



Operational Working Group OPS WG

Karl-Heinz Gatz DFS





7 working packages have been identified

- 1.1. Identify user expectations
- 1.2. Develop FAB airspace design
- 1.3. Develop traffic forecast
- 1.4. Develop FAB ATM Concept & implementation plan
- 1.5.a Develop AIS concept & implementation plan
- 1.5.b Develop METconcept & implementation plan
- 1.6. Develop contingency concept & implementation plan
- 1.7. Performance analysis





Objectives of the OPS WG

- **Common OPS Concept**
- **FAB Airspace Design and Sectorization**
- **Common Contingency Concept**
- **Ops Implementation Plan**
- **Performance Analysis**
- **MET and AIS Cooperation Concept**





Presentation „One day in Europe“





Possible benefits and added values for the civil and military users

- **Capacity will meet demand of users**
- **Airspace design and sectorization will be based on civil and military needs**
- **Common operational concept will be established**
- **Improved models of co-operation between civil and military service providers will be established**
- **Improved contingency provisions will be established**





Operational Working Package

Performance Analysis

Klaus Affholderbach Skyguide





Objectives of the work package

The establishment of the FAB can only be considered successful, when an increase in overall performance in this FAB can be proven or at least expected:

- **The Performance Analysis will demonstrate whether the results / solutions / options of relevant ops work packages will meet**
 - **user requirements and expectations**
 - **derived ANSP requirements and expectations**





The approach

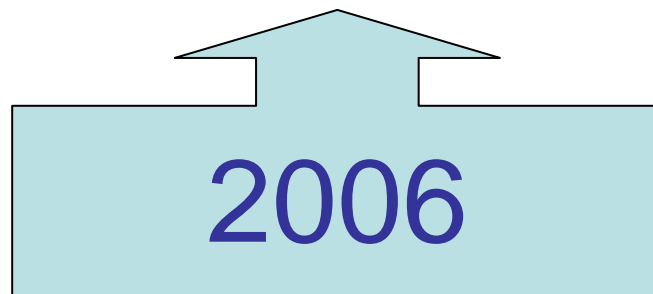
- **The Method for the FAB Performance Analysis will be defined in a compatible manner to already existing methods and initiatives (Common requirements, Work of the PRC, SESAR, etc.)**
- **Key performance indicators and instruments will be defined and established accordingly**





