International Civil Aviation Organization

MIDANPIRG Air Traffic Management Sub-Group

Eleventh Meeting (ATM SG/11)
(Abu Dhabi, UAE, 19 – 23 October 2025)

Agenda Item 3: Planning and Implementation issues related to ATM/SAR

REGIONAL HARMONIZATION OF MAJOR AIRSPACE CHANGES

(Presented by Saudi Arabia & Oman)

SUMMARY

As part of Vision 2030, Saudi Arabia has launched the Saudi Future Airspace Concept (SFAC). A comprehensive modernization program fundamentally reconfiguring the national airspace and route structures. This transformative initiative generates significant cross-border operational effects, necessitating enhanced coordination with adjacent Air Navigation Service Providers (ANSPs).

In 2023, the Sultanate of Oman inaugurated its Oman Airspace Strategic Project (OASP) as a crucial element of the ambitious Vision 2040 initiative. This extensive modernization endeavor aspires to fundamentally transform the national airspace and routing frameworks. Such a revolutionary undertaking engenders significant cross-border operational implications, necessitating enhanced collaboration with adjacent Air Navigation Service Providers (ANSPs).

Currently, changes impacting Flight Information Region (FIR) boundaries are managed predominantly through bilateral agreements. This paper advocates for the establishment of a **dedicated group** to harmonize major airspace reorganizations, such as the SFAC, Oman Airspace Strategic Project (OASP) & others (e.g. WP. This group is essential for enabling coordinated planning, real-time information sharing and unified issue resolution, thereby ensuring successful, region-wide implementation.

Action by the meeting is at paragraph 3

REFERENCES

- ICAO DOC 9750 GLOBAL AIR NAVIGATION PLAN (GANP)
- ICAO ANNEX 11 - AIR TRAFFIC SERVICES
- ICAO DOC 4444 PANS-ATM
- MID DOC 004 - MID REGION HIGH LEVEL AIRSPACE CONCEPT
- MIDANPIRG/20 CONCLUSION 20/9: DEVELOPMENT OF NATIONAL AIR NAVIGATION PLANS (NANPS)

1. INTRODUCTION

1.1 The SFAC and OASP constitute a regional strategic initiative designed to drive airspace modernization, ensuring the achievement of projected vision objectives, expansion of capacity and the accommodation of anticipated growth in air traffic, passengers and cargo. This critical modernization effort is being developed in strict alignment with the ICAO GANP and its technical framework Aviation System Block Upgrades (ASBU). Key technical enablers are being implemented, including Performance Based Navigation (PBN), Flexible Use of Airspace (FUA), the establishment of Free Route Airspace (FRA) in the upper airspace (from Flight Level 305) and a comprehensive redesign of the Air Traffic Services (ATS) route structure below FL305 to facilitate an efficient, PBN-based route network.

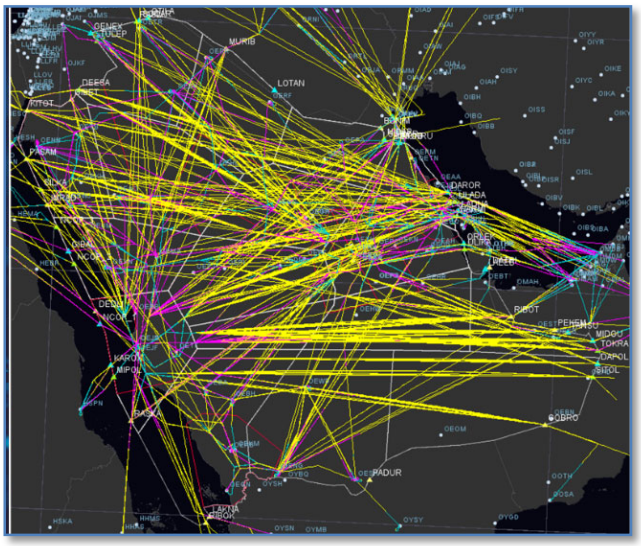

Figure 1: New traffic trajectories after FRA implementation at FL305

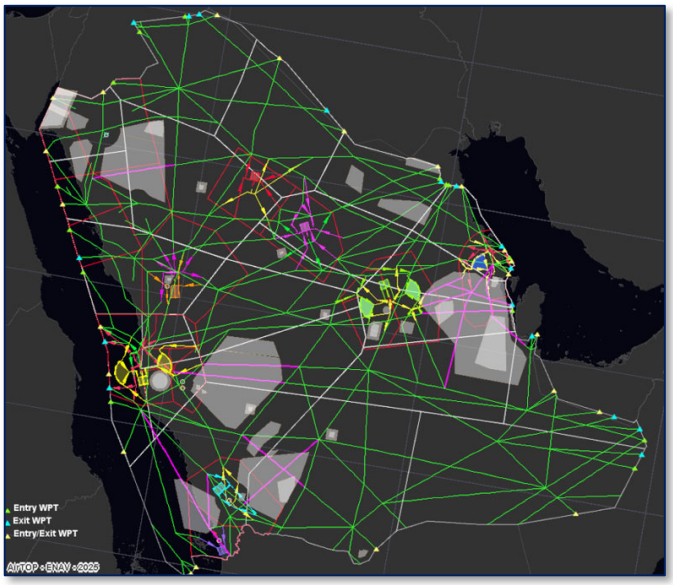

Figure 2: En-Route Network below FL305

1.2 The advanced concept's implementation extends beyond national confines, necessitating profound regional impact and depending on seamless integration and procedural harmonization across all adjacent FIRs.

