EAD Data Catalogue

Interregional EUR/MID PANS AIM Workshop
ICAO EUR/NAT, Paris, , 10-12 July 2018

Emmanuel Dettwiller
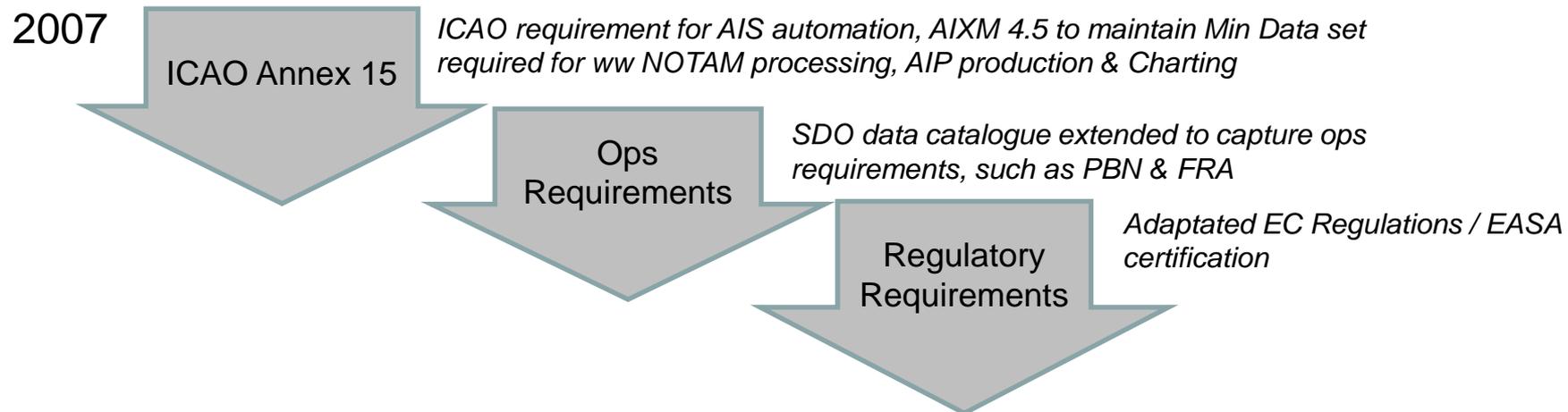
NMD/NS/EAIM

July 2018

Agenda

1. EAD Principles

2. EAD Data Catalogue Evolution

3. Data Set Areas

4. Alignment with EU Regulation

5. EAD Data Catalogue Content

6. Limitations

7. eEAD Data Catalogue

8. Evolution with eEAD – Challenge

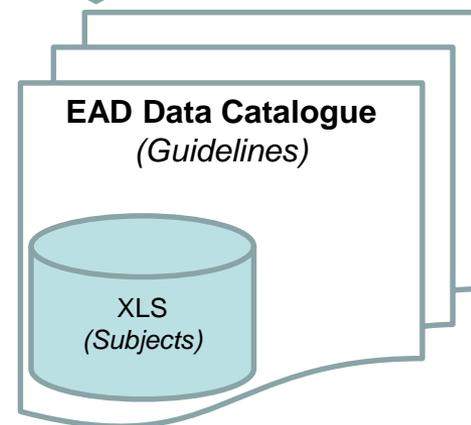9. Evolution with eEAD – Potential Way Forward

10. Conclusion

Network Manager
nominated by
the European Commission

Principles

❑ *EUROCONTROL operates and manages the EAD on behalf of its Member States and provides a system and service to AIS Providers supporting the delivery of AIS services as defined in ICAO Annex 15;*

❑ *States remain responsible for providing the AIS and for the published information, AIS Providers (Civil & Military) are responsible for inserting, maintaining and correcting their national data directly in the EAD;*

❑ *The provision of EAD IT, Data Operations and Training services are contracted to private service providers.*

Network Manager
nominated by
the European Commission

EAD Data Catalogue Evolution

2007

ICAO Annex 15

ICAO requirement for AIS automation, AIXM 4.5 to maintain Min Data set required for ww NOTAM processing, AIP production & Charting

Ops Requirements

SDO data catalogue extended to capture ops requirements, such as PBN & FRA

Regulatory Requirements

Adapted EC Regulations / EASA certification

- Capture the data requirements of data within EAD scope
- Specify minimum geographical coverage of each data element (Subject), i.e. "Dataset Area"
- Broken down by data subjects, properties and sub-properties.

