

# EUROCONTROL NETWORK MANAGER USER FORUM 2023

## Network Strategic Projects and CP1 Compliance

**2-3 February 2023**

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NMD/ACD

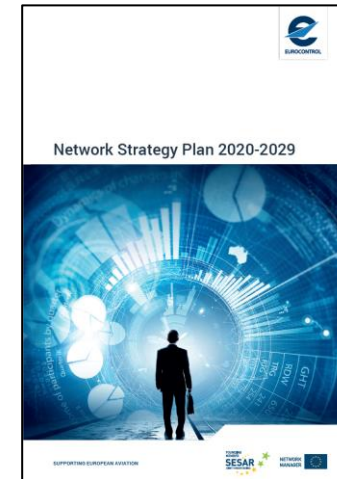
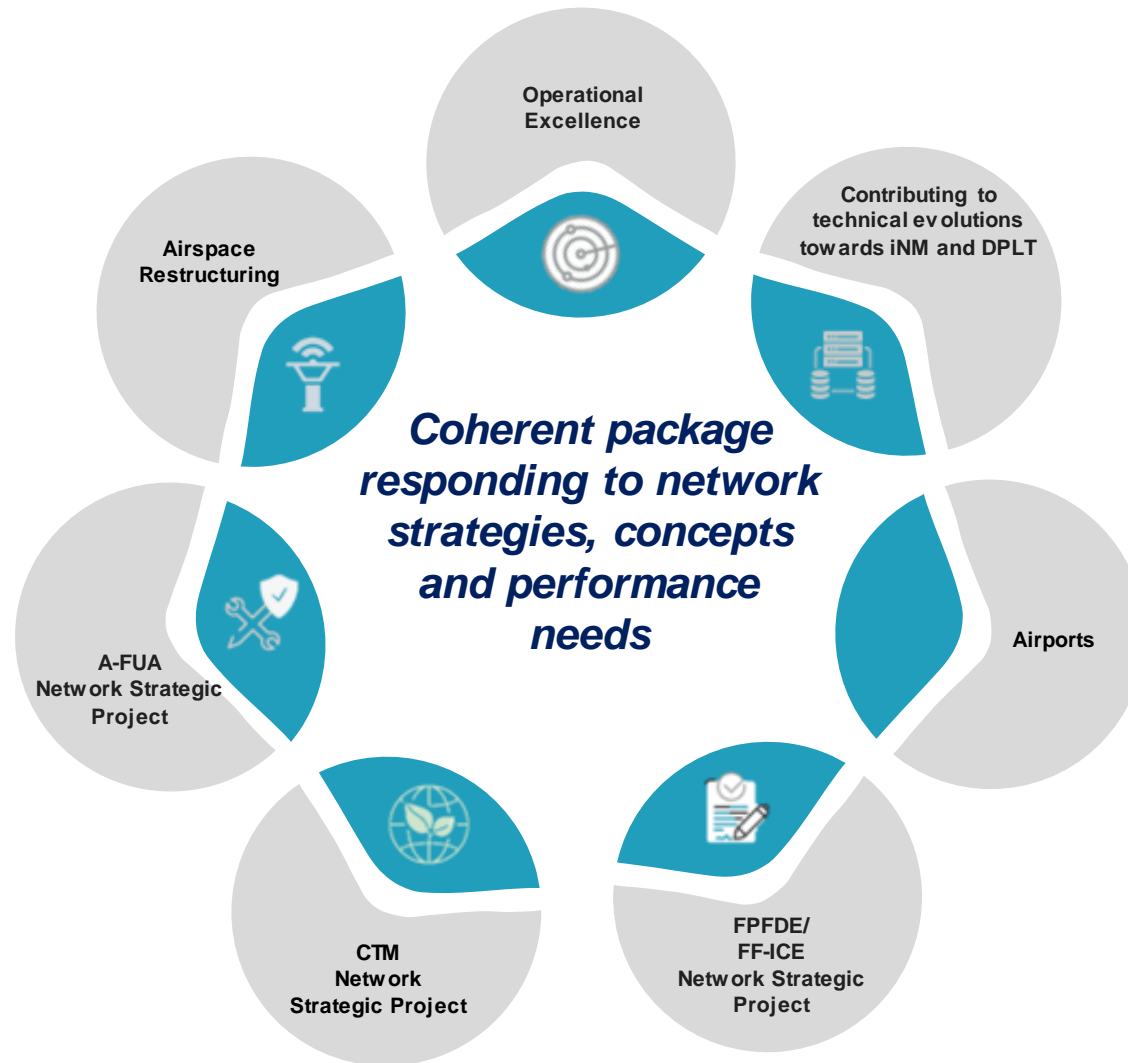
Supporting  
European  
Aviation



NETWORK  
MANAGER



# Consolidating Technical and Operational Evolutions



# Network Strategic Projects and CP1

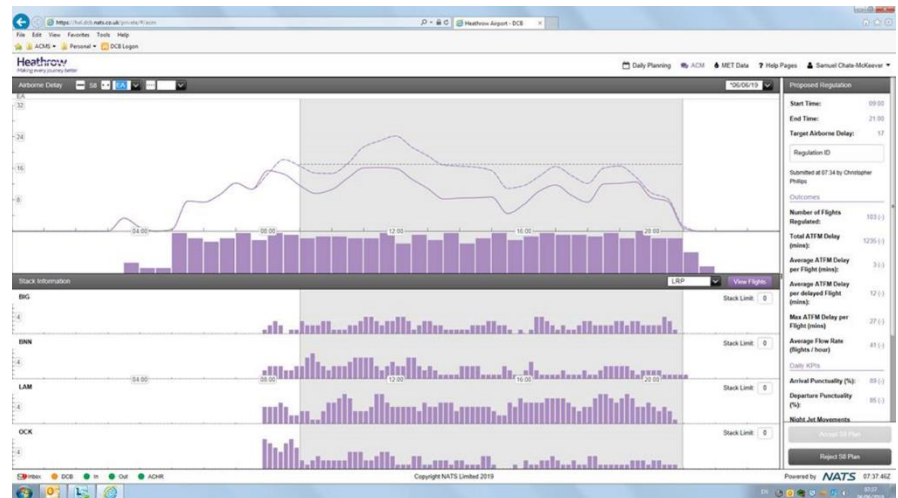
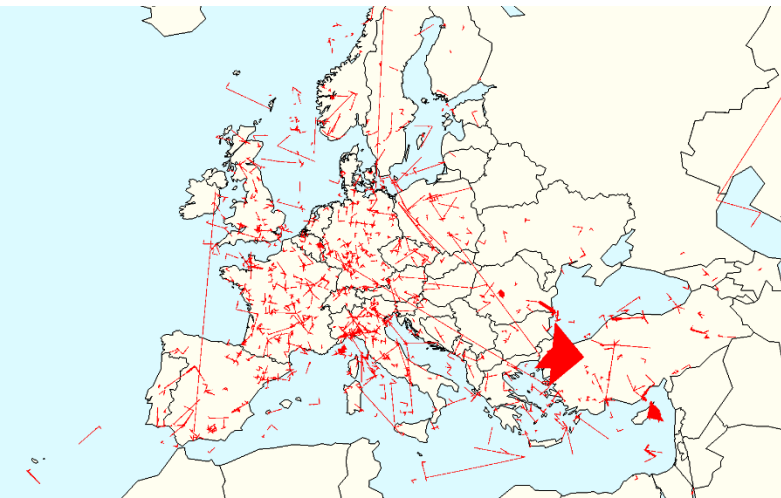
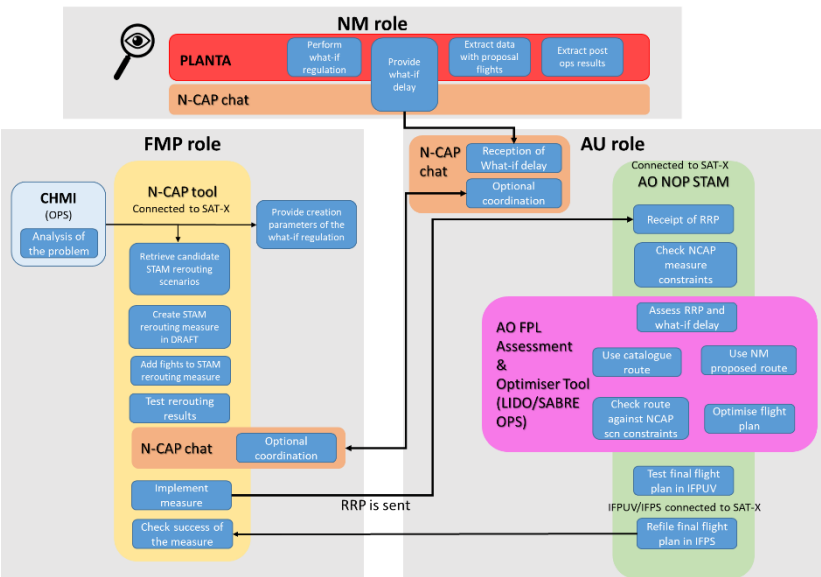
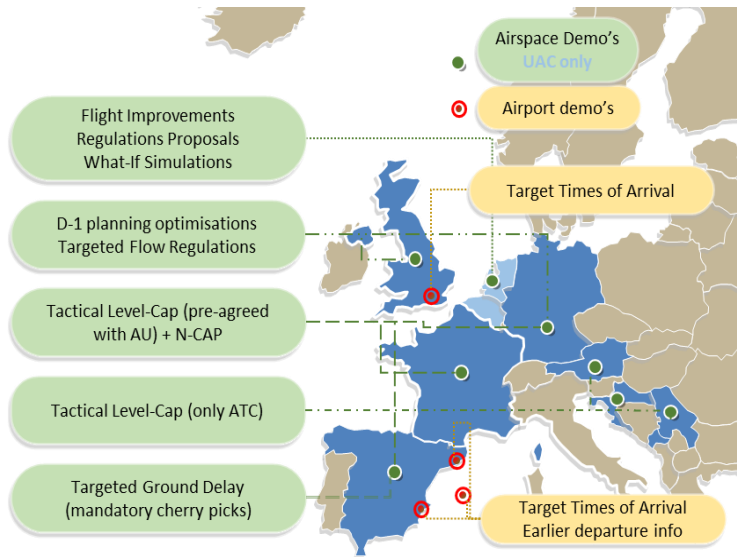
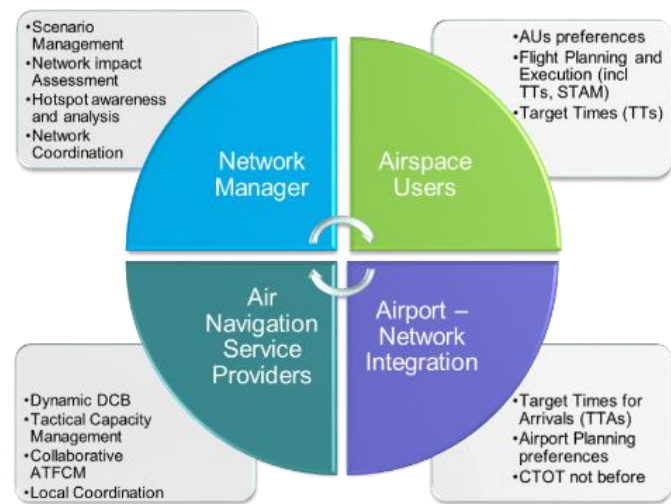


