SDM Free Route Airspace Workshop

FRA Implementation required by PCP/DP Family 3.2.1

29th May, 2019

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AGENDA

ANSPs (Hungaro Control, LFV, ENAV & Austrocontrol)
Best practices on ATM system evolution, Tool support, Interoperability and A-FUA

Joint presentation from CFSP (SABRE, LIDO & Jeppesen)
Best practices on ATM system evolution, optimisation of trajectory and constraints management

Eurocontrol
NM systems upgrades and improvements and best practices

European Defense Agency
System evolutions and Advance Flexible Use of Airspace in FRA

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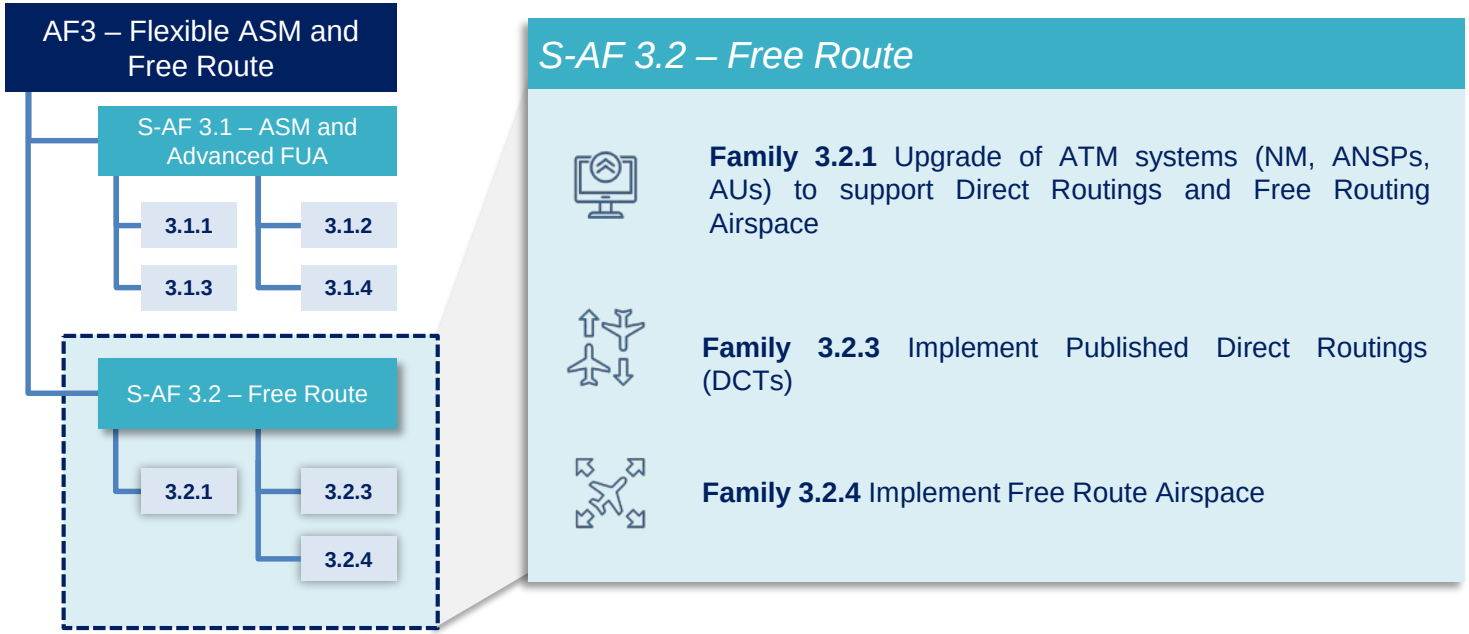
AF3 - Flexible ASM and Free Route

FRA is the airspace defined laterally and vertically, allowing free routing with a set of entry/exit features. Within this airspace, flights remain subject to air traffic control.

