

# POLL RESULTS

## Vertical Flight Efficiency (VFE) Expert Workshop

10 December 2020

Virtual Meeting



# Poll Results

- During the FABEC Expert Workshop on Vertical Flight Efficiency (10/12/2020), two polls were presented to all participants
- Results are presented in following slides

Thanks again for your **active involvement!**

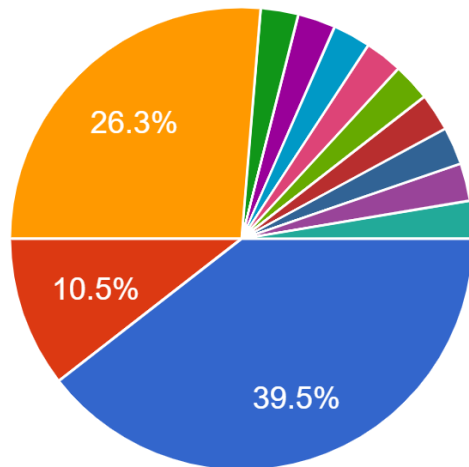
# RESULTS – POLL 1

(Survey taken at 11h)

# Q1 – Representing Aircraft Operator, ANSP, or ‘Other’?

I am representative of:

38 responses



- Aircraft operator (mainly passengers)
- Aircraft operator (mainly cargo)
- ANSP
- CFSP (Computerized Flight Plan Serv...)
- EUROCONTROL
- airline association
- ATM Consultant
- Environment

▲ 1/2 ▼

## Q2 – Roles & Responsibilities of each Stakeholder

- Results for Q2 are split up in 3 categories, depending on what participants indicated in Q1 (own role):
  - Answers provided by **Aircraft Operators**
  - Answers provided by **ANSPs**
  - Answers provided by **‘Other’** (if neither AO nor ANSP)

# Q2 – Roles & Responsibilities of each Stakeholder

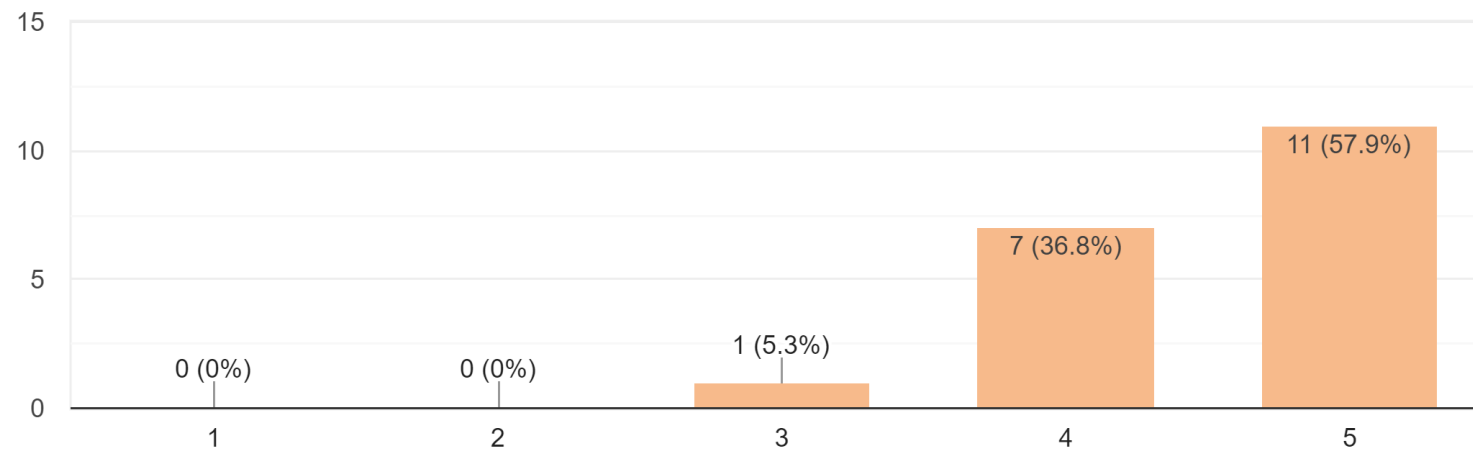
ANSWERS PROVIDED BY

**AIRCRAFT OPERATORS**

# Q2 – Roles & Responsibilities of each Stakeholder (Answers **Aircraft Operators**)

How important is VFE within your organization?

19 responses

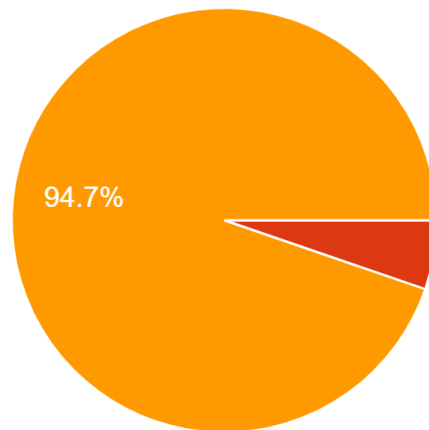


Scale 1-5  
1 = Not Important  
5 = Very Important

# Q2 – Roles & Responsibilities of each Stakeholder (Answers **Aircraft Operators**)

What is most important for your organization?

19 responses



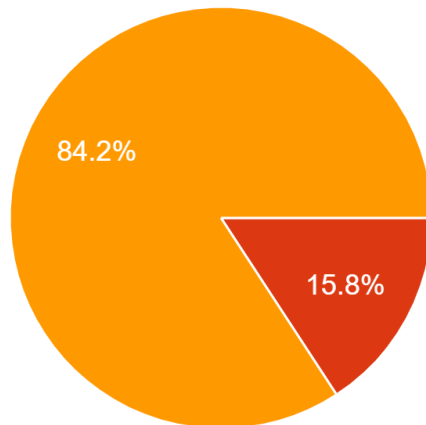
- Improving horizontal flight efficiency (HFE)
- Improving vertical flight efficiency (VFE)
- Both



# Q2 – Roles & Responsibilities of each Stakeholder (Answers **Aircraft Operators**)

What is most important for your organization?

