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United Arab Emirates

Presented by UAE

Status of AIM Implementation/Planning at the National level



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Outline

- **UAE National AIM Implementation Roadmap**
- **Status of AIM Implementation and future plans**
- **Status of AIM Deficiencies**
- **Lessons Learned**
- **Challenges**
- **Recommendations**



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UAE National AIM Implementation Roadmap

➤ CIVIL AVIATION ADVISORY PUBLICATION, CAAP 54 (Issue July 2011) TRANSITION FROM AIS TO AIM

PHASE	STEP	START DATE	END DATE
PHASE 1	STEP-01 — Data quality monitoring	2008	2011
	STEP-02 — Data integrity monitoring		
	STEP-03 — AIRAC adherence monitoring		
	STEP-04 — Monitoring of differences to Annex 4 and Annex 15		
	STEP-05 — WGS-84 implementation		
	STEP-08 — Aeronautical information conceptual model (Database - ICAO)		
	STEP-13 — Electronic terrain – Area 1 and 4		
	STEP-14 — Electronic obstacles – Area 1 and 4		
PHASE 2	STEP-06 — Integrated aeronautical information database	2012	2015
	STEP-07 — Unique identifiers (Database - ICAO)		
	STEP-11 — Electronic AIP		
	STEP-12 — Aeronautical information briefing		
	STEP-13 — Electronic terrain – Area 2 and 3		
	STEP-14 — Electronic obstacles – Area 2 and 3		
	STEP-16 — Personnel training		
	STEP-17 — Quality Management		
	STEP-18 — Agreements with data originators		
	STEP-20 — Electronic aeronautical charts		
PHASE 3	STEP-09 — Aeronautical data exchange - Global	2016	2021
	STEP-10 — Communication networks - enhanced		
	STEP-15 — Aerodrome mapping		
	STEP-19 — Interoperability with meteorological products		
	STEP-21 — Digital NOTAM		



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Status of AIM Implementation (BO-DATM)



Status of AIM Implementation

B0 – DATM: Service Improvement through Digital Aeronautical Information Management				
Elements	Applicability	Status	Action Plan/Timelines	Remarks
National AIM Roadmap	State	FI		Phase 3 Information Management
AIXM (+version)	State	FI		Version 5.1.1
eAIP	State	FI		
QMS	State	FC		
WGS-84	ENR	FC		
	AD	FC		
	TMA	FC		
	GUND	FC		
eTOD	Area 1 Terrain	FC		
	Area 1 Obstacle	FC		
	Area 4 Terrain	FC		
	Area 4 Obstacle	FC		



Status of AIM Implementation

Provision of AIS/AIM products and services based on the Integrated Aeronautical Information Database (IAID)			
Elements	Status	Action Plan	Remarks
IAID	FI		
AIXM (+version)	FI		Version 5.1.1
eAIP (IAID-based)	FI		
NOTAM (IAID-based)	NC	2021	As per UAE National AIM Implementation Plan
SNOWTAM (IAID-based)	NC	2021	As per UAE National AIM Implementation Plan
PIB (IAID-based)	PC	2020	PIB available at OMAA, OMDB, OMDW, OMFJ; other ADs in 2020;
Charting (interoperable with IAID)	FC		Data-driven Charting system operational. Phased approach implementation: ENR (2018), SID/STAR (2019 onwards), APP (2020 onwards)
Procedure Design (interoperable with IAID)	NI	2021	Dataset provision is with local ANSPs and ADs.
ATS (interoperable with IAID)	PI	2021	ACC coordination ongoing



Status of AIM Implementation

Aeronautical Data Quality			
Elements	Status	Action Plan	Remarks
QMS	FC		
Formal agreement with originators	PC		<i>Pending with UAE Military. Other means of compliance are in place i.e. Letter.</i>
Digital data exchange with originators	PC	2021	<i>Regular file exchanges with: (1) UAE local ANSPs (DANS, ADAC) (2) International (SANS) (3) GCAA stakeholders (R&D, AIM Design) (4) ETOD Area 1 w/ the data supplier</i>
Metadata	FC		
Data quality monitoring	FC		
Data integrity monitoring	FC		
AIRAC adherence	FC		



