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EVOLVING ROADMAP OF THE TRANSITION FROM AIS TO AIM

(Presented by the United Arab Emirates)

EXECUTIVE SUMMARY

This information paper presents general considerations on the Roadmap for the transition from aeronautical information service（AIS） to aeronautical information management（AIM） seen from the perspective of a "legacy" document that has never been updated since its publication almost a decade ago. Therefore, this paper is debating the Roadmap "actuality" especially within the context of the new AIM provisions introduced by Amendment 40 to Annex 15 — *Aeronautical Information Services.* Consequently, the information paper describes two possible options regarding the future of the transition to AIM Roadmap.

1. INTRODUCTION

1.1 ICAO Global Air Navigation Plan (Doc 9750) has been developed as a strategic document to guide the implementation of communications, navigation, and surveillance （CNS）/ air traffic management (ATM) systems with respect to the Global Air Traffic Management Operational Concept (GATMOC, Doc 9854) and the Strategic Objectives of ICAO.

1.2 In the global ATM system environment anticipated by the operational concept, Aeronautical Information Services (AIS) was considered to become one of the most valuable and important enabling services. The ATM strategic concept has as prerequisites the collaborative decision-making conditions, the timely availability of high-quality, reliable data and airspace & flow management information.

1.3 In June 2006, the Global AIS Congress (Madrid/Spain) considered the essential role of AIS in the evolving world of ATM. The Congress began to define a future high-level vision as to the outline, nature and content of a strategy for the evolution from traditional product-centric AIS to the enlarged scope of data-centric aeronautical information management (AIM). The Congress agreed that ICAO should take the lead at the global level with regard to the transition from AIS to AIM.

2. DISCUSSION

2.1 Roadmap for the Transition from AIS to AIM – General Considerations

2.1.1 The Roadmap for the Transition from AIS to AIM has been developed to expand upon the direction given in the *Global Air Navigation Plan* (Doc 9750) for the future development of aeronautical information. The document offered practical guidance and advice to regional planning groups (ANPIRGs) as well as to individual States, international organizations and industry for development of the implementation and funding strategies that were necessary for the planned initiatives (twenty-one steps distributed in three phases) and their indicative timelines for implementation.

2.1.2 After publication in 2009, the global Roadmap document swiftly gained "traction force" within ICAO offices/regions as a basis for setting up regional AIM Roadmaps, which then "cascaded" as guidance for the national AIM information and policy plan regarding the AIS to AIM transition.

2.1.3 Essentially, ICAO Roadmap has sustained, to a certain extent, its content practicality and did not "lose touch to reality" over almost one decade since its publication.

2.1.4 Certainly, the Roadmap has an adequate far-sighted vision by stating that, except Phase 1 "Consolidation", the steps listed in Phase 2 and 3 respectively are supposed to progress during the transition especially when getting closer to Phase 3 (Information Management).

2.1.5 The Roadmap states that the document will be subject to periodic updates in order to reflect further evolution and changes of the overall ATM concept and systems requirements. However, to date, the Roadmap has been not amended neither in respect of steps nor in respect of timelines.

2.1.6 The Roadmap has also served as general indication of what the air transport industry should be expecting from States achievements while transitioning to AIM. Additionally, the Part III of the document contains as well the timeline indicating to States, the major milestones that were predicted to support the transition to AIM in correlation with the development of new amendments to AIM-related Standards and Recommended Practices (SARPS) of Annex 15, Annex 4 — *Aeronautical Charts* and the *Aeronautical Information Services Manual* (Doc 8126).

2.1.7 However, the plan for the SARPS elaboration as described in the Roadmap ends with foreseeing the inclusion of Amendment 38 to Annex 15 and Amendment 58 to Annex 4 (November 2016) respectively.

2.1.8 Observant of the first of eight guiding principles for the transition to AIM (Part I, line 34) i.e. the transition has to comply with the process for amendments to the ICAO Annexes, it is evident that the (initial) deliberated purpose of the Roadmap is no longer ensured.

2.2 Amendment 40 to Annex 15 – New Provisions to AIM

2.2.1 Amendment 40 to Annex 15 is practically "re-creating" the Annex as a new conceptual foundation for AIM. Generally, the Annex 15 requirements & performance specifications i.e. "what" to be provided is setting an important milestone for current transition toward System-wide Information Management (SWIM).

2.2.2 Above all, the introduction of the Aeronautical Data Catalogue and the provisions of the five digital data sets i.e. aeronautical data in digital format represents a paradigm shift in the way information is managed along its life cycle.