2. DISCUSSION

2.1 Current Airspace Management Challenges

The following challenges outline the limitations of current procedures for managing large-scale airspace changes:

2.1.1 Bilateral Communication: Airspace changes, particularly those affecting FIR boundaries, are currently managed through bilateral communication and coordination between the two immediately affected ANSPs.

2.1.2 Insufficiency for Scale: While this ad-hoc, bilateral process may be adequate for minor, localized route adjustments (e.g., SANS/UAE or CAA-DGAN/SANS cross-border FRA), it is fundamentally unsuitable for a large-scale, multi-ANSP program like SFAC.

2.1.3 Requirement for Synchronization: The implementation of a major FRA across an entire FIR, coupled with the redesign of the underlying ATS route structure, requires synchronized and harmonized changes across numerous operational fronts.

2.1.4 Complexity and Interdependencies: These interwoven changes are too complex to be effectively managed through non-standardized or ad-hoc coordination. Key technical interdependencies must be addressed collectively, as guided by ICAO best practices.

2.1.5 Risk of Inefficiencies: A lack of multilateral, coordinated management introduces a significant risk of safety hazards and operational inefficiencies.

2.2 Ongoing Bilateral Success: Saudi Arabia - Oman Collaboration

2.2.1 Valuable Experience Gained: Saudi Arabia and Oman have developed significant expertise through their bilateral engagement in managing cross-border airspace initiatives.

2.2.2 Key Example: A notable and ongoing initiative involves the implementation of cross-border Route Availability Document (RAD) procedures with Oman, a state sharing a common FIR boundary.

2.2.3 Enhanced Efficiency: This collaboration aims to enable more efficient flight-planning options across both FIRs, directly enhancing operational flexibility and network efficiency.

2.2.4 Mechanism of Success: The initiative's success is rooted in strong high-level discussions paired with close technical coordination between the two states.

2.2.5 Scalable Model: The positive outcomes of this structured bilateral planning serve as a practical, proven model that can be scaled to the regional level.

2.2.6 Facilitating Regional Modernization: Expanding these cooperative mechanisms across the wider MID Region is critical to facilitating large-scale modernization projects, such as the SFAC & OASP program, by promoting harmonized implementation and the timely resolution of inter-FIR operational issues.

2.3 Towards a Harmonized Regional Approach

2.3.1. A formal, harmonized and regional process is essential for regional airspace modernization and is necessitated by existing international mandates as follows:

- Mandate for Alignment: The GANP requires that NANPs align with established regional and global frameworks to ensure both strategic consistency and technical relevance across the air navigation system.
- Fulfilling ICAO/MIDANPIRG Requirements: The adoption of a structured, multilateral process is not merely an operational convenience; it is a vital step toward fulfilling the mandates set by ICAO and MIDANPIRG.

2.3.2. Multilateral Process Phases: The proposed multilateral process for managing large-scale, complex programs (such as the SFAC and Oman projects) is structured across four distinct phases:

a) Initiation / Planning / Definition Phase:

- Define the Need: Clearly articulate the problem, the project goals, and the necessary compliance mandates (e.g., ICAO/MIDANPIRG).
- Scope & Requirements: Establish project boundaries, identify all key stakeholders, and specify the required technical and procedural outputs.
- Plan: Develop a comprehensive strategy detailing the required resources, timeline, and clear allocation of responsibilities.

b) Design / Modelling Phase:

- Design/Model: Create the necessary technical solutions and procedural frameworks.
- Testing/Review: Conduct internal checks and reviews to rigorously ensure that the solution functions as intended and meets the stated requirements.

c) Execution / Implementation Phase:

- Formal Approval: Obtain the final, requisite approval from all participating parties, ensuring multilateral adoption of the changes.
- Deployment: Apply the new processes or procedures to the target environment (e.g., implement the new airspace structures across all relevant States).
- Communication: Inform all airspace users and relevant stakeholders about the change and communicate the new operating procedures.

d) Monitoring / Review / Improvement Phase:

- Monitor: Continuously track performance metrics and systematically gather operational feedback.
- Review: Formally assess the results against the original project goals and mandated requirements.
- Optimize: Implement necessary adjustments and improvements to ensure the process remains effective, efficient, and supports continuous improvement.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper; and

b) agree to the establishment of a dedicated Task Group under the auspices of MIDANPIRG, to develop and coordinate large-scale, cross-border airspace modernization programs such as SFAC and OASP plans. The establishment of this group is essential for:

- Real-time Information Sharing: Facilitating the timely distribution of critical operational data.
- Coordinated Planning: Enabling synchronized and harmonized changes across all adjacent ANSPs.
- Unified Issue Resolution: Ensuring collective addressing of complex technical interdependencies and cross-border challenges to mitigate risks of safety hazards and operational inefficiencies.
- Aligning with the ICAO GANP and MIDANPIRG requirements for regional consistency and technical relevance.

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