



DFS Deutsche Flugsicherung

Eisenbahntechnisches Kolloquium

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#1 What are the three biggest problems facing European ATM today and in the future?

1. CAPACITY

3.232
of 8.217

Landed Airborne
Germany

On-Time Performance

84,2%

Early Delay < 15 min Delay < 30 min
Delay < 45 min Delay > 45 min
Germany International

Directs Used

46
of 72

Used
Germany

*High **uncertainty** in future **traffic demand** (forecast ≥ 3 years)*

*Limits to **dynamically adjust capacity** to demand*

***Volatility of traffic flows** and limits to adapt*

Limits to growth

#1 What are the three biggest problems facing European ATM today and in the future?

2. REGULATION

*Incorrect belief that the **KPIs Safety, Capacity, Cost-Efficiency and Environment** are all somewhat independent from each other*

*It is unrealistic to assume that **traffic forecasts over a period of 6 years** (1 year lead time + 5 years notified regulatory period) can be sufficiently accurate for a rigid regulation of costs and capacity*

***Over prescriptive input-driven** instead of performance based / output-driven regulation; **one-size-fits-all approach** does not take into account national specifics*

*Execution hampered by **sovereignty, liability, military and social aspects**. Lack of political support for ANSP consolidation*

#1 What are the three biggest problems facing European ATM today and in the future?


3. ATM CONCEPTS AND SYSTEMS



*Limited level of **automation**. Long time to implementation*

*Limited level of **standards** for **operational concepts** and **procedures***

*Limited level of **ATM systems standardization** and **modularity***



*Limited level of **data-exchange** along the aviation value-chain of Airspace Users, Airports and ANSPs (ground/ground and air/ground)*

#2 What should European ATM look like in 2035?

1. CAPACITY

- Required **safety level maintained** with higher traffic volumes, density and complexity
- Full collaboration of all ATM Network operational stakeholders (Airspace Users, Airports and ANSPs), enabled by transparent **real-time information sharing**
- ATM **capacity more dynamically adjustable** to varying demand (up and down)

2. REGULATION

- **Output oriented** regulation; **no one-size-fits-all approach**
- Regulation considering the **interdependency of KPIs**
- **ATCOs licenced for systems** and not for airspaces
- Entrepreneurial ANSPs and regulatory framework allowing for competition and cooperation, leading to **bottom-up consolidation**

3. ATM CONCEPTS AND SYSTEMS

- **Very high level of automation**, accompanied by a very high level of system availability and continuity
- **4D trajectory based operations** ground/ground and air/ground
- **Flight-centric based operations**
- **ATM data provision services.**

#3 What steps need to be taken to get from #1 to #2?

What are the game changer?

1. CAPACITY

- *Intensify Air Traffic Flow and Capacity Management (ATFCM) processes among all operational stakeholders (Airspace Users, Airports and ANSPs)*
- *Invest in **more ATCOs** where required (related cost → KPI interdependency)*
- *Invest in **higher level of automation** (→ see 3.)*
- *Establish **cross-border military training areas***

2. REGULATION

- *Regulatory regime reflecting the dynamic nature of the aviation marked, e.g. by reducing the **regulatory periods** from 5 to **3 years***
- ***Real “Capacity KPI”** instead of a “Delay KPI (ADM)”*
- *Migrate from “airspace linked” to “**system linked**” **ATCO licence***
- *Member States maintain sovereignty of their airspace without hampering introduction of an **optimized airspace design** and new operational concepts*

3. ATM CONCEPTS AND SYSTEMS

- *Implement **4D Trajectory Management** (ground/ground and air/ground)*
- *Develop **technical ability to control any airspace volume from any location***
- *Migrate incrementally from airspace centric (sector based) to **flight centric** (sectorless) **operations***

#4 Immediate actions ...

EUROPEAN LEVEL

- *Implement with priority **measures defined by NMB***
- *e.g. continue/expand **NM/4ACC initiative***

NATIONAL LEVEL

- ***DFS Capacity Initiative** (more than 60 individual measures)*
- *DFS initiated an ad-hoc **working group with German airspace users** to address operational issues*
- *DFS initiated together with German airspace users, airports and politicians a **German aviation summit**, which agreed on **24 measures** to mitigate current capacity issues*



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Thank you for your attention!