2.2.3 Beside the inherent implementation challenges, the new AIM provisions will be setting the stage towards the Aeronautical Information Product "digitalization" as they are endorsing, as interim step, the transition from electronic AIP to "real" data-driven digital AIP!

2.2.4 Inevitably, consideration might be given that the amendment 40 requirements, especially the introduction of digital datasets are triggering a "bounce" technological speaking, for AIS community i.e. is contradicting a bit the Roadmap guiding principles as "*transition to AIM is a natural evolution rather than a revolution"*.

2.3 Future of Roadmap for the Transition from AIS to AIM – Possible Way Forward

2.3.1 By concurring that, presently, the transition to AIM has an "accelerated evolution" due to the growing emerge in all ATM domains of SWIM, the natural questions should be:

a) does the existing Roadmap continue or not to "serve the cause"?
b) has the Roadmap reached its "critical mass" in terms of serving as "*a strategic positioning initiative to drive the continuing improvement of AIS" (quote Forward section)*?
c) alternatively, does GANP through its ASBU methodology taking over the Roadmap guidance for the planned initiative and their timelines for implementation? Is this already a "de-facto" situation? and
d) moreover, mindful of the actuality of the Internet era, Big Data phenomenon, Block chain, IT driven technology, system interoperability prerequisite, etc. is aviation in general and, ATM in particular at the "cross-roads" point and the Roadmap may be obsolete/it should be "absorbed" in other strategic document?

2.3.2 Logically driven by above, it seems there are two foreseeable options on the way forward with the future of the Roadmap:

2.3.2.1 Keep and update the Roadmap with the new AIM provisions. There are some good reasoning in favour of preserving the document, for example:

a) to date, the Roadmap is predominantly used by many States as a "referenced document" for their national transition plan;
b) framed as "stand-alone" document i.e. not "diluted" within other generic plan, it ease user's access and consultation as "one-shop stop";
c) generally, the Roadmap has States consensus as a valuable guidance;
d) mindful of the significant differences in States implementation stages i.e. many not even consolidating Phase 1 to high-end State entering in Phase 3, the document still serves its scope;
e) the roadmap is conceived in a generic manner, hence open to "extension" in scope; and
f) specifically, the "updated" edition should consider "road-mapping"/definition of the new AIP and IFP digital datasets and "conciliating" the definition of other two digital datasets i.e. electronic obstacle and electronic terrain versus the existing steps ETOD Area 1 & 4 and ETOD 2 & 3 respectively.

2.3.2.2 Keep and redirect the Roadmap with focus on SWIM as prerequisite of all future ATM/AIM applications. As such, the Roadmap would continue to cover guidance and reference document for those States still striving with Phase 1/beginning Phase 2 implementation as well as it would add the SWIM implementation similarly in scope with AIS to AIM roadmap.

2.3.2.3 High level elaboration to the point above:

a) essentially, SWIM is the key enabler within the context of ASBU Performance Improvement Areas. Moreover, SWIM "layer" (services and infrastructure) is the precondition in "making real" the wide variety of ground & air applications to consumers through system interoperability;
b) by extrapolating from AIM Roadmap concept, SWIM implementation should also necessitate a "roadmap" guiding States ANSPs/international organizations/industry wrapping all elements;
c) however, the approach to a SWIM roadmap should consider a "checklist" of steps i.e. functionalities, but not setting the timeline;
d) as example, possible steps may consider SWIM Information Services, SWIM Information (payload), SWIM Technical Infrastructure, SWIM Governance, etc. and
e) last but not least, the implementation for digital dataset provision should be seen as an interoperability scenario i.e. SWIM services.

3. CONCLUSION

3.1 Since publication in 2009, the Roadmap for the Transition from AIS to AIM has offered practical guidance and advice to States, international organizations and industry for aeronautical information development, implementation and funding strategies.

3.2 The Roadmap's initiatives (twenty-one steps distributed in three phases) and their indicative timelines for implementation have never been updated since the publication.

3.3 Amendment 40 to Annex 15 has shaped a new conceptual foundation for AIM and the introduction of the five digital datasets represents an important step forward in the implementation of AIM under the all-encompassing SWIM principles.

3.4 Therefore, perceived as a "legacy" document, the Roadmap's actuality, especially within the context of Amendment 40, is now open to discussion.

3.5 Two possible ways forward are presented for the future of the Roadmap: 1) update the existing document in the context of the new AIM provisions of Amendment 40 or, 2) "adding-value" by developing for States guidance the needed SWIM functionalities roadmap based on the analogy with transition to AIM roadmap.

3.6 The Conference is invited to note the topic presented within this information paper and the thoughts of the United Arab Emirates.

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