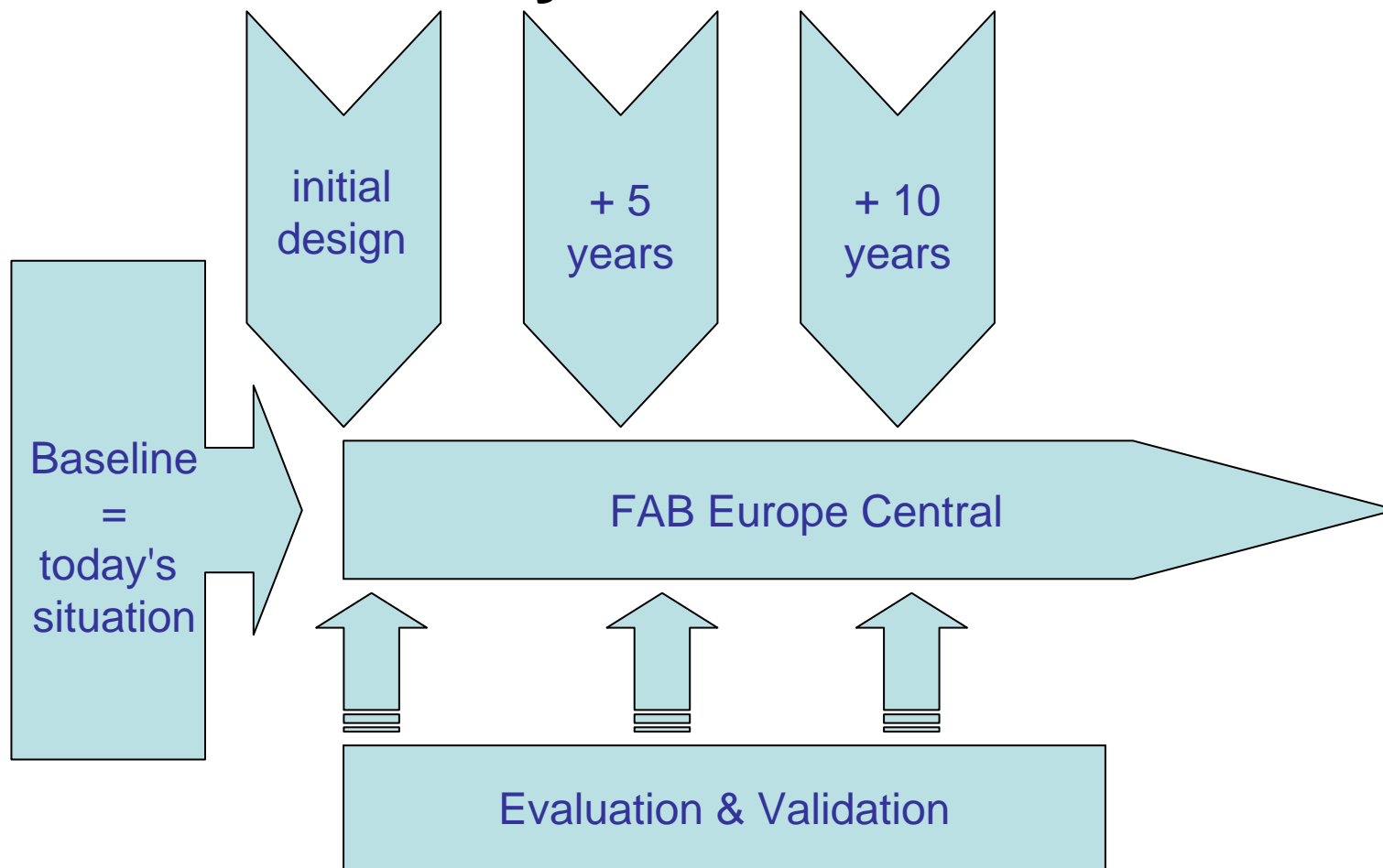
Reference

The Performance Analysis will take the current provision of air traffic management as a reference, addressing the User- and ANSP requirements and expectations.





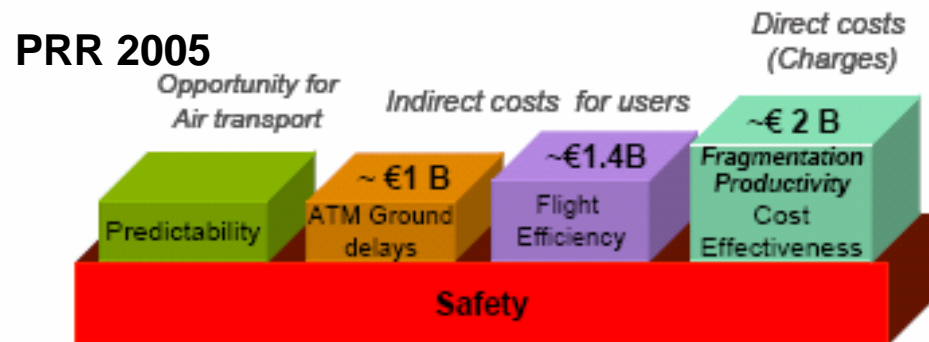
Performance Analysis



The Focus for the detailed feasibility study

will mainly be put on the following sub-set of the 11 Key Performance Areas defined by ICAO:

- Safety
- Cost effectiveness
- Capacity
- Efficiency
(incl. mission effectiveness)
- Environmental sustainability





Points for Discussion

- **Which key performance areas should be considered for the performance analysis?**
- **What are your key-expectations regarding the performance improvements?**
- **What are your key operational drivers: punctuality, low charges, optimum trajectories, mission effectiveness, else?**





key

- ❑ performance areas
- ❑ performance improvements
- ❑ operational drivers



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Operational Working Package

Traffic Forecast

John Smylie EUROCONTROL





Objectives of the work package

- the objective of this work package is to define the assumptions and scope of the traffic forecast
- to generate the Medium Term traffic Forecast/MTFFAB for the years $x+2$ to $x+10$
- to generate one week traffic samples in September and February





