Enhanced What-Ifs to Improve AU Flight Planning

Protection hotspots concept has reached V3 maturity level and could start to be gradually implemented. The implementation should be managed by NM by integrating a set of evolutions (e.g., STAM RRPs) improving FMPs/AUs/NMOC CDM processes related to trajectory planning. The implementation can start by the integration of protection hotspot information in existing what-if functions (e.g., Aircraft Operator What-If Reroute). In next step, the infringer flights information can be introduced to reinforce the protection hotspot information impact.

Protection hotspots should not necessarily be implemented as new type of hotspots. It can be just viewed as new features addressing existing hotspots.

There is no need for additional IR in SESAR 3 in general, but:

Some specific aspects may require IR like the use of Protection Hotspot information in NM automatic re-routing proposal tools.

A DSD could be envisaged combining this topic with hotspots management features developed in “Dynamic Airspace Configuration” solution.

The specification of the AU simulator developed by EUROCONTROL for validation purpose can be used for improving the trajectory optimisation automation.

6.1.2 Use of Simple AU Preferences in DCB Processes

P-FDCI concept has reached V3 maturity level and can be implemented by NM as soon as possible with an initial step integrating mandatory requirements only (including quota implementation).

Other non-mandatory requirements can be managed in future implementation steps:

- Automatic transfer of P-FDCI to R-FDCI.
- Possibility to declare P-FDCI ahead of flight plan submission.

There is no need for additional R&D (e.g., SESAR 3) apart from addressing new aspects such as the use of P-FDCI information in execution. Some ANSPs consider that P-FDCI information - even provided in planning phase - could be used by some actors in execution (e.g., ACC supervisor). Moreover, it could be envisaged in the future to extend P-FDCI information exchange in execution.

Awareness sessions and communication campaign should be carefully organized and more specifically for small Airspace Users.

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At longer term, Protection Hotpots and Pro-active FDCI should be considered in advanced steps of FF-ICE/1 implementation addressing flight planning and flow management integration.

6.2 Additional Activities

The solution 38 has significant conceptual links with solution 44 on aspects related to hotspots management by local flow managers. The two solutions managed V3 activities independently. However, in V4 phase it is important to clarify some procedures and interrelationships, from S38 perspective:

- Clarify the complementarity and synergy between protection hotspots and other types of hotspots, to better understand how different types of hotspots can be effectively managed in an integrated manner to optimize airspace capacity and reduce delays.
- Refine the procedures related to the management of infringers in the context of the hotspot management processes. This objective focuses on identifying and communicating infringement information effectively and implementing appropriate penalisation measures.
- Refine procedures and local DCB systems requirements related to the management of AU Priority (including FDCI and UDPP) flights within the context of the hotspot management processes.

Our proposal is to implement a SESAR Digital Sky Demonstrator (DSD) specifically for the DCB area. The DSD will serve as a simulation platform that will bring together different tools and systems including at least traffic flow management, flight planning and AU fleet management systems.

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7 Actors Impacted by the SESAR Solution

Airspace Users Operations / Flight Operations Centre (FOC)

1. **Use of Enriched DCB Information and Enhanced What-Ifs to Improve AU Flight Planning**

   - No increase or decrease equity and transparency
   - Increased FOC trajectory optimisation
   - Reduced AU operators workload

2. **Use of Simple AU Preferences in DCB Processes**

   - No increase or decrease the AU operators workload
   - Decreased DCB measures negative impact on the fleet operations
   - Increased equity and transparency

Regional Network Operations / Network Manager (NM)

1. **Use of Enriched DCB Information and Enhanced What-Ifs to Improve AU Flight Planning**

   - Increased network capacity and performance
   - Decreased NMF workload
   - Increased network traffic predictability

2. **Use of Simple AU Preferences in DCB Processes**

   - No increase or decrease on the workload
   - No increase or decrease network performance

Local Network Operations / Flow Management Positions (FMPs)

1. **Use of Enriched DCB Information and Enhanced What-Ifs to Improve AU Flight Planning**

   - Increased network capacity and performance
   - Decreased NMF workload
   - Increased network traffic predictability

2. **Use of Simple AU Preferences in DCB Processes**

   - No increase or decrease on the workload
   - No increase or decrease network performance

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8 Impact on Aircraft System

Not applicable

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9 Impact on Ground Systems

9.1 Use of Enriched DCB Information and Enhanced What-Ifs to Improve AU Flight Planning

This improvement impacts the Network Manager, Local Flow Management and Airspace Users Flight Planning systems as follows:

- The Regional ATFCM (Network Manager) systems are enhanced to
  - Calculate and disseminate the protection hotspots traversed by a flight plan, and disseminate this data to the Civil AU Operations Centre (Flight Operations Centre) systems
  - Monitor and provide the flights infringing protection hotspots, and disseminate this data to the Local ATFCM (Local Flow Management) and Civil AU Operations Centre (Flight Operations Centre) systems
  - Monitor and disseminate the unplanned flights for a traffic volume to the Local ATFCM (Flow Management) systems
  - Provide the post-operational reports about these data and related KPIs

- The Local ATFCM systems (Local Flow Management) are enhanced to
  - Define the protection hotspots via the user interfaces and provide this data to the Regional ATFCM systems.
  - Display the infringing flights data which is received from the Regional ATFCM systems.

- The Civil AU Operations Centre (Flight Operations Centre) systems are enhanced to
  - Integrate the flight plan correlated protection hotspots, resolution hotspot, and regulations into their flight planning systems to be used by the flight dispatchers
  - Integrate the enhanced AOWIR (Aircraft Operator What-If Reroute) functions into their flight planning systems to aid the flight dispatchers.