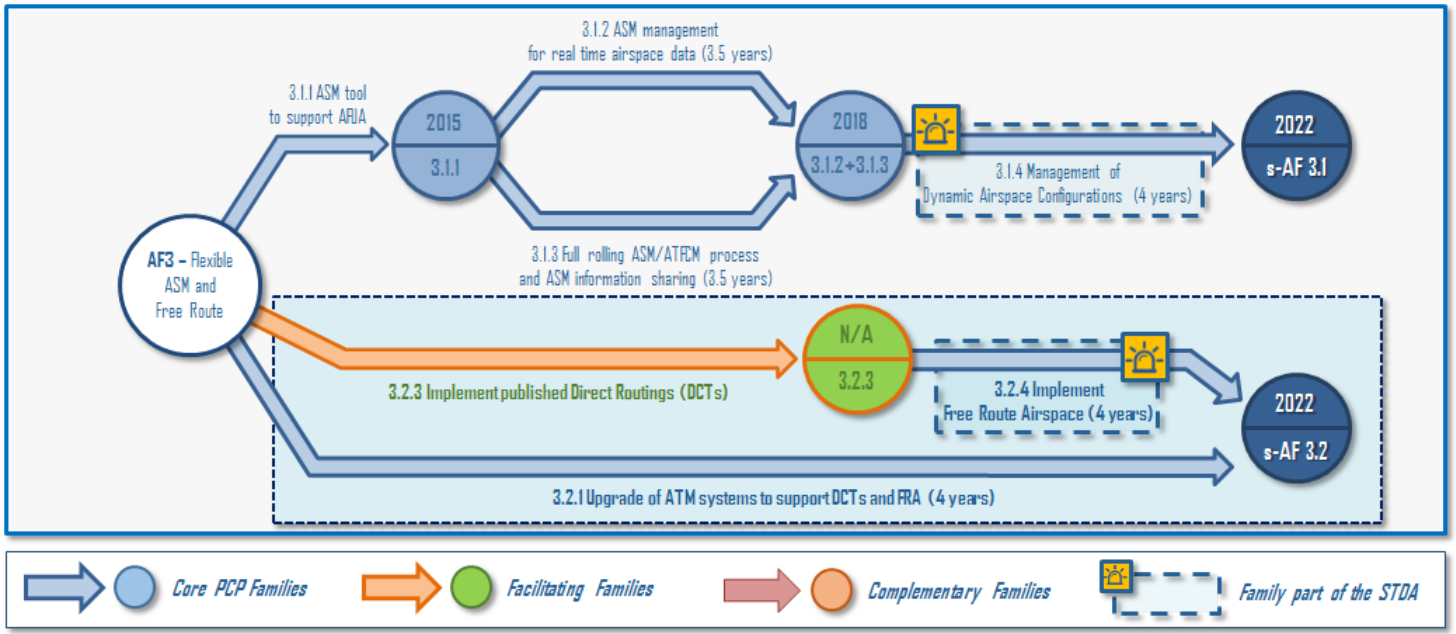
The ASM, ATFCM and ATC **systems** shall securely interface in a way that allows the provision of air navigation services based on a common understanding of the airspace and traffic environment.

3 Families to support the Free Route implementation

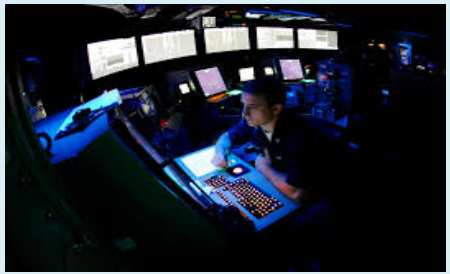
Here is presented the breakdown of AF3, with a focus on ***Sub AF 3.2 – Free Route***



The **ATM systems upgrade** (Flight data processing systems, including HMI) to **support the DCTs and Free Route** (Family 3.2.1), is a **prerequisite for FRA** (Family 3.2.4 Implement FRA)



Family 3.2.1 - Upgrade of ATM systems to support DCT and FRA



The implementation of the DCT and FRA requires the **upgrades of ATM systems** belonging to the NM, AUs and ANSPs to efficiently manage and accommodate the **demand of the desired flight route** or the closest route to the desired one

These upgrades consist of **several enhanced tools** (including safety nets) and improvements that support the management of:

- **NEW AIRSPACE STRUCTURES AND PROCEDURES**
- **NEW FLIGHT PLAN DATA EXCHANGES**
- **APPROPRIATE DATA TRANSMISSION**
- **ALL PHASES OF FLIGHT**

Main reasons to upgrade ATM systems

The main reasons to **upgrade the ATM systems** to support the implementation of **Free Route Airspace** are:

- Enhance systems and tools capable of **cross border data exchange** with interoperable systems (able to exchange and make use of information)
- Allow aircrafts to fly **as close as possible to their preferred routes** that are not always a straight line
- Ensure the **correct transmission** of the appropriate **data** in all phases of flight between all the involved stakeholders

- **Coordinate and synchronise the systems among ANSPs, NM and AUs** (CFSPs) supporting interoperability requierements and data exchange
- Close **Civil-military Coordination** specially about airspace reservations to support A-FUA
- **Upgrade** of the systems in the Network Manager, Airspace Users and ANSPs

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Interdependencies with other Families

The **Free Route Airspace implementation** presents technical interdependencies with several families

Family 6.1.3 A/G and G/G Multi Frequency DL Network in defined European Service Areas may improve the performances of FRA implementation

SWIM Families 5.2.2 and 5.2.3, and families 5.3.1, 5.4.1, 5.5.1, 5.6.1 & 5.6.2 The upgrade and implementation of information exchange systems will facilitate the FRA implementation

Family 4.4.2 Traffic Complexity tools may provide additional value to the upgrades required within Family 3.2.1

Family 1.1.2 AMAN upgrade to include Extended Horizon function may enhance the systems upgrades supporting AF3 Flexible ASM and FRA

Family 3.1.3 Full rolling ASM/ATFCM process and ASM information sharing supports the introduction of DCT and FRA

Family 4.2.3 Information exchange between ATM systems to NM systems will support interoperability and enhance data sharing

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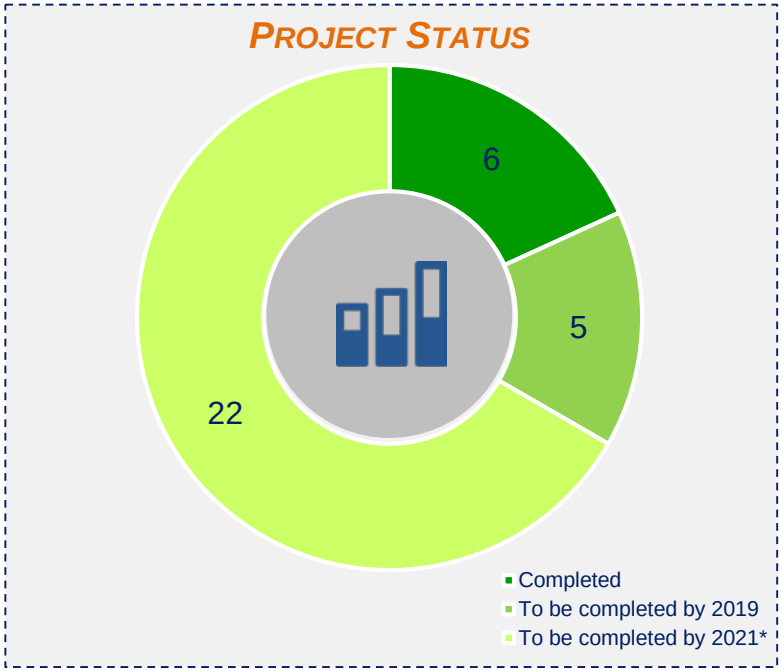
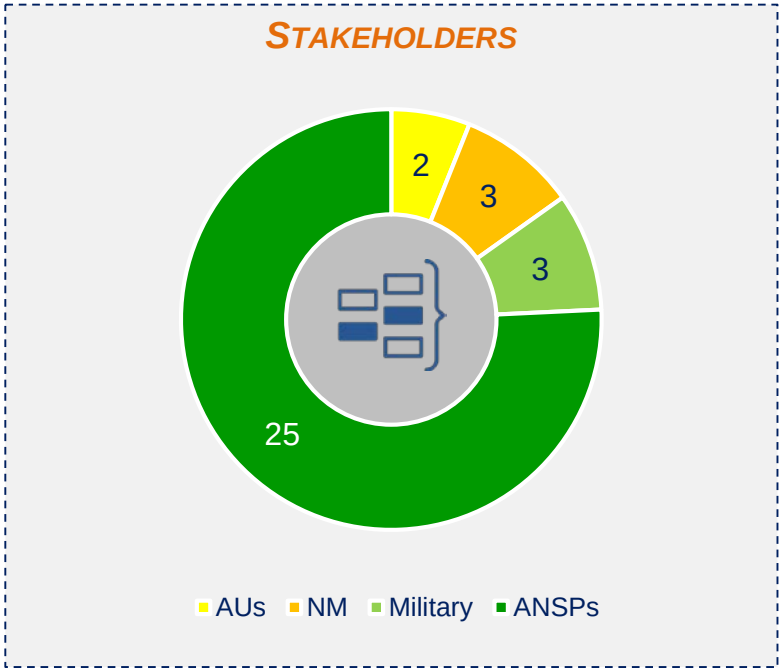
33 Implementation Projects in Family 3.2.1

