

# DFS World Webinars Vol. 2

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## Green Flying – really possible to implement?

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GREEN FLYING – REALLY POSSIBLE TO IMPLEMENT?

# Agenda

1. Introduction and setting the scene
2. Optimizing existing structures requires real collaboration
3. Green flying: 3 proven concepts
  - The Low Demand Concept
  - EDDF RNP Y Approach
  - Special: High Transition Operations
4. Conclusion - What can be done

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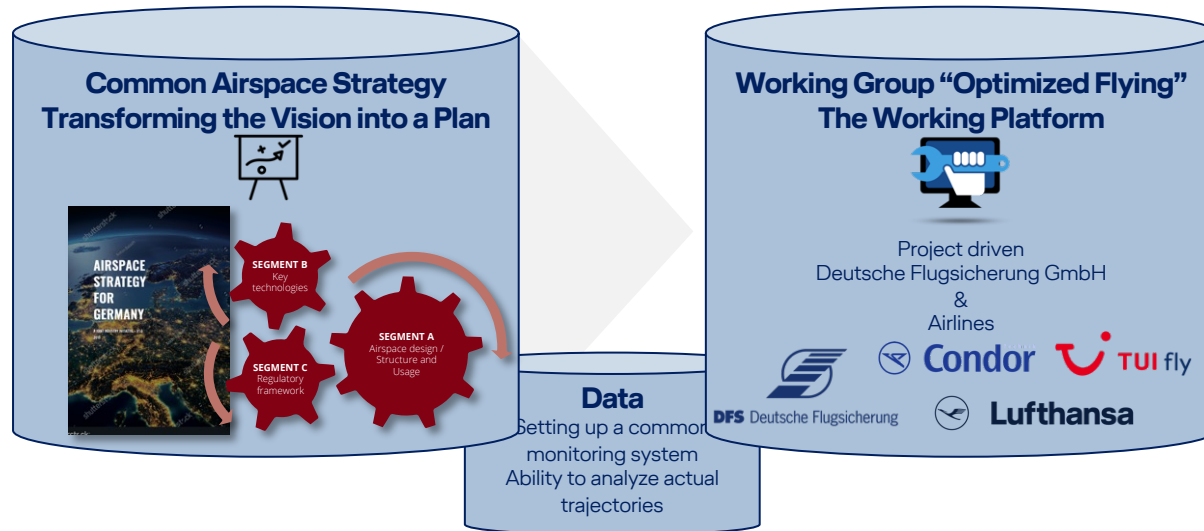
# 1. Introduction and setting the scene

- There is no doubt that aviation industry has a great impact on environment.
- As a result ICAO and its Member States are committed to the development of global solutions for the sustainable future of international civil aviation and environmental footprints
- Challenge is to keep the balance between Capacity/Safety and „Green Flying“
  - For a single flight ATCO/Pilot are the best „green“ optimizing team
  - Upon a certain amount of traffic and/or complexity the challenge starts
  - What we present to you with „Low Demand“ and „HTO“ is tailored to different szenarios
- Crisis as challenge
  - Low traffic is right for introducing for green measures and procedures, readiness for peak times

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# 2. Optimizing existing structures requires real collaboration

Setting up the foundation for a change ....



**Transform** individual efforts into a systematic approach  
**Understand** optimization as common task  
**Integrate** perspectives  
**Respect** that it is all about people



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### 3. Green flying: 3 proven concepts

