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ASSEMBLY — 38TH SESSION

TECHNICAL COMMISSION

Agenda Item 32: Air Navigation — Policy

THE NEED FOR GLOBAL COORDINATION IN IMPLEMENTING SYSTEM WIDE INFORMATION MANAGEMENT (SWIM)

(Presented by the Russian Federation)

EXECUTIVE SUMMARY

This document addresses issues of the need to concur on principles of structuring System Wide Information Management (SWIM), standardization and harmonization of SWIM on the global level. Taking into account the importance of this task for achieving the objectives of the global air traffic management (ATM) operational concept, the proposal is to create a mechanism to ensure global coordination while implementing SWIM.

Action: The Assembly is invited to request the ICAO Council to consider the development of a coordination mechanism to implement system-wide information management (SWIM) and its air navigation applications.

Strategic Objectives:	This working paper relates to the Safety and Environmental Protection and Sustainable Development of Air Transport Strategic Objectives.
Financial implications:	Funding under ICAO regular programme budget.
References:	Materials of the Twelfth Air Navigation Conference

[1] Russian version provided by the Russian Federation.

(3 pages)

1. INTRODUCTION

1.1 In the process of discussing the programme to create a global air traffic management (ATM) system, the Twelfth Air Navigation Conference in 2012 (AN-Conf/12) concluded that it was necessary to develop a concept for system-wide information management (SWIM).

1.2 The Conference defined SWIM as an important mechanism to implement promising ATM applications that comprise the content of the tool for creating the ATM system on the global level - aviation system block upgrades (ASBU).

1.3 With SWIM implementation, the creation of the aviation intranet required to ensure the highest degree of interoperability among national aviation systems becomes linked to providing high quality and relevant information required by users to solve applied problems in trajectory-based operations.

1.4 The assumption is that with SWIM implementation, flight data, air navigation data, meteorological and other data will be accessible to all interested parties at all stages of air traffic management to support the principles of collaborative decision-making from the strategic-planning stage to the post-flight stage.

1.5 With the transition to SWIM, data will be exchanged on the basis of globally agreed-on modules and exchange protocols. Such standardization facilitates the creation of a seamless information environment with economically efficient and safe exchange of information among ATM systems and airspace users which, as defined by the ICAO Global ATM Operational Concept, “will enable the ATM community to make collaborative decisions to achieve optimal economic and operational targets”.

1.6 Taking into account the priorities assigned by AN-Conf/12 to the development of SWIM and the multiplicity of the goals and objectives therein, it must be considered that the lack of a coordinated implementation of SWIM using various approaches and requirements is one of the major risks in the implementation as a strategy of the ABSU and the Global ATM Concept as a whole.

2. BACKGROUND

2.1 Currently, national or regional air navigation administrations with limited participation of international standardization organizations are developing principles and technical specifications of how SWIM is structured in specific areas of ATM.

2.2 In the framework of several ATM programmes, such as NextGen, SESAR and CARATS, work is underway to develop the SWIM infrastructure and technical specifications in order to ensure ATM information management and the exchange of information among interested authorized parties, using SWIM infrastructure services. Meanwhile, as there are more studies about the creation of SWIM, more and more it is important that there be a timely concurrence and standardization of the principles and technical specifications of SWIM components on the interstate level in order to create a compatible information environment.

2.3 It bears noting that today there are no ICAO standards and manuals for SWIM implementation, or for the implementation of the applications used by SWIM. In particular, there are no standards and manuals in ASBU to organize SWIM (modules BX-31), meteorological services in the SWIM environment, and the requirements proposed for use when implementing modules BX-25 (ED-133) might only be used on a regional basis.

2.4 Given the multiplicity of possible approaches to the implementation of the service-oriented architecture, it is highly likely that SWIM implementation globally could take different paths. At the same time, there is a certain danger that partially-compatible SWIM technological solutions and their components will be implemented, which may ultimately lead to the fragmentation of global interoperability and low effectiveness of the global air navigation system and will not make it possible to fully realize the goals defined in the Global ATM Operational Concept.

2.5 If ICAO develops a mechanism, or set of measures, to ensure that States implement SWIM in a coordinated fashion, it would be an effective action to prevent this negative development.

2.6 This mechanism will ensure the consistency of principles for the structure, evolution, and implementation of SWIM components and their use in its air navigation applications, including data exchange models, requirements to the functions and performance of the application services and SWIM infrastructure services, and the identification of potential compatibility problems with specific technological solutions in the creation of SWIM.

2.7 This mechanism is intended to ensure the selection of the most acceptable standards for SWIM structure, since technical specifications for SWIM must be based on well-tested and widespread (or tending in that direction) joint international standards developed both by service-oriented architecture standardization organizations and its elements, such as OASIS, W3C, IETF, and by organizations that create application standards for use in a service-oriented environment, such as ISO, OGC, WMO and others. This will provide a capability for the tools implemented to be compatible and, as a result, conserve resources in their implementation and integration, and accordingly, yield great economic efficiency of the air navigation system as a whole.

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