



International Civil Aviation Organization

MIDANPIRG Communication, Navigation and Surveillance Sub-Group

Thirteenth Meeting (CNS SG/13)

(Jeddah, Saudi Arabia, 20 – 23 October 2024)

Agenda Item 6: ASBU Threads/ Elements related to CNS

ESTABLISHING FLIGHT AND FLOW INFORMATION FOR A COLLABORATIVE ENVIRONMENT (FF-ICE) IN THE MID REGION

(Presented by Saudi Arabia)

SUMMARY

The aviation sector in the Middle East (MID) region is rapidly evolving, necessitating innovative strategies to enhance air traffic management (ATM) systems and accommodate increasing air traffic demand. The Flight & Flow Information for a Collaborative Environment (FF-ICE) concept aims to create a framework that promotes efficient information sharing and collaborative decision-making among stakeholders, including air navigation service providers (ANSPs), airlines, and regulatory authorities.

This working paper outlines a strategic approach to implementing the FF-ICE concept in the MID region by enhancing existing ATM systems, fostering cooperation, and integrating advanced technologies. The proposed actions, including the establishment of an FF-ICE Taskforce, a comprehensive capability assessment, training initiatives, are aiming to improve operational efficiency, enhance safety, and strengthen regional partnerships in air traffic management.

Action by the meeting is in paragraph 4 of this WP.

- ICAO Doc 9750, Global Air Navigation Plan (GANP)
- ICAO Doc 9708, MID Air Navigation Plan

1. INTRODUCTION

1.1. In response to the increasing demand for air travel and the growing complexities of airspace operations, the concept of Flight & Flow Information for a Collaborative Environment (FF-ICE) has emerged as a vital framework for modernizing air traffic management.

1.2. The FF-ICE initiative is designed to enhance cooperation among stakeholders and promote more efficient and effective use of airspace, ultimately contributing to improved safety and operational efficiency at regional and global levels.

2. DISCUSSION

2.1. AI systems have high potential in ATM, specifically in areas which involve decision making under uncertainty (e.g. conflict detection and resolution) and prediction with limited information (e.g. trajectory prediction). These approaches can support human operators in exploitation of timely and

dynamic information on atmospheric hazards, traffic fluctuations, and airspace utilization and management.

2.2. The MID region is experiencing significant growth in air traffic, presenting both opportunities and challenges for air traffic management. The implementation of FF-ICE aims to enable seamless information sharing and foster collaborative decision-making, aligning with ICAO's Global Air Navigation Plan objectives. By facilitating real-time coordination among various aviation stakeholders—including air navigation service providers, airlines, and regulatory authorities—the FF-ICE concept supports enhanced air traffic flow and operational performance.

Technical Capabilities Requirements

2.3. To effectively implement FF-ICE in the MID Region, significant advancements in technical capabilities are required. The region needs to invest in modernized infrastructure and develop technical expertise to handle the new systems and processes with the following objectives:

- establish a structured framework for the implementation of the FF-ICE concept in the MID's ATM system.
- improve collaboration and coordination among MID member states and stakeholders for streamlined air traffic operations.
- enhance the integration of advanced technologies that support the FF-ICE concept, leading to improved decision-making processes in air traffic management.

Proposed Actions

2.4. The following proposed actions may be considered for the introduction and successful implementation of FF-ICE in the MID region:

- ✓ **Formation of an FF-ICE Implementation Taskforce (TF):** Establish a dedicated TF comprising representatives from member states, ANSPs, and key aviation stakeholders to develop an FF-ICE implementation and transition plan in the MID region considering available ICAO SARPs, guidance, and adopted practices at regional and global levels. The FF-ICE implementation and transition plan may include the following key workstreams:
- ✓ **Conduct an ATM Capability Assessment:** Perform a comprehensive evaluation of the current ATM capabilities and infrastructure to identify gaps and areas for improvement relevant to FF-ICE implementation.
- ✓ **Development of Collaborative Framework:** Development and dissemination of guidelines and best practices that foster a collaborative environment within the ATM system, ensuring consistency with ICAO FF-ICE framework.
- ✓ **Technology Adoption and Integration:** Encourage the use of innovative technologies (e.g., data sharing platforms, predictive analytics tools, and automated decision-support systems) to facilitate real-time collaboration and communication among stakeholders.
- ✓ **Capacity Building and Training Initiatives:** Organize educational programs, workshops, and seminars to build awareness and competencies related to FF-ICE principles and methodologies among personnel involved in air traffic management.

Expected Benefits

2.5. The FF-ICE expected benefits can be summarized as follows:

- a. **Increased Efficiency and Capacity:** Enhanced coordination and shared decision-making which will lead to more optimal route planning, reducing delays and improving overall air traffic flow.
- b. **Improved Safety Standards:** Greater situational awareness through collective efforts that enable proactive management of safety risks in the aviation environment.
- c. **Strengthened Regional Partnerships:** Enhanced cooperation among states and stakeholders will lead to a unified approach to air traffic management challenges and support sustainable aviation growth.

3. CONCLUSION

3.1. The successful establishment of the FF-ICE concept in the MID region requires a collective commitment to collaboration, innovation, and the effective utilization of resources in air traffic management.

3.2. The proposed actions present an initial strategic pathway toward implementing FF-ICE, ensuring that the region is ready to handle current and future air traffic demands and expected growth.

4. ACTION BY THE MEETING

4.1. The meeting is invited to:

- a) discuss and approve the proposal of setting an FF-ICE Implementation Taskforce for the MID region;
- b) discuss and endorse the proposed actions that aimed at promoting the implementation of FF-ICE initiative in the MID region; and
- c) encourage active participation and collaboration among member states and stakeholders to realize the benefits of the FF-ICE concept and ensure successful transition to FF-ICE.