Simulation Exercise on Balanced Performance

Improved Routes in a FAB Context

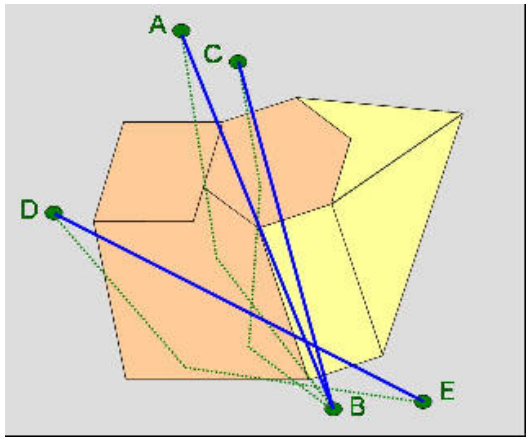
CEO Safety Workshop

Belgrade, Serbia

27-28 October 2010

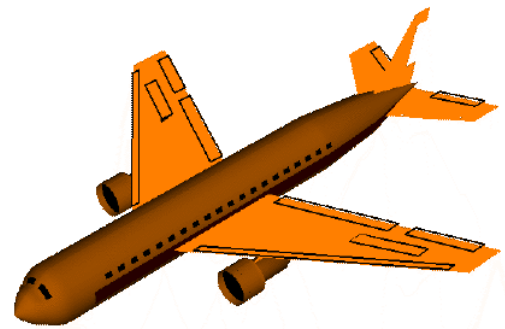
EUROCONTROL

Exercise on Balanced Performance



Simulation:

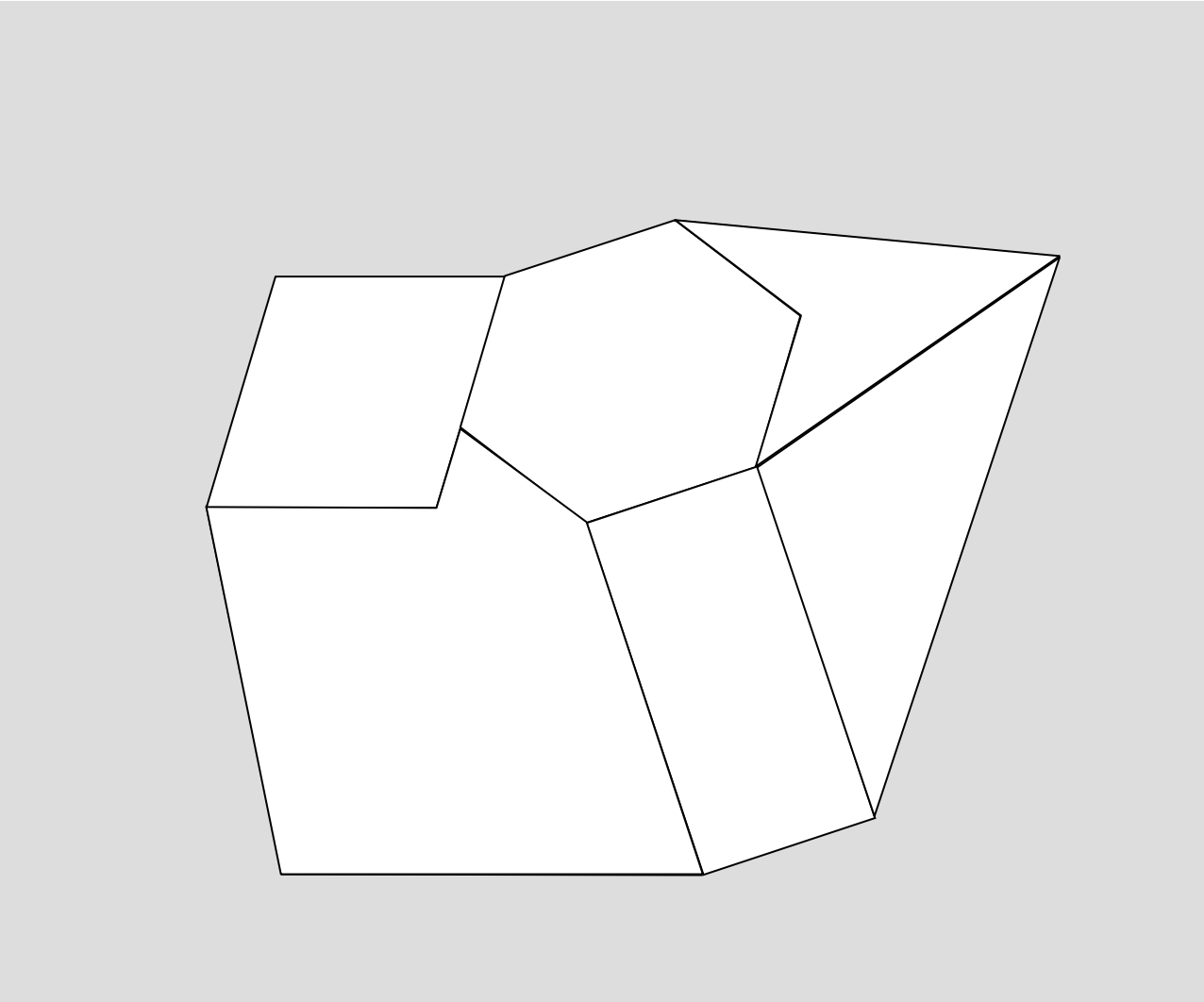
- Improvement of route network in a FAB context
- Go / no-go decision will depend on the balance between a number of various KPA's and their KPI's



