FAB initiatives in Europe

Airspace Design Improvements

Singapore 19-21 February 2019

member of FABEC

DFS Deutsche Flugsicherung

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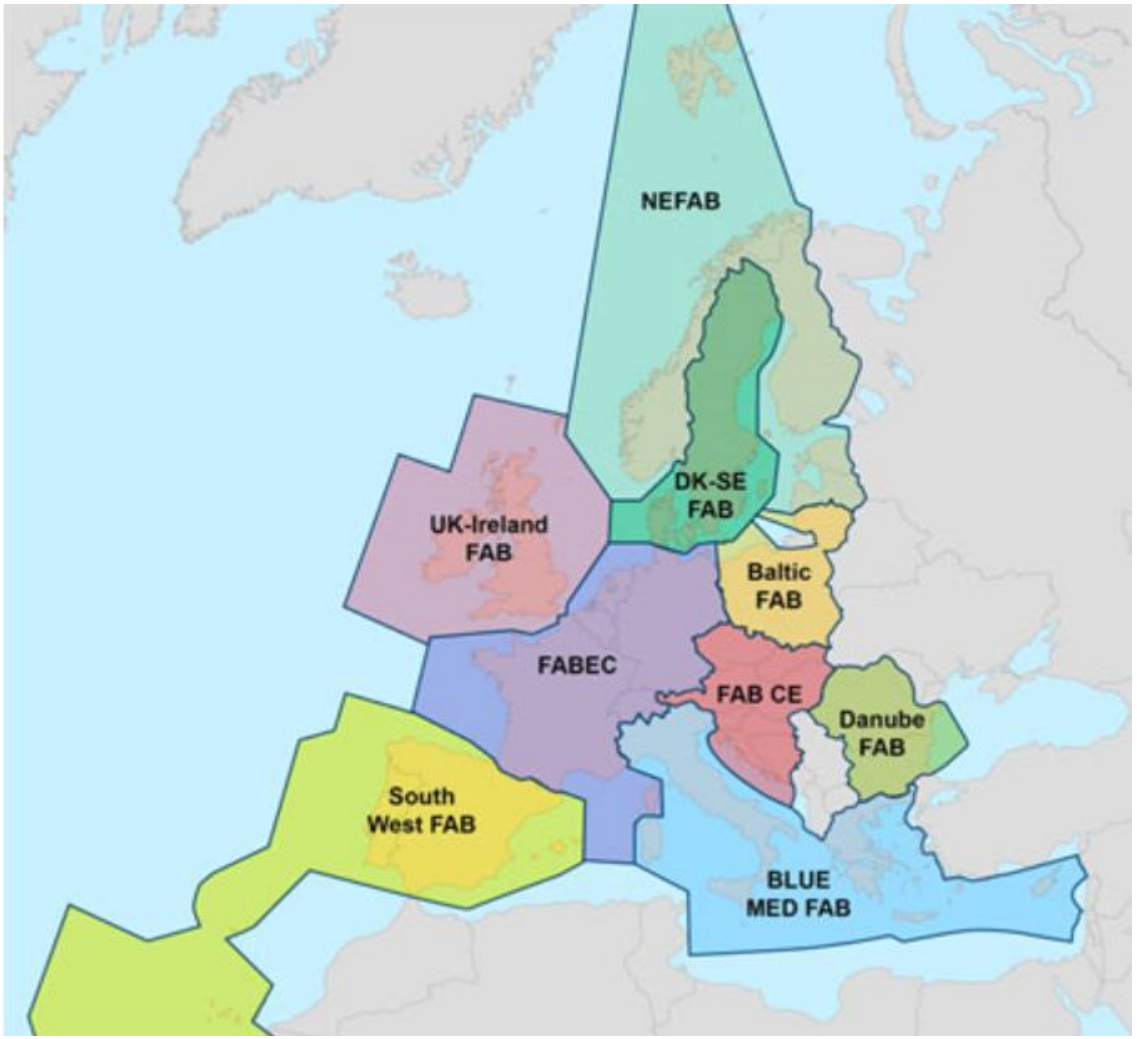
Functional Airspace Blocks (FABs)

- European airspace was clustered into Functional Airspace Blocks (FABs) as part of the EU Single European Sky (SES) Initiative
- FABs purpose was to arrange common airspace around traffic flows not state boundaries.
- The creation of 9 FABs was agreed on an EU level.
- The foundation for the working relationships in each FAB is built on three legal pillars:
  - a treaty,
  - a cooperation agreement among the national supervisory agencies (NSAs) and
  - a cooperation agreement among the civil ANSPs.

