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Air Traffic Management Service Delivery Management (ATM SDM)

Approved by the Secretary General
and published under his authority

International Civil Aviation Organization

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FOREWORD

This circular provides a more detailed view of the air traffic management service delivery management (ATM SDM) component of the *Global Air Traffic Management Operational Concept* (GATMOC, Doc 9854) — a component that is of chief importance because of its coordinating role. Even if more detailed, this view is still at the same conceptual level as the GATMOC itself and hence an integral part of it. It is foreseen that the material in this circular will be incorporated into Doc 9854 in the future.

Readers may recall that the GATMOC is a “vision statement” — an ideal to be pursued through coordinated planning and implementation activities that are focused on satisfying the eleven ATM community expectations (otherwise known as the eleven key performance areas (KPA)). KPAs are based on following the *Manual on Global Performance of the Air Navigation System* (Doc 9883) and are managed by the relevant national, regional and global plans.

The GATMOC is based on seven interdependent components, the operation of which should be integrated. However, ATM SDM plays a singular, coordinating role across the other components. Indeed, “The ATM service delivery management component will address the balance and consolidation of the decisions of the various other processes/ services, as well as the time horizon at which, and the conditions under which, these decisions are made” (GATMOC, 2.1.9).

Because of its vital importance, it became necessary to provide a more detailed view of ATM SDM, albeit a view that is still at the same conceptual level as the GATMOC.

The task was allocated to the Air Traffic Management Requirements and Performance Panel (ATMRPP), which continues the work of the Air Traffic Management Operational Concept Panel (ATMCP) that developed the GATMOC. This circular is the result of the work on expanding the concept of ATM SDM.



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BACKGROUND

The *Global Air Traffic Management Operational Concept* (Doc 9854) highlights that the ATM system will be based on the provision of integrated services. However, to better describe how these integrated services will be delivered, seven concept components, together with their expected key conceptual changes, are first described in capsule form (Doc 9854, paragraph 2.1) and then further elaborated upon. In addition to the seven concept components, Section 2.9 on information services describes the exchange and management of information used by the different processes and services. The ATM system needs to be disaggregated to understand the sometimes complex interrelationships between its components. The ATM system cannot, however, function without all of its components, which must be integrated. The separate components form one system.

One of the components of the GATMOC is ATM service delivery management (SDM). ATM SDM will operate seamlessly from gate to gate for all phases of flight and across all service providers. It will address the balance and consolidation of the decisions of the various other processes/services, as well as the time horizon at which, and the conditions under which, these decisions are made. Flight trajectories, intent and agreements will be important components in delivering a balance of decisions. Key conceptual changes include:

- a) services to be delivered by the ATM SDM component will be established on an as-required basis subject to ATM system design. Once established, they will be provided on an on-request basis;
- b) ATM system design will be determined by collaborative decision-making (CDM) and system-wide safety and business cases;
- c) services delivered by the ATM SDM component will, through CDM, balance and optimize user-requested trajectories to achieve the ATM community's expectations; and
- d) management by trajectory will involve the development of an agreement that extends through all the physical phases of the flight.

As the reader will learn below, ATM SDM means analysing and deciding what assets need to be deployed to deliver what required services, to obtain what expected performance, and to do so while thinking:

- a) across and within global concept components — airspace organization, aerodrome operations, user operations, etc.;
- b) across and within time horizons — from long-term planning through to tactical decisions; and
- c) end to end — whether seen as gate to gate or en route to en route.

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OBJECTIVE

The objective of this circular is to clarify and expand upon the air traffic management service delivery management (ATM SDM) component described in Chapter 2 of the *Global Air Traffic Management Operational Concept* (Doc 9854) and in the *Manual on Air Traffic Management System Requirements* (Doc 9882), in order to foster a better understanding of its application and facilitate a common interpretation for the development of future ATM systems.

ATM SDM is not an actor or an organization or an authority, but a process or a function that can be discharged through different organizational arrangements, across time and geographical jurisdictions, for example, by arrangements that can be more or less centralized or distributed. The ATM SDM description provided in this circular notes the existence of the different organizational arrangements but does describe them in any detail.

The *Manual on Global Performance of the Air Navigation System* (Doc 9883) focuses on performance of the system, while the *Manual on Collaborative Air Traffic Flow Management* (Doc 9971), Part 1, *Collaborative Decision-Making (CDM)* focuses on collaboration as a supporting process. Taking these two guidelines on the collaborative pursuit of performance improvements as a given, the focus of this ATM SDM description is different.

ATM SDM addresses the decisions on what assets need to be deployed to deliver what required services, to obtain what expected performance, while thinking across and within global concept components, across and within time horizons and end to end (whether seen as gate to gate or en route to en route).

Doc 9883 focuses on a performance-based approach (PBA) to strategic planning that is informed by CDM supporting processes. Doc 9971 addresses all other CDM activities not covered in Doc 9883 and defines CDM as an explicit supporting process in pursuit of articulated objectives between two or more ATM community members. Additionally, since the planning and conduct of system-wide information management (SWIM) will take place through ATM SDM, the SWIM concept will provide consolidated guidance on how SWIM will ensure the cohesion and linkage between the concept components to support the needs established through the ATM SDM process.

The scenarios in this circular attempt to bring ATM SDM to the fore. In order to do that, the scenarios generally contrast today's world with an ideal, although in some instances the ideal may have already been implemented. The scenarios also focus on the ATM SDM aspects addressed in the immediately preceding text and are given as soon as there is a sufficient enough message to illustrate. The scenarios do not describe the entire ATM SDM function at once, for example, by repeated reference to all time horizons, participants or services, but attempt to avoid unnecessary repetition of concepts that are extensively addressed elsewhere (e.g. CDM, SWIM and PBA).