Assumptions:

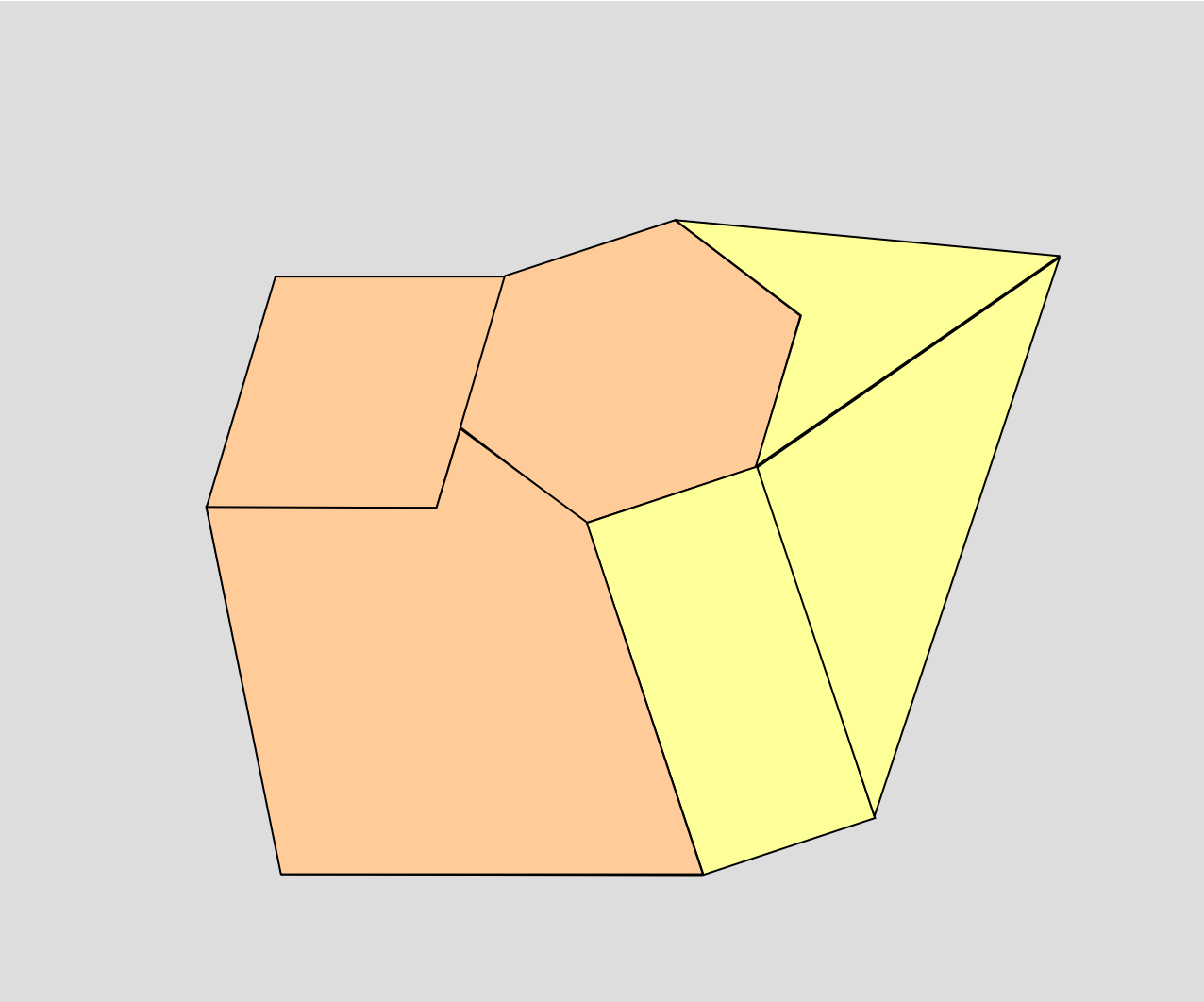
- Data are fictitious, but not unreal
- Decisions need to be made with the information that is available on the slides; no additional information is available / known