**Full CP1 Compliance** ✓

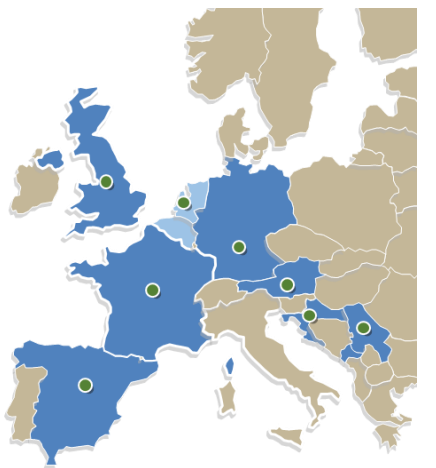


# Network Strategic Projects

## Cooperative Traffic Management - ATFCM



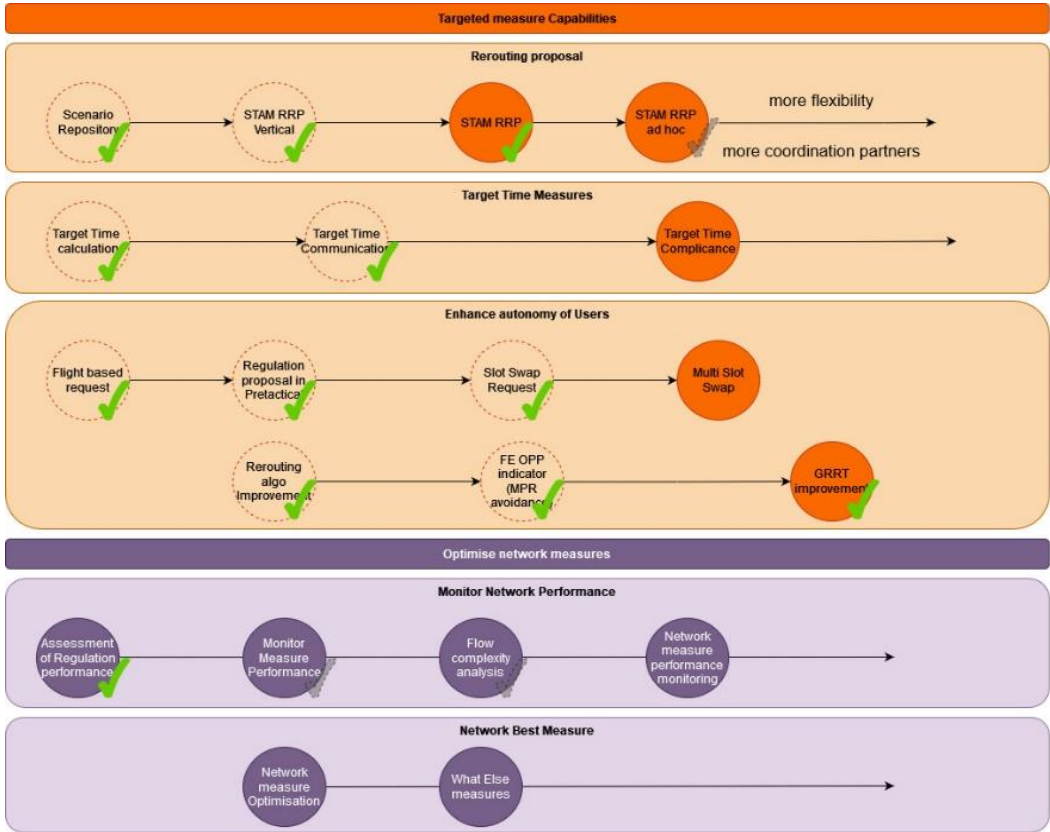
- Flight Improvements Regulations Proposals What-If Simulations
- D-1 planning optimisations Targeted Flow Regulations
- Tactical Level-Cap (pre-agreed with AU) + N-CAP
- Tactical Level-Cap (only ATC)
- Targeted Ground Delay (mandatory cherry picks)



# CTM high-level Roadmap

## Targeted Measures

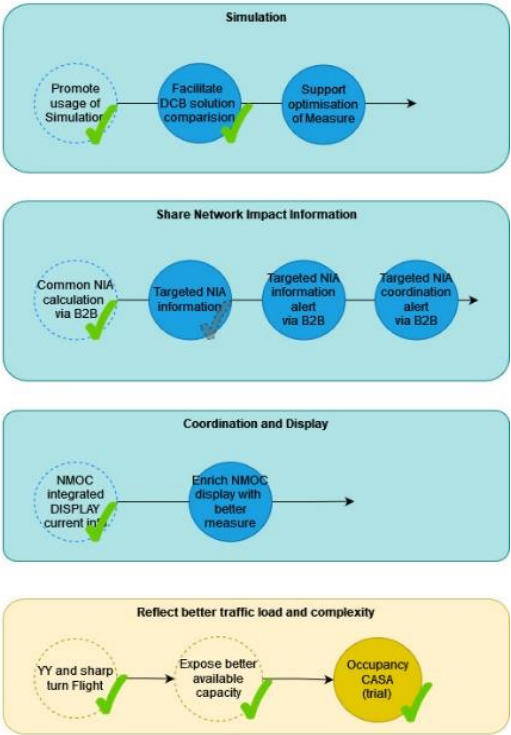
RRs, TTs, + Autonomy of Users



Enabling transversal functions

## Coordination enablers

Simulations, NIA, Display / HMI



## Optimisation Network Measures

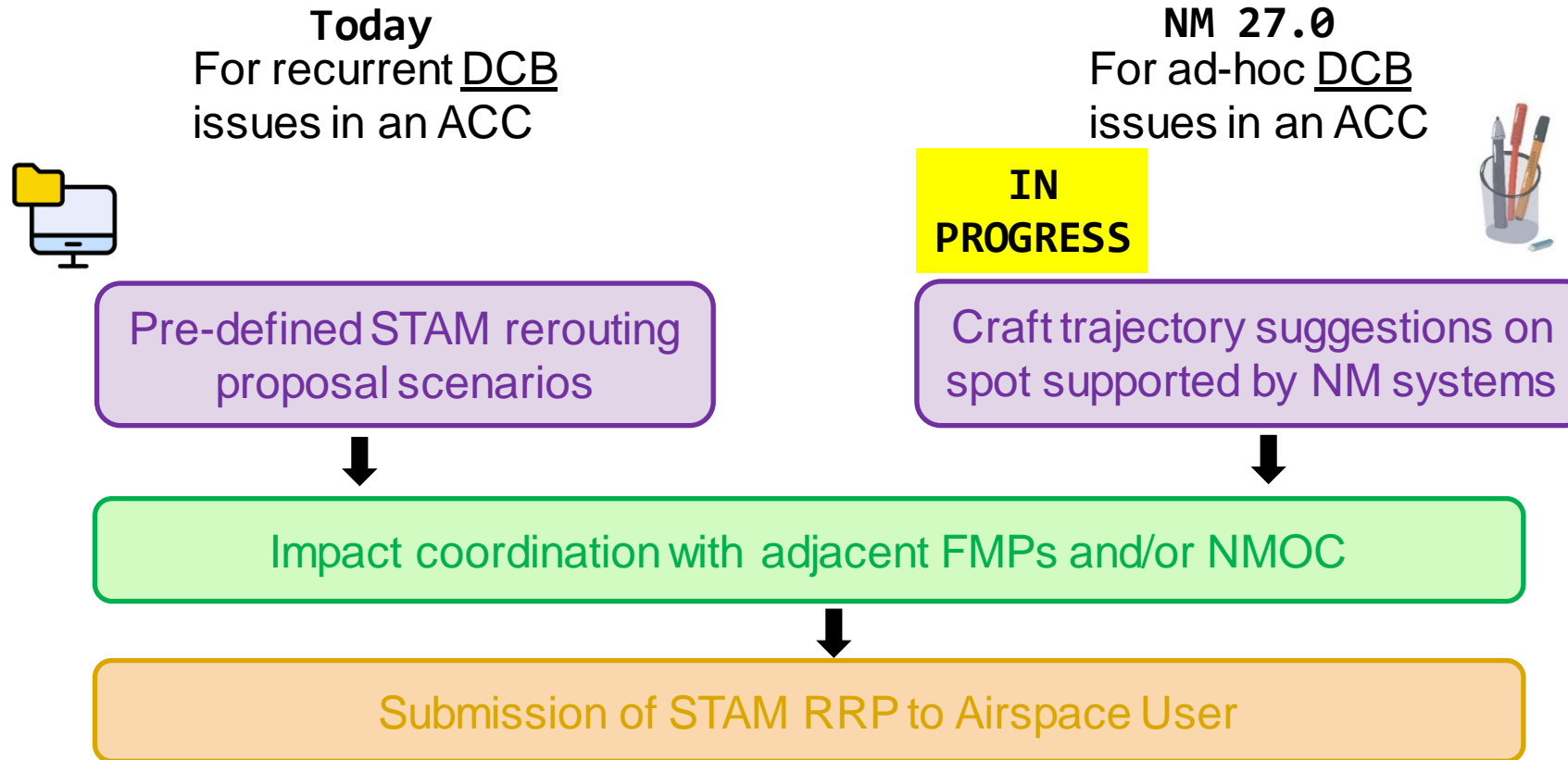
Monitor Network Performance, Network Best Measures

