Key Take-aways & Next Steps

Vertical Fight Efficiency (VFE)
Expert Workshop

10 December 2020

Virtual Meeting

making the difference

Key take-aways

- **State-of the-art – VFE En-Route**
  - FABEC ANSPs have a complex and dense airspace to manage, but are able to **react quickly** to adapt and offer improvements on VFE
  - Very large number of RAD relaxations and their nature might explain why **1/3 of RAD VFE measures have been disregarded by AOs** during COVID crisis
  - However, the RAD remains the main tool to **maintain globally high sector capacities**, and to distribute vertically traffic to avoid overloaded sectors
  - Meteorological aspects (wind, jetstreams) and costs (fuel, route charges, delay) play an important role for AO when filing cruise flight levels

Key take-aways

- **State-of the-art – VFE during climb/descent**
  - **Collaboration between ANSPs and aircraft operators** is a crucial enabler, as highlighted in the recently released European CDO/CCO Action Plan.
  - **100% ATM network fuel efficiency is not achievable, neither desirable.**
  - Level-off is currently the proxy for inefficiency. Beware: no metric is perfect. There is a need for harmonised CDO/CCO metrics.
  - **Complementary fuel/CO2-based metrics** would give a better view of the real ENV performance.
  - **Promising collaborative initiatives** (e.g. green flight) taking place for the moment, with substantial fuel savings as a result.

Key take-aways

- **View of Aircraft Operators on VFE**
  - Initiatives shown by airlines show that improving VFE requires **strong collaboration between operators, ANSPs and CFSPs.**
  - Airlines launched initiatives to improve the flight planning process. Case study shown by **Wizz Air** shows the impact of improved **Zero Fuel Weight (ZFW) optimisation** on flight planning and VFE. In addition, a set of good practices has been shared on actions to improve **descent management**.
  - VFE improvements are achieved by close collaboration between aircraft operators, ANSPs and CFSPs:
    - Case study by **KLM**: **PBN** deployment at runway 18C
    - Case study by **Lufthansa**: take advantage of reduced traffic demand to **optimize flight trajectories**

Key take-aways

- **View of Aircraft Operators on VFE**
  - Some airlines observe **improved VFE performance** during reduced traffic demand period. Other operators (e.g. **Brussels Airlines**) highlight the large number of restrictions and constraints on numerous flights due to central (busy) location of Belgium within FABEC area.
  - Continuous efforts need to be made by all partners to **relax unnecessary** constraints (if possible), and it should be monitored whether these relaxations are effectively taken advantage of to use their full potential.
  - **Cargolux** case study highlighted that **proper energy managed arrivals significantly improve efficiency**, and reduce overall environmental impact. Better mutual understanding between pilots and ATC in each other's procedures would benefit both. Fuel gain potential is large.

Key take-aways

- **How to improve VFE?**
  - MUAC's COVID **Pre-Flight Check** has proven to be very successful. The ANSP actively proposes and guides operators towards the most fuel efficient route, but the operator remains in charge.
  - Case studies at **Paris CDG** show the ENV gains that can be achieved by applying advanced technologies (e.g. PBN), if ANSPs & operators work together.
  - **PBN and 'closed' procedures** have a great potential to increase predictability, and hence improve CDO performance. The more "freedom" the operators receive, the better they can optimize their flight profile. However there are **interdependencies**, as mentioned by multiple operators.
    In numerous cases, the use of 'conventional vectoring' is required for sequencing and capacity purposes.

Key take-aways

- **Exploration of new VFE indicators**
  - New VFE indicators are needed to measure the real inefficiencies. The better the indicator, the better we are able to measure and quantify improvements being made by all stakeholders.

  - Machine learning brings us to the ‘next level’ when identifying environmental metrics. It could contribute to a collaborative ground/on-board improvement of the overall efficiency of the ATM system.

Next steps

- **Operators & ANSPs: understand why certain RAD relaxations are not actively being used**
- **Set up collaborations between operators (e.g. Brussels Airlines) and FABEC to assess particular case studies, with the aim to improve VFE**
- **Promote awareness & training on VFE within organization (operator, ANSP, CFSP, etc)**
- **Follow-up workshops coming up… stay tuned!**