The approach

- **Definition of assumptions and scope of the traffic forecast**
- **Stake holder consultation**
- **Generation of Medium Term traffic Forecast/MTFFAB for the years x+2 to x+10 (incl. fast run simulations)**





Points for Discussion (1)

What are the envisaged concepts/modes of operation with regard to the following subjects?

a. Airport and Hub expansion/development (new runways/hubs/ terminals and parking spaces - all influencing traffic demand)

b. Route network expansion/development (future traffic trends - i.e. business and tourist destinations - this will influence defined flows through FABCENT)





Points for Discussion (2)

c. Fleet expansion/development and fleet technical development (A change in fleet aircraft type (A380 or VLJ's) can result in a change in traffic patterns in terms of achieved flight levels and therefore the traffic-demand or even defined flow. Also, technologies such as Data-link, which with higher equipage rate can result in a raising of sector capacity/ throughput).

d. Substantial future military requirements (Introduction of new weapon systems, future use of military aerodromes, introduction of UAV, any other major challenges)

Which data regarding airport and airline capacity development can be made available for the traffic forecast?



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Operational Working Package

Development of an FAB ATM concept and Implementation plan

Martin Beringer LVNL

Dirk Mahns DFS



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Objectives of the work package

- **Definition of a common operational concept including options**
 - **Enabling a safe and efficient air transport service**
 - **In accordance with user objective**
 - **Capable of meeting future demand**
 - **In-line with relevant European concepts and which can evolve from the current concepts**

- **Development of an implementation plan for the common future operational concept identifying main implementation packages and considering a phased approach synchronised with the time axis of the FAB Master Plan.**



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The approach

1. Inventory of existing achievements and on-going initiatives regarding ATM concepts
2. Analysis of possible future concept elements
3. Definition of a common operational concept
4. Identification of main implementation packages





Main Operational Changes* (some examples of initial ideas)

- Establishment of a FAB ATFCM-ASM Unit to coordinate and optimize FAB-wide the capacity provision, the traffic flows and the use of airspace
- Exchange of sectors / airspace volumes between FAB partners
- Dynamic segregated areas for autonomous operation
- Free route operation in certain areas
- Establish military training areas regardless of the national boundaries of the FAB partners
- Establish a “FAB airspace policy body”

* To be coordinated, further worked out and agreed in subsequent meetings





Main Operational Changes* (some examples of initial ideas)

- Create modular and dynamic areas + generic sectors and / or modular sectors, support inter-FAB CBA's
- Dynamic, flexible, sector management irrespective national boundaries and DFL
- Enhanced sector management based on traffic flows and workload
- Increased level of interop. between the FAB partner, exchange of 4D-trajectories
- Extend horizon of traffic synchronisation.
- Move FUA level 2 to the day of operation and closer to actual flight

* To be coordinated, further worked out and agreed in subsequent meetings



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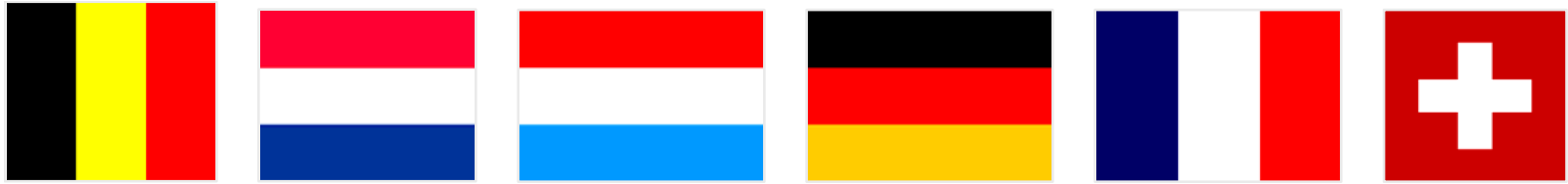




Points for Discussion

- **What are your expectations in terms of ATM in general?**
- **Which major conceptual ideas should be reflected in the FAB ATM concept ?**