## Traffic load /Complexity

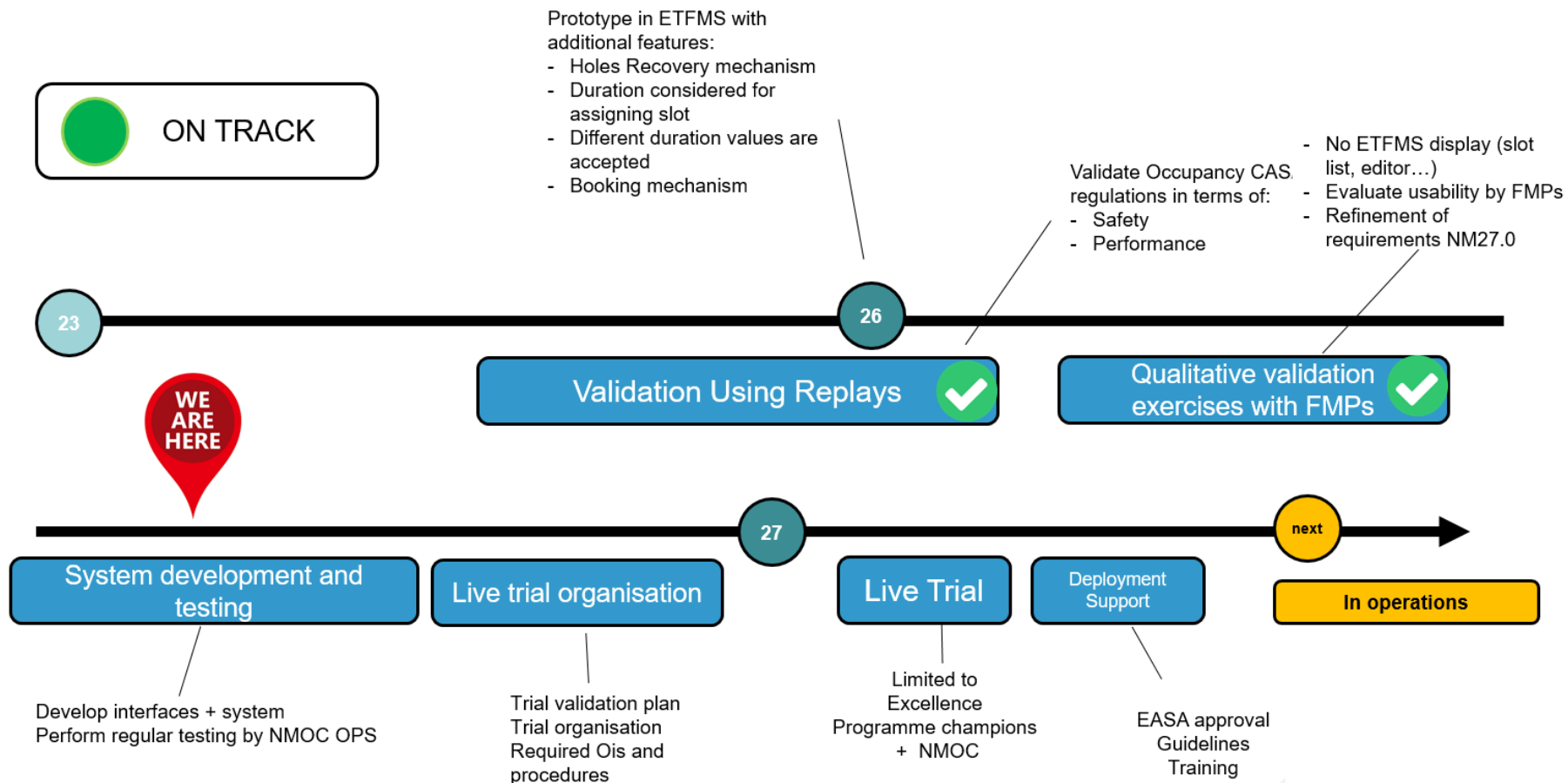
Occupancy CASA, Predictability

# STAM RRP, to ad-hoc

Remember! FMP can  
only initiate this  
process via B2B



# Occupancy CASA



# Getting from Good to Excellent Flight efficiency

*Making savings through improved flight planning*

significant **economic** and **environmental** impact



key component in the sustainable growth goal.

The NM flight efficiency - focus on the improvement of the quality of flight planning.

OPTIMUM  
FLIGHT  
PLANNING



OPTIMUM  
(Network)  
OPERATIONS

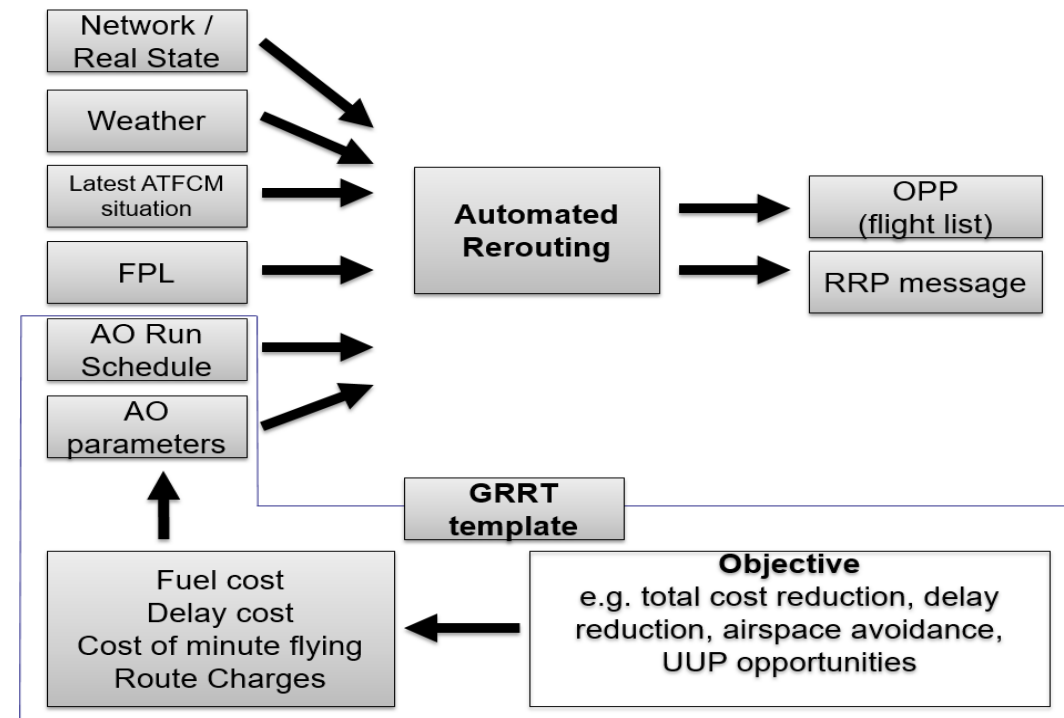


# NM Automated rerouting tool (GRRT - Opportunity tool)

NM system automated tool is used to enhance the visibility on possible routing options offered by network and is available to all AOs.

- Automatically calculates rerouting options based on **AO's preferred parameters**, latest real state of network (route availability, ASM and ATFM component) and weather.
  - Proposals are displayed back on the FPL originator
- Last choice of using it remains to the FPL originator.

