



INTERNATIONAL CIVIL AVIATION ORGANIZATION

ASIA AND PACIFIC OFFICE FREE ROUTE AIRSPACE WEBINAR (Video Teleconference, 29 August 2023)

From “A” to “FRA”...

A journey ...

Cultivating a positive Culture in Aviation
Collaboration and transparency
Looking forward for a new spirit
Innovating for a fresh generation



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The bridge for constructive journeys From “A” to “FRA” ...

“Free route airspace (FRA) is a specified airspace within which users may freely plan a route between a defined entry point and a defined exit point, with the possibility to route via intermediate (published or unpublished) significant points, without reference to the ATS route network, subject to airspace availability. Within this airspace, flights remain subject to air traffic control.” (Source EUROCONTROL)

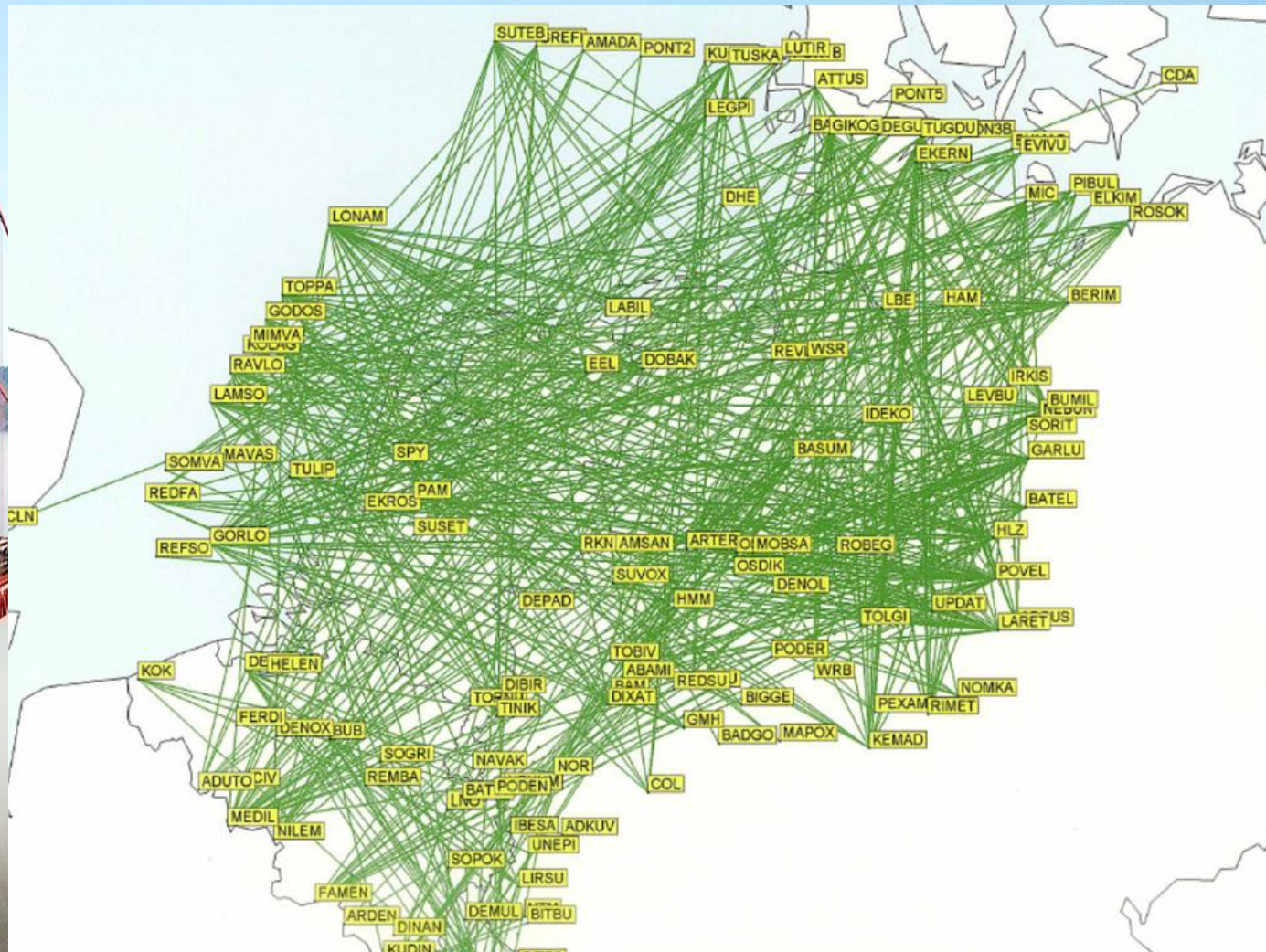
From “A” – the corridors – the iron curtain



To “FRA” – Free Route Airspace



To “FRA” – Free Route Airspace



Co-financed by the Connecting Europe Facility of the European Union

Free Route Airspace Implementation - End 2023

Legend:

- No FRA
- FRA H24
- FRA Night
- Cross-Border FRA area
- Cross-Border FRA operations

Inset Map:

EDYY, EDWW East, EDMM East, EDUU West, EDMM South

EDWW FL245 - FL285
EDMM FL245 - FL315

Map Labels:

BIRD (NAT Region)
Refer to AIP Iceland ENR 1.8.4 Flight Plans for more information

ENOB (NAT Region)

ENOR, ESOS, EFIN, EGPX, ETT, EVRR, EYVC, UMMV(*), UKBV, UKDV, UKLV, UKOV, UKDV, UGGG, UBBA, UDDO, LTAA, LCCC, LGGG, LMM, LIRR, LIBB, LQSB, LDZO, LIP, LJA, LKAA, EPWW, ESMM, EKDK, EGTT, EISN, EGXX, EGT, LFRR North West 1, LFRR South West, LECM, LPPC, LECB, LEC, GMAC, GMM, GCCC

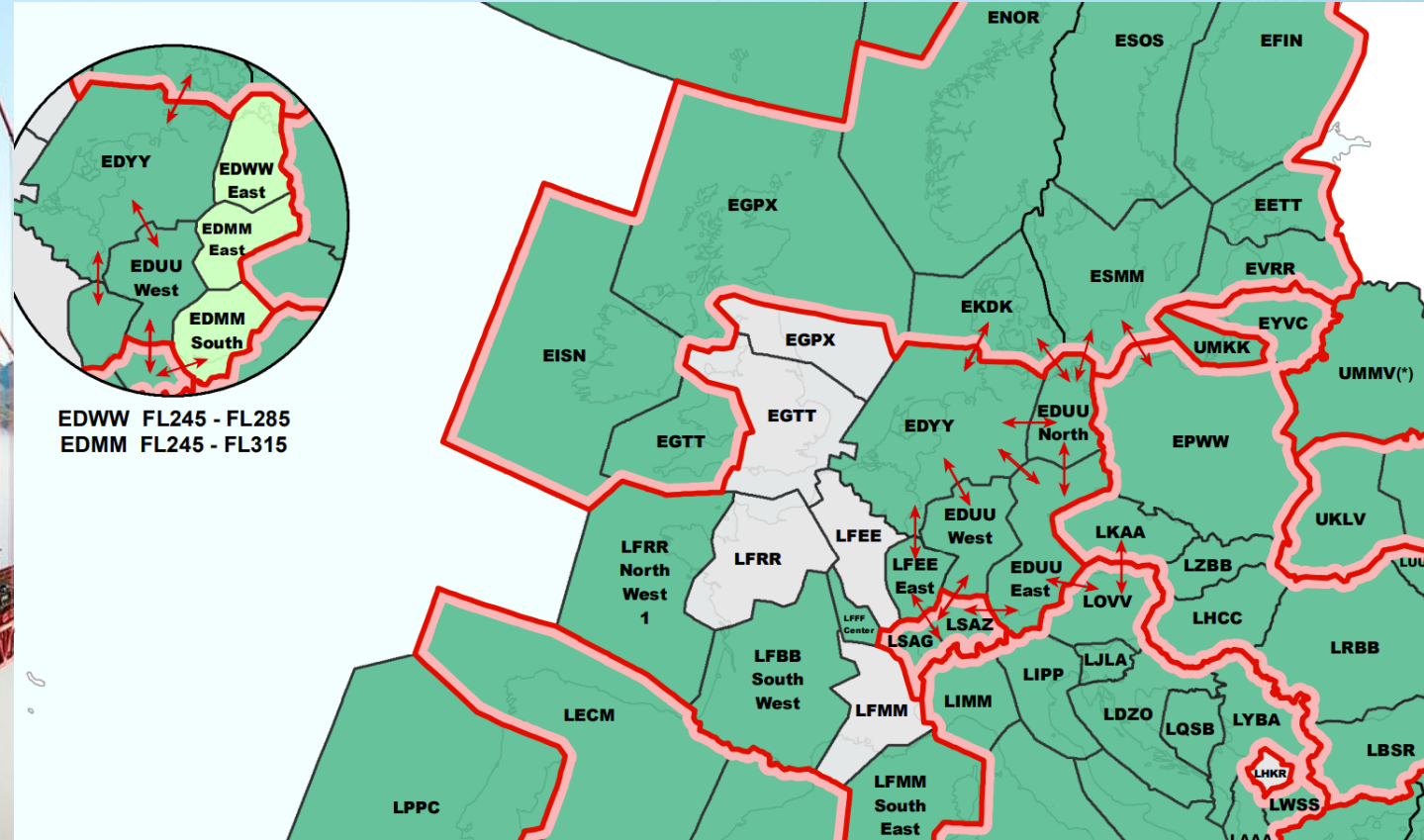
Notes:

(*) Regional interconnectivity and interoperability of the European route network within the ICAC EUR Region (ERND Function objective)

This map is for information purposes only

Source: EUROCONTROL, May 2023

To “FRA” – Free Route Airspace



The objectives of Free Route Airspace at MUAC

Credit to EUROCONTROL MUAC - FRA Team

**In particular
Andreas Henn and Kris Sicluna for their help**

The objectives of Free Route Airspace at MUAC



EU regulation 716/2014
“Pilot Common Project”