Improvement Route Design (1)



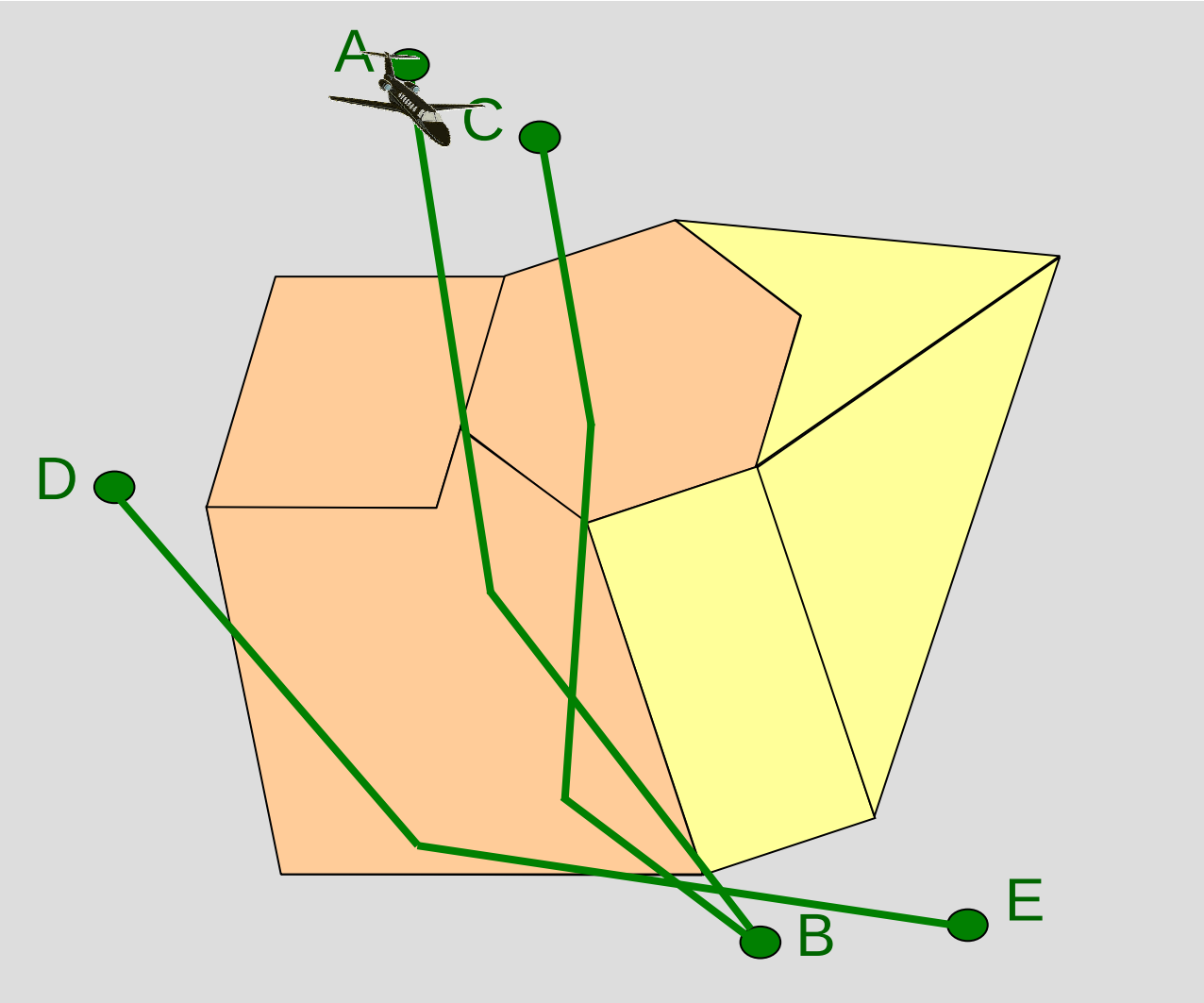
- 1 FAB

Improvement Route Design (2)