*More than 70  
customised GRRT  
templates*



# GRRT evolutions – NM Release 27.0 – Spring 2023



## Enhanced re-routing algorithms

to increase the number and quality of alternative options identified while considering existing network constraints and rules within the given time for the GRRT execution



## User's response to OPP/RRP

to allow reception of the user's feedback on proposed alternative routing (for the post-ops analysis and better GRRT template modification)

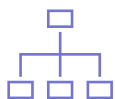


## Local re-routing features and parameters

will allow the user to define airspace in which (or in which not) modification of the initially filed flight plan will be requested (within/outside)

## Improved GRRT Template management and advanced traffic selection

to allow improved candidate flight selection and multiple GRRT template updates



## Structured OPLOG

improvements will bring integration of OPP relevant information in the NMP Flight application / Flight management panel, for easier access and validation (including visualisation) of proposed routing options



## Most of the features available in NM B2B

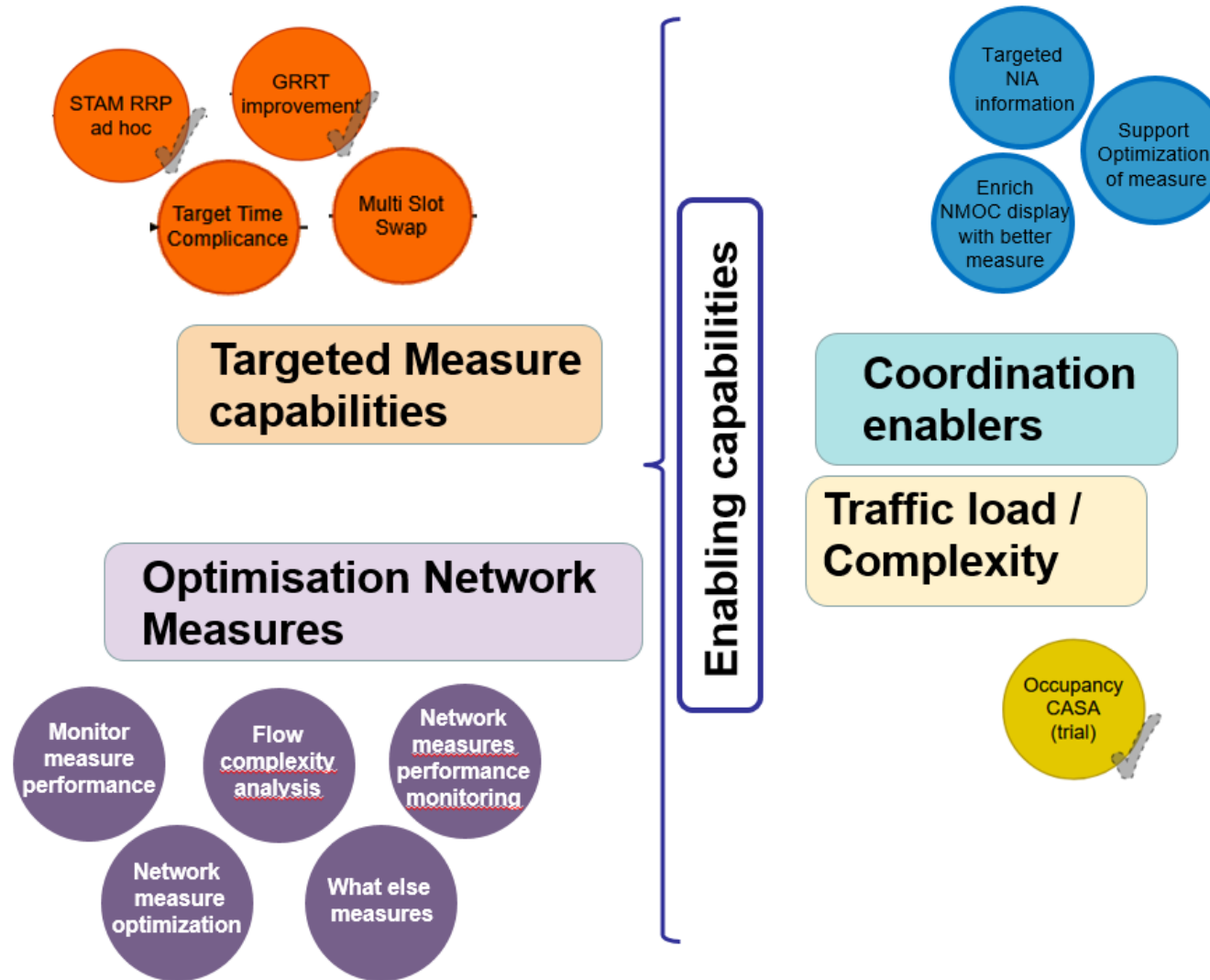


## Future evolutions

software (back-end) algorithms improvements  
enhancement of the users' experience and notification process  
connectivity with the operational stakeholders' systems  
more uniform evolution of different NM System re-routing tools

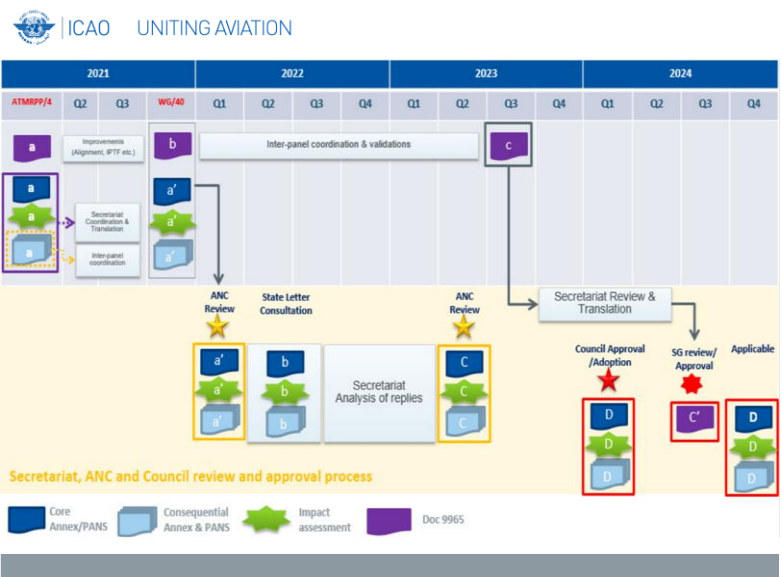
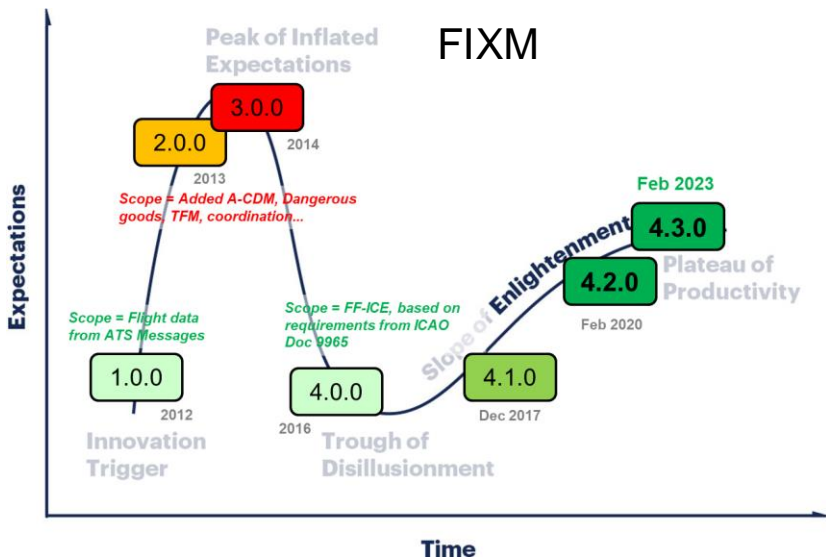
More automated (e.g. out of schedule, event-based re-routing linked with AUP/UUP application) tool execution.