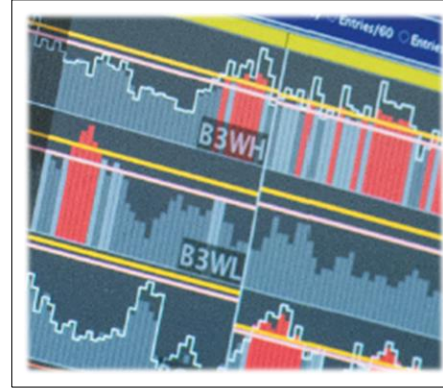
Implementation of FRA on
behalf of four states



Increase the number of
route options

Support the increase of
flight planning efficiency

Estimated benefits are
26 million EUR / year in
H24 FRA environment



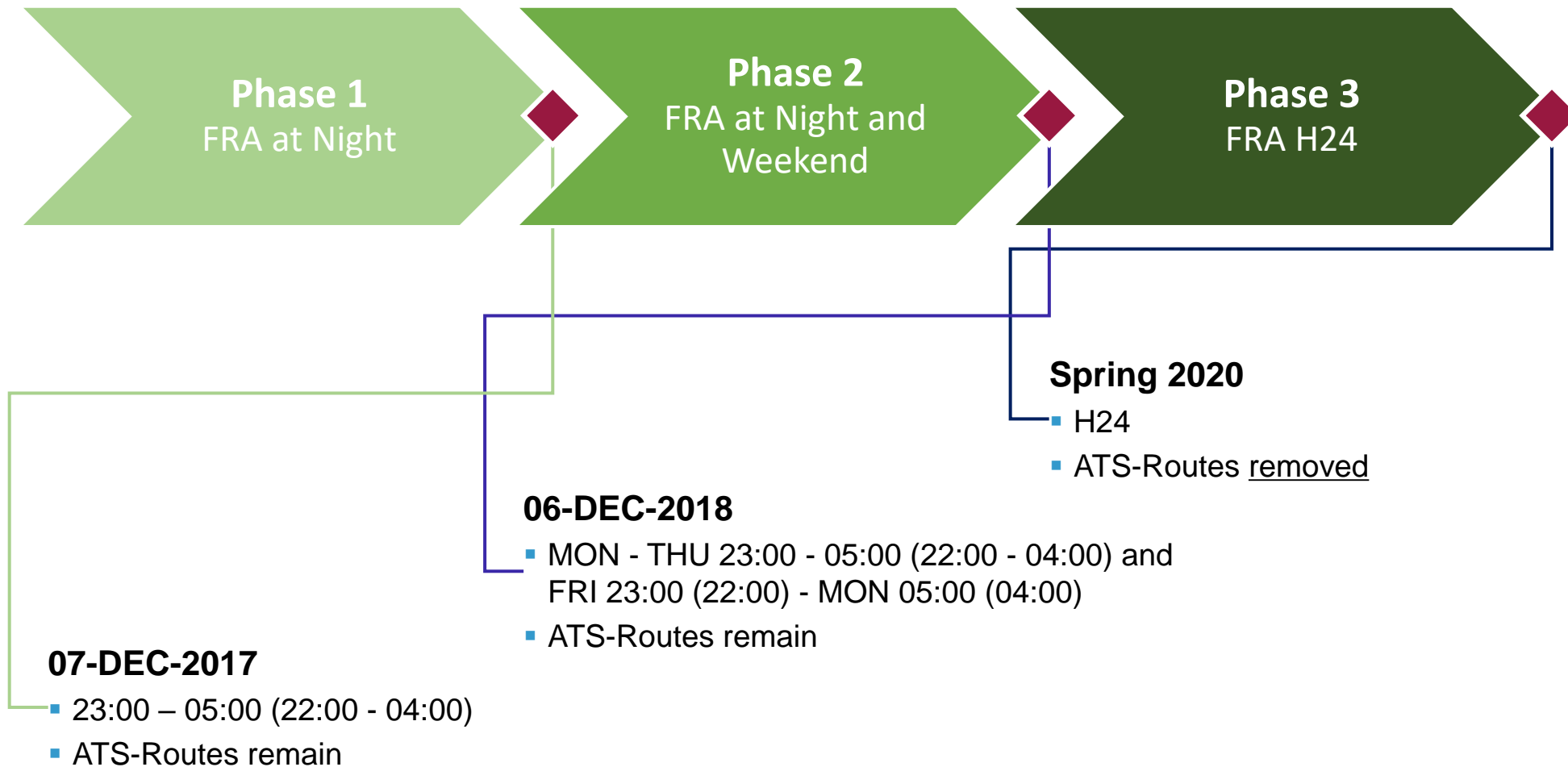
Increase flight plan
predictability



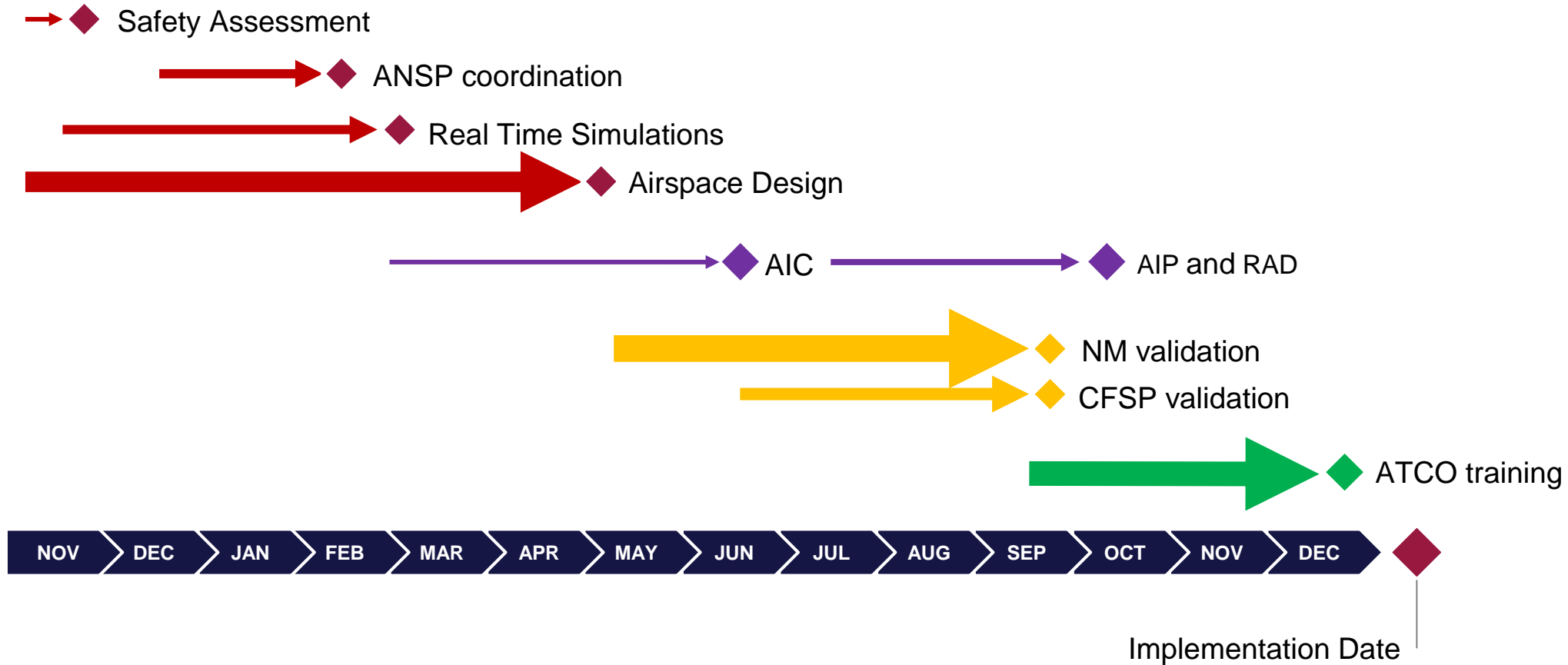
More options to balance
demand and capacity

More options to react on
capacity constraints

Free Route Airspace at MUAC was implemented in three Phases



The MUAC Development Cycle for each FRAM Phase



The MUAC Concept of Operations for Free Route Airspace

Free Route Airspace with
Intermediate
waypoints

Traffic remains subject to general rules, procedures and agreements with **adjacent / subjacent ATC units**