- The Low Demand Concept
- EDDF RNP Y Approach

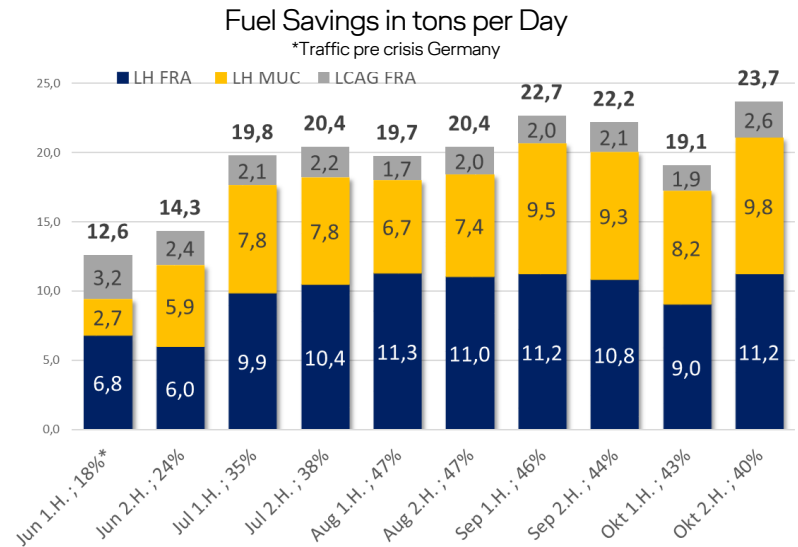
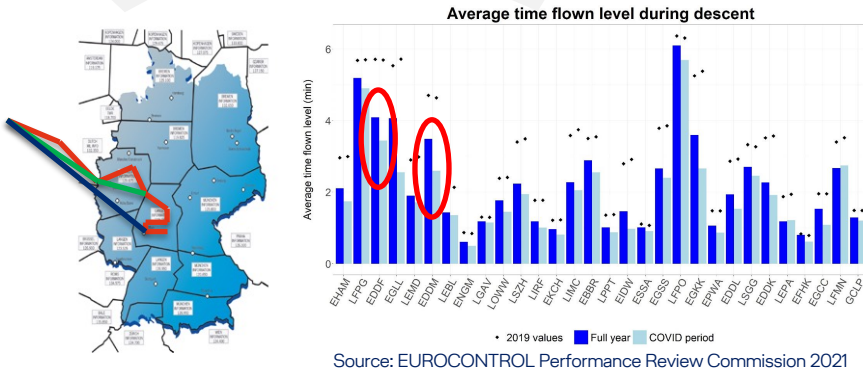
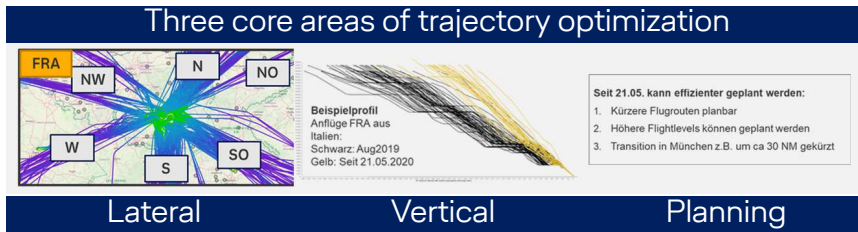
and a more in-depth introduction of

- Innovative High Transition Operations (HTO)

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# 3. The Low Demand Concept

## Improving the trajectories into EDDF and EDDM



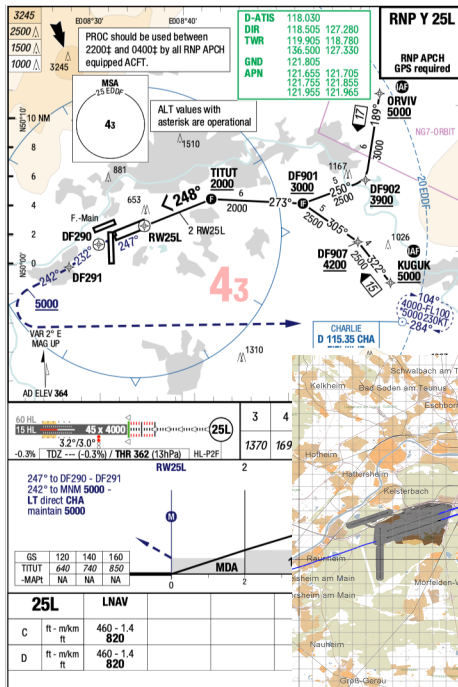
**74.000kg CO2 Saving per Day**  
iso  
**27 Mio kg CO2 Saving per Year**



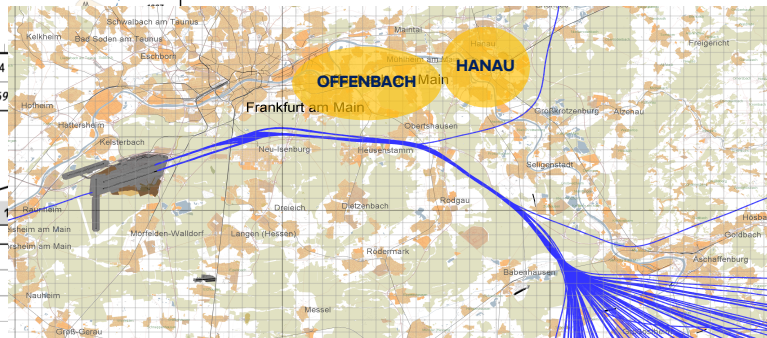
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# 3. EDDF RNP Y Approach