# Future evolutions of CTM Projects

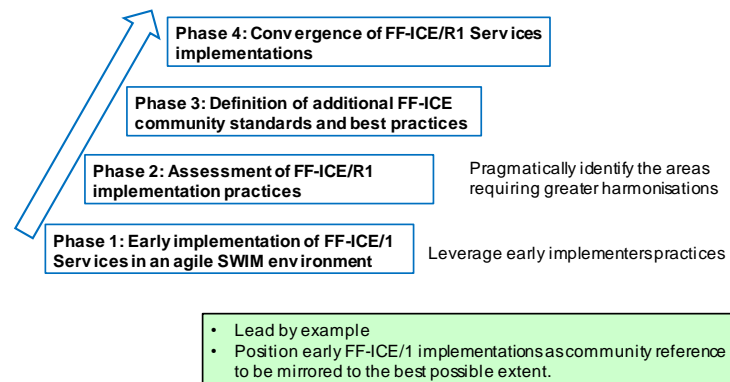


# Network Strategic Projects

## Flight Plan and Flight Data Exchange



### Technology & Service - Possible Policy?



Flight Plan & Flight Data Evolutions



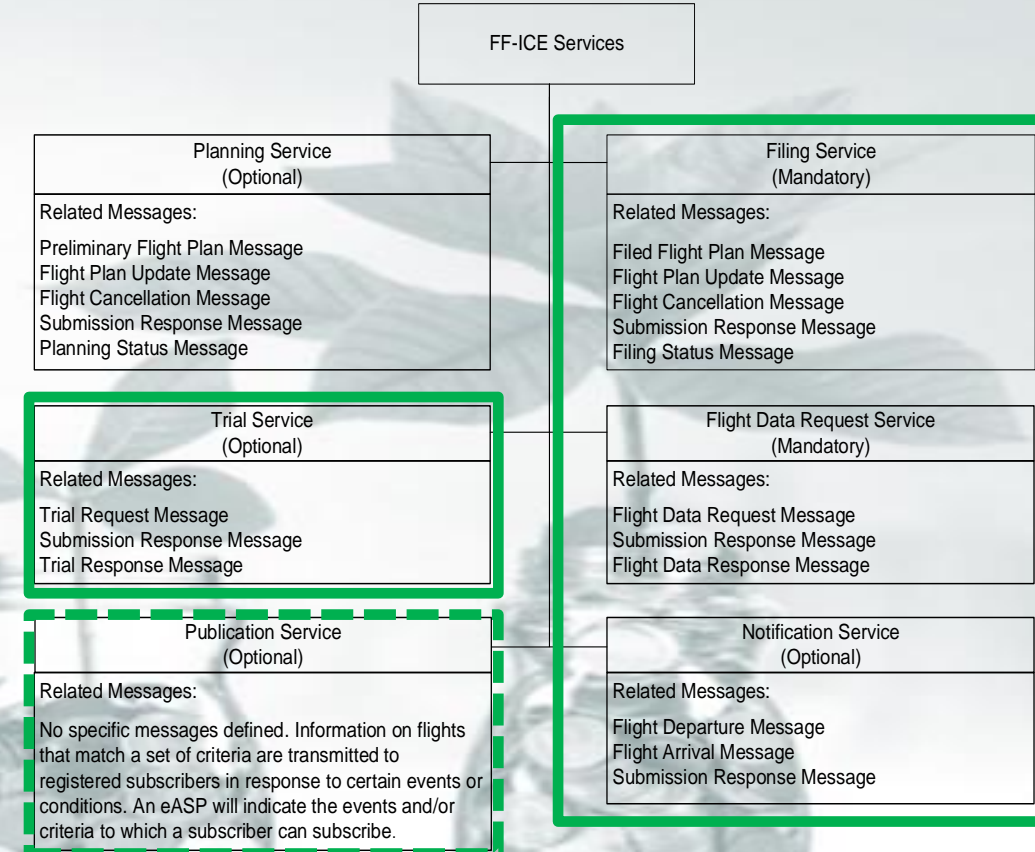


# NM FF-ICE Functional Evolution Steps – High level

- FF-ICE/R1 phase 1
  - **Filing**
  - **Trial**
  - **Flight Data Request**
- FF-ICE/R1 phase 2
  - **eFPL distribution (Data Publication)**
  - **Notification**
- FF-ICE/R1 phase 3
  - Consolidated feedback  
(existing or future exchanges)
  - Planning



**NM READY!**



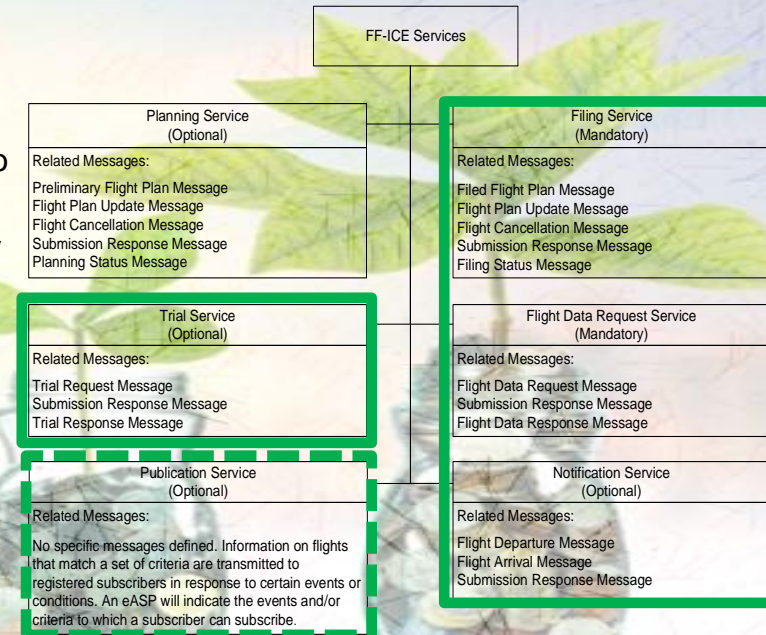
2018

2023

2026/28 .....

# FF-ICE/R1 Activities – Documentation and Services

- FPFDE NFPM Implementation Guidance Vol I and II
  - Vol I updated (alignment to NM26) in preparation for FPFDE TF review
    - Implementation Guidance Vol I further update foreseen to address alignment to NM27
  - Vol II updated to align with the Implementation Strategy
- FFICE/R1 Extended Release Notes
- Update to IFPS Users Manual to include FF-ICE/R1 services
- Update of IFPL Specification – ready for consultation

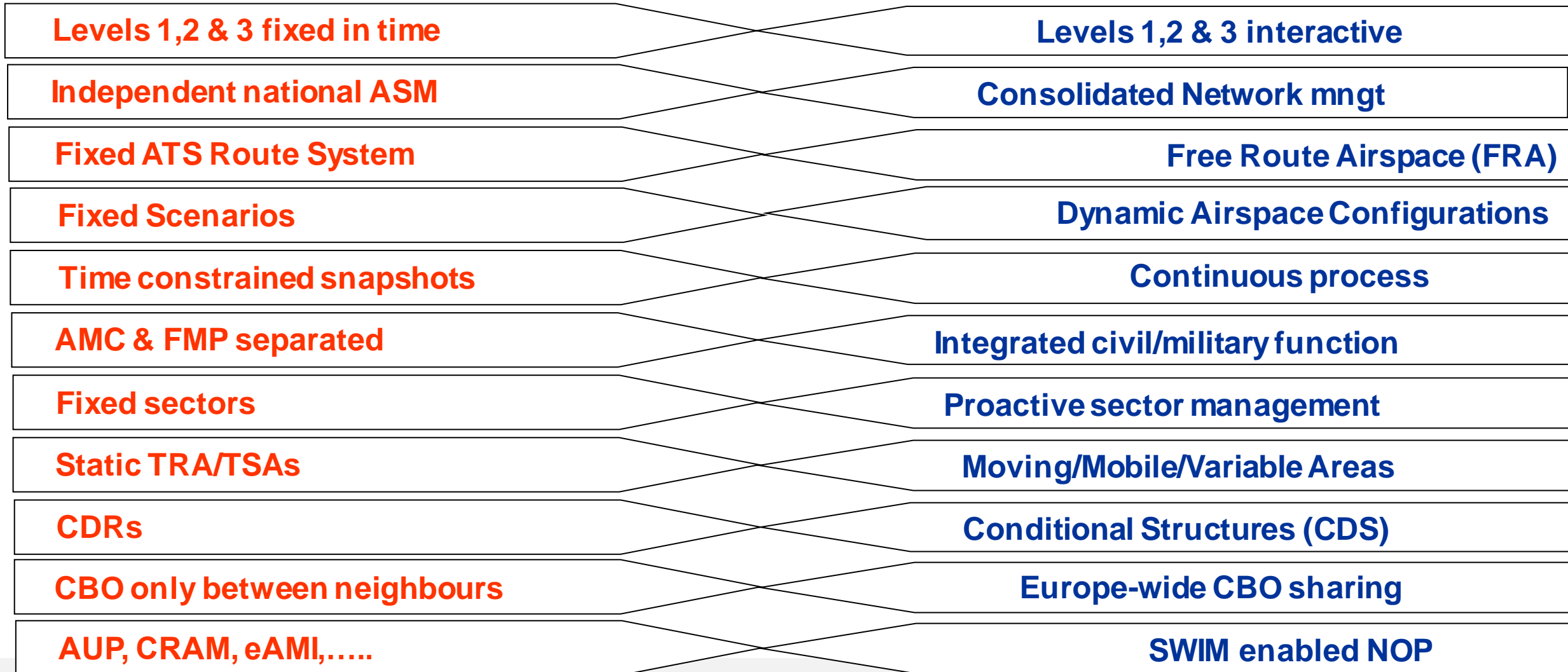


# FPFDE – iOAT flight plan implementation - update

- Preparation for NM 27.0
  - Focus: Pilot Group of States (Belgium, France, Germany)
  - Military aeronautical data in CACD
- Continuous cooperation with IOAT Focus Group (MiDI Programme)
  - Focus on the immediate needs of the three Pilot States
  - Facilitate other members to join iOAT deployment community
- Deployment in OPS – NM R27.0 APR2023