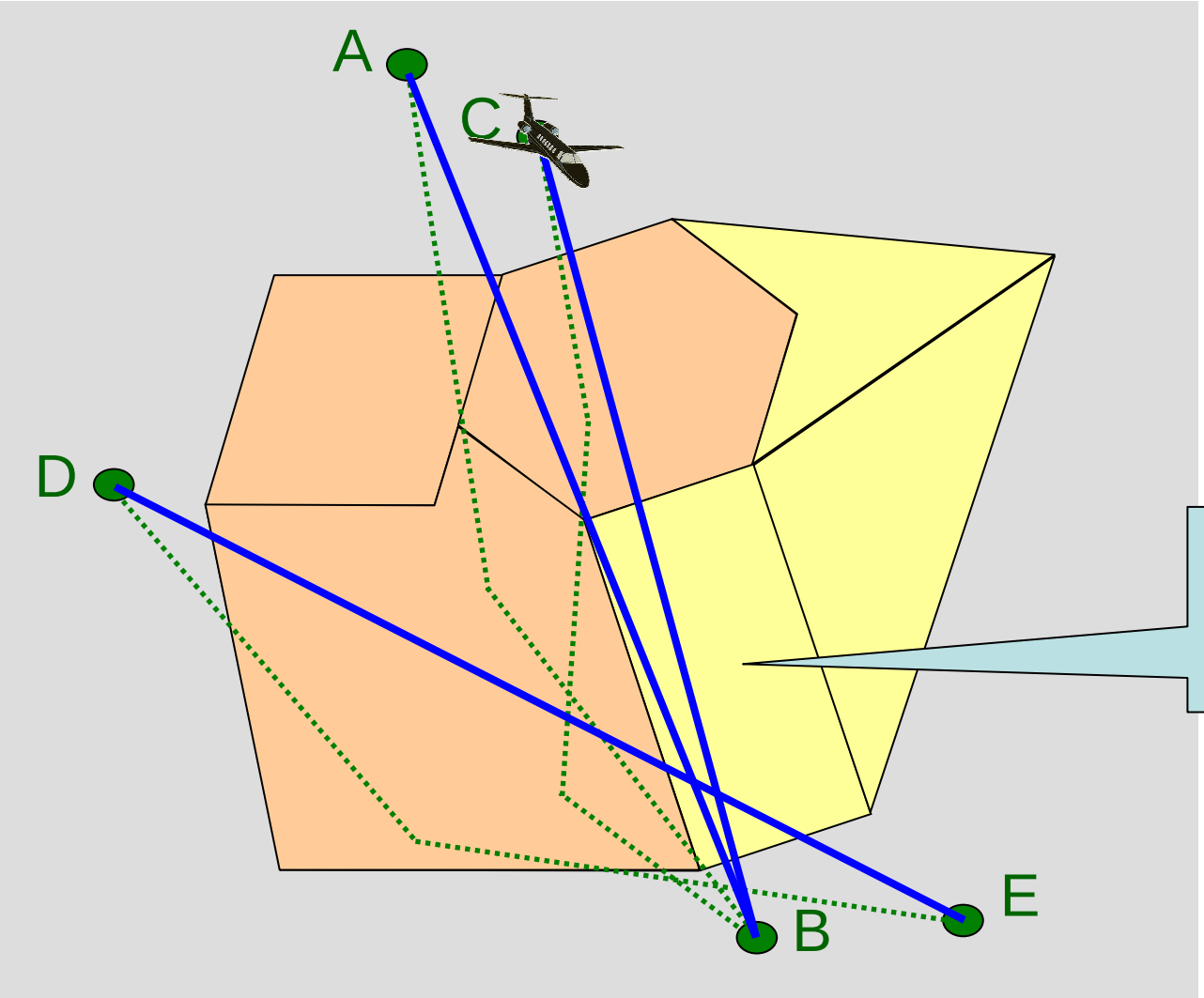
- 1 FAB
- 2 ANSPs
- Each ANSP with 3 ACC sectors