General information - 9 FABs within Europe

- NEFAB
- DK-SE FAB
- UK-Ireland FAB
- Baltic FAB
- FABEC
- FAB CE
- Danube FAB
- South West FAB
- Blue Med FAB



FAB operational aspects

The objective of FABs is to achieve optimal performance in the areas of:

- safety,
- environmental sustainability,
- capacity,
- cost-efficiency,
- flight efficiency and
- military mission effectiveness

General information - FAB EC (Europe Central)

For more and detailed information please refer to www.fabec.eu

General information - FAB EC

- Since June 2013, the Functional Airspace Block Europe Central, known as FABEC is officially in operation. It comprises the airspace of the six FABEC States of Belgium, France, Germany, Luxembourg, the Netherlands and Switzerland and is one of the busiest in the world.
- The 14 area control centres (Brussels, Bordeaux, Brest, Marseille, Paris, Reims, Bremen, Munich, Karlsruhe, Langen, Maastricht, Amsterdam, Geneva and Zurich) handle about 6 million flights/year (55% of European air traffic).
- The FABEC airspace covers 1.7 million km² (comparable to Indonesia 1.9 million km²), equal to 9% of the surface area of the European continent. It extends 960 NM (1780 km) from north to south and 990 NM (1835 km) from east to west.
- The airspace includes 193 military training areas, 16 cross border areas and 88 airports including 4 major intercontinental hub airports (Amsterdam, Paris, Frankfurt and Munich).

Current FABEC projects

- **FABEC XMAN**

  Extended Arrival Management

- **FABEC FRA**

  Free Route Airspace

Extended Arrival Management XMAN

Extended Arrival Management XMAN enables an optimised traffic flow into the major airports within and close to the FABEC airspace to generate performance improvements especially in terms of:

- environment (CO2 and fuel-burn reduction),
- safety (reduction in stack holding) and
- capacity (reduction in traffic bunching/workload)

Free Route Airspace FABEC

FABEC ANSPs agreed on one common concept of operations to ensure a harmonised process.

First implementations took place in December 2017 in the Maastricht airspace and in March 2018 in the upper airspace controlled by DFS.

To ensure smooth implementation airspace users, the Network Manager and dispatch providers are working closely together.

Free Route Airspace FABEC

Evolution of FABs

FABs are a good platform for communication and cooperation.

Operational collaboration between ANSPs has been growing in importance since the inception of the FAB concept and is not limited to FABs.

New concepts such as the implementation of free-route airspace or cross-border arrival management in combination with changing requirements deriving from erratic traffic growth combined with several effects at the network level require cooperative solutions from all partners.

InterFAB is the first platform that brings together all FAB stake-holders under one roof and provides an opportunity for wide-ranging cooperation and coordination, allowing FABs to align common goals, share experiences and collectively form a strong and cohesive voice in Europe.

InterFAB activities

- **InterFAB Communications workshop**

Regular InterFAB communications workshops have been organized since 2017. Topics such as performance, traffic development, EU regulations and customer relations management are in the forefront of these exchanges.

- **InterFAB Operations workshop**

The goal of the first InterFAB Workshop Operations was to promote the exchange between those who are responsible for operations at the various FABs and ANSPs using concrete examples and issues but without the constraints of a formal framework.

- **InterFAB Performance Workshop**

Volatility (Seasonality, Weather phenomena,
Impact of the change of ATC Service Charge)

Further and additional cooperation via alliances and partnerships

- On top of the FAB collaboration, ANSPs have developed alliances and industrial partnerships to cope with operational requirements and improve operational performance
- The following factors lead to cross initiatives between centers/states:
  - Major traffic flows between states/centers
  - Working relationship
  - Synchronization of similar implementation projects (x-border projects)
  - Enhancement of technical interfaces (COOPANS or iTEC cooperation)
  - SESAR research and deployment (A6 Alliance)

X-border FRA initiative DK/SE_MUAC_KUAC

- It is an ambition of the European Union as laid down in the SESAR Deployment Programme to foster cross-border implementations of FRA on FAB level and on a Pan-European level.
- Supporting this ambition
  - Eurocontrol Maastricht UAC,
  - DFS Deutsche Flugsicherung,
  - LFV and
  - Naviair