9.2 Use of Simple AU Preferences in DCB Processes

This improvement impacts the Network Manager, Local Flow Management and Airspace Users Flight Planning systems as follows:

- The Regional ATFCM (Network Manager) systems are enhanced to
  - Receive the P-FDCI flight data from the Civil AU Operations Centre (Flight Operations Centre) systems, and distribute to the Local ATFCM (Flow Management) systems.
  - Display the P-FDCI data on all NMOC (Network Manager Operations Centre) user interfaces
  - Automatically create eHelpdesk requests for delayed P-FDCI flights when the thresholds are reached
  - Produce the post-operational reports about these data and related KPIs

- The Local ATFCM (Local Flow Management) systems are enhanced to

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- Receive the P-FDCI flight data from the Regional ATFCM (Network Manager); and display to the flow managers
- Produce the post-operational reports on the related KPIs

- The Civil AU Operations Centre (Flight Operations Centre) systems are enhanced to
  - Provide the proactive flight data entry in the user interfaces; and send this data to the Regional ATFCM (Network Manager) systems
  - Monitor the P-FDCI flights and give alerts when required

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10 Regulatory Framework Considerations

10.1 Use of Enriched DCB Information and Enhanced What-Ifs to Improve AU Flight Planning

The protection hotpot topic is not relying on or impacting the current implementation of FF-ICE increment 1 as mentioned in Common Project 1 (CP1) regulation.

10.2 Use of Simple AU Preferences in DCB Processes

The pro-active FDCI topic is not relying on or impacting the current implementation of FF-ICE increment 1 as mentioned in Common Project 1 (CP1) regulation.

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11 Standardization Framework Considerations

The PJ.07-W2-38 solution relies on the Network Manager SWIM Yellow Profile services and the specifications contribute to the FF-ICE/1 implementation guidelines and the European FF-ICE services implementation via the Network Manager FPFDE program.

- Use of Enriched DCB Information and Enhanced What-Ifs to Improve AU Flight Planning:

Future FF-ICE/1 implementation may include the complete integration of flight planning and flow management information exchanges. In that context, protection hotspot information should be provided by NM in the FF-ICE planning, filing and trial services as part planning/filing response to AU FF-ICE/1 flight plan submission/trial.

- Use of Simple AU Preferences in DCB Processes:

Future FF-ICE/1 implementation may include the integration of fleet prioritisation information in flight planning/flow management information exchanges. In that context P-FDCI information should be part of FF-ICE/1 fleet prioritization information to be in flight plan information to be considered both in FF-ICE planning and filing services.

For both OIs, there is no need to standardise at worldwide level. This could be addressed in a European FIXM extension.

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12 Solution Data pack

The Data pack for this solution includes the following documents:

Operational Specifications (OSED)

D2.1.008 – PJ.07-W2-38-V3 – Final OSED/SPR – Part I, Edition 00.01.01, 27 February 2023
The purpose of this document is to describe the operational concept and to provide requirements related to SESAR PJ07-W2 OAUO Solution 38.

D2.1.008 – PJ.07-W2-38-V3 – Final OSED/SPR – Part II SAR, Edition 00.01.01, 22 February 2023
This document specifies the results of the safety assessment activities carried out in SESAR2020 Wave 2 by Project PJ.07-W2 Solution 38 "Enhanced integration of AU trajectory definition and network management processes".

D2.1.008 – PJ.07-W2-38-V3 – Final OSED/SPR – Part IV – HPAR, Edition 00.01.00, 20 March January 2023
The purpose of this document is to describe the result of the activities conducted according to the Human Performance (HP) assessment process to derive the HP assessment report for EXE-PJ07W238-02, EXE-PJ07W238-03 and EXE-PJ07W238-04.

D2.1.008 – PJ.07-W2-38-V3 – Final OSED/SPR – Part V - PAR, Edition 00.01.00, 16 March 2023
This document provides the Performance Assessment Report for SESAR Solution PJ.07-W2-38 — Enhanced integration of AU trajectory definition and network management processes. The PAR consolidates solution performance validation results and estimates where no validation results are present.

Technical Specifications (TS/IRS)

D2.1.009 – PJ.07-W2-38 - V3 - Final TS/IRS, Edition 00.01.00, 6 Dec 2022

This document provides the technical architecture and specifications, covering functional, and non-functional requirements related to SESAR Solution PJ.07-W2-38.

Validation Report (VALR)

D2.1.011 – SESAR Solution PJ.07-W2-38: Validation Report (VALR), Edition 00.02.00, 20 February 2023

This document provides the Validation Report for SESAR PJ.07-W2-38 solution "Enhanced Integration of AU trajectory definition and network management processes" at V3 phase. It describes the results of validation exercises defined in Validation Plan and how they have been conducted and provides a set of relevant conclusions and recommendations.

Cost Benefit Analysis (CBA)

D2.1.010 – PJ.07-W2-38-V3 – CBA, Edition 00.02.00, 8 March 2023

This document provides the V3 Cost Benefit Analysis (CBA) results based on an ECAC-level view of the deployment of SESAR Project PJ.07-W2-38 Enhanced integration of AU trajectory definition and network management processes. It considers the deployment of this Solution's

main OI steps (AUO-0219 Use of Enriched DCB Information and Enhanced What-Ifs to Improve AU Flight Planning and AUO-0208 Use of Simple AU Preferences in DCB Processes) through assessment of the expected cost associated to this deployment for the key stakeholders involved, as well as its expected impacts at the ECAC level in terms of achievement of KPIs set-out in the SESAR Performance Framework.

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EUROPEAN PARTNERSHIP

Co-funded by the European Union