Operational Working Package

Development of FAB Airspace Design

Andreas Mevenkamp DFS
Hervé Grange DSNA





Objectives of the work package

to develop a proposal for framework conditions to be met in the airspace design process (ATS route structure, Sectorisation, TSA's, Airspace Classification)

to coordinate the framework conditions for airspace design with adjacent FAB's

to describe the current airspace design including existing TSA's and the corresponding capacity figures

to elaborate - based on agreed common framework conditions - an airspace design making best use of the one continuum airspace of the FAB Central thereby taking into account the interfaces with adjacent FAB's

to perform a **Fast Time Simulation** to prove the overall benefits of the FAB airspace design





The approach (1)

Development of framework conditions for airspace design

FAB Airspace Design shall take due account on agreed initiatives e.g. ICAO ANP, SESAR, DMEAN, EUROCONTROL Concepts (Advanced FUA, AAS etc.)

FAB Airspace Design shall ensure that the air transport system shall meet the applicable target level of safety and operates efficiently taking into consideration environmental constraints

FAB Airspace Design shall enable all airspace users to conduct their operations with minimum restrictions and maximum flexibility in a cost efficient manner

FAB Airspace Design shall provide a balanced consideration of economic and military training and air operations requirements (National Security)

FAB Airspace Design shall take due account to traffic forecasts or other developments in the air transport industry (e.g. RNAV applications)





The approach (2)

Description of the current Airspace design in the FAB Central Area

Elaboration of a future Airspace Design Model

The design process should comprise of the following main elements:

- determine the route network (lateral/vertical flight profiles)
- define sector families
- define sectors
- establish sector configurations
- group sector families into a larger block of airspace
- define the modus operandi

Execution of a Fast Time Simulation to proof the overall benefit of the FAB Central





The approach (3)

Take due account of military requirements:

Freedom to operate in all weather conditions within the entire FAB (to be clarified)

Special handling in particular for priority flights and for time-critical missions, but also for military aircraft not fully equipped to the civil standard

Retain the possibility to perform uncontrolled VFR flights

Temporary Airspace Reservations (TSA's) as close as practicable to the appropriate operating base to perform flight activities not compatible with the normal application of the 'Rules of the Air' (e.g. air combat exercises, air refuelling etc.)

Airspace restrictions for non flight related activities (e.g. gunnery ranges, missile firing ranges etc.)





Scope of the Fast Time Simulation (1)

For the development of the **FAB Future Airspace Design** three Hot Spot Areas were defined:

ARKON/RKN Interface Area

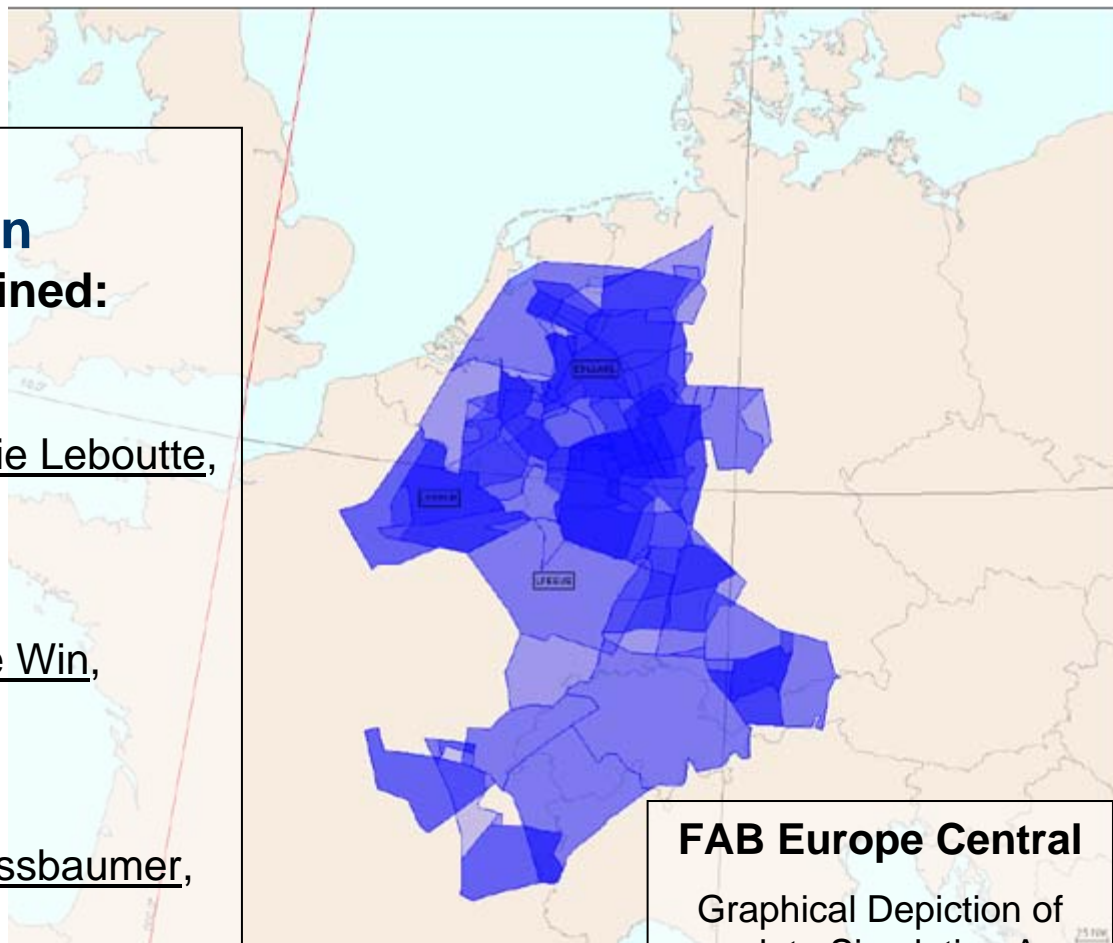
(Sub package Work Lead: Jean-Marie Leboutte, MUAC)