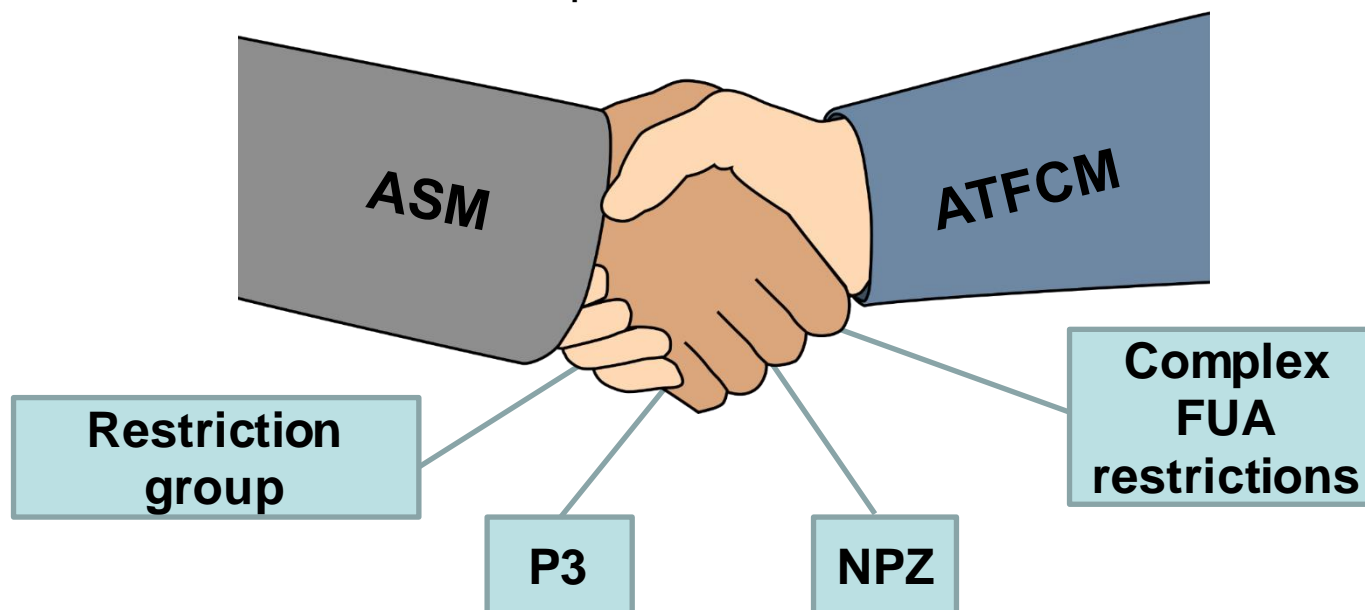
# Network Strategic Projects

## Advanced Flexible Use of Airspace



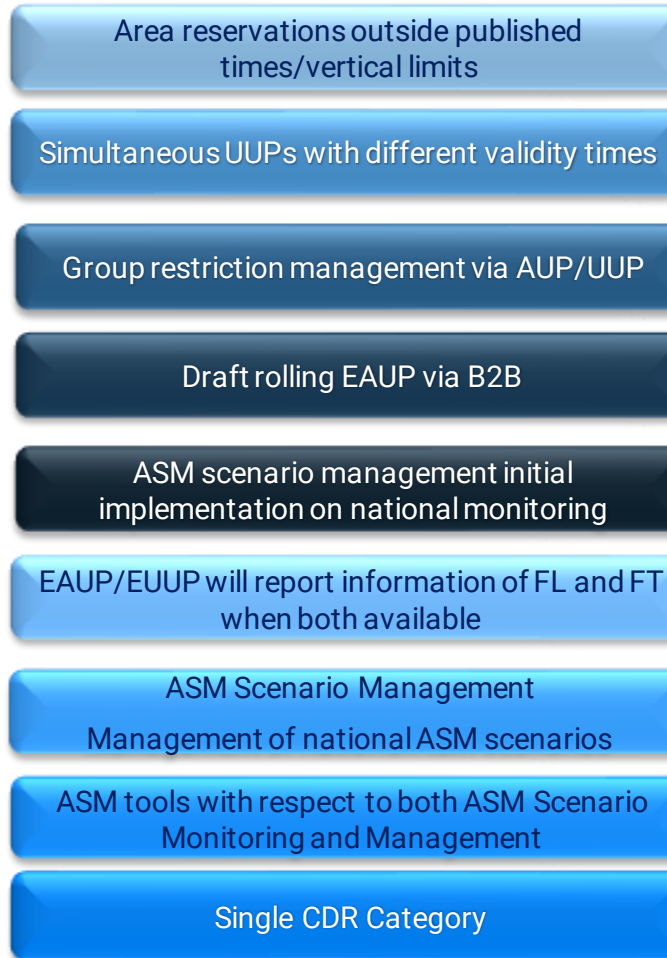
# ASM-ATFCM Integration - Goals

- improved integration of airspace design, ASM and ATFCM converging into an optimized network design
- mitigation of impact of constraints on airspace capacity
- foster better flight efficiency with potential reduction of the environmental footprint





# Advanced FUA



## NM RELEASES 25.0, 26.0, 27.0

Proved to be feasible

Selection of RAD eligible for a dynamic management needs to be duly assessed by relevant stakeholders.

Pre-validation necessary to verify their effectiveness in case of relaxation

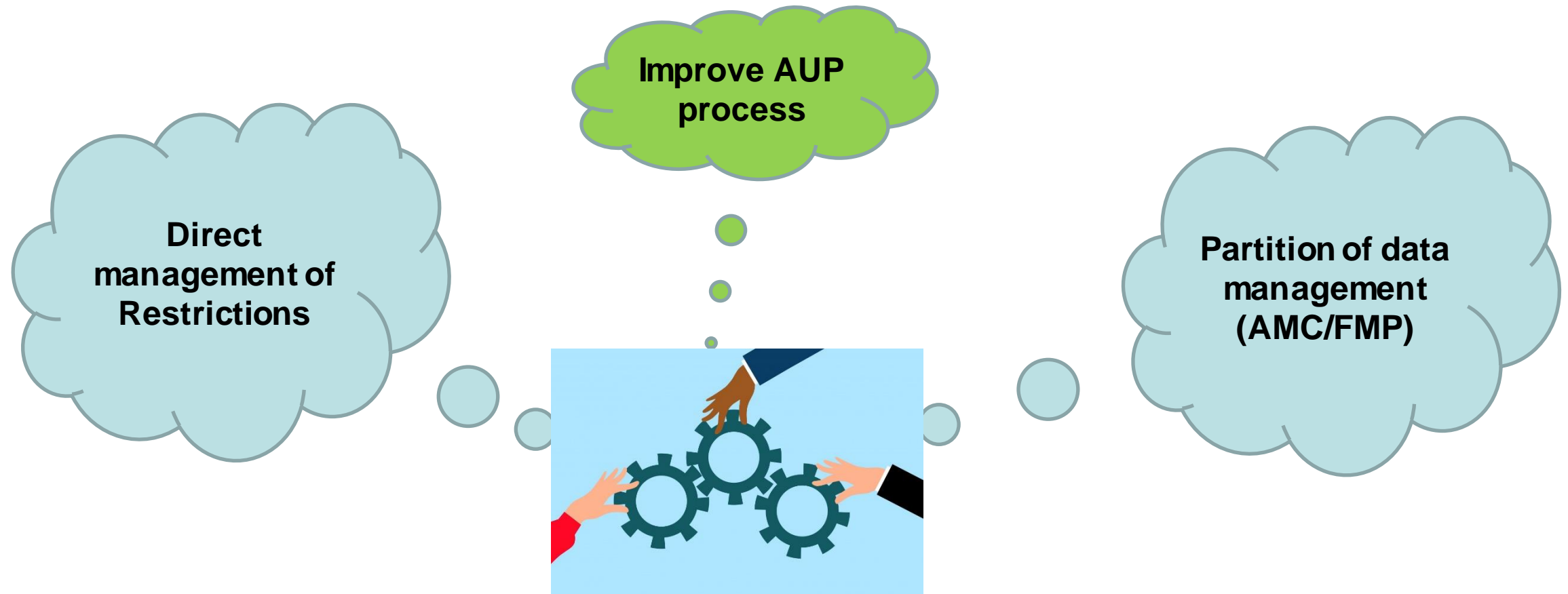
Dynamic RAD process feasible at D-1. Further evaluation are required to assess its applicability at D-OPS. In this case, full involvement of relevant AOs is necessary

Proper notification process is required, exploiting all the possibility to improve awareness of AOs/CFSPs on the opportunity offered

AUP/UUP process as interim solution seems appropriate. Short-term technical changes should be considered to improve its utilisation

Long-term solutions should be addressed in the frame of iNM to implement a common platform to promote ASM/ATFCM processes integration

# Dynamic RAD - NM release 27.0



# Dynamic RAD – ENV/EAUP

Restriction Applicable during Basic Applicability ☐ Yes ☒ No

Start -> End (Date)	H-1	H0	H+1	BFR	Days	Start -> End (Time)
2020/04/23 -> 9999/99/99	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1234567	00:00->00:00

Overall Applicability

Start -> End (Date)	Days	Start -> End (Time)	Low FL	Upp FL
2022/07/01 -> 2022/07/02	----5--	08:30 -> 13:00		
2022/07/01 -> 2022/07/02	----5--	17:00 -> 19:30		

Dependent Applicability ☒

FUA: ☐ No ☒ Yes FUA Rad: ☐ No ☒ Yes FUA Default Active: ☐ No ☒ Yes Dependent Vertical Limits: ☐ No ☒ Yes Extended Vertical Limits: ☐ No ☒ Yes

AUP Rad: ☐ Yes ☒ No AUP Rad Default Active: ☐ No ☒ Yes

Restriction Activation ☒

Start -> End (Date)	Start -> End (Time)
2022/07/01 08:30 -> 2022/07/01 13:00	
2022/07/01 17:00 -> 2022/07/01 19:30	

Mock-up, artificial example

Route ID  RSA ID  + RS ID  FIR ID  UIR ID  + FMP ID  WEF  TIL

Type EAUP  
Valid WEF 04/07/2022 06:00  
Valid TIL 05/07/2022 06:00  
Released On 03/07/2022 14:17

ATS Route and CDR Type 1 Closure CDR Type 2 Availability RSA Allocations **AUP RAD Activations**

