



Agenda Item 1: AIM global strategy

Global AIM Projects

(Presented by the Secretariat)

SUMMARY	
This working paper presents the Global AIM implementation strategy.	
REFERENCES	
<ul style="list-style-type: none">• Annex 15 – Aeronautical Information Services• ICAO Roadmap for the transition from AIS to AIM• Report of the First meeting of the AIM-IS group	
ICAO strategic objectives	<i>A - Safety</i> <i>E – Environmental protection</i>

1. Introduction

1.1 The Roadmap for the Transition from AIS to AIM defined three phases for the migration of information management from paper to an electronic environment.

1.2 The different elements of the Roadmap for the Transition from AIS to AIM are also contained in the ASBU framework, in the Global Air Navigation Plan, since its fourth edition.

1.3 ICAO Annex 15 has been subject to successive amendments in order to provide a regulatory framework for implementations pursuant to the Roadmap.

1.4 The PIRG meetings in the various ICAO Regions have noted delays in the implementation of the Roadmap for the Transition from AIS to AIM. Cases of noncompliance with some standards contained in Annex 15 have also been identified and recorded as deficiencies in PIRG GANDDs.

1.5 Delays in the implementation of the Roadmap for the Transition from AIS to AIM have an impact on the evolution to the system-wide information management (SWIM) environment.

2. Discussion

2.1 The transition from product-oriented aeronautical information services (AIS) to a service-oriented aeronautical information management (AIM) environment is essential, since it is becoming

increasingly urgent to meet the requirements of a larger number of users and of an integrated and interoperable ATM system.

2.2 The data collected through ICAO Regional Offices show that States are taking action in this direction. Specific efforts focus on the implementation of the various steps of the ICAO Roadmap for the Transition from AIS to AIM (Phases 1, 2, 3). However, no Region has yet fully implemented Phases 1 and 2. Furthermore, the ICAO Regional Planning and Implementation Groups (PIRGs) have also identified cases in which the fundamental standards of Annex 15 are not being implemented and record such cases as air navigation deficiencies.

2.3 The Meeting will agree that the States, and specifically the AIS, must take appropriate measures to evolve their systems and services to ensure deficiencies are resolved. In addition, AIM implementation is a key milestone in this process of evolution towards a system-wide information management (SWIM) environment. If challenges are not properly addressed today, the evolution to SWIM will be jeopardised.

2.4 Noting that AIM stakeholders, including CAAs, ANSPs, and the industry have identified many challenges, ICAO has decided to investigate some of the most common issues in order to determine their origin, how they can be addressed in the future, and what can be done to support implementation.

2.5 Following this analysis, ICAO has decided to develop an AIM implementation strategy that describes in detail the main implementation issues, assigns priorities, and defines plans for future improvement. Likewise, ICAO is seeking to cooperate and partner with the States, the industry and international organisations to make sure that this strategy is effective and capable of generating the required results.

2.6 The AIM implementation strategy will be considered as a reference document for ICAO to plan future activities and to properly support the Regions and the States in their implementation processes.

2.7 The Meeting should recognise that maintaining the status quo is not advisable. It is imperative to design a strategy and action plans to migrate to AIM. The AIM-IS (AIM implementation strategy) group is designing the AIM implementation strategy in order to lead its implementation. The action to be taken in this regard is:

- a) Support the implementation of AIM requirements (Annex 15, edition 16, and PANS-AIM);
- b) Review and/or improve existing requirements (*e.g.*, in response to State Letter 2017/22);
- c) Development of AIM guidance material;
- d) Development of web-based guidance;
- e) Identification of specific training needs;
- f) Direct assistance to States for the transition to AIM;
- g) Any other AIM implementation support that might be required.

2.8 ICAO, through the AIM-IS, conducts analyses and works with a forward-looking vision. Within this context, the topics under analysis are the following:

- a) Development of new aeronautical information management requirements. This may include:
 - b) development of an operational concept and the corresponding provisions for the establishment of an information service to replace the information currently being provided through NOTAMs;
 - c) facilitating migration from the existing paper-based aeronautical mapping products to a digital environment, and identifying the requirements for graphical representation of aeronautical information in a SWIM environment;
 - d) facilitating the provision of digital datasets through SWIM services;
 - e) identifying and analysing the specific aeronautical information requirements for UAS traffic management (UTM); and
 - f) any other requirement, as required.
- 2.9 The AIM-IS group had its first meeting in April 2018. It defined nine projects under which it would carry out its work. Appendix A describes these projects.

3. **Conclusions**

3.1 Regarding the above, the Meeting may recognise that, in order to comply with the Roadmap for the Transition from AIS to AIM, it is imperative to focus on implementation.

3.2 States must be aware that sound foundations must be set by improving the quality of existing products and services and then promoting migration to digital formats.

3.3 It is absolutely necessary for AIM implementation to go forward, but that requires an effective strategy for continuous planning and advancing with digitalisation.

3.4 Likewise, ICAO, together with the industry and all stakeholders, should develop new requirements to facilitate the integration of the aeronautical information into SWIM.

3.5 The Meeting could analyze the elaboration of a conclusion to first sensitize the authorities of the impact of the management of aeronautical information on safety, and then establish action plans for the necessary implementations that allow the management and exchange of aeronautical information in a digital environment and in a globally interoperable format.

3.6 Likewise, the Meeting could analyze assistance actions to the States for those who experience difficulties in the implementation of Phase 1 of the Transition Sheet from AIS to the AIM.