19 responses



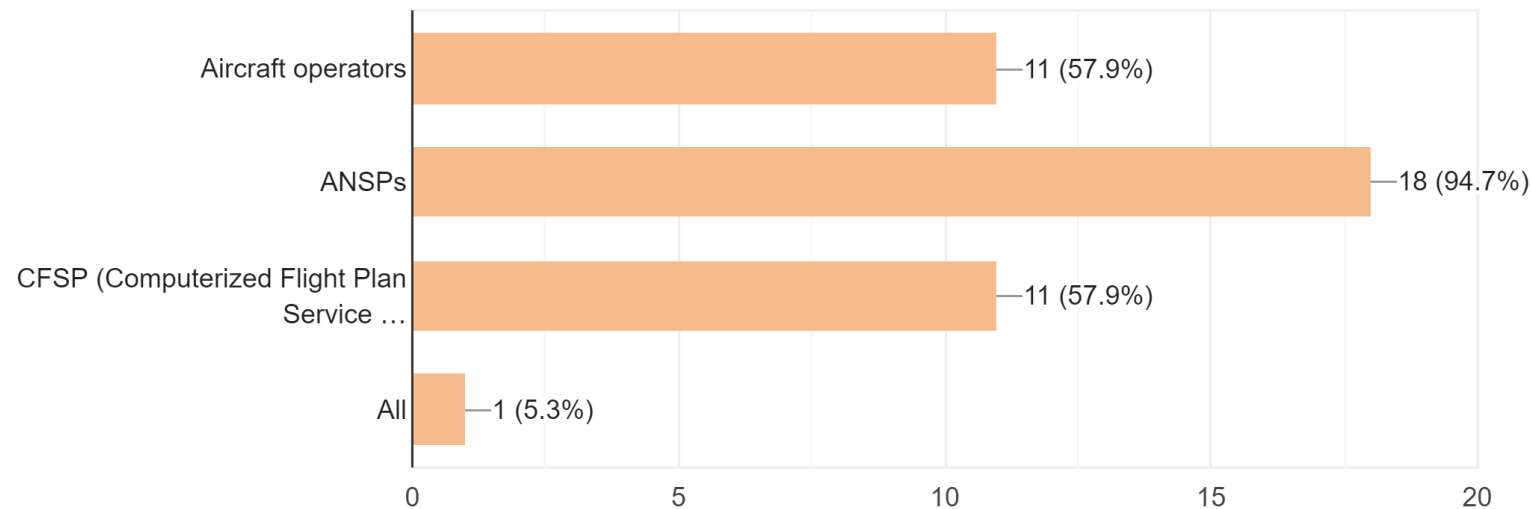
- Improving en-route VFE
- Improving VFE during climb/descent
- Both

# Q2 – Roles & Responsibilities of each Stakeholder

## (Answers **Aircraft Operators**)

Who are the key stakeholder(s) to improve VFE? (Multiple items can be selected)

19 responses

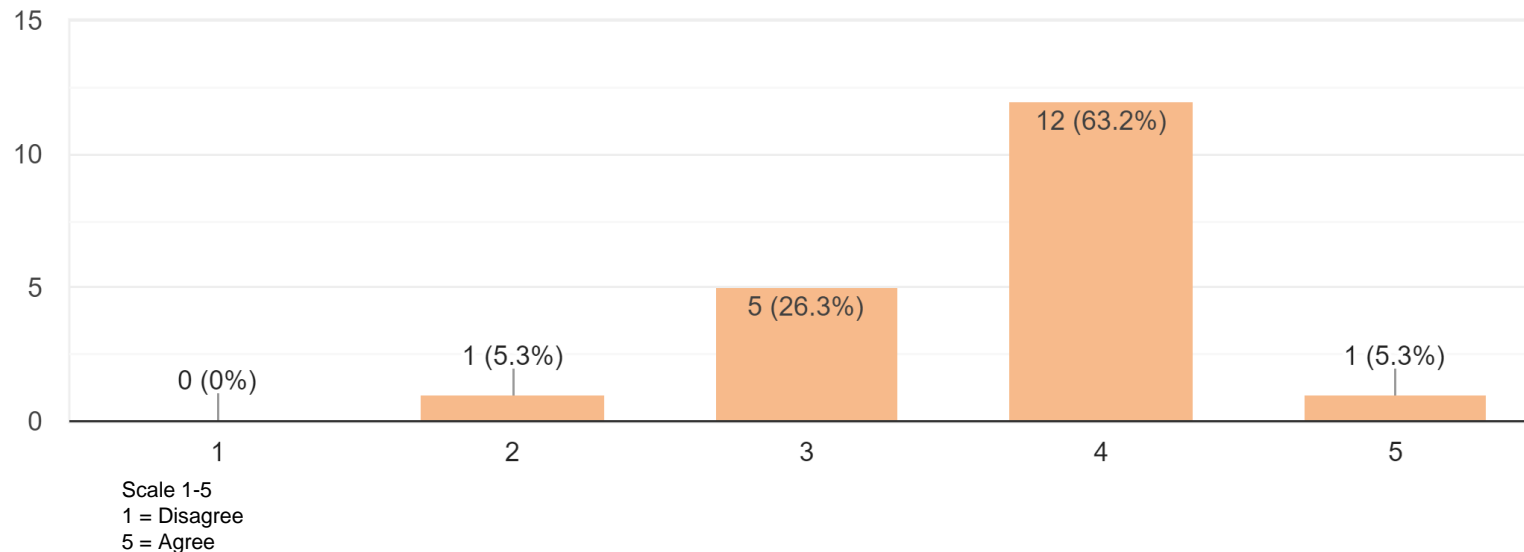


# Q2 – Roles & Responsibilities of each Stakeholder

## (Answers Aircraft Operators)

According to you, are aircraft operators doing enough efforts to improve VFE?

