



International Civil Aviation Organization

MIDANPIRG/20 and RASG-MID/10 Meetings

(Muscat, Oman, 14-17 May 2023)

Agenda Item 5.7: ATM/SAR

INITIAL IMPLEMENTATION OF FLIGHT AND FLOW INFORMATION FOR COLLABORATIVE ENVIRONMENT (FF-ICE) SERVICE

(Presented by Oman)

SUMMARY

This paper presents the approach followed by Oman CAA to support the initial implementation of flight and flow information for the collaborative environment (FF-ICE) services.

REFERENCES

- Refer here to ICAO provisions related to the subject including GANP and FFICE manual Doc 9965 Manual on Flight and Flow — Information for a Collaborative Environment (FF-ICE).

1. INTRODUCTION

1.1. The FF-ICE concept has been developed by ICAO to illustrate information for flow management, flight planning, and trajectory management associated with ATM operational components.

1.2. FF-ICE Step 1 (FF-ICE/1) provisions will provide guidance for new flight planning and filing capabilities structured to improve collaboration and coordination prior to departure.

1.3. This information exchange will enable a common operational picture between aviation stakeholders in order to improve strategic planning. Therefore, ATM Service Providers (**ASPs**), Airspace Users (**AUs**), and other aviation stakeholders will need to determine the operational processes, procedures, and automation changes required for FF-ICE/1 provision implementation.

1.4. For this reason, the new ICAO Standards and Recommended Practices (**SARPs**) have been developed to ensure that the FF-ICE concept can be implemented globally and used by the ATM community.

2. DISCUSSION

2.1 The date for full implementation of FF-ICE seems a long way off but participants in the ATM system are encouraged to embrace the concept now and begin evaluating the impact on systems and processes so that the transition may be as seamless as possible. The introduction of a performance-based flight and flow management system should produce significant benefits in the future.

2.2 ICAO issued a State letter Ref AN 13/1.8, AN 7/63.1.2, AN 13/2.5, AN 2/33.1-22/108.29 December 2022, related to a proposal for amendment concerning the initial implementation of the flight and flow — (information for a collaborative environment (FF-ICE) services).

2.3 The Oman CAA has taken appropriate steps to transition to the Collaborative Environment, of which FF-ICE is a part. The following is the approach followed by Oman CAA to transition to the Collaborative Environment and the outcome of Gap analysis and Impact Assessment on Regulatory Framework (National Regulation CAR) ATM Service Providers (ASPs), Airspace Users (AUs),

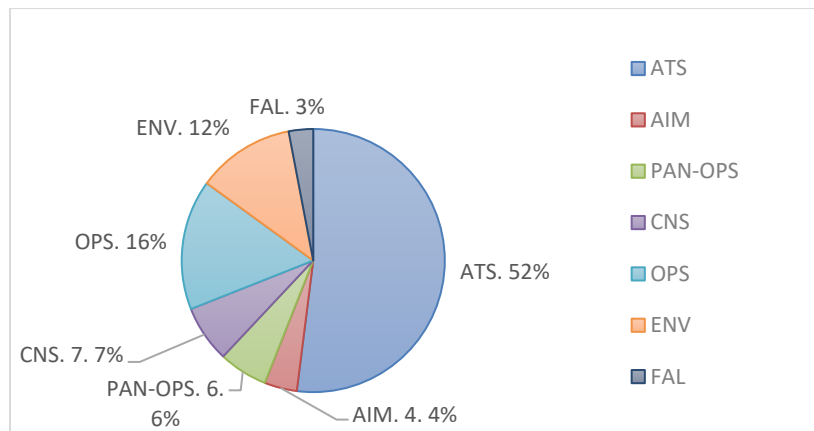
2.4 The Approaches and steps followed by the Sultanate of Oman are as follows:

1. Identify potentially affected stakeholders (ATM Service Providers (ASPs), Airspace Users (AUs), and other aviation stakeholders)
2. Initiate consultation regarding the proposed amendments – emphasise the need to assess required changes to systems, processes, manpower etc;
3. Review, as required under the appropriate legislation in force for each type of organization, the associated safety assurance produced by those organizations when implementing FF-ICE/1.
4. Conduct Regulatory framework Gap analysis
 - a) Identify if changes are required to national legislation.
 - b) Identify required changes to oversight procedures (manuals, training, etc).
 - c) Identify areas of national aeronautical information documentation to be amended.
5. Conduct Impact assessment and cost benefit analysis
6. Consider issuing a mandate for implementation, if required to achieve the targeted benefits
7. Develop the transition strategy and time frame

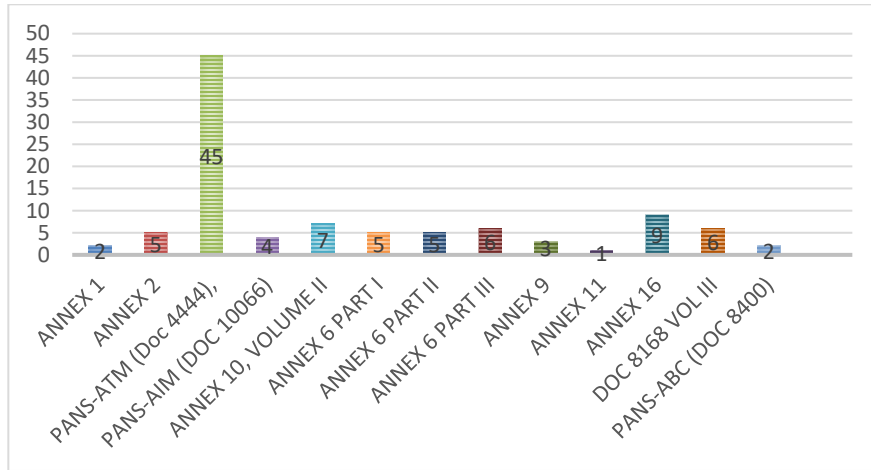
2.5 **Regulatory framework Gap Analysis**

2.5.1 The purpose of the Gap Analysis is to understand the Impact of new change on national regulation and the needs of National ANSP and airspace users when implementing FF-ICE/1

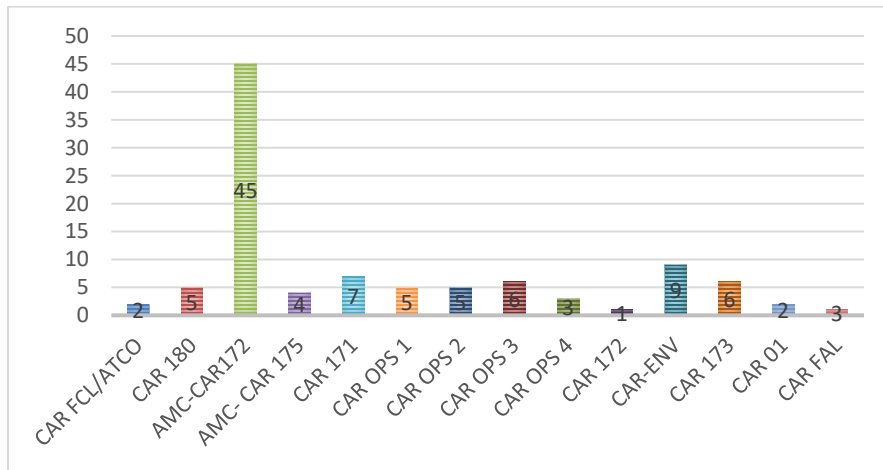
a) **Impact of Proposed Amendments per Domain: Fig 1**



