



*International Civil Aviation Organization*  
**The Third Meeting of the ICAO Asia/Pacific Seamless ATM Planning Group  
(APSAPG/3)**

Chennai, India, 21-25 January 2013

**Agenda Item 3: Drivers for a Seamless ATM Environment**

**SYSTEM-WIDE INFORMATION MANAGEMENT  
AND THE ASIA/PACIFIC SEAMLESS ATM PLAN**

(Presented by Singapore)

**SUMMARY**

This paper presents the need for the region to consider the demand for greater data support and integration of data provision for the enabling of ATM concepts. With the end goal of a globally interoperable ATM system in mind, the region would have to consider planning for such long term supporting concept and infrastructure. At the 12<sup>th</sup> Air Navigation Conference, States agreed that there should be a global system-wide information management (SWIM) concept to be developed to enable future ATM applications. SWIM provides a means to increase availability of useful, timely ATM-related information to all relevant stakeholders, riding on the advances in information communication technologies and concepts. SWIM is central to building the future ATM system that the region requires to tackle the challenges of the rising traffic.

This paper relates to –

**Strategic Objectives:**

A: *Safety – Enhance global civil aviation safety*

**Global Plan Initiatives:**

- GPI-3 Harmonization of level systems
- GPI-9 Situational awareness
- GPI-12 Functional integration of ground systems with airborne systems
- GPI-18 Aeronautical information
- GPI-19 Meteorological Systems
- GPI-22 Communication infrastructure

**1. INTRODUCTION**

1.1 In 2011, the APSAPG was tasked to develop an Asia/Pacific Seamless ATM Plan (“the Plan”). The objective is to provide a basis for timely and coordinated deployment of new air traffic management (ATM) technologies and procedures across the region, and to provide for transition to a Seamless ATM environment. In this regard, the ATM Seamless Principles were drafted and the APSAPG had since agreed to use the ICAO Aviation System Block Upgrades (ASBU) as the framework for harmonised ATM modernisations. As discussed and agreed in APANPIRG/23, much of the past meetings focused on ASBU Block 0 and that there was a need for the region to take a long term view to plan and carry out any work necessary to support the modules beyond Block 0. APANPIRG/23 then tasked the APSAPG to review and include this in the Regional Seamless ATM Plan.

1.2 There had been significant ATM harmonization activities achieved over the last decade. Examples of these included the implementation of RVSM, EMARRSH route structure, South China Sea Restructure Routes and the Bay of Bengal ATFM procedures. There is a need for the region to continue this momentum for the implementation of ATM initiatives and systems across the Asia Pacific region with a view for better harmonisation to enhance the overall ATM efficiency as a system.

1.3 APSAPG was tasked with developing a plan that determines the key requirements for Seamless ATM in this region through a two years planning exercise that will terminate with the last meeting scheduled for May 2013 in Hong Kong. The advents of new navigational technologies have brought about advances in aircraft navigation. Air traffic operations are getting more and more complex and the demand for greater data support and integration of data provision for the enabling of ATM concepts will have to be considered. With the end goal of a globally interoperable ATM system in mind, the region will have to consider planning for a long term supporting concept and infrastructure.

## 2. IMPORTANCE OF SWIM FOR REGIONAL ATM

2.1 With the conclusion of 12<sup>th</sup> Air Navigation Conference (AN-Conf/12), States have agreed that ASBU is a good framework that will provide a unified reference and collaboration platform for regions and States towards achieving an interoperable and harmonized global ATM system. As discussed in AN-Conf/12, an increasingly important factor that should be considered is the provision and management of relevant, sufficient, timely, accurate and quality assured information to support ATM. As air traffic grows and operations get increasingly more complex, the need for ATM enabling data support and integration will be more evident. As a start, States agreed that there should be a global system-wide information management (SWIM) concept to be developed to enable future ATM applications.

2.2 A general trend has been observed in traffic coordination amongst States / ANSPs, that is the shift towards collaborative air traffic management. In this regard, SWIM provides a means to increase the availability of useful, timely ATM-related information to all relevant stakeholders, riding on the advances in information communication technologies and concepts. It sets out to improve shared situational awareness, information exchange and coordination amongst all ATM stakeholders including ANSPs and flight operators.

2.3 SWIM is a critical component to achieve ASBU Performance Improvement Area (PIA) 2 – Globally Interoperable Systems and Data (**Table 1**).

SWIM Modules in ASBU	Remarks
B1-31 – Performance Improvements through the application of SWIM	
B2-31 – Enabling Airborne participation on collaborative ATM through SWIM	
B2-25 – Improved coordination through multi-centre Ground-Ground Integration through SWIM	
<b>Elements contributing to SWIM modules in Block 0</b>	
B0-25 – Ground-Ground Integration using AIDC	Incorporated in Seamless ATM Plan
B0-30 – Digital AIM using aeronautical Information Exchange Model (AIXM)	Incorporated in Seamless ATM Plan
B0-40 – Initial application of Data link En-route using ATN and other Air-Ground approaches such as CPDLC and ADS-C	Incorporated in Seamless ATM Plan

<b>ASBU modules that are pre-requisite to the SWIM-related modules</b>	
B1-30 – Service improvement through integration of all Digital ATM information	
B1-25 – Efficiency and capacity through (Flight and Flow Information for a Collaborative Environment (FF-ICE) application before departure – which will be the first step to FF-ICE implementation	
B1-105 – Better operational decision through integrated weather information	

**Table 1:** SWIM Modules within ASBU

2.4 As the current Seamless ATM Plan focuses more on the present technologies and procedures, we must not overlook the need to include the development of future ATM concepts that will ensure the safety and fluidity of air transportation over the next few decades. SWIM is central to building the future ATM system that the region requires to tackle the challenges of the rising air traffic movements. As such, it is appropriate that States consider a regional approach in incorporating a plan for the implementation of SWIM, and for its inclusion into the Seamless ATM Plan.

Effectiveness of the Seamless ATM Plan

2.5 As the APSAPG draws near to its end-of-life which includes the development of a Regional Seamless ATM Plan, the next natural question is how the Seamless ATM Plan implementation will be carried out. As directed by ICAO during AN-Conf/12, the various Planning and Implementation Regional Groups (PIRGs) shall look into ASBU implementation at the regional level and to assist the States as appropriate. In this regard, the APSAPG can consider formulating a mechanism for the region to continually update the latest ATM technologies and initiatives into the Seamless ATM Plan. This is to ensure its relevance over the years and enable it to evolve with time and advances in technologies. For the Asia Pacific region, APANPIRG (and APSAPG) is well poised to continue its work towards seamless ATM in this region as well as inter-regionally.

**3. ACTION BY THE MEETING**

3.1 The meeting is invited to:

- a) Recognize the need to take a long term view to the Seamless ATM Plan and look beyond ASBU Block 0
- b) Recognize the importance of SWIM to support seamless ATM in the region and to consider incorporating the ASBU modules tabled under para 2.3.
- c) Encourage States to explore information management collaborations that will pave the way for sharing best practices and widespread adoption for the region.