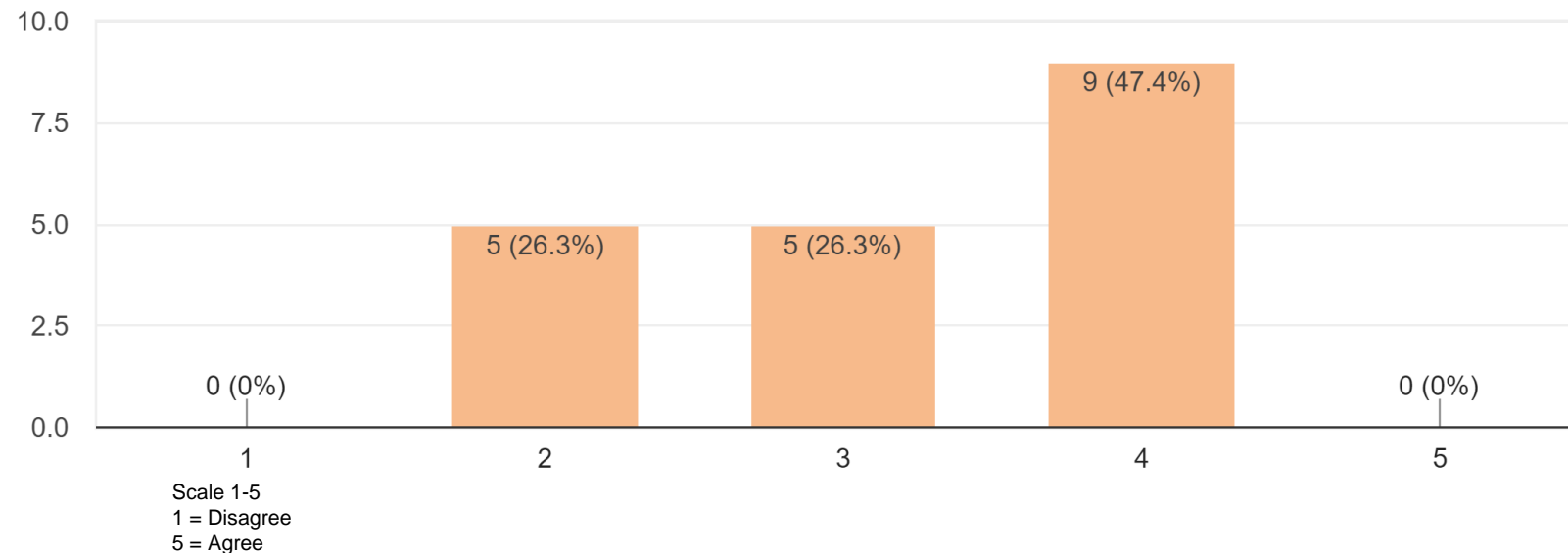
19 responses



# Q2 – Roles & Responsibilities of each Stakeholder (Answers **Aircraft Operators**)

According to you, are ANSPs doing enough efforts to improve VFE?

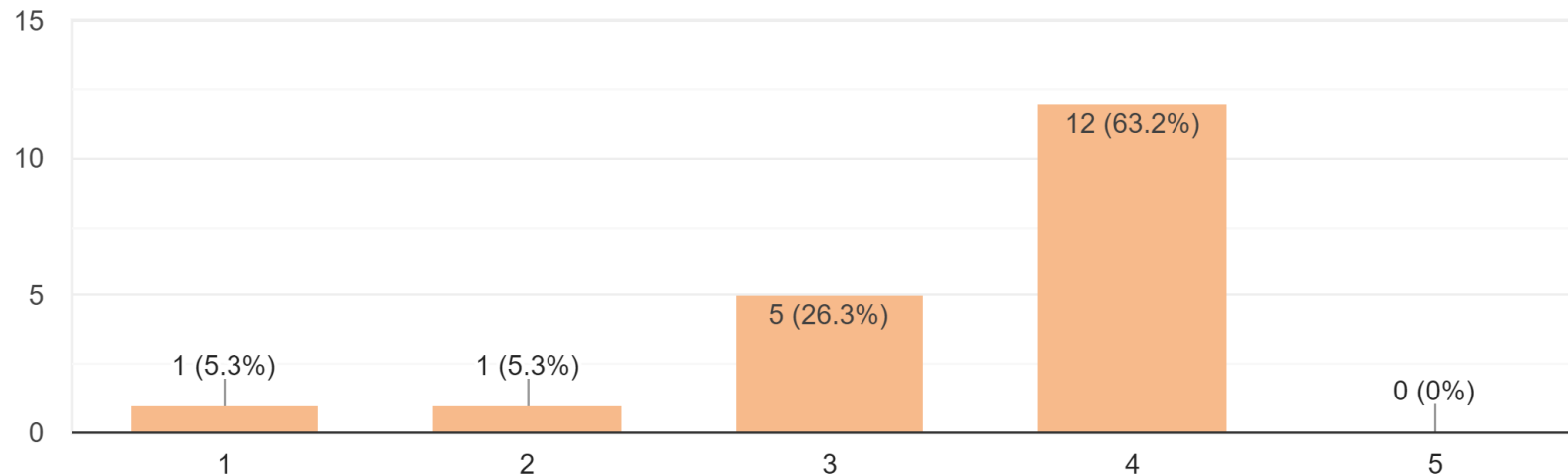
19 responses



# Q2 – Roles & Responsibilities of each Stakeholder (Answers **Aircraft Operators**)

According to you, are CFSPs doing enough efforts to improve VFE?

19 responses



Scale 1-5  
1 = Disagree  
5 = Agree

# Q2 – Roles & Responsibilities of each Stakeholder

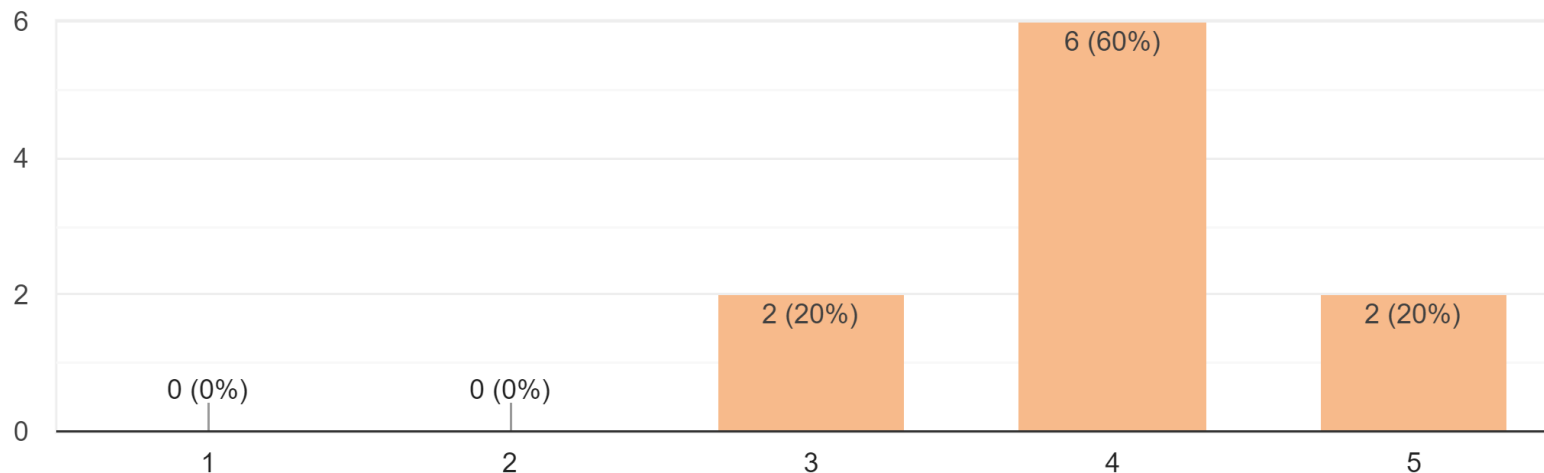
ANSWERS PROVIDED BY

**ANSP REPRESENTATIVES**

# Q2 – Roles & Responsibilities of each Stakeholder (Answers **ANSP**)

How important is VFE within your organization?