NTM/DIK Interface Area

(Sub package Work lead: Etienne de Win, Belgocontrol)

TRA Interface Area

(Sub package Work Lead: Dieter Nussbaumer, Skyguide)



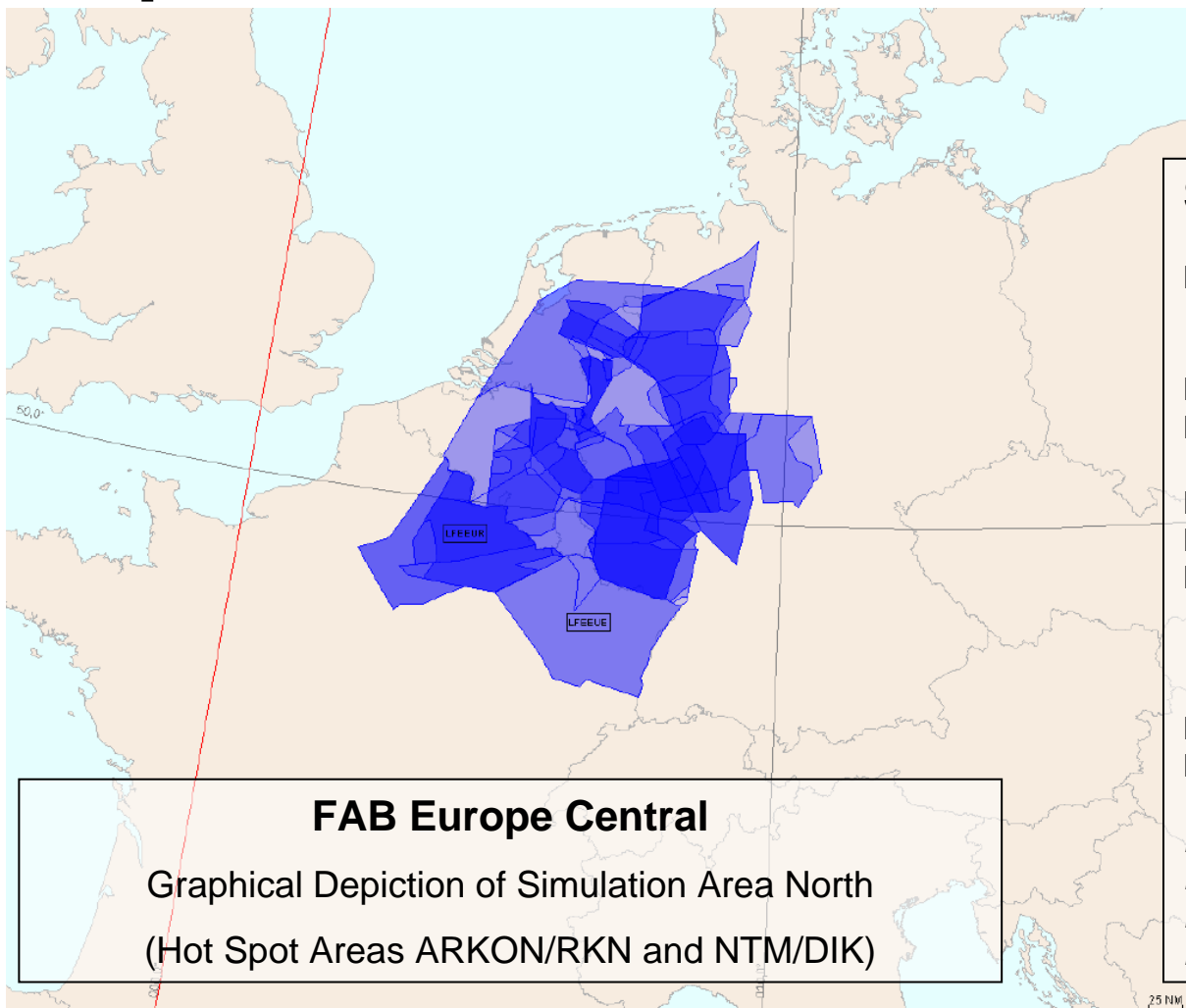
FAB Europe Central

Graphical Depiction of complete Simulation Area





Scope of the Fast Time Simulation (2)



FAB Europe Central
 Graphical Depiction of Simulation Area North
 (Hot Spot Areas ARKON/RKN and NTM/DIK)

Sectors to be considered:

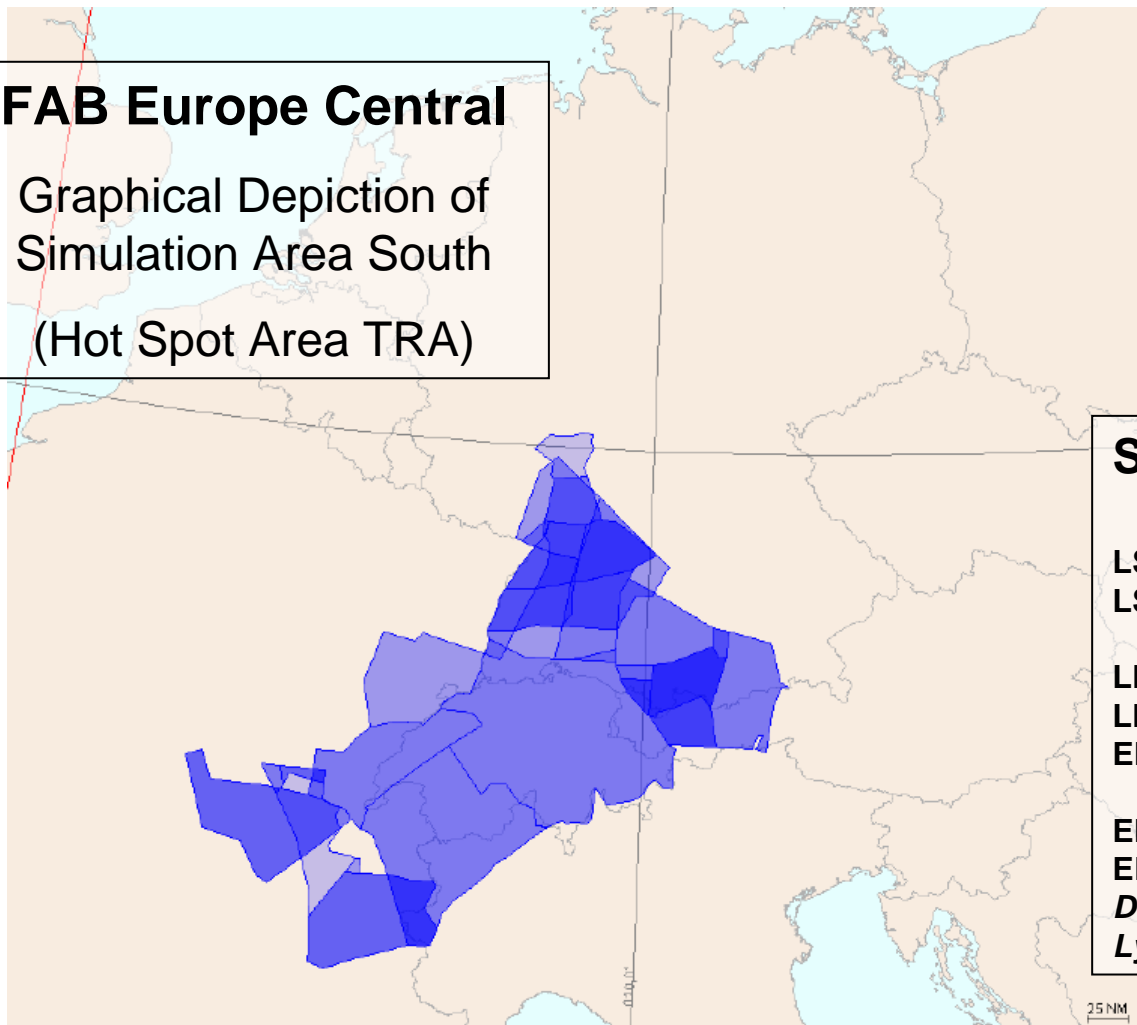
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LFFF:	TE, TM
LFEE:	UR, XR, KR, HR, UE, XE, KE
EBBU:	EHS, ELS, HUS, LUS
EHAA:	2E, 2I, 3
EDFF/LL:	HMM, DUS (ADL), MGB, NOR, PAD, KIR, RUD, PFA, EIF, TAU, SIG, GIN, MAN
EDWW:	EMS
EDUU:	NTML/H/T/M, FFML/H/T, FFM-WUR-FULM
RNLAF:	<i>DutchMil, RAPCONS</i>
BAF:	<i>LN, LS, LW, HE</i>
LippeRadar:	<i>South Sector</i>
Drachenbronn:	<i>No sectors</i>



Scope of the Fast Time Simulation (3)

FAB Europe Central

Graphical Depiction of
Simulation Area South
(Hot Spot Area TRA)



Sectors to be considered:

- LSAZ:** M1, M2, M3, M4, E, N, S, W
- LSAG:** K2, K3, K4, L2, L3, L4, MA(L1), MS(K1)
- LFEE:** UH, XH, KH
- LFMM:** LE, G1, G2, G3
- EDFF:** MAN, NKR, BAD, LBU, (A)REU, (A)STG
- EDUU:** SLNL/H, TGOL/H
- EDMM:** KPT, KPTH, ALPU, ALPT
- Drachenbronn:** No sectors
- Lyon Mil:** No sectors





Points for Discussion

- What are your expectations in terms of ‚FAB Airspace Design‘ in general ?
- Which priority requirements should be reflected in the FAB Airspace Design process?





Operational Work Package

Development of an FAB AIS & MET concept and Implementation plan

Daniel Goffin Belgocontrol





Operational Work Package 1.5a

AIS





Objectives of the work package (AIS)

1. Define a common concept of operation

- In accordance with relevant ICAO SARPS,
- Covering all stages of flight,
- Meeting stakeholders expectations,
- Supporting agreed Eurocontrol and SES initiatives

2. Develop a phased implementation plan, aligned with the FAB Master Plan





The approach (AIS)

- 1. Analysis of current implementation of AIS, identifying:**
 - Common ground,
 - State-specific implementations,
 - Value-added (non-ICAO) services.
- 2. List „opportunities for collaboration“, incl.**
 - Envisaged level of collaboration (coordination / cooperation / integration)
 - Expected benefit
 - Implementation effort required (easy → hard)
 - Issues to be solved (prerequisites)
 - Impact on current operations
- 3. Selection and further development of „best solution“**
- 4. Identification of main implementation packages & time frames**





Main operational changes (AIS)

- To be discussed
- 1st meeting WP 1.5a – AIS planned for 24 JAN 2007





Operational Work Package 1.5b

METEO





Objectives of the work package (METEO)

1. Define a common concept of operation for METEO (*How to minimize the effects of weather on capacity ?*)
 - To improve support to ATM
 - To improve decision making
 - To improve the efficient use of MET products
 - To reduce weather regulation impact
2. Develop a phased implementation plan, aligned with the FAB Master Plan





The approach (METEO)

1. Inventory of the current situation of MET products dedicated to ATS
2. Operational impact analysis (+ new boundaries consequences)
3. Identification of the differences
4. Research of synergies
5. To propose solution to improve safety, capacity, cost efficiency
6. Implementation planning





Main operational changes (METEO)

1. For ATC, changes will be transparent.
2. For METEO, new boundaries of responsibilities are expected.
 - More efficient use of the data, less double work, harmonisation of the results, common training, new ATS requirements, new contingency procedures...





Points for Discussion (AIS & MET)

1. **What scale of operations of AIS and METEO is needed ?**
2. **Which major conceptual ideas should be relected in the AIS/METEO concept ?**
3. **What main practical improvements do you expect from a FAB-based collaboration ?**
 - **Could you prioritise your expectations ?**
 - **What would be the benefits for your specific business ?**





Operational Working Package

FAB Contingency concept

Ralf Hendriks EUROCONTROL





Objectives of the work package

- to define the scope of the contingency concept (Civil and military; Area, APP, AIS and METEO)
- to define a common contingency concept in the event of disruption or potential disruption of air traffic services and related supporting services in the FABCENT AOR in order to maintain a safe and orderly flow of traffic
- to develop an implementation plan for the above mentioned contingency concept.





Definition (ICAO)

Contingency plans are intended to provide alternative facilities and services to those provided for in the regional air navigation plan when those facilities and services are temporarily not available.

Key words

- Alternative facilities**
- Alternate services**
- Temporary nature**





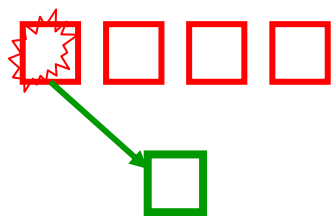
The approach

- 1. Inventory of existing achievements and on-going initiatives regarding Contingency concepts**
- 2. Analysis of possible future concept elements**
- 3. Definition of a common contingency concept**
 - Establish the performance requirements
 - Accommodate all stakeholders and provide the flexibility to adapt to specific local requirements
 - Describe concept for 5 years / 10 years after the FAB is established
 - Perform a cost-benefit analyses
- 4. Implementation plan**

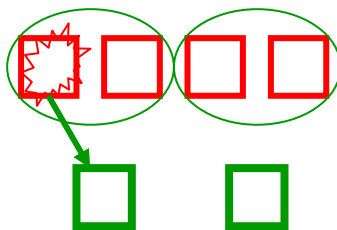




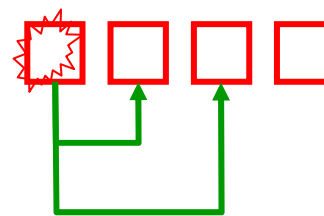
Options for alternate locations



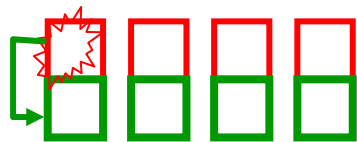
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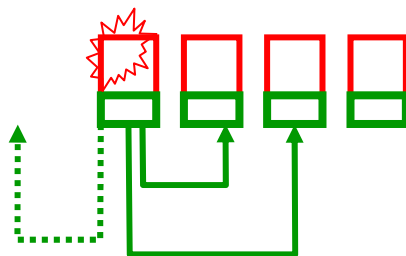
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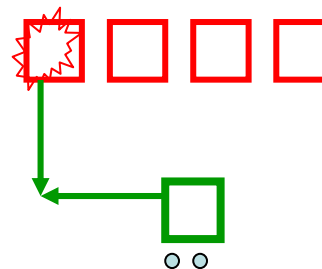
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4



5



6





Points for Discussion

- Which major conceptual ideas should be reflected in the contingency concept?
- What should be the level of remaining capability in the event of a disruption of air traffic services?