A WIN-WIN for Efficiency and Noise



• A collaborative project of DFS, Lufthansa Group and FRAPORT



- **Challenging** new working method for approach controllers
- **Challenging** new approach coordination and preparation for pilots
- **Non-Optimal** regulative environment for implementation (RNP Y not plannable)
- Technical issues with FMS database logics
- **Intense** communication to pilots and controllers required

**MAR-APR 2021: 688 RNP Y flown**  
iso  
**114.000kg CO2 Saving**



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### 3. HTO Procedure – EMPAX STAR

#### High Transition Operations

- Goals
- Design
- Reached benefits in terms of green flying





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### 3. Main Objectives of Innovative High Transition Operations (HTO)

from **Airline perspective:**

- To fly as long as possible at cruising level until reaching top of descent
- to enable a descent with idle power for fuel and CO2 savings

from **ATC perspective:**

- To enable a CDO from cruising level and at the same time to protect other airspaces and crossing airways (or crossing aircraft) by using a procedure
- To reduce the amount of radio telephony – savings of about 50% to 70 % possible – to increase the sector capacity

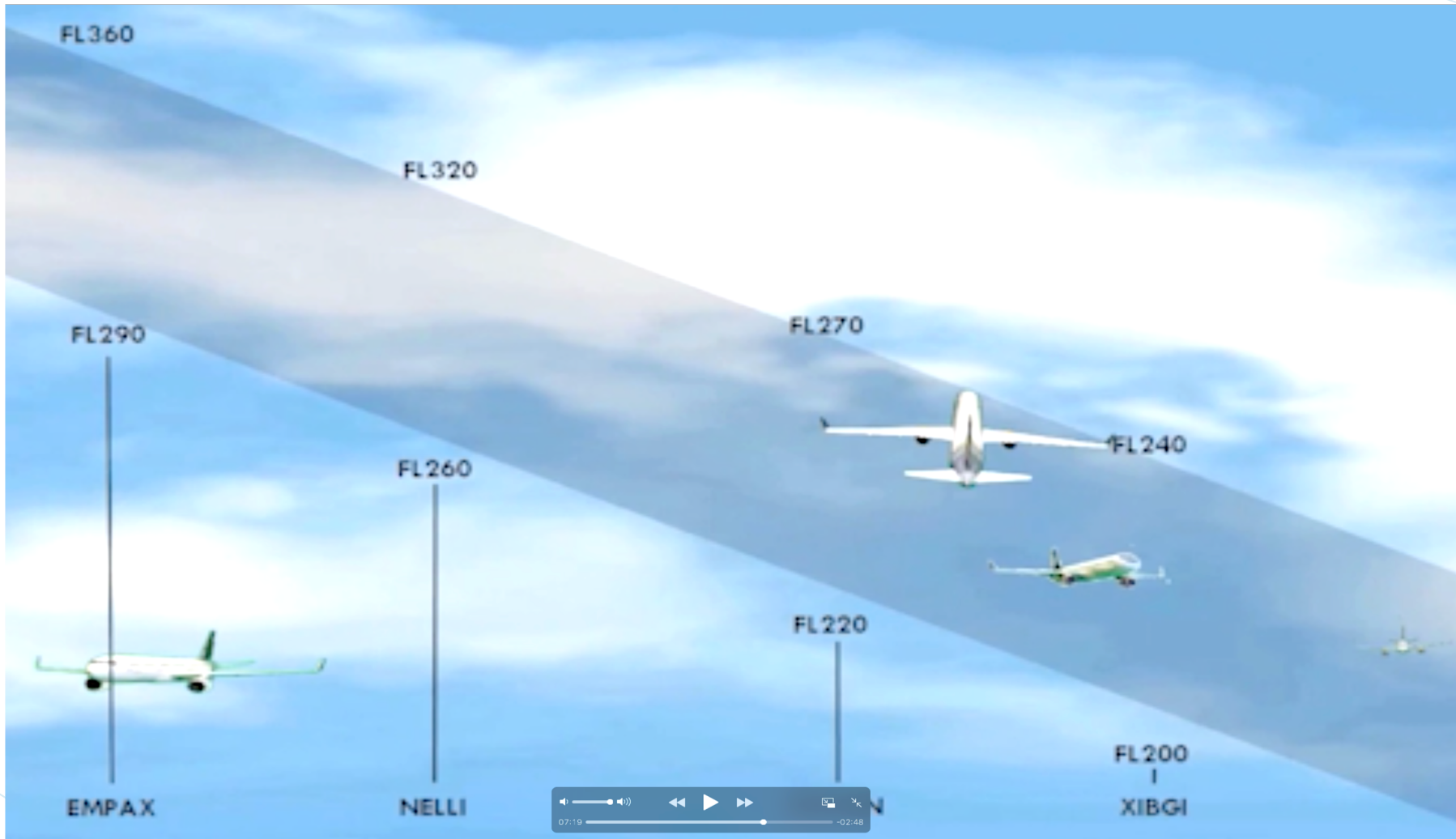
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### 3. Best clearance....“When ready descend FLxxx”