10 responses

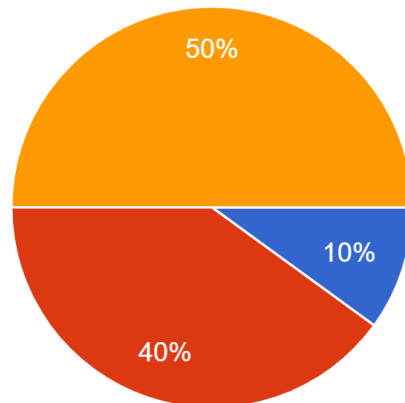


Scale 1-5  
1 = Not Important  
5 = Very Important

# Q2 – Roles & Responsibilities of each Stakeholder (Answers **ANSP**)

What is most important for your organization?

10 responses



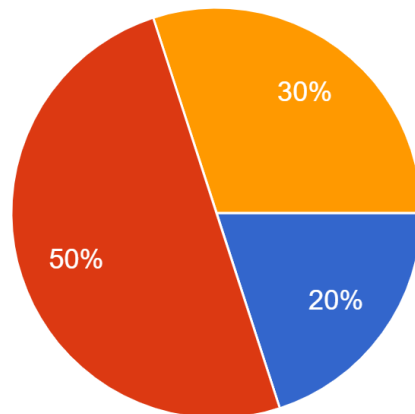
- Improving horizontal flight efficiency (HFE)
- Improving vertical flight efficiency (VFE)
- Both



# Q2 – Roles & Responsibilities of each Stakeholder (Answers **ANSP**)

What is most important for your organization?

10 responses

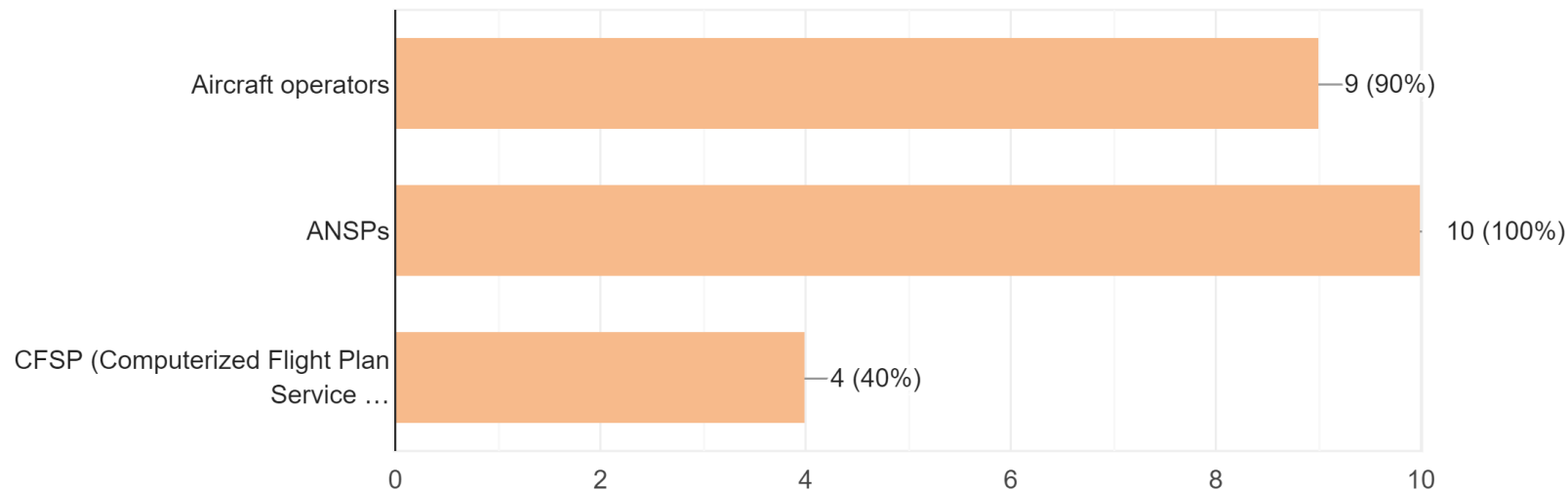


- Improving en-route VFE
- Improving VFE during climb/descent
- Both

# Q2 – Roles & Responsibilities of each Stakeholder (Answers **ANSP**)

Who are the key stakeholder(s) to improve VFE? (Multiple items can be selected)

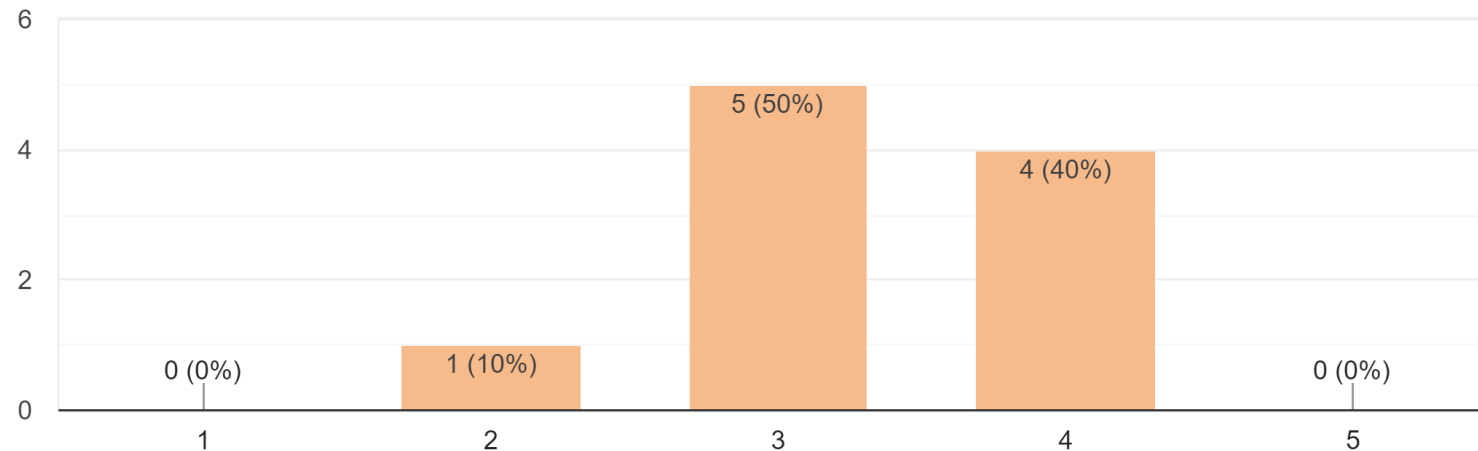
10 responses



# Q2 – Roles & Responsibilities of each Stakeholder (Answers **ANSP**)

According to you, are aircraft operators doing enough efforts to improve VFE?