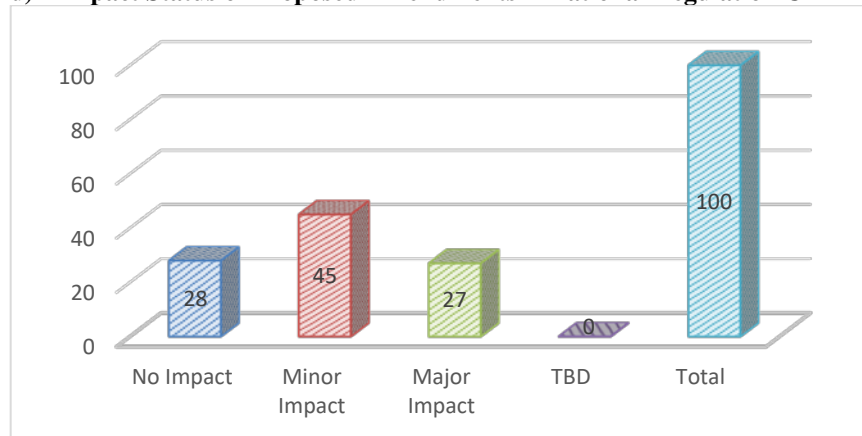
b) **Impact of Proposed Amendments Per Annex & PANS**



c) Impact of Proposed Amendments in National Regulations (CAR & AMC-CAR)



d) Impact Status of Proposed Amendments in national Regulation CAR



2.6.1 The purpose of the Impact Assessment is to assess a cost/benefits analysis of the Impact of new change on national regulation and the needs of National ANSP and airspace users when implementing FF-ICE/1.

2.6.2 The Sultanate of Oman CAA has conducted an Impact Assessment during the rulemaking process. The assessment has stated will examine the implications of implementing the amendment in Oman's airspace and assess the need to implement the functions or procedures that are required.

2.6.3 The overall impact of this proposal is positive in safety, security, and environment

2.7 The overall impact of the proposed amendment to implement FF-ICE/1 on resources of the Sultanate of Oman will be affected:

- At the civil aviation authority level: Rulemaking by Oman CAA may be required depending on the current environment and requirements for flight plan filing. Training of inspectors and others that deal with flight plans. **e.g.,** *The timeframe needed to implement this proposal is 1-2 years to update all related regulations (15 CAR)*
- At affected stakeholders' level: The cost for FF-ICE implementation is expected to be significant to both ATM Service Providers (ASPs) & Airspace Users (AUs), as computer systems updates, procedures development and personnel training will be required and needs to update automated ATM systems and system interfaces including the flight notification interface for operators. **e.g.,** *the timeframe needed to implement this proposal is 2-3 years to update significant changes to computer systems to handle the new format and content, and training for personnel (ATCO-Dispatcher) dealing with the new data.*

2.8 It is difficult for all States ASPs to transform from the current operation to the FF-ICE/1-based operation at the same time. Moreover, not all AUs will adopt the changes at the same time. Therefore, the impact of FF-ICE/1 change on States ASPs, particularly relative to adjacent Flight Information Regions (FIRs) and AUs, is unknown and unpredictable currently.

2.9 For this reason and to ensure the effective implementation of this proposed amendment, it is recommended at the national and regional level as follow:

- Conduct a workshop and training for ATM Service Providers considering implementation and for Operators, Flight Planning Service Providers.
- Develop Guidance Material that should contain a checklist and guidance for implementation.
- Develop a robust transition strategy to minimize potential adverse impacts during the joint application of the current flight planning mechanisms
- Transition to FF-ICE will be managed by state and/or regional cooperation and whole regions may transition together (a widespread transition may reduce difficulties which were witnessed in FPL2012)
- Define the timeframe needed to implement this proposal.
- Development of FPL2012 phase-out plan once sufficient experiences with FF-ICE/1 operations are available and when strategic plan for FF-ICE/2 is ready

2.10 The Stakeholders that are involved in the development of FF-ICE may be able to achieve early implementation and assist their neighbours; however, other states will need time to integrate FF-ICE into their systems and this may be a complex, lengthy and costly process

2.11 Where flights cross the boundaries between FF-ICE regions and non-FF-ICE regions, there may be a requirement for operators to provide flight information in both formats, or FF-ICE ATM service providers may agree to convert an old-format flight plan into the FF-ICE format and distribute it on behalf of the airspace user. Protocols for transit between FF-ICE and non-FF-ICE regions must be clearly defined and made available to all stakeholders.

3. ACTION BY THE MEETING

3.1 The meeting is invited to note the information contained in this paper.

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