Status of AIM Implementation

WGS-84			
Elements	Status	Action Plan	Remarks
FIR/ENR	FC		
Terminal	FC		
AD	FC		
GUND	FC		



Status of AIM Implementation

eTOD			
Elements	Status	Action Plan	Remarks
Area 1 Terrain	FC		
Area 1 Obstacles	FC		
Area 4 Terrain	FC		
Area 4 Obstacles	FC		
Area 2a Terrain	PC	Ongoing	The dataset is originated by local ANSPs and ADs. Full Area 2 Obstacle files are provided by OMAD, OMSJ and OMFI.
Area 2a Obstacles	PC		
Area 2b Terrain	PC		
Area 2b Obstacles	PC		
Area 2c Terrain	PC		
Area 2c Obstacles	PC		
Area 2d Terrain	PC		
Area 2d Obstacles	PC		
Area 3 Terrain	FC		
Area 3 Obstacles	FC		
AMDB	NI	2021	As per UAE National AIM Implementation Plan



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Status of AIM Deficiencies

NIL



Future Plans - Outlook 2025 (in line with B1-DAIM)

Near Term (2020 – 2021)		Medium Term (2022 – 2025)	
Enhance AIM system capabilities (higher quality assurance measures)	2020	ICAO AMDB Dataset (SWIM service) Note: It requires additional enhancements of the AIM database	2022
Implementation SWIM interfaces & Web Services exposing GCAA aeronautical data (AIRAC Amendment)	2020	ICAO IFP Dataset (SWIM service) Note: TBD how to be addressed (1) Local ANSPs /Airports act as data originators and provide the respective datasets as complete packages or (2) GCAA AIM is producing the data sets internally (data mart).	2023
ICAO AIP Dataset (SWIM service)	2020	D-NOTAM (NOTAM Improvements) Note: Predicated on AIXM 5.2 temporality, specs eff. Nov. 2020	2023 - 2025
ICAO Obstacle/Terrain Area 1 Dataset (SWIM service)	2021		



Lessons Learned

- Prior System implementation, State and Industry (AIM system supplier) should consider a common and consistent standard system architecture and specifications;
- Regular coordination meetings with AIM Stakeholders within the State should streamline and support in completing the transition plan;
- The necessity to establish regulations for the aeronautical surveyor service providers
- “Digital” Charting needs clearly a common understanding to which extent the information/data can be sustained by the AIXM 5 Database.
- Lack of ICAO SARPS specifications for data-driven type of charts e.g. Doc. 8697, etc.
- Interoperability is a gradual and “learning” implementation process i.e. can be achieved by continuously correcting data thru Business Rules.



Challenges

- Developing an interoperability platform for aeronautical data exchange i.e. import/export timeslice capabilities, business rules;
- Technical variation related to, for example, delivery format, mapping AIM DB to eAIP tool templates, version extensions, geometry encodings for airspace aggregation, arcs, etc.;
- The difficulty in AIXM encoding of Terminal Procedures due to lack of consistent guidelines and 5.1 model limitations e.g. ProcedureLeg bearings, magnetic variation;
- SWIM implementation is facing a certain hurdle (1) for compliancy with Minimum Security Baseline (MSB) i.e. Safety/Security/IT requirements at organization level and (2) implementation complexity of the Web Feature Service (WFS) classes and its Temporal Extension (WFS-TE).



Recommendations

- Coordination of the developments and even the definition of an implementation strategy at the national level;
- Coordination and active involvement in the SWIM developments at international level;
- Invest time and effort in studying the encoding aspects and to share the experience between the key Stakeholders responsible for originating, managing and publishing the data to the next intended user; active participation in international group dealing with coding specifications e.g. ECTL AIXM Coding Focus Group;
- Digital Datasets: A phased-approach is recommended for implementation as follows:
 - (1) AIP dataset (2)/(3) Obstacle & Terrain dataset (4) AMDB (product specification already existing) and (5) IFP dataset (totally new, specs are pending).
- States to establish a “transition period” in order to give the chance to their AIP subscribers reaching the technical capability for handling digital datasets.



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Thank you