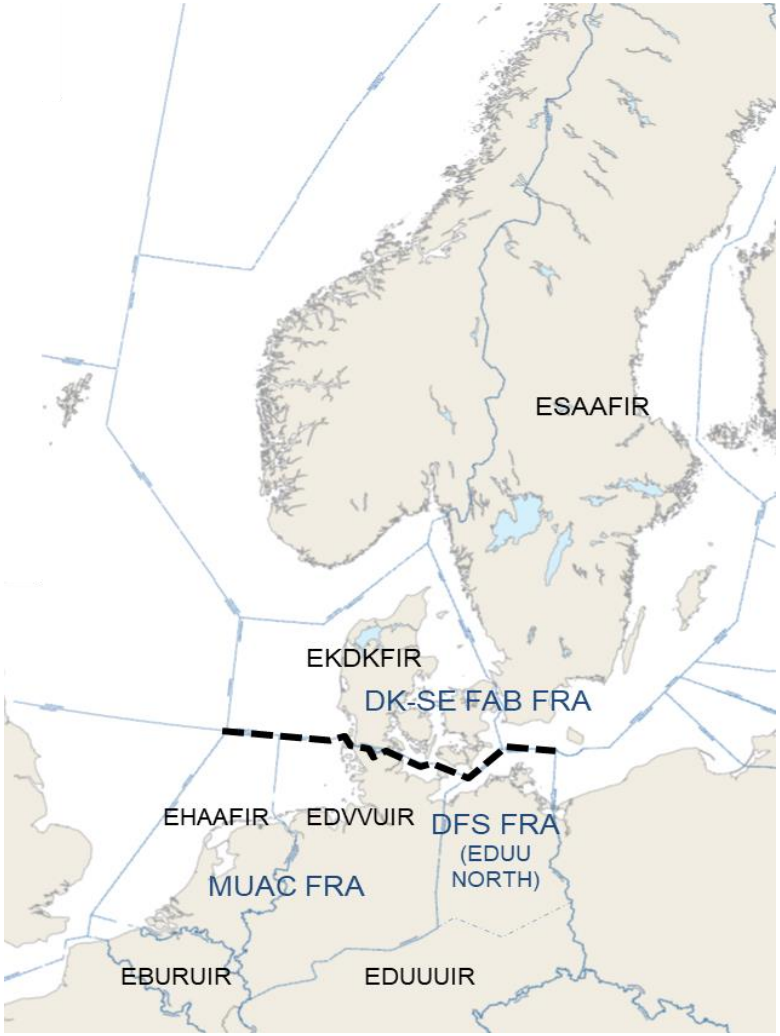
  started a common initiative towards cross-border FRA operations.

X-border FRA initiative DK/SE_MUAC_KUAC

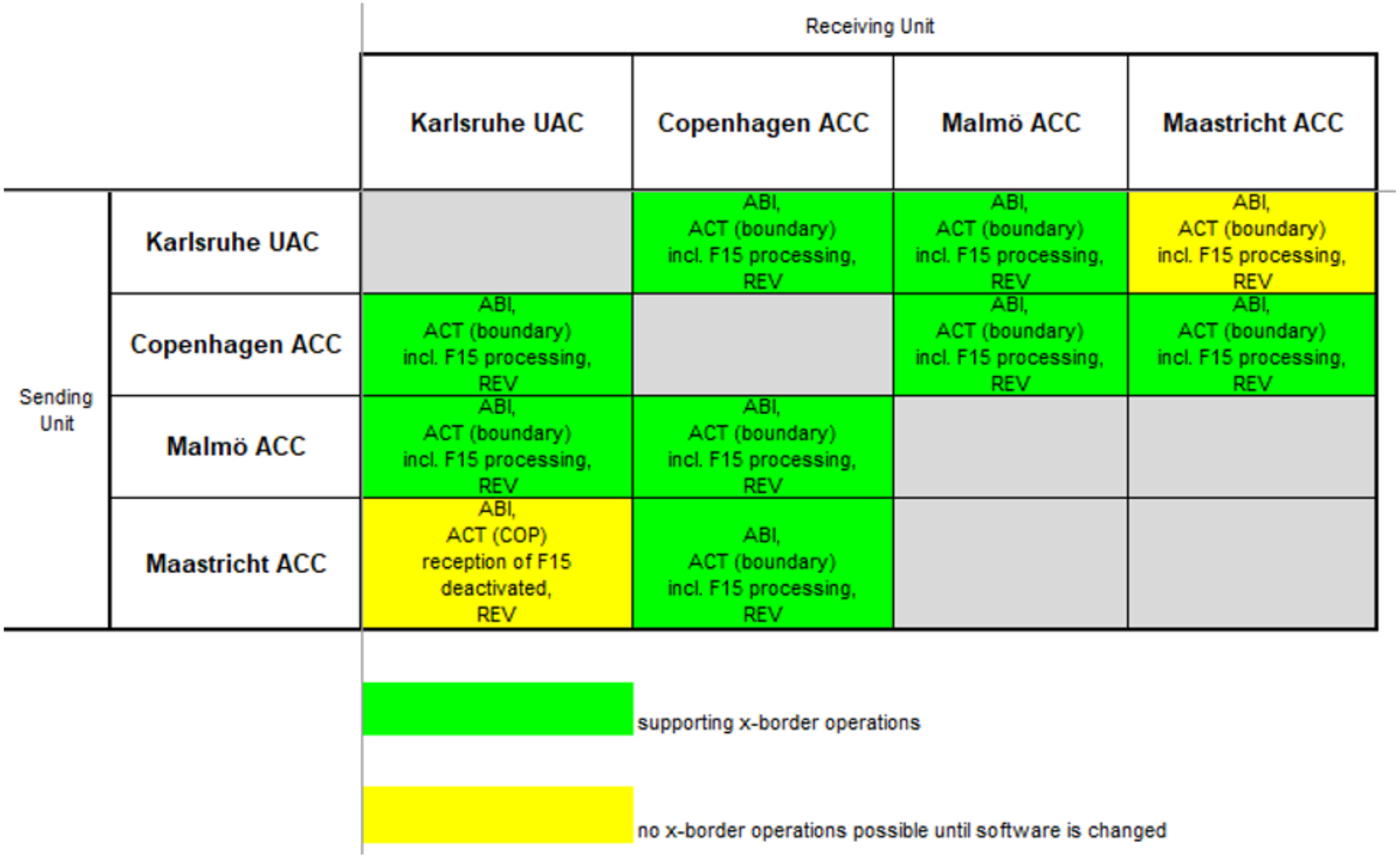
Cross-border FRA operations enable airspace users to file trajectories in the flight plan between DK-SE FAB FRA, MUAC FRA and DFS FRA regardless of the FIR/UIR boundaries.
This will initially only be available for traffic departing/arriving in DK-SE FAB (without crossing ENOR FIR).

Concerning DFS FRA only the FRA Cell EDUU NORTH is subject to cross-border FRA operations.

Airspace comprising cross-border FRA operations with the FIR/UIR boundary indicated as dashed line.



Coordination of technical aspects x-border FRA



Sending Unit \ Receiving Unit	Karlsruhe UAC	Copenhagen ACC	Malmö ACC	Maastricht ACC
Karlsruhe UAC		ABI, ACT (boundary) incl. F15 processing, REV	ABI, ACT (boundary) incl. F15 processing, REV	ABI, ACT (boundary) incl. F15 processing, REV
Copenhagen ACC	ABI, ACT (boundary) incl. F15 processing, REV		ABI, ACT (boundary) incl. F15 processing, REV	ABI, ACT (boundary) incl. F15 processing, REV
Malmö ACC	ABI, ACT (boundary) incl. F15 processing, REV	ABI, ACT (boundary) incl. F15 processing, REV		
Maastricht ACC	ABI, ACT (COP) reception of F15 deactivated, REV	ABI, ACT (boundary) incl. F15 processing, REV		

Challenges for common airspace implementation

Political:

- Political and management support is essential
- All international activities require the support of the partners
- Mutual trust and understanding among the involved partners

Strategical:

- Close coordination between ACC/UAC is essential to meet the required timelines and targets in the projects
- Trade unions and working councils need to be informed well in advance

Challenges for common airspace implementation

Economical:

- Airspace user have different preferences on their filed routings in flight plan (shortest, cheapest, fastest).
- X-border DCT in FRA environment could shift traffic flows between states. Effect on income has to be accepted by all partners.
- Different priorities on ANSP implementation time frame (operational and technical)

Questions??
Thank you for your attention!

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