International Civil Aviation Organization

MIDANPIRG MIDAD Task Force

First Meeting (MIDAD TF/1)
(Cairo, Egypt, 16 - 18 June 2014)

Agenda Item 3: **MIDAD Project Phase 2 - Detailed Study**

MIDAD PHASE 2 POSITION PAPER

(Presented by the Saudi Arabia and UAE)

SUMMARY
This paper presents the views of Saudi Arabia and UAE as leading States in steering MIDAD Phase 2, in the context of the expected deliverables of the support contract for the Detailed Study Call for Tender preparation.
Action by the meeting is at paragraph 4.

REFERENCES
- CAA/AND/9/P/73 ICAO-MIDAD/2013 - MIDAD SG*/1-Report - Specification of Tender Documentation (Draft)

1. **INTRODUCTION**

1.1   The objective of the Middle East AIS Database (MIDAD) Phase 2, Step 1 (ITV contract) is to develop the Call for Tender documentation for conducting the MIDAD Detailed Study.

1.2   The project's key decisions will be based on that Detailed Study, i.e., project's go-no go decision, level and mechanism for funding, model of support and management of MIDAD, operational model, final system architecture, vendor selection, implementation timeline, supported services, extensibility (evolution), etc.

2. **DISCUSSION**

Saudi Arabia and UAE Project status analysis

2.1   The submitted documents place the MIDAD project within the overall framework of the Aviation System Block Upgrades (ASBU) by ICAO. PBN and future Flight Plan Management Systems are quoted as key drivers of the project. However, other applications and future needs (e.g., unmanned aerial vehicles, virtual upper airspace, ATFM/ATFCM, etc.) will also leverage and build on the benefits of MIDAD, hence they also need to be taken into account.

2.2		The documents outline a cloud-based topology as a possible solution for the final MIDAD architecture. One argument is that by being a distributed system, it will solve the problem of location, i.e. the question of where the MIDAD server(s) would be located. It is therefore promoted as "best amicable solution". However, the documents would benefit from providing additional justification for such a decision. For example, what are the advantages/disadvantages when compared to other possible topologies, as mentioned in the MIDAD/SG-1 Report (namely; central, replicated, distributed). During the Detailed Study, the justification could then be taken to the next level such that a final and learned decision can be drawn. Granted, the decision of system architecture is an important one, on a technical level, but not the only one.

2.3		The concepts of Cloud-Based Architecture (CBA) and Service Oriented Architecture (SOA) were introduced in the documents without further information being provided as to differences and commonalities between these two design philosophies. For example, whereas SOA seems to favor more horizontal business applications, CBA seems to better support a more vertical services stack. Also, there are different categories of service that CBA could offer, including software as a service (SAAS), infrastructure as a service (IAAS), and platform as a service (PAAS).

2.4		This raises the issue of really knowing which approach is more appropriate for MIDAD or whether a hybrid solution would offer a good compromise.

2.5		Furthermore, the choice of architecture also raises many issues that need to be elaborated during the Detailed Study and that were not yet hinted at. For example, issues related to data ownership, liability, database synchronization mechanism, provision and maintenance of applications needed for the management of the data, staff training, possible migration paths from a category A user to category B or even C, phased implementation schedule of MIDAD, fail-over modes, backup and replication strategies, possibilities for potential value-added services (and who and how to charge for it), etc.

2.6		MIDAD is not only dependent on technical issues. Probably more important issues involve the Region's political and economic situation and related issues, the legal and regulatory framework of MIDAD, possible creation of a legal entity (e.g., multi-national holding) to manage the operation of MIDAD, funding, staffing and training, possible exit strategy, integration with other systems (global SWIM), etc. These issues have not yet been addressed in the current draft documentation.

3.	**CONCLUSION**

3.1		In summary, the documents provide a good framework and starting point for issuing the final Call for Tender for the Phase 2 MIDAD Detailed Study. At this point, however, they are still in a stage of early draft and would benefit by elaborating on some of the above-mentioned issues. The call for tender needs to provide a solid framework for the bidders of the MIDAD Detailed Study. It is then the goal of the Detailed Study to add the needed level of details to permit making sound decisions based on solid knowledge for moving ahead with MIDAD.

3.2		The documents, to the present state of development are focused only on some of the technical and system architecture aspects and they seem to promote only one of the system topologies identified in the MIDAD SG/1-Report: the distributed solution. This solution is elaborated in the Draft Specification: "*It should be noted that no centralised server/database is suggested... The solution is a distributed solution as core MIDAD System...*"

3.3		However, in order to allow a better understanding of the purpose, the scope and the deliverables of the Detailed Study, the Specification which constitutes the deliverable D1.1of the support contract CAA/AND/9/P/73 ICAO-MIDAD/2013 has to address all the components of the forthcoming study:

- **Operational**

    - MIDAD Management
    - MIDAD (AIM) operations
    - MIDAD services
    - Operational requirements and evolution
    - Support to States
    - Data maintenance and update
    - Data quality
    - Service continuity
    - Contingency procedure
    - Service documentation maintenance and update
    - MIDAD and States' personnel training

- **Technical**

    - System topologies: centralised, replicated and distributes (as identified in the MIDAD SG/1-Report, allowing also for combinations, if deemed appropriate)
    - Database models
    - Data models
    - Exchange mechanisms
    - Fail-safe mechanisms and back-up
    - Interaction mechanisms and interfaces with other systems and services in the MID Region (e.g. IFPS, ATFM, MET) and with other ICAO Regions' systems and solutions
    - MIDAD Services safety and security
    - Technical documentation maintenance and update
    - Technical requirements and specifications

- **Financial**

    - Funding mechanism
    - Technical and operational costs
    - Maintenance costs
    - Evolution costs

- **Legal**

    - MIDAD operator entity
    - Staffing
    - Data ownership
    - MIDAD and State Liabilities

- **Political**

    - Middle East geo-political context
    - Impact on MIDAD and mitigations

3.4   The deliverable D1.1 of the current contract should not assume that the "Specification" is only a technical specification, but an overall specification for the Detailed Study contract; hence it has to cover all the operational, technical, financial, legal and political aspects listed in 3.3 above.

3.5   In order to avoid any confusion or misunderstanding, the deliverable D1.1 should be named "Specifications for the MIDAD Detailed Study" as in the contract and not "Specification for the Tender Documentation", as provided in the draft document.

3.6   As part of the technical aspects of the Specification, we expect from the present contract to address all three scenarios for the MIDAD topology, as provided by the MIDAD SG/1-Report. This has to be reflected as well in the high level Concept of Operations.

4.   ACTION BY THE MEETING

4.1   The meeting is invited to:

a)   note the information provided in this paper;

b)   discuss and agree on the conclusions formulated in paragraph **Error! Reference source not found.** of this paper; and

c)   agree on the understanding, expectations and deliverables of the MIDAD Phase 2 step 1 (ITV contract) project.

- END -