Improvement Route Design (3)



- 1 FAB
- 2 ANSPs
- Each ANSP with 3 ACC sectors
- 3 Routes from A to B, from C to B and from D to E can be shortened

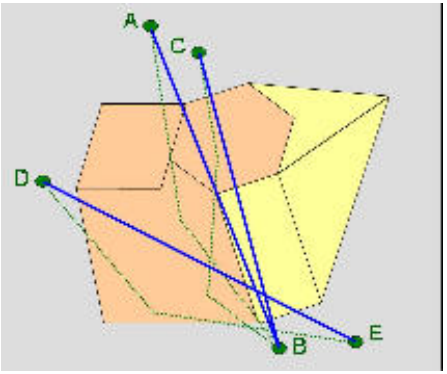
Improvement Route Design (4)



- 1 FAB
- 2 ANSPs
- Each ANSP with 3 ACC sectors
- 3 Routes from A to B, from C to B and from D to E can be shortened

- New routes increase sector demand

Improvement Route Design (5/1)

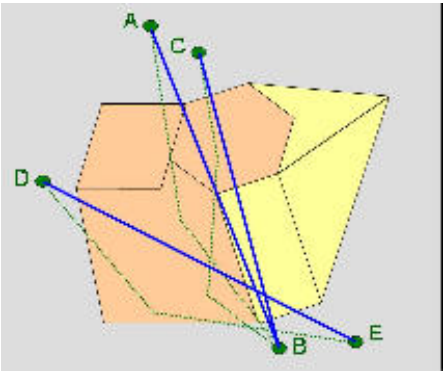


Data:

- ***Performance on Flight Efficiency:***
  - Theoretical Flight Efficiency and Environmental gain:
    - Duration average original route: 2 hrs 20 min
    - New route shortened on average to: 2 hrs 06 min
    - Fuel saving: 508 kg / flight
    - CO2 saving: 1600 kg / flight

- ***Performance on Sector Capacity:***
  - Busy and complex sector
  - With current staffing and rostering the additional flights will need to be regulated with a 10 min ATFM delay

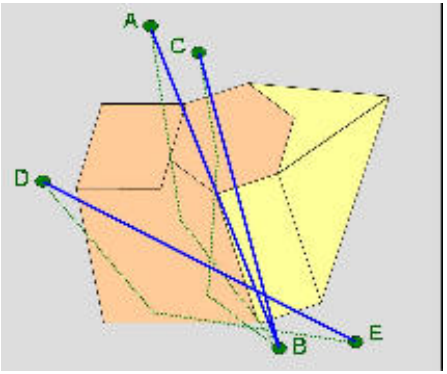
Improvement Route Design (5/2)



Data:

- ***Costs and cost savings:***
  - Fuel saving per flight: 273 €
  - With a flight frequency of 2 flights/day per route @ 7 days/week, total fuel saving is 600 k€/year
  - Delay cost:
    - If flight regulated by CFMU and a/c is kept at the gate at dep. Airport for 10 min, ATFM delay cost for the AO is negligable
    - If sector staffing is optimised with 2 additional ATCOs to avoid regulation, ANSP additional cost is 300 k€/year

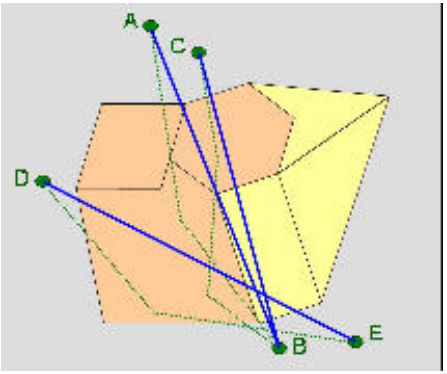
Improvement Route Design (5/3)



Data:

- ***Environmental savings:***
  - With a flight frequency of 2 flights/day for each route, @ 7 days/week, total CO2 saving is 3,504,000 kg per year
  - This is equivalent to the CO2 absorption of 3500 adult trees during their entire lifetime

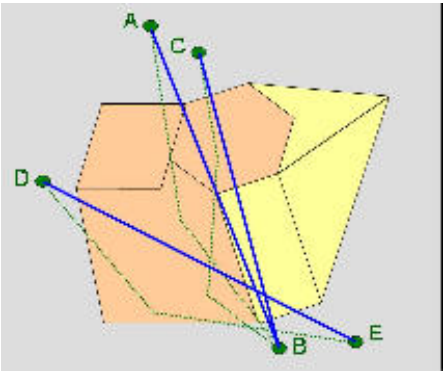
Improvement Route Design (5/4)



Data:

- ***External & Internal Pressure:***
  - New routes are promoted as part of the FAB development plan and the CEO's of both ANSPs have committed together to the overall plan (including quotes on ambitious ATFM delay improvements as well)
  - The FAB plan, including the route improvements, has been covered widely in the local media
  - Airlines and EC have reacted enthusiastically to the overall route improvement plan of this FAB
  - The sector that is affected has been subject to many discussions with unions and has led 3 years ago to an ATCO summer strike

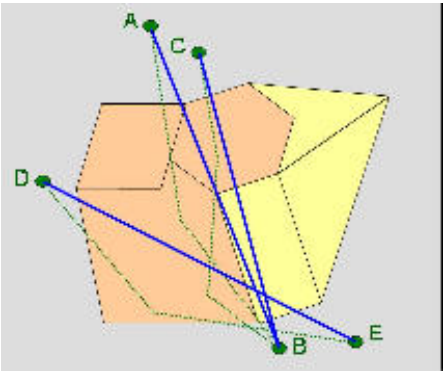
Improvement Route Design (5/5)



Data:

- ***Safety:***
  - Without additional staffing to the sector that is impacted, workload will be over the limit if the flight is not regulated
  - Incident rate in this sector is already 20% higher than incidents in the other sectors of this ANSP
  - Main cause of the incidents in this sector is read back / hear back
  - The AO concerned will introduce with these flights in the sector a potential call sign confusion with the existing flights in the sector
  - Although ATCO recruitment is a possible mitigation, the unit rates of this ANSP (and/or in his FAB) are already under severe attention

Improvement Route Design (6)



- New Route Design is a result of the FAB between these two ANSPs
- Flight Efficiency and Environment improved by 10% (fuel and CO2) and in compliance with IR on Performance Targets
- Sector Capacity (yellow sector) can not be met due to insufficient ATCO staff unless flights are regulated or unless new ATCO recruits come in
- The above is seen as a Safety issue and the safety case without extra staff is negative
- External and Internal pressure work on both sides of the coin.

Performance Indicators to consider

- *Flight Efficiency for the Airlines*
- *Sector Capacity*
- *Cost / Benefit for ANSPs and Airlines*
- *Political and Social Pressures*
- *Environment*
- *Safety*