10 responses

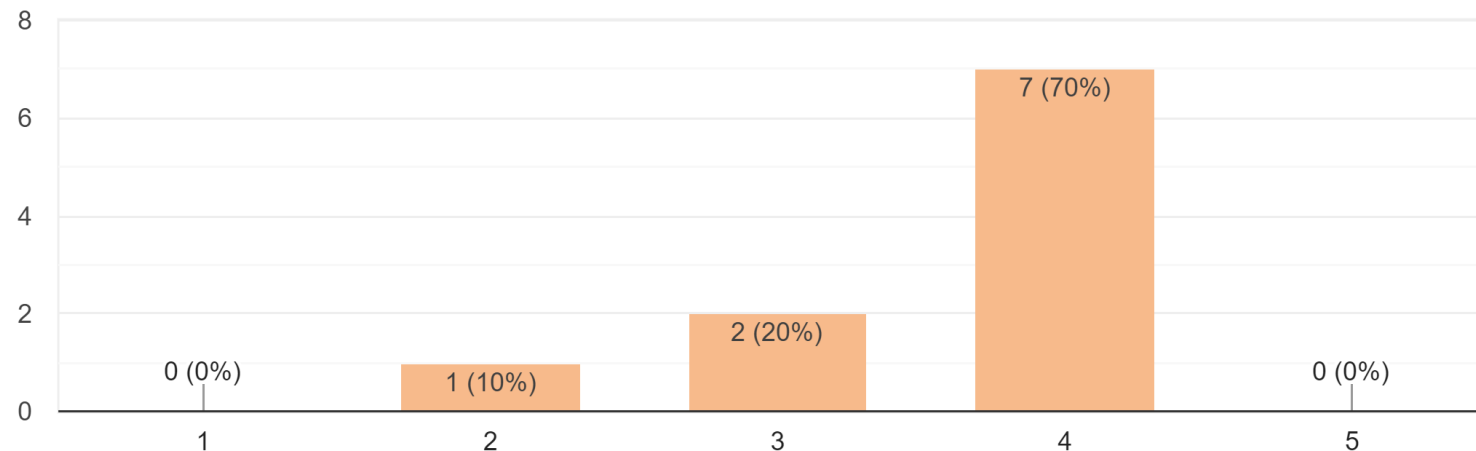


Scale 1-5  
1 = Disagree  
5 = Agree

# Q2 – Roles & Responsibilities of each Stakeholder (Answers **ANSP**)

According to you, are ANSPs doing enough efforts to improve VFE?

10 responses

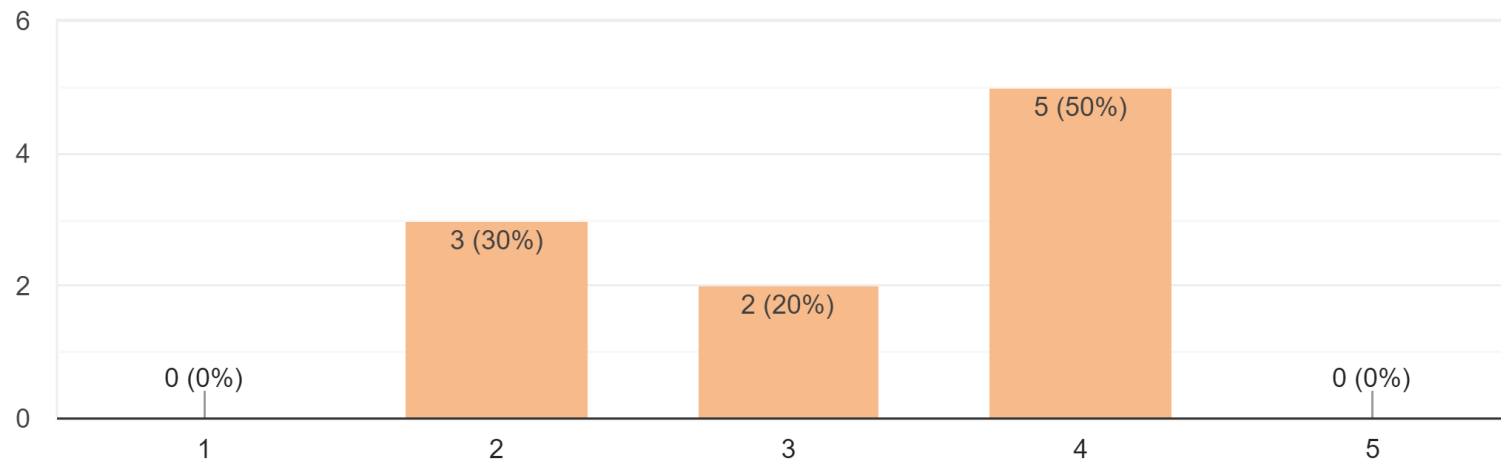


Scale 1-5  
1 = Disagree  
5 = Agree

# Q2 – Roles & Responsibilities of each Stakeholder (Answers **ANSP**)

According to you, are CFSPs doing enough efforts to improve VFE?

10 responses



Scale 1-5  
1 = Disagree  
5 = Agree

# Q2 – Roles & Responsibilities of each Stakeholder

ANSWERS PROVIDED BY

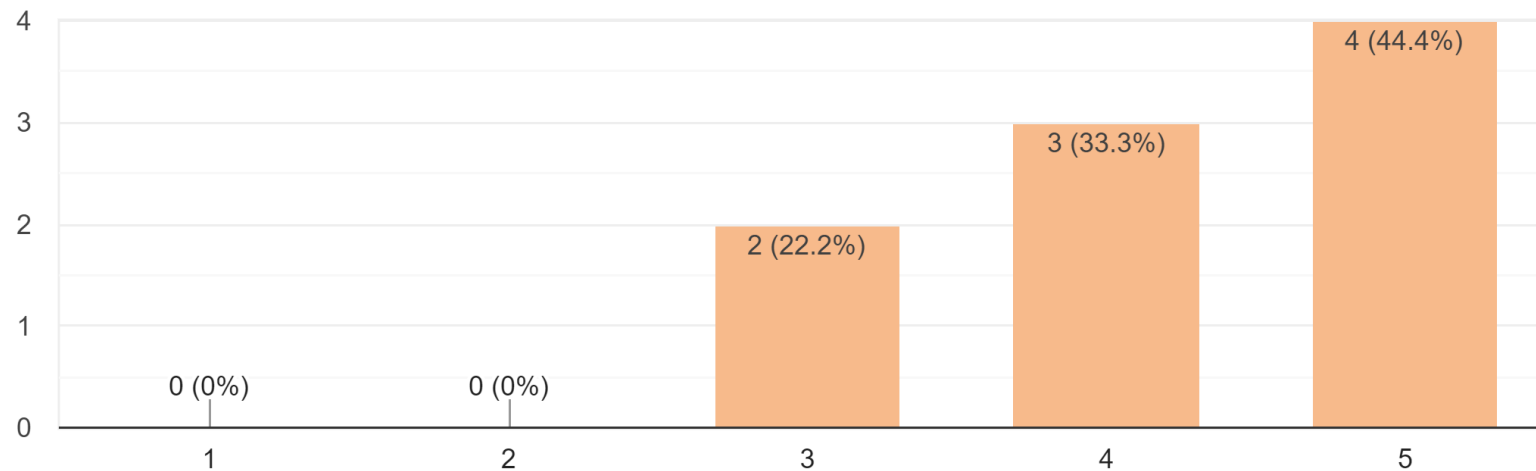
**‘OTHER’**

(neither aircraft operator, nor ANSP)

