



*International Civil Aviation Organization*

**MIDANPIRG Air Traffic Flow Management Task Force**

**Fifth Meeting (ATFM TF/5)**  
*(Virtual, 25 – 27 May 2021)*

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**Agenda Item 2: Regional Framework**

**FLIGHT & FLOW INFORMATION FOR A COLLABORATIVE ENVIRONMENT (FF-ICE)  
FOR ATFM**

*(Presented by India)*

**SUMMARY**

This paper presents the envisaged benefits and role of FF-ICE in future Air Traffic Flow Management implementation. As the MID ATFM TF is developing the ATFM implementation Framework, this paper proposes inclusion of FFICE and SWIM as part of roadmap of future implementation.

**1. INTRODUCTION**

1.1 Since the introduction of ICAO FPL 2012, aviation stakeholders have come to realize that the existing FPL (the format used to file flight plans) format has insufficient information to fully describe operator flight paths. It doesn't have a data exchange model with the fidelity and interfaces needed to negotiate post-departure re-routes and trajectories and enable the vision of ICAO Doc 9854, the Global Air Traffic Management Operational Concept (GATMOC). Starting in 2008, the ICAO Air Traffic Management Requirements and Performance Panel (ATMRPP) has been advancing the Flight and Flow Information for Collaborative Environment (FF-ICE) concept to both replace the FPL and enable future trajectory-based operations (TBO).

1.2 The ICAO standards for FF-ICE are currently under development and the ICAO provisions and implementation guidance are expected to be released in 2024. Presently Euro Control and the FAA are moving forward toward operational implementation of FF-ICE Release 1.

1.3 The FFICE Release 1 introduces a Filing Service, a Planning Service and a Flight Data request service. The Planning Service allows submission of flight intent in advance (potentially up to a year or more, depending on what is reasonably accurate and practicable). This provides the ANSP with more accurate information about air traffic demand.

1.4 The following paragraphs provide a brief introduction to FFICE and the benefits to ATFM.

**2. DISCUSSION**

2.1 In the Terms of reference (TOR) of the MIDANPIRG Air Traffic Flow Management Task Force (ATFM TF), 1.4 c (ii) urges the TF to identify, research and recommend appropriate guidance regarding sharing of traffic demand information which may include, flight schedules, flight plan data and updates to flight plan.

2.2 Currently, the Airspace User shares the flight plan intent with the ANSP in the form of a RPL or a FPL in the FPL 2012 format. The predicted traffic demand based on an estimated number of schedules and the latest validated ICAO 2012 flight plans provides a basis for any ATFM service measures at any constrained airports or airspace.

2.3 FF-ICE addresses two fundamental requirements:

a) The ability to exchange, between the operator and ATM, more flight and flow related information in a systematic manner which is both robust and expandable facilitating future requirements for both operator and ATM;

b) The provision of a systematic collaboration or negotiation procedure between the operator and ATM which facilitates the determination of an optimal route and trajectory.

2.4 FFICE implementation by an ANSP or an AU is voluntary subject to the needs and requirements of the individual State or organization. ICAO recommends a phased approach to implementation to ensure a smooth, harmonised transition towards FF-ICE.

2.5 One of the optional services in FFICE is the planning service. The earlier submission of flight plan with trajectory information enable ASPs to more accurately forecast traffic demand, analyse traffic patterns and adjust traffic flow management plans and measures. Through negotiation mechanisms, ASPs and AUs work together to collaboratively seek to achieve optimal ATM system and flight operational efficiency, taking into account varying airspace scenarios and user preferences.

2.6 The benefits of FFICE are;

- a) Ability to exchange flexible and extensive information such as trajectory data;
- b) Facilitating collaborative decision making by allowing ASPs to balance their demand with capacity more accurately;
- c) Benefiting the ATFM systems with more accurate flight data and the reduction in the necessity for tactical interventions; and
- d) Facilitating AUs' preferred trajectories as close as possible.

2.7 Future releases of FF-ICE would support dynamic post-departure trajectory negotiations between AUs and relevant ASPs in real time, as well as among ASPs and/or other relevant stakeholders. The sharing and management of flight trajectory information via FF-ICE during all phases of flight facilitates Trajectory Based Operations (TBO), a step towards achieving the vision as described in GATMOC.

2.8 The exchange of higher-fidelity FFICE information is expected to utilize the emerging SWIM environment.

2.9 FF-ICE release 1 (R1) services will provide high quality 4D trajectory (4DT) information to the ATFM traffic demand assessment. This would be useful for strategic traffic flow management purposes. FF-ICE release 1 pre-departure flight planning services are especially important for ATFM reroute measures and relevant to ground delay measures. The AU will have the capability to adjust the EOBTs, speed or route to comply with the airspace constraint known to FF-ICE.

2.10 States will be planning for gradual introduction of ATFM taking guidance from a mature MID ATFM CONOPS document and the subsequent Regional ATFM Framework. The expected availability of FFICE technology and procedures and the maturing SWIM network will provide a unique opportunity for States to plan their flight planning systems and data sharing mechanisms. The inclusion of FF-ICE as a target for the region would both encourage the uptake rate of FF-ICE implementation as well as harmonise the implementation of FF-ICE within the region.

2.11 The ATFM TF may consider inclusion of FFICE and SWIM as part of implementation roadmap as appropriate.

### **3. ACTION BY THE MEETING**

3.1 The meeting is invited to note the contents of this paper.