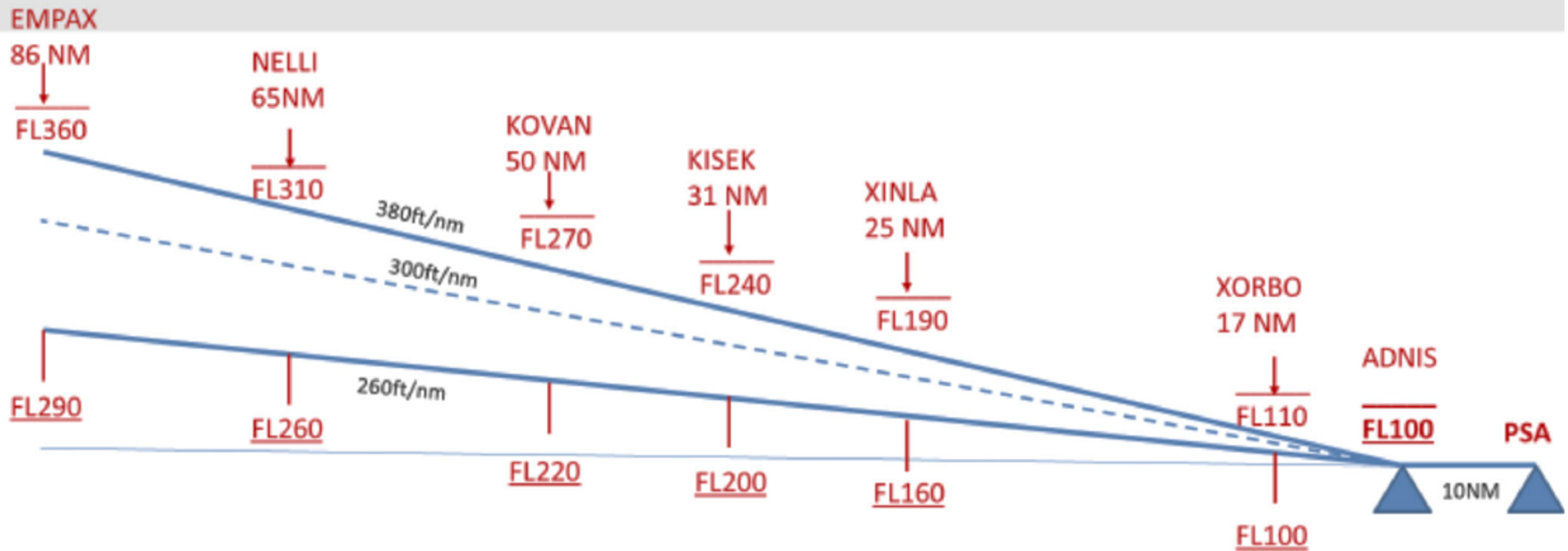
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### 3. A new solution was necessary



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### 3. Optimized profile EMPAX STAR – cross section



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### 3. Conclusion in relation to green flying

- A significant amount of CO<sub>2</sub> reduction, fuel savings and an increase in capacity has been achieved:
- Fuel savings of approximately 40 kg per flight on average (mostly twin engine aircraft)
- About 20.123 flights annually on the EMPAX STAR can lead to 2,6 Mio kg of CO<sub>2</sub> savings
- Reduction of the radiotelephony workload of ATCOs of at least 50%, which can significantly increase sector capacity



**Further questions?  
More information please?**

**Let us #stayconnected!**

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