# Q2 – Roles & Responsibilities of each Stakeholder (Answers ‘Other’)

How important is VFE within your organization?

9 responses

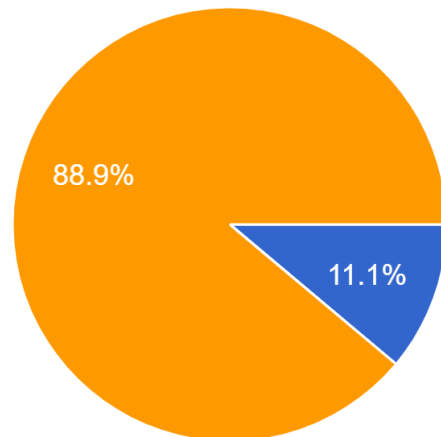


Scale 1-5  
1 = Not Important  
5 = Very Important

# Q2 – Roles & Responsibilities of each Stakeholder (Answers ‘Other’)

What is most important for your organization?

9 responses



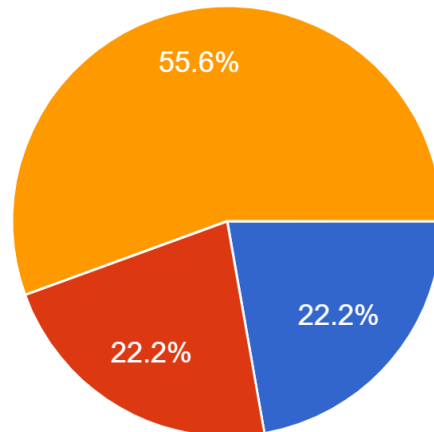
- Improving horizontal flight efficiency (HFE)
- Improving vertical flight efficiency (VFE)
- Both



# Q2 – Roles & Responsibilities of each Stakeholder (Answers ‘Other’)

What is most important for your organization?

9 responses

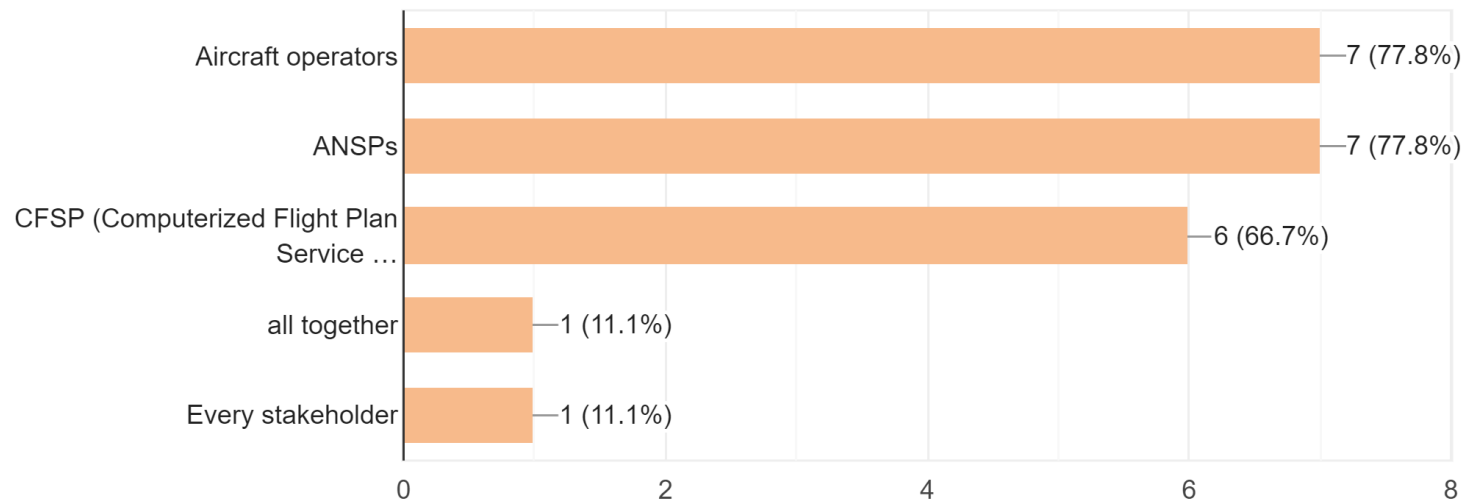


- Improving en-route VFE
- Improving VFE during climb/descent
- Both

# Q2 – Roles & Responsibilities of each Stakeholder (Answers ‘Other’)

Who are the key stakeholder(s) to improve VFE? (Multiple items can be selected)