Trajectories shall not plan closer than **2.5nm** to the FRA border



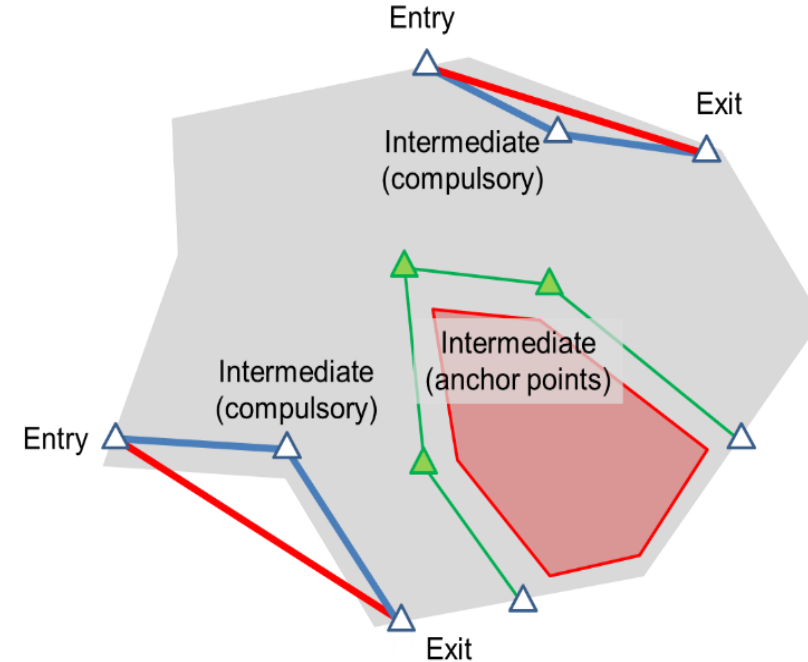
Lateral connectivity via
E / X points

Vertical connectivity via
A / D points

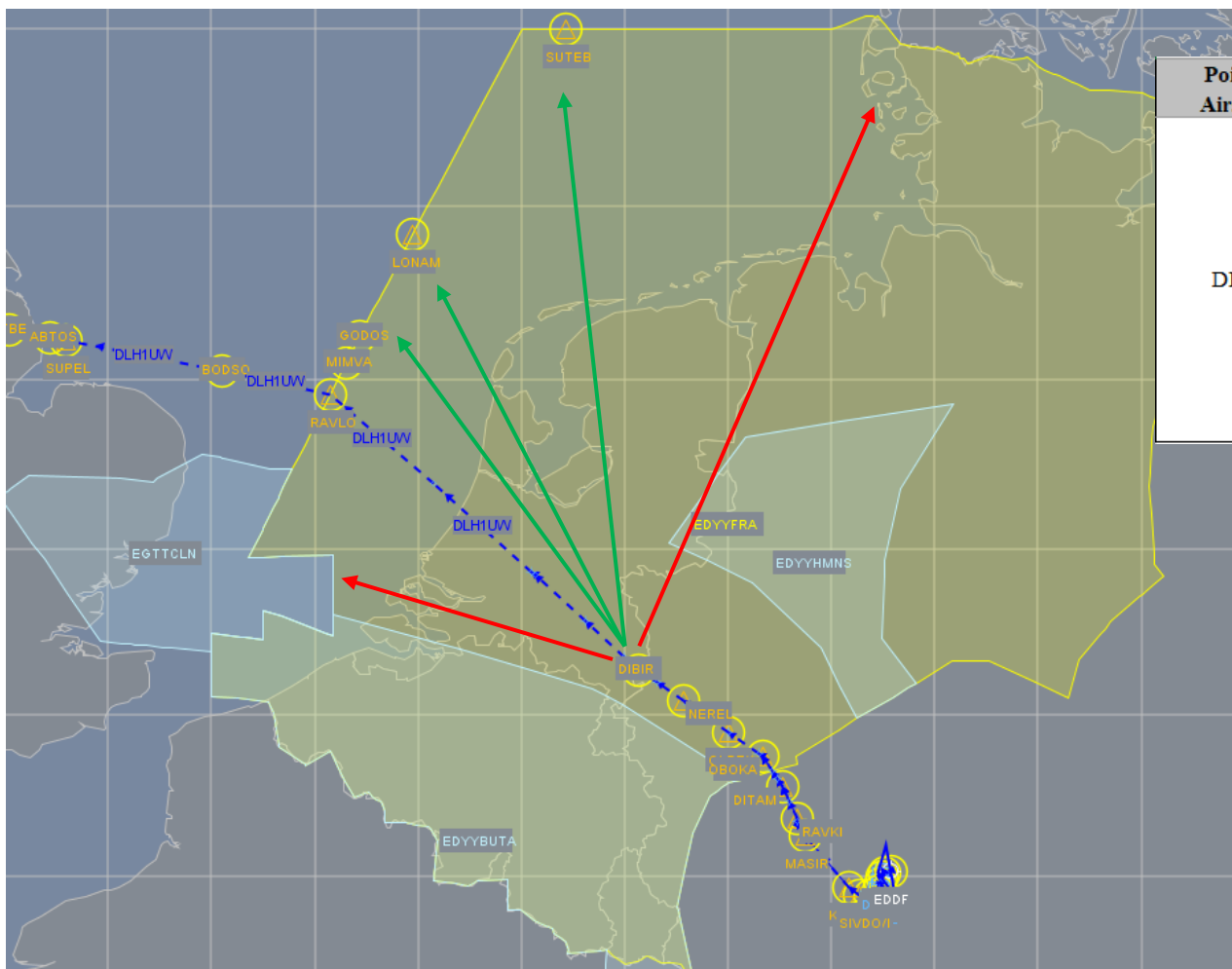
Connecting Routes
for main departure / arrival flows

Enroute Design and Flight Planning Rules (RAD)

- Use of FRA Intermediate points
 - Avoid re-entry cases
 - Avoid sector clipping
 - Circumnavigation of MIL areas
- Enroute design has evolved from ATS-Route design to a Flight Planning Rules set (RAD).
- Flight Planning Rules have evolved from route segment restrictions to point / airspace restrictions.

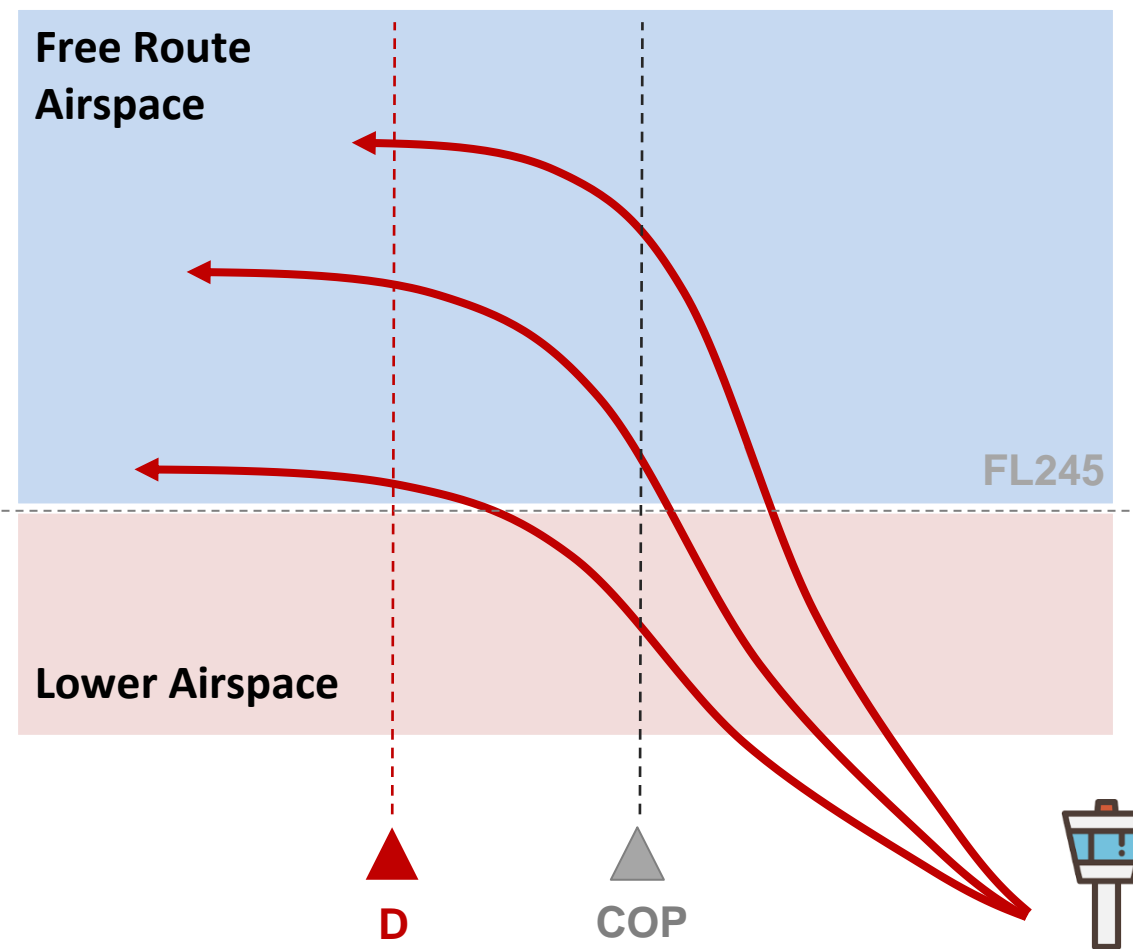
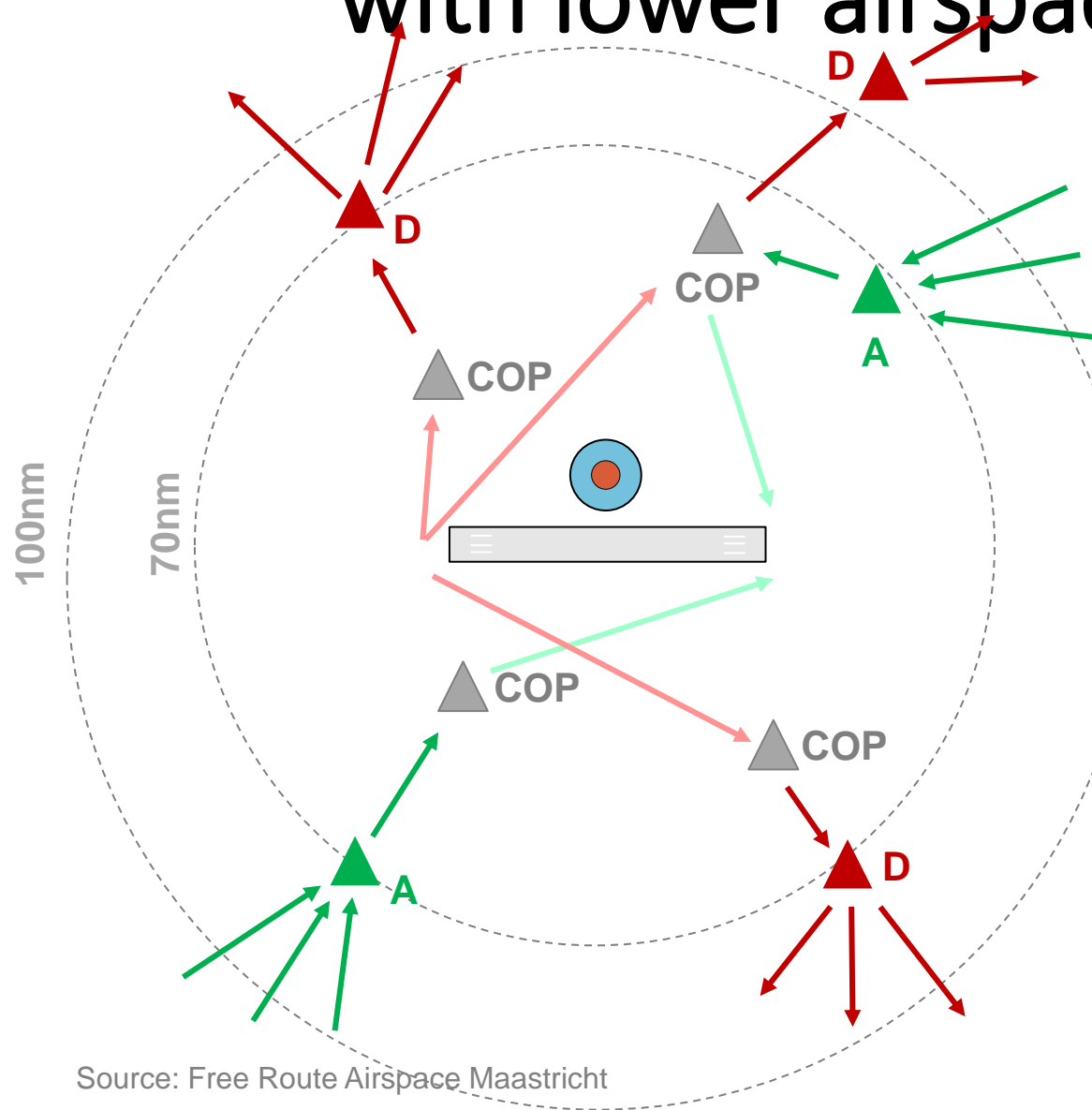


Enroute Design and Flight Planning Rules (RAD)



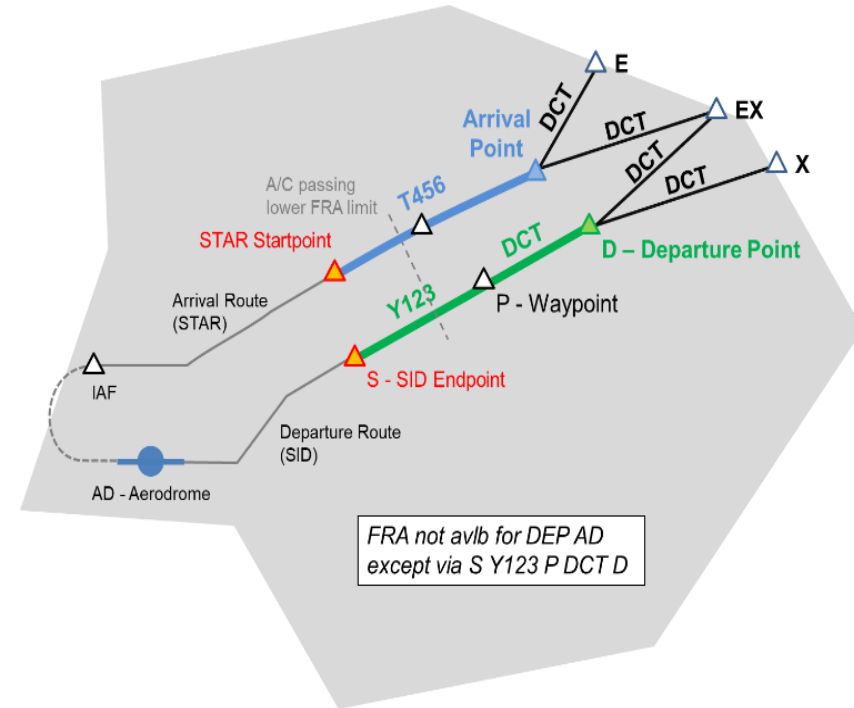
Point or Airspace	Utilization	Time Applicability	Operational Goal
DIBIR	NOT AVAILABLE FOR TRAFFIC DEP (EDDF, EDFE, EDFZ, ETOU) 1. Via EDYYHMNS 2. Via EDYYBUTA 3. Via EGTTCN	H24	1. To avoid sharp turns. Specified flights shall proceed northwest bound to keep clear of the Muenster sector of Maastricht UAC. These flights shall file via ABILU. 2. Flights via DIBIR shall not plan to enter EDYYBUTA. 3. Flights via DIBIR shall not plan to enter the Clacton sectors of London ACC. These flights shall file via OBOKA Z29 TORNUN.

Connectivity with lower airspace sectors and TMAs

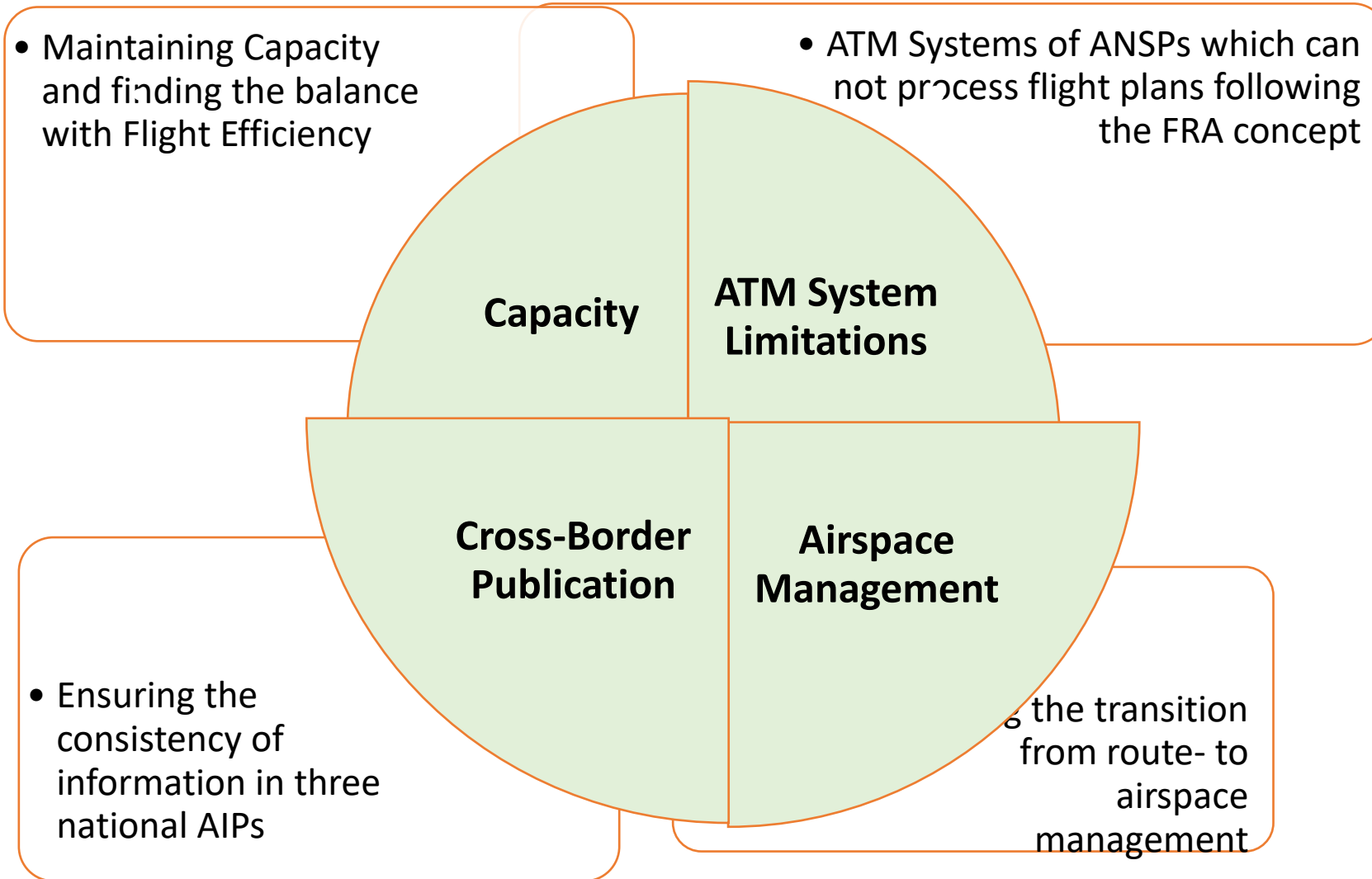


Connecting Routes Concept

- Vertical entry / exit into FRA is ensured via FRA Departure / Arrival Points.
- FRA Departure / Arrival Points are connected to the ATS-Route network of Lower Airspace sectors.
- Connecting Routes ensure seamless transition from Lower Airspace into the FRA volume and vice versa according to LoAs and OLDI exchange.
- Compulsory routings for major departure / arrival flows published via the RAD.



Challenges for the implementation of Free Route Airspace at MUAC



Summary:

- FUA (Flexible Use of Airspace) – Civil/Mil. Cooperation
- Technology (Radar environment)
- Phases implementation (night -> H24//Levels)
- Flexibility/Adaptability (Sector borders adaptation - MASERATI)
- Transparency
- Benefits (CO2 – Capacity)

**More planes, data, people...
Faster, always faster...
Green, greener...
And always Safer – SAFEST...**

To conclude:

Challenges (will) never stop...

New ideas – new processes will come...!
Trying to stop the wave is ill-fated –
Learning to surf the wave is the way ahead...
Collaboration and transparency are the
key to Free Route Airspace success!

LEARN – LEARN – LEARN – LEARN...
TRUST – TRUST – TRUST – TRUST...
SAFE – SAFE – SAFE – SAFER...
EFFICIENCY – EFFICIENCY – EFFICIENCY

The background of the entire slide is a photograph of several hands of different skin tones (ranging from light to dark brown) reaching up from the bottom and sides to form a circle in the center. The hands are positioned as if they are about to clasp or are already clapping. The background is a dark, textured surface, possibly a wooden table or a similar material.

TOGETHER – FURTHER !



THANK YOU FOR YOUR ATTENTION!



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Question(s)?