Family 3.2.1, Upgrade of ATM systems (NM, ANSPs, AUs) to support DCTs and FRA, includes **33 out of the 349** Implementation Projects **coordinated by SDM**





6 Implementation Projects have been completed

AUs

Alitalia has integrated the **TFR** (Traffic Flow Restriction) **module** of the **LIDO Flight** tool, that allows the integration of the traffic flow restrictions from the RAD into the flight planning process, and the **Free Flight-Direct optimization** feature to define arbitrary waypoints in the flight planning process, plotting the missing segment between a designated Free Flight waypoint and the next one.

NM

The **NM** systems have been adapted to be able to cope with Free Route developments improving the coordination process and the data quality by the B2B (Business-to-business web service) interoperability.

ANSPs

PANSA has completed the Path 1 with the updated of the PEGASUS P_21 ATM system. It is currently deploying the Path 2 to transfer the system functionalities to iTEC-based system for further joint developments

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Hungaro Control has upgrade the system MATIAS to support cross-border free route operations, as necessary pre-conditions for a future FAB CE free-route

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ENAV has completed the first phase of the deployment of a interoperable ATM system (based on the brand Coflight Flight Data Processing System) to enable the implementation of free route operations in the Bluemed FAB Airspace.

27 Implementation Projects on going

ON GOING IPs

Air Navigation Services of the Czech Republic	Implementation of system functions and tools to support Free Route
COOPANS	Implementation of a harmonised system solutions for FRA through Build 3.3, 3.4 and 3.5
DFS Deutsche Flugsicherung	Deployment of the Air Traffic control system iCAS in DFS and LVNL
dgac DSNA	Deployment of the 4-Flight system
ENAIRE	Deployment of the new version of SACTA-iTEC , en-route EFS and upgrade of the CWP
ENAV	Continuation with the 4-Flight Deployment
EUROCONTROL	Final implementation of NM Systems with the release 25 / 25.5.
	Implementation of the new French military ATM system for Enroute
CIVIL AVIATION AUTHORITY	Deployment of the new (DPS/ATM) and VCRS systems to support Free Route deployment
Lufthansa	Introduction of full Free Route flight planning capabilities at Lufthansa and Air France
	Deployment of an evolved PANSA ATM in two paths