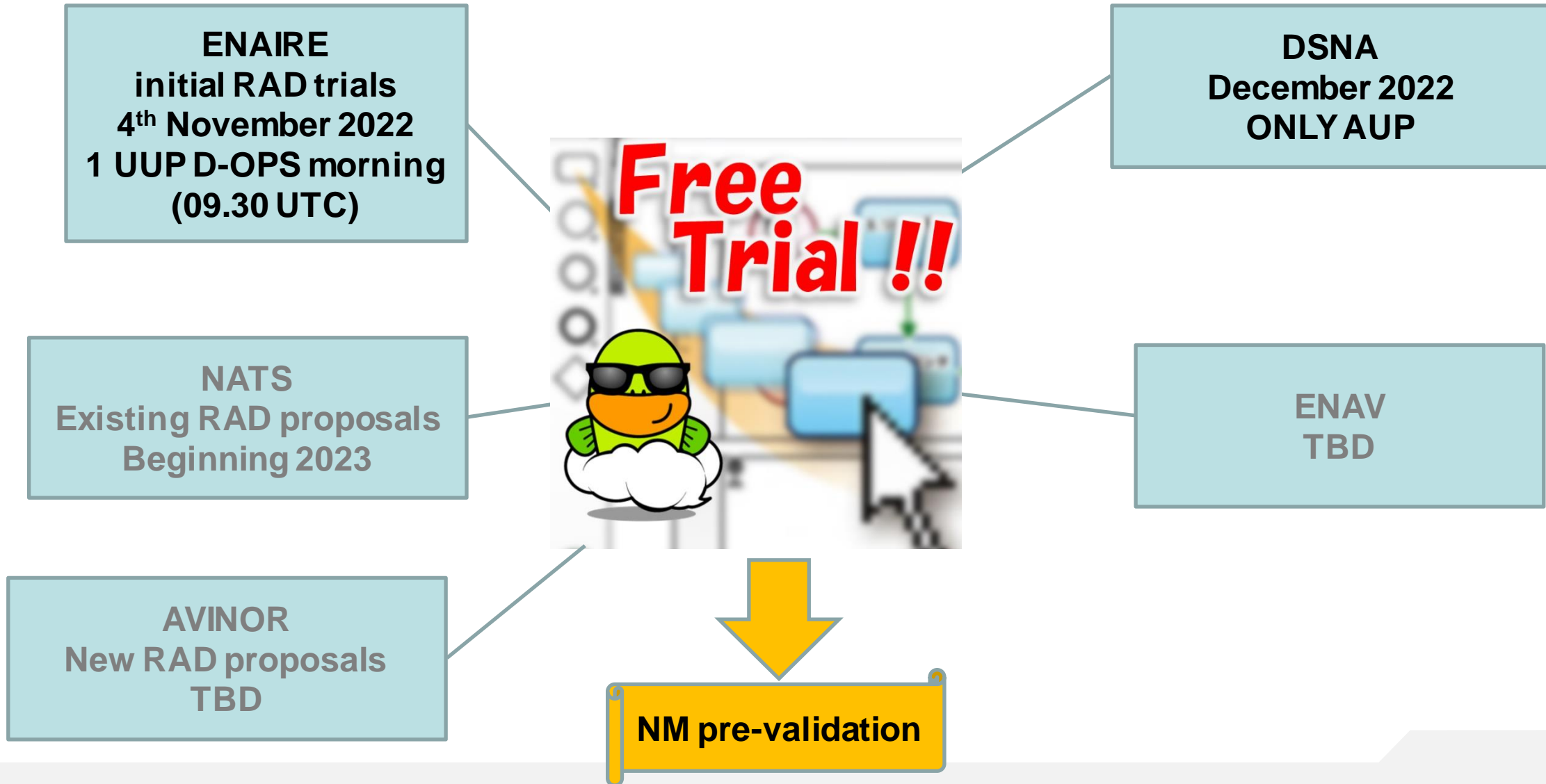
RAD RS	REMARK	WEF	UNT	FMP
▶ LF4011A		07:25	07:40	LFXX
▼ LF4011A		07:40	15:30	LFXX

Description

LONDON SOUTH GR,EGHH/HI/KAŞ TO LYON GROUP, ST. YAN GROUP,STRASBOURG\_GROUP, CHAMBERY GROUP, BASEL GROUP, LSZH/MD, LFLX EXCEPT VIA DIK,KONAN,REDFA NOT ABOVE FL295

	WEF	UNT	FMP
▶	07:40	15:30	
▶	07:40	15:30	
▶	07:25	15:45	
▶	07:25	15:45	
▶	06:00	06:00	
▶	06:00	06:00	

## Interim utilisation – Live Trial phase 2





## Which ones?



### ERNIP Part 4

c) **Annex 2 - Traffic Flow Rules, which includes three sub-annexes:**

- i) Annex 2A - Flight Level Capping Rules.
- ii) Annex 2B - Local and Cross-border Capacity and Structural Rules.
- iii) Annex 2C - FUA Traffic Flow Rules.

d) **Annex 3 - Flight Planning Facilitation Options, which includes two sub-annexes:**

- i) Annex 3A - Aerodrome Connectivity Options.
- ii) Annex 3B - En-route DCT Options.

Publication in EAUP/EUUP implies activation of the limitation?

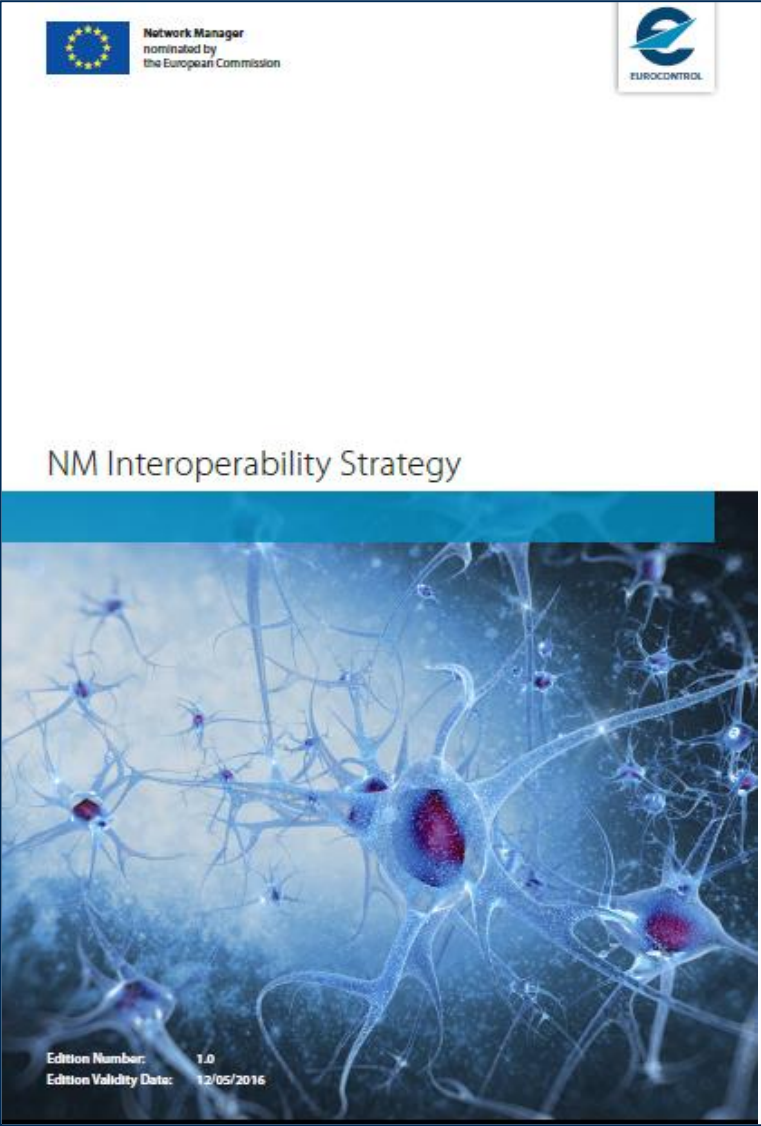
Publication in EAUP/EUUP implies activation of the facilitation?

Harmonisation or enough description in RAD?

RMG



# Network Interoperability Strategy



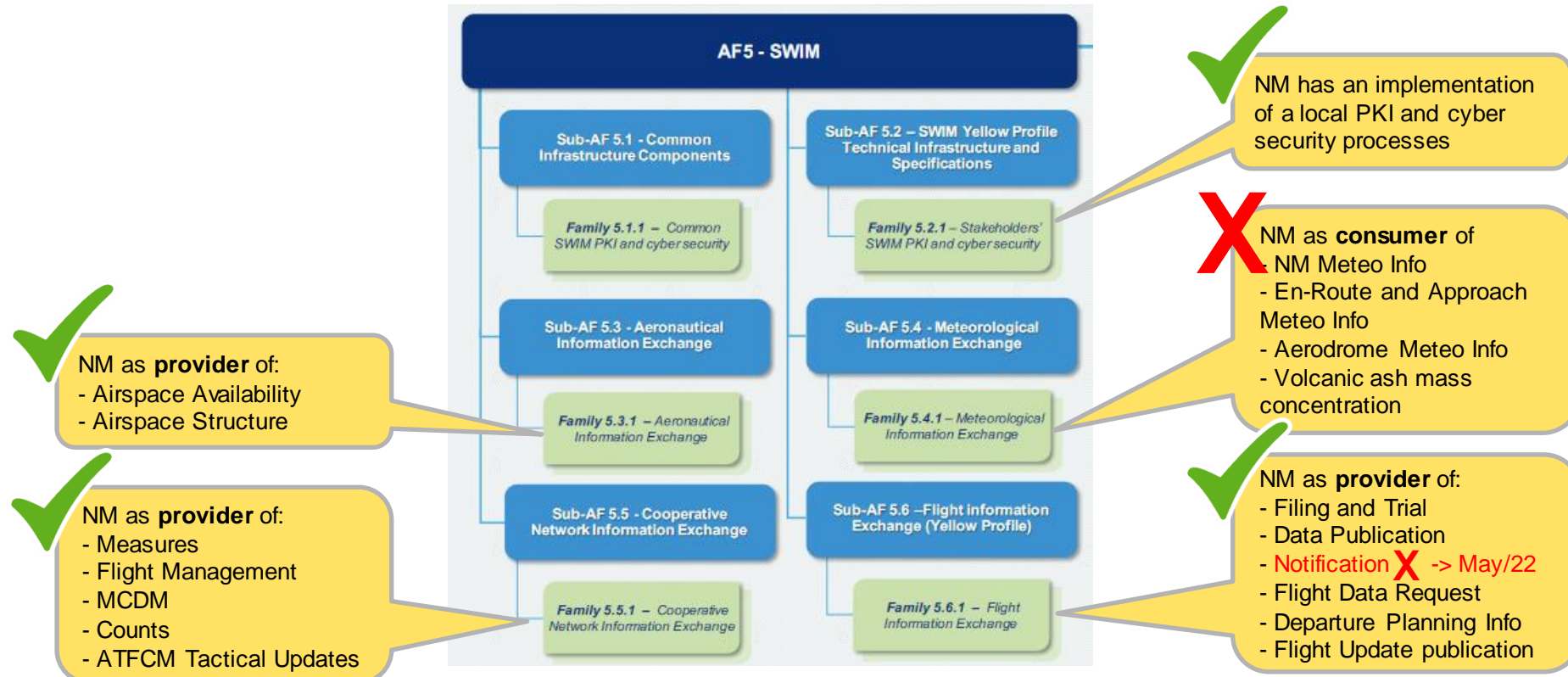
# Transition to SWIM Policy – Adopted by NMB