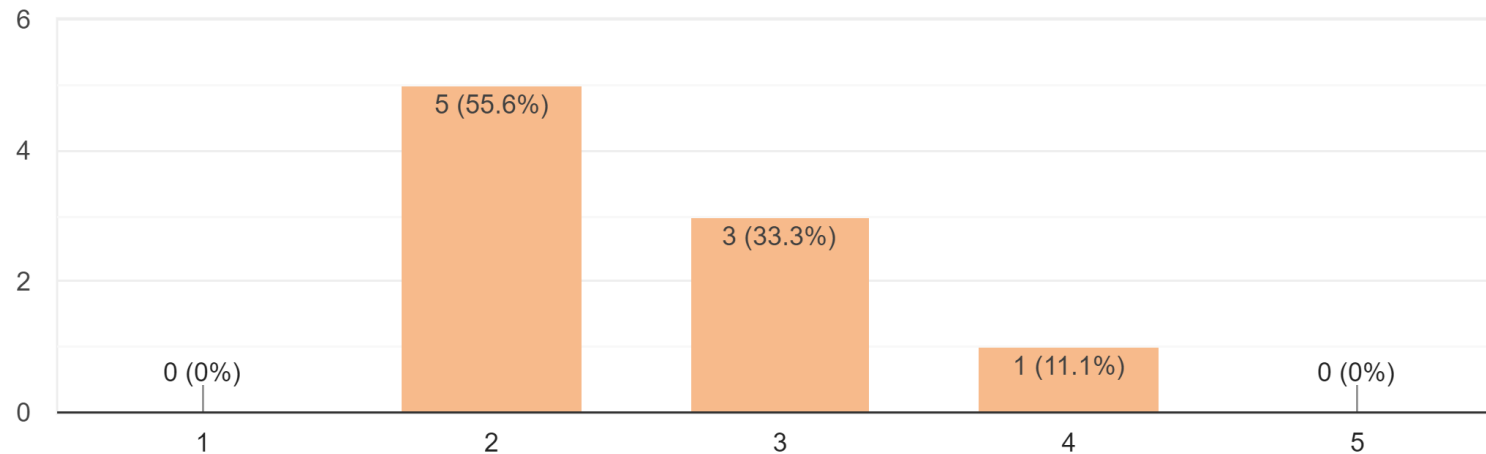
9 responses



# Q2 – Roles & Responsibilities of each Stakeholder (Answers ‘Other’)

According to you, are aircraft operators doing enough efforts to improve VFE?

9 responses

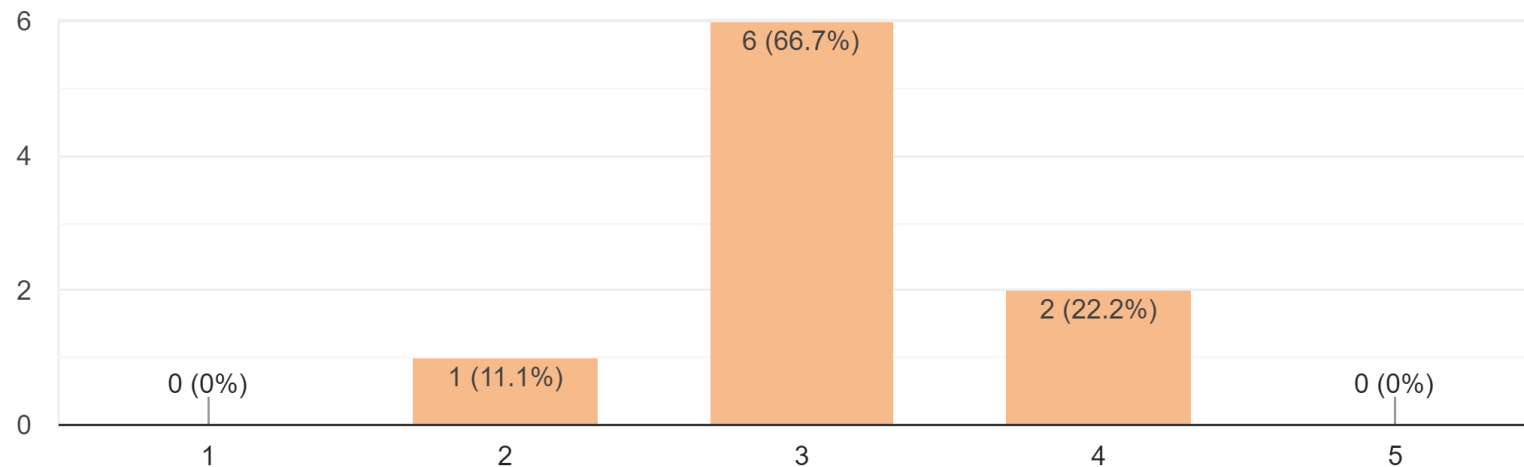


Scale 1-5  
1 = Disagree  
5 = Agree

# Q2 – Roles & Responsibilities of each Stakeholder (Answers ‘Other’)

According to you, are ANSPs doing enough efforts to improve VFE?

9 responses

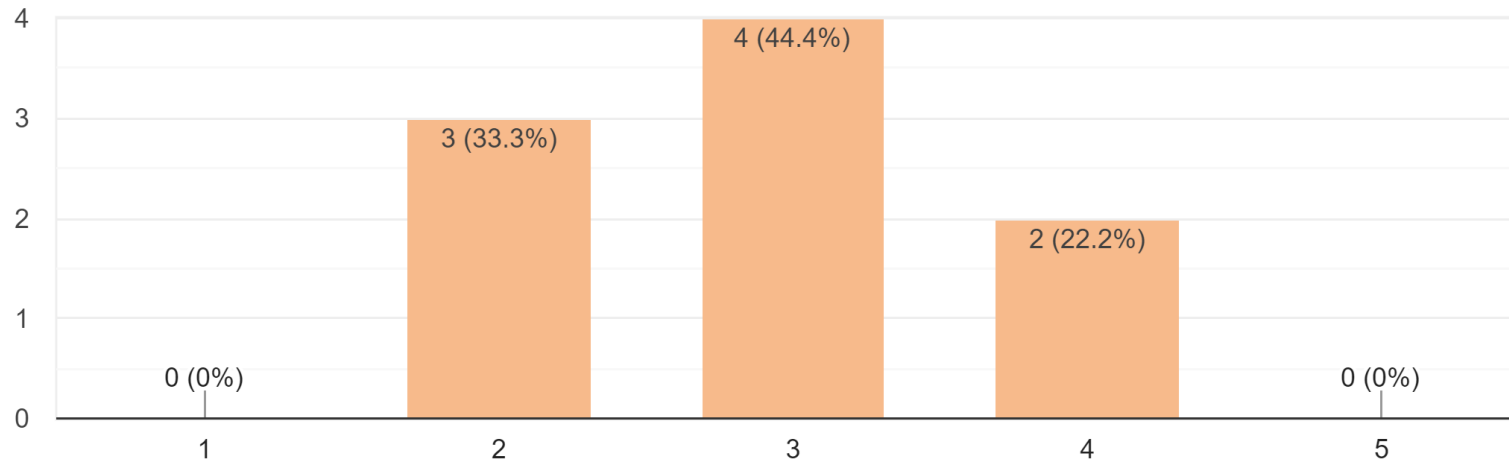


Scale 1-5  
1 = Disagree  
5 = Agree

# Q2 – Roles & Responsibilities of each Stakeholder (Answers ‘Other’)

According to you, are CFSPs doing enough efforts to improve VFE?