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рахмат
danke
謝謝
ngiyabonga
spas
teşekkür ederim
Баярлалаа
mersi
kia ora
barka
welalin
tack
mahalo
tapadh leat
спасибо
faafetai lava
vinaka
blagodaram
dank je
misaotra
paldies
grazzi
kiitos
dankie
спасибі
matondo
thank you
gracias
хвала
nanni
nandri
dhanyavad
asante
manana
bedankt
bayarlalaa
gràcie
hvala
maururu
köszönöm
akun
dankon
aciu
obrigada
murakoze
tenki
enkosi
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go raibh maith agat
sobodi
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sagolun
sukriya
kop khun krap
arigatô
takk
dakujem
trugarez
obrigado
mèsi
didi madloba
najis tuke
ありがとう
tanemirt
rahmet
grazie
shukriya
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мерси
kam sah hamnida
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terima kasih
ευχαριστώ
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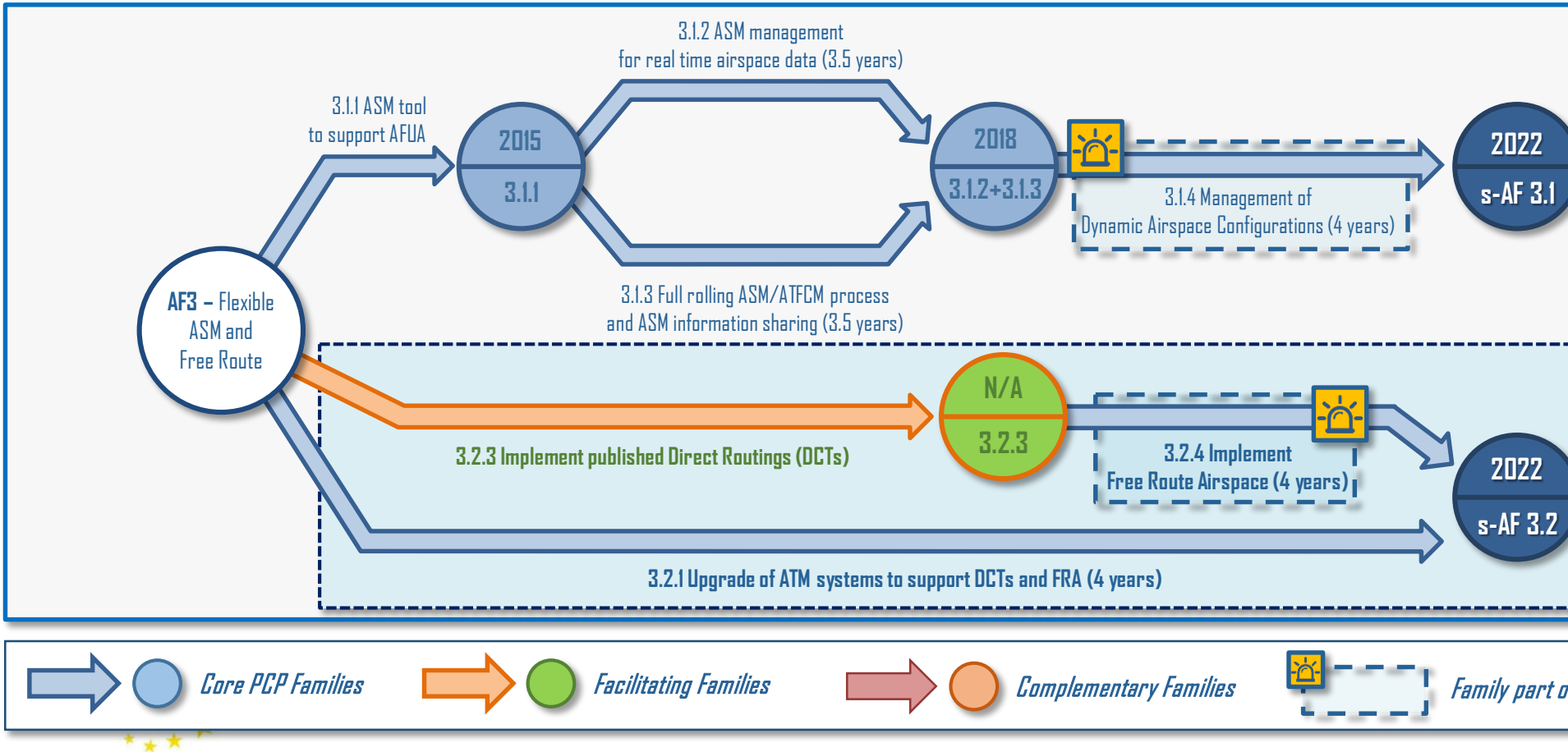
dhanyavadagalu
xièxie
감사합니다
merci

BACKUP IMAGES


3.1.2 ASM management
for real time airspace data (3.5 years)
3.1.1 ASM tool
to support AFUA
2015
3.1.1
2018
3.1.2+3.1.3
2022
s-AF 3.1
3.1.4 Management of
Dynamic Airspace Configurations (4 years)
AF3 – Flexible
ASM and
Free Route
3.1.3 Full rolling ASM/ATFCM process
and ASM information sharing (3.5 years)
N/A
3.2.3
3.2.3 Implement published Direct Routings (DCTs)
3.2.4 Implement
Free Route Airspace (4 years)
2022
s-AF 3.2
3.2.1 Upgrade of ATM systems to support DCTs and FRA (4 years)
Core PCP Families
Facilitating Families
Complementary Families
Family part o