Approach	Messages	Sunset date
<ul style="list-style-type: none"> <li>➤ Plan to decommission <u>with</u> a sunset date</li> <li>➤ Migration plans to be defined and agreed with the impacted stakeholders</li> <li>➤ New users are only provided with the NM B2B</li> </ul>	DPI, FUM, EFD for AU/CFSP	31/12/2027
<ul style="list-style-type: none"> <li>➤ Plan to decommission <u>beyond 2027</u></li> <li>➤ Migration is recommended, but not imposed at this time</li> <li>➤ New users are only provided with the NM B2B</li> </ul>	ATFCM msg, EFD for ANSP, APR	Not set
<ul style="list-style-type: none"> <li>➤ No plan to decommission</li> <li>➤ Migration is recommended</li> <li>➤ New users can still use messaging</li> </ul>	ICAO 2012 FPL, ACH, APL, FNM, MFS, AFP(*), ORM msg, FSA (**)	Not applicable
<ul style="list-style-type: none"> <li>➤ Out of scope with no action</li> </ul>	CCAMS, CPR	Not applicable

(\*) NM B2B Service does not exist yet for this message, needs to be planned.

(\*\*) For users inside NM area only; outside of area only the NM B2B can be used by new users.

# SWIM Compliance



All provided services **are conformant** with the EUROCONTROL Specifications for SWIM, **are operational** and **are published** in the European SWIM Registry

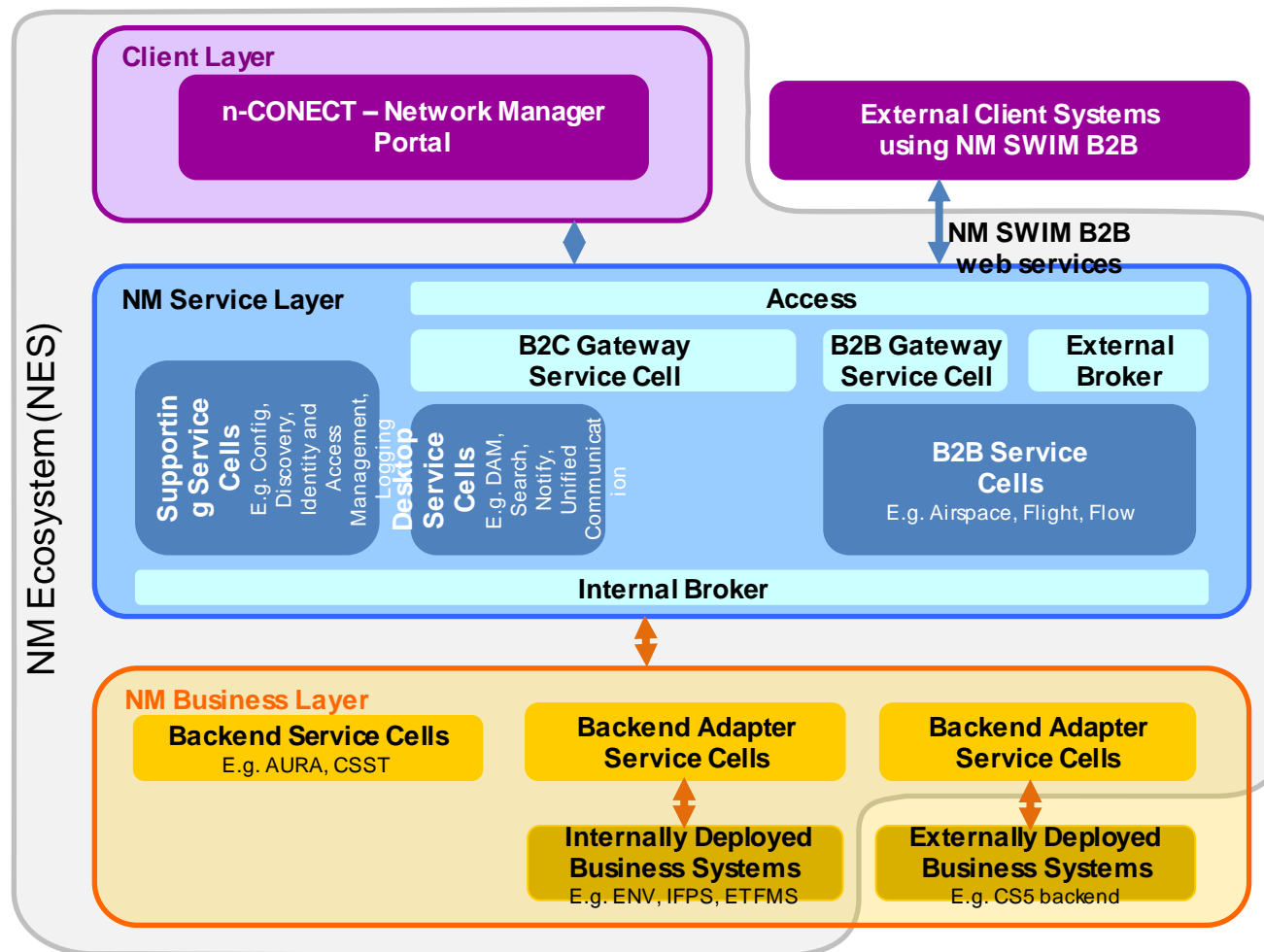
# Why is This Important to You?

NM supports the regulatory compliance of the operational stakeholders with the CP1/AF5 well ahead of the CP1 deadlines

Hundreds of organisations (ANSP, AU, AO, CFSP, etc.) are currently relying on the NM B2B Services to support their operations

Most of these organisations (in particular, the operational stakeholders) are required to exchange information digitally using SWIM, in order to be compliant with CP1

**By using the NM B2B Services, which are now SWIM Compliant, the operational stakeholders become automatically SWIM Compliant in their information exchanges with NM**

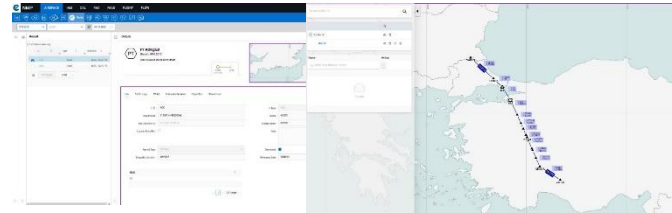




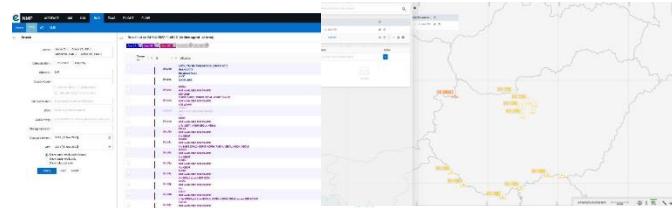
# n-CONNECT



AIRSPACE HMI



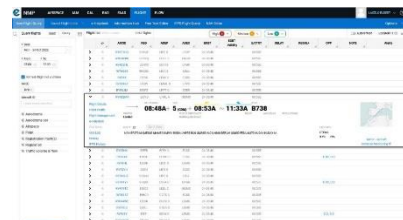
RAD HMI



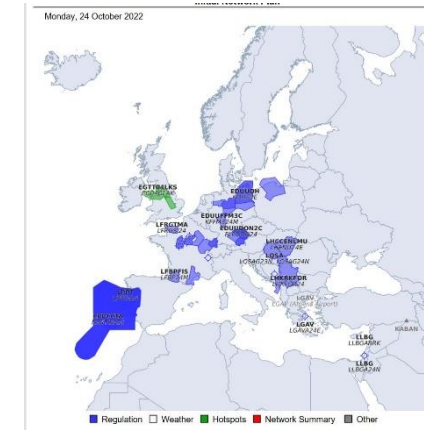
CAL HMI



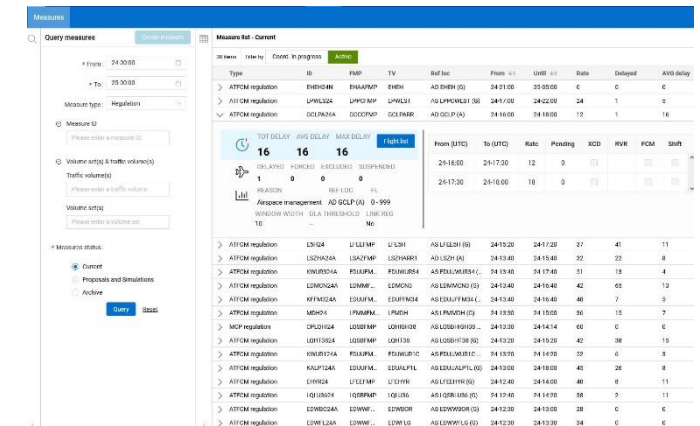
FLIGHT HMI



DNP



FLOW HMI



# SUPPORTING EUROPEAN AVIATION