EAD Data Catalogue
(Guidelines)

XLS
(Subjects)

Data Set Areas

ECAC + STATES
Afghanistan
Algeria
Belarus
Egypt
Iran
Iraq
Israel
Jordan
Kazakhstan
Kyrgyz Republic
Lebanon
Libya
Morocco
Russian Federation
(European Part covering following Russian, Tajikistan and Turkmenistan FIRs: ULAA, ULAM, ULKK, ULLL, ULMM, ULWW, UNKL, UNNT, URRV, USCC, USCM, USDD, USDS, USKK, USPP, USSS, USTR, UTAA, UTAK, UTAT, UTDD, UTDL, UTNR, UUWV, UUYY, UWKD, UWWW)
Saudi Arabia
Syria
Tunisia
Uzbekistan

- Areas of operation used to define the geographical coverage:
  - ECAC Area
  - ECAC+ Area
  - World Wide : Min data for NOTAM processing & validation
  - EAD SDO Data Provider (EAD Migration Matrix on website)

- Data Set completeness dependent on Data Provider SDO/SDD
- Migration Status available at:

  www.ead.eurocontrol.int/eadcms/eadsite/operations/maintenance/sdo-worldwide.html (link names to be changed min-sdo.area.html)

  www.ead.eurocontrol.int/eadcms/eadsite/operations/maintenance/sdo-ecac.html (link name to be changed full-sdo-area.html)

Alignment with EU Regulation

- EASA certification: Findings related to Regulation EU 73/2010 Article 4 and Annex I Parts A and C on Data Quality requirements and Data Set specification:

  - Better alignment with the regulation for Data Set specification in accordance with ICAO PANS AIM Appendix 1 Aeronautical Data Catalogue

  - Single reference for data sets

EAD Data Catalogue Content

Current EAD Data Catalogue

Subject	Property	Sub-Property	Description	SDD	SDO	Source	Dataset Area
			AERODROME/HELIPORT				
Aerodrome/Heliport							
Aerodrome/Heliport			A defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of	yes	yes	AIS	
	Designator		Designator of the aerodrome/heliport.	yes	yes	AIS	
		Location Indicator ICAO	The four letter ICAO location indicator of the aerodrome/heliport, as listed in ICAO DOC 7910.	yes	yes	AIS	World Wide
		Designator IATA	The identifier that is assigned to a location in accordance with rules (resolution 767) governed by the International Air Transport Association (IATA).	yes	yes	AIS	World Wide
		Other	A locally defined airport identifier, if other than an ICAO Location	yes	yes	AIS	World Wide
	Name		The primary official name of an aerodrome as designated by an appropriate authority.	yes	yes	AIS	World Wide
	Type		A code specifying the type of aerodrome. For example, aerodrome only, combined aerodrome/heliport or simple landing site.	yes	yes	AIS	World Wide
	Served City (Location)		The full name (free text) of the city or town the aerodrome/heliport is serving.	yes	yes	AIS	World Wide
	Type of Traffic Permitted		Type of traffic permitted to use the aerodrome/heliport.	yes			
		International/National	Indication if international and/or national flights are permitted at the aerodrome/heliport.	yes	yes	AIS	ECAC+
		IFR/VFR	Indication if IFR and/or VFR flights are permitted at the	yes	yes	AIS	ECAC+
		Scheduled/Non-Scheduled	Indication if scheduled and/or nonscheduled flights are permitted at the aerodrome/heliport	yes	yes	AIS	ECAC+
		Civil/Military	Indication if civil commercial aviation and/or general aviation and/or military flights are permitted at the aerodrome/heliport	yes	yes	AIS	ECAC+
		Restricted Use	Indication if an aerodrome or heliport not open for the public (Only for the use of the owners).	yes	yes	AIS	ECAC+
	Heliport Type		The type of the heliport as mention in Annex 14 Volume II (Surface-level, elevated, shipboard or helideck).	yes	yes	AIS	World Wide
	Certified ICAO		Indicating that the Aerodrome is certified according to the ICAO rules	yes	no	AIS	
	Certification Date		The date when the Aerodrome certification has been issued by the supervising authority.	yes	no	AIS	
	Certification Expiration Date		The date when the Aerodrome certification will become invalid.	yes	no	AIS	
	Control Type		Indication if an aerodrome is under civil control, military control or joint control.	yes	yes	AIS	
	Field Elevation		The vertical distance above Mean Sea Level (MSL) of the highest point of the landing area.	yes			
		Elevation	The value of the aerodrome elevation. The vertical distance to the highest point on the landing area of the aerodrome from Mean Sea	yes	yes	AIS	
		Geoid Undulation	A distance separating the geoid and the ellipsoid at that position. In respect of WGS-84 geodetic datum, the difference between the WGS-84 ellipsoidal height and geoidal height represents geoidal	yes	yes	AIS	
	Reference Temperature		The monthly mean of the daily maximum temperatures for the hottest month of the year at an aerodrome.	yes	yes	AIS	
	Mean Low Temperature		The mean lowest temperature of the coldest month of the year.	yes	no	AIS	
	Magnetic Variation		The angular difference between True North and Magnetic North measured at a given position and date.	yes			
			The magnetic variation angle value			AIS	

Categories:
AERODROME _HELIPORT
AIRSPACE
ROUTE
PROCEDURE
NAVAID
GEO-OBJECT
SERVICE

Network Manager
nominated by
the European Commission

Limitations

- EAD data catalogue requires an extension to current SDD
- Further extensions to AIXM 5.1 are required to capture regional requirements
- Completeness checks indicate missing information
  - Definition of "*SDO data completeness guidelines*" to support data providers to meet an acceptable level of data completeness

Network Manager
nominated by
the European Commission

eEAD Data Catalogue (CONOPS)

EUROCONTROL

Subject	Property	Sub-Property	Description	Modelling Reference	Annex 15 IOP Data	Minimum Geographical Coverage	Remark
AERODROME/HELIPORT							
Aerodrome/Heliport							
Aerodrome/Heliport			A defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft/helicopters.				*The WW Aerodromes IFR/VFR/MIL etc. (not published in the AIP's of the States) data are subject of retrieval from the other sources such as ICAO DOC 7910, IATA Resolution 767, etc.*
	Designator		Designator of the aerodrome/heliport.				
		Location Indicator ICAO	The four letter ICAO location indicator of the aerodrome/heliport, as listed in ICAO DOC 7910.	AIXM 5.1 Core	X	World Wide	
		Designator IATA	The identifier that is assigned to a location in accordance with rules (resolution 767) governed by the International Air Transport Association (IATA).	AIXM 5.1 Core	X	World Wide	
		Other	A locally defined airport identifier, if other than an ICAO Location Indicator.	AIXM 5.1 Core	X	World Wide	
	Name		The primary official name of an aerodrome as designated by an appropriate authority.	AIXM 5.1 Core	X	World Wide	
	Type		A code specifying the type of aerodrome. For example, aerodrome only, combined aerodrome/heliport or simple landing site.	AIXM 5.1 Core	X	World Wide	
	Served City (Location)		The full name (free text) of the city or town the aerodrome/heliport is serving.	AIXM 5.1 Core	X	World Wide	
	Type of Traffic Permitted		Type of traffic permitted to use the aerodrome/heliport.				
		International/National	Indication if international and/or national flights are permitted at the aerodrome/heliport.	AIXM 5.1 Core	X	NM Area+ ECAC+	
		IFR/VFR	Indication if IFR and/or VFR flights are permitted at the aerodrome/heliport.	AIXM 5.1 Core	X	NM Area+ ECAC+	
		Scheduled/Non-Scheduled	Indication if scheduled and/or nonscheduled flights are permitted at the aerodrome/heliport.	AIXM 5.1 Core	X	NM Area+ ECAC+	
		Civil/Military	Indication if civil commercial aviation and/or general aviation and/or mil. flights are permitted at the aerodrome/heliport.	AIXM 5.1 Core	X	NM Area+ ECAC+	
		Restricted Use	Indication if an aerodrome or heliport not open for the public (Only for the use of the owners).	AIXM 5.1 Core	X	NM Area+ ECAC+	
	Heliport Type		The type of the heliport as mention in Annex 14 Volume II (Surface-level, elevated, shipboard or helideck).	AIXM 5.1 Core	X	World Wide	
	Certified ICAO		Indicating that the Aerodrome is certified according to the ICAO rules (YES/NO).	AIXM 5.1 Core		ECAC	
	Certification Date		The date when the Aerodrome certification has been issued by the supervising authority.	AIXM 5.1 Core		ECAC	
	Certification Expiration Date		The date when the Aerodrome certification will become invalid.	AIXM 5.1 Core		ECAC	
	Control Type		Indication if an aerodrome is under civil control, military control or joint control.	AIXM 5.1 Core	X	NM Area+ECAC	
	Field Elevation		The vertical distance above Mean Sea Level (MSL) of the highest point of the landing area.				
		Elevation	The value of the aerodrome elevation. The vertical distance to the highest point on the landing area of the aerodrome from	AIXM 5.1 Core	X	NM Area+ ECAC+	

Full Alignment with ICAO PANS AIM

Additional Data Sets

Catalog Description | **AERODROME_HELIPORT** | AIRSPACE | ROUTE | PROCEDURE | NAVAID | GEO-OBJECT | SERVICE | SURVEILLANCE | EVENT | ACFT

Evolution with eEAD - Challenge

Currently strong link between exchange model (AIXM) version and the internal database structure

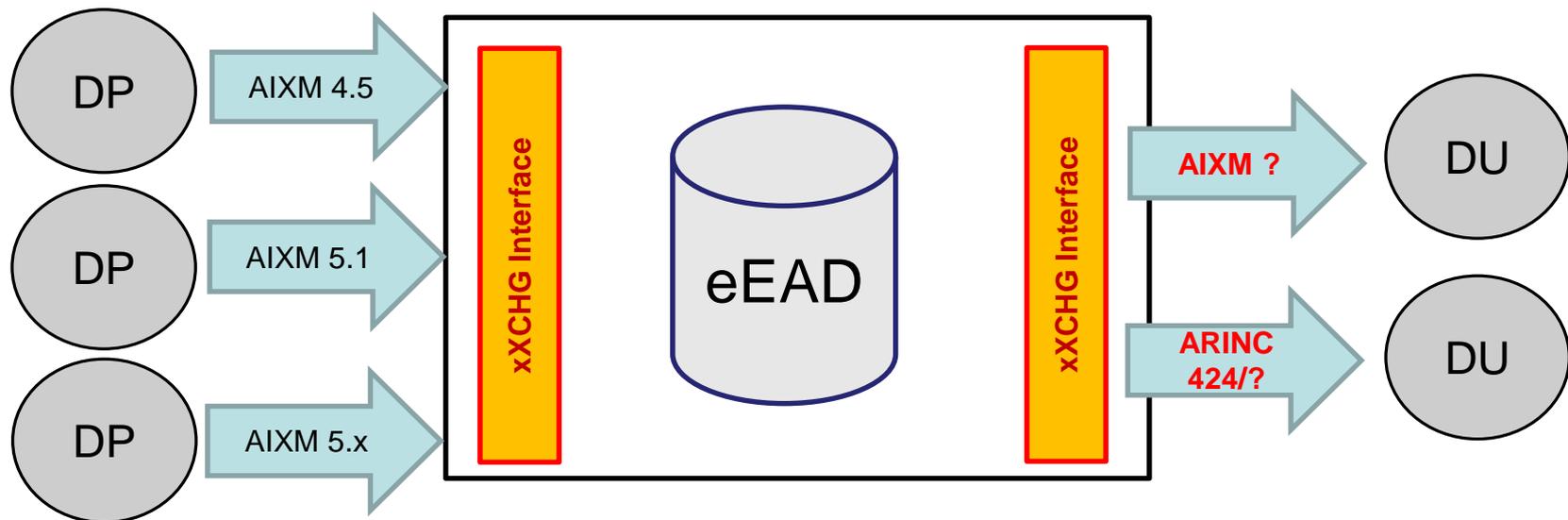⇨ Limits the evolution capabilities

eEAD
- **AIXM ?**

EAD:
- **AIXM 4.5 & 5.1 Databases**
- **AIXM 4.5 & 5.1 XCHG Formats**
- **ARINC 424 export**