9 responses



Scale 1-5  
1 = Disagree  
5 = Agree

# RESULTS – POLL 2

(Survey taken during lunch break)

# Q1 – What can/should **aircraft operators** do to further improve VFE? (1/4)

- Train cockpit crews
- Adapt their SOP's accordingly
- Crew training / awareness , compliance to flightplan
- Engage with ANSP to share the issues
- Collaborate with the ANSP at each airport, share performance data, use harmonized metrics, inform ANSPs how they can optimally fly, training
- cooperate with ANSPs and come to a common definition and approach on improving CDO

# Q1 – What can/should **aircraft operators** do to further improve VFE? (2/4)

- Train their pilots to correctly and efficiently fly FMS vertical profiles
- Update RFLs, even at the last minute to avoid flights unable to reach planned FL. Make sure pilots stick to the flight plan.
- Continues and more detailed analysis and optimisation
- The main difficulty is in the predictability of the flight path. Especially for approaching/landing aircraft. A direct given to the pilot by ATC can yield a larger fuel saving than the CDO the aircraft is currently flying. As pilots are sometimes expecting a direct from ATC they will fly lower in order to be able to accept the direct. Better agreements between the aircraft operators and ATC/ANSPs on when directs are presented to the airlines will strongly improve the VFE.



# Q1 – What can/should **aircraft operators** do to further improve VFE? (3/4)

- File closer to STD, but this is only possible if the late filer (updater) is dropped
- Cockpit and flightops management should state their request to ANSP to execute CDO everyday again on every flight until it becomes a standard.
- Join together to agree a range of industry standard metrics
- share with ANSPs their studies and propose axis of improvement. Capacity and flight efficiency should be able to advance together. Maybe COVID and the lower demand would be the opportunity to review airspace structures in order to implement RNP, CDOs and CCOs

# Q1 – What can/should **aircraft operators** do to further improve VFE? (4/4)

- actively approach ANSPs and make suggestions how to possibly solve or at least improve present identified inefficiencies.
- Communicate the desired optimum profile/routing for every flight according real-time data.
- Further improve route optimization (with the help of their CFSP tools).
- Educate their pilots on VFE, especially with a view to clarifying any historical misconceptions that some may still hold about what's good and bad.
- Ensure cockpits are PBN compliant.
- Enable ADS-C/EPP downlink for ATC usage

## Q2 – What can/should **ANSPs** do to further improve VFE? (1/4)

- Develop new procedures to force into a CDO/CCO (KLM + SPL example)
- Collaborate partners / enlarge data intelligence / train ATCO's
- Review RAD restrictions
- Include efficiency in airspace design and procedure development as a parameter
- Design appropriate closed loop operations (PBN) to increase flight predictability, and hence VFE
- Collaborate with the AOs at each airport, share performance data, use harmonized metrics, understand how ATCO actions can influence performing, training

## Q2 – What can/should **ANSPs** do to further improve VFE? (2/4)

- optimize airspaces: get rid of early descent restrictions!
- Review LOAs to extend the band-width of handover altitudes/levels to accommodate for different scenarios and aircraft types.
- Adhere to flight plans. This will indirectly increase capacity to improve VFE.
- Lift or improve RAD restrictions. Good coordination between controllers. No use in one controller to please crews with a direct while next controller has no capacity and needs to give pilots delaying vectors.
- See the previous answer, it is a combination of AOs and ANSPs

## Q2 – What can/should **ANSPs** do to further improve VFE? (3/4)

- Focus on more RNP approaches and departures
- Implement validated SESAR solutions (like e.g. arrival management) to better allow arriving traffic to manage their own lateral and vertical efficiency.
- Using standardised metrics, review current practice to see where and if opportunities exist to best benefit the system
- review airspace concepts in order to maintain high levels of capacity, but also highest levels of flight efficiency that allways carry safety improvements
- develop inter-ACC arrival management (XMAN), i.e. start sequencing arrival traffic already 250+ NM before landing

## Q2 – What can/should **ANSPs** do to further improve VFE? (4/4)

- Know the desired optimum profile/routing of every flight and try to facilitate this, communicate where this wouldn't be possible and provide the best alternative.
- Deliver airspace capacity that has been agreed and paid for.
- Develop ATC SOPs and instrument procedures in combination with each other which leverage off all the technology that is available, with the aim to maximize vertical and lateral flight efficiencies for as many airlines as it's possible. This is not an accusation or criticism, but I would like to see a little more equitable distribution of efficiency gains spread to as many of the less busy airports as possible.
- Remove level caps, where possible.
- deliver updated FMS profile to ATCO

## Q3 – What can/should **CFSPs** do to further improve VFE? (1/2)

- Dynamic environment/ operators to provide live data
- Ensure end users are not using legacy company routes that may enforce level caps that are no longer published.
- Understand how their actions influence fuel planning
- More accurate FL filing based on actual capability of aircraft and expected mass
- Allow for easy/unified implementation of new ATC procedures in the FMS
- Work close together with ANSP's to see on which routes the filed traffic is lower so they can file their for a better slot, more direct, .. in a kind of automated way
- not sure

## Q3 – What can/should **CFSPs** do to further improve VFE? (2/2)

- Be more dynamic and optimize available lateral and vertical options tactically and constantly.
- Update systems as soon as possible to increase fleet flexibility
- allow "late filling" and more flexibility
- Further improve the route optimization capability of their tools.
- In fairness to the CFSPs, their systems (at least the latest gen ones) already do a very good job of flight path (lateral and vertical) optimization. They are typically programmed already to find the best solution taking into account all the AIP and RAD restrictions. As AIP and RAD restrictions are eliminated their already existing optimization routines would be able to find better flight paths and trajectories.



## Q4 – Are there **any other stakeholders** involved to further improve VFE? (1/3)

- Governments, by enabling the CDO profile (Brussel example)
- Authority, by close collaboration with all stakeholders to improve
- Don't know
- States, as they should enable airspace delegation to make efficient design possible and military cooperation
- Airports fir performance measuring, training bodies, regulators
- Local CAA and politicians to optimize any other restrictions hampering VFE and HFE
- Military airspace managers. Free up restricted airspace well ahead of time to allow for improved filing of flight plans or crew direct requests.

## Q4 – Are there **any other stakeholders** involved to further improve VFE? (2/3)

- The environment through political decisions pushing the aviation world to be more sustainable, less noisy and less polluting.
- ATFCM, the current slot system can punish operators in congested areas that update their information with better data. We should always aim to have the best / most current information in the system. As this enables better decision making.
- The local officials ( Mayors, government environment representatives). We saw that environment depends not only on fuel but also on noise. We can notice that RNP APCH procedures can satisfy both: it is urgent for ANSPs to prioritize in this direction

## Q4 – Are there **any other stakeholders** involved to further improve VFE? (3/3)

- improve performance calculations and fuel prediction within onboard flight management computers
- EC + individual states by employing an ANS performance scheme that focuses on interdependencies between performance areas through the use of improved metrics. Also NM by not just focusing on delay numbers but on wider airline operational efficiency instead.



making the difference