4. **Suggested action**

4.1 SAM States are invited to:

- a) Update the information contained in Appendix A to this working paper on the progress made in e-TOD implementation, based on national implementation plans;
- b) Analyse the activities listed in the e-TOD Project and make comments as needed;

- c) Report on the progress made in the acquisition of geographical information systems;
- d) Report to the Meeting on current or future difficulties for the implementation within the deadlines established in Annex 15; and
- e) Analyse strategies for expediting the e-TOD implementation process.

APPENDIX A

Global AIM Strategy Projects

Title: AIM awareness	
Description of the problem	There is lack of awareness in the global aeronautical community of the role and importance of quality aeronautical information and of the negative impact that erroneous information can have on flight safety and efficiency
Impact	Global priorities: PBN, A-CDM, ATFM, SWIM
Action Plan	<ul style="list-style-type: none"> • AIM roadmap • Guidance material for a target audience • Regional seminars / workshops geared to a target audience • Direct assistance to States (“Go-Teams”)
Metrics	Measurement implementation: <ul style="list-style-type: none"> •Number of States with an AIM regulatory framework / year •Number of States replacing paper with datasets •Number of States that have implemented training to create awareness on AIM in the AISP provider Measurements: <ul style="list-style-type: none"> •Number of States that have organised ICAO AIS/AIM workshops •Number of AIMs by stakeholder

Title: Training	
Description of the problem	Absence of a systemic and consistent approach to training and competence management to support AIM services. This may cause inefficient practices, inadequate quality standards, reduced productivity, and higher costs.
Impact	Inconsistent production, low-quality products, and low production rates
Action plan	<ul style="list-style-type: none"> • AIS / AIM training manual • Share-Point with best State practices (credential system, competence management, AIS / AIM training) • Go-Teams • Development of training / computer-based training requirements for AIS providers and State AIS authorities
Metrics	Measurement implementation:

	<ul style="list-style-type: none"> •Number of AISPs that are introducing a formal training and competence programme •Number of EFODs related to Annex 15 QMS on training requirements •Number of safety incidents attributable to AIS
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Title: Implementation of the quality and oversight management system	
Description of the problem	<ul style="list-style-type: none"> • At present, some AIS providers (AISP) do not apply or have not implemented a QMS. • Likewise, it is difficult for State authorities to monitor QMS implementation by the AISPs
Impact	<ul style="list-style-type: none"> • Configuration management issues, poor consistency checks: errors and inconsistencies in AI • Global priorities: PBN, A-CDM, ATFM, SWIM
Action plan	<ul style="list-style-type: none"> • Expansion of PANS-AIM procedures • QMS manual for AIM (web-based) • Share-Point with best State practices • Go -Teams / seminars / workshops
Metrics	Measurement implementation: <ul style="list-style-type: none"> • Number of States that have implemented QMS / year, based on USOAP results, regional reports

Title: Originators of aeronautical data	
Description of the problem	There are several problems with the origination of aeronautical data and information: <ul style="list-style-type: none"> • Originated data is not of the right quality • Ineffective communication between stakeholders • Lack of formal arrangements
Impact	<ul style="list-style-type: none"> • Quality is not consistent with the use to be given to information • Global priorities: PBN, A-CDM, ATFM, SWIM
Action plan	<ul style="list-style-type: none"> • The AIS manual is already under review regarding: <ul style="list-style-type: none"> Guidance on formal arrangements (SLA). Template for normal arrangements (SLA) Aeronautical data catalogue Roles and responsibilities • Additional work in the data catalogue
Metrics	Measurement implementation: <ul style="list-style-type: none"> • Number of formal agreements (SLA) established between data originators and the AISP / year

Title: Notices to AIRMEN (NOTAM)	
Description of the problem	<ul style="list-style-type: none"> • Pilots and flight planning units find it difficult to properly filter NOTAMs • The total number of NOTAMs issued per year has increased 2.4 times worldwide • The quality of NOTAM information is not always adequate • Filtering criteria are not enough to deal with modern operations (TBO).
Impact	<ul style="list-style-type: none"> • High impact on flight safety and efficiency • Global priorities: PBN, A-CDM, ATFM, SWIM
Action plan	<ul style="list-style-type: none"> • Seek long term solutions: develop a new concept for an information service (SWIM) • Coordination with communities of interest • Develop ICAO provisions • Regional implementation activities
Metrics	Qualitative: <ul style="list-style-type: none"> • Assessment of reports by aircraft operators and data providers

Title: AIM in SWIM	
Description of the problem	<ul style="list-style-type: none"> • Annex 15 and the PANS-AIM specify five categories of digital aeronautical datasets that must/should be provided, but do not indicate how these datasets are actually provided
Impact	<ul style="list-style-type: none"> • Proliferation of different ways of providing information, compromising interoperability • Impact on the vision of a global interoperable ATM system for all users
Action plan	<ul style="list-style-type: none"> • Define the minimum set of requirements for the provision of digital dataset services • Define the set of requirements for more advanced “query/response” digital data services • Define the set of requirements for “dynamic” updates of the digital data set service.
Metrics	Measurement implementation: <ul style="list-style-type: none"> • Number of State AIS services that provide digital datasets through a SWIM service

Title: AIM for UTM	
Description of the problem	The manufacturers of unmanned aircraft and the user community have experienced a fast expansion. With a limited airspace and a dense population, the need for a traffic management system that includes unmanned aircraft has become urgent. This system needs information and data to manage aircraft and drone operations.

Impact	
Action plan	<ul style="list-style-type: none">• The UAS Advisory Group (UAS-AG) is addressing all UTM aspects within ICAO.• Coordinate with the UAS-AG to support AIM• Establish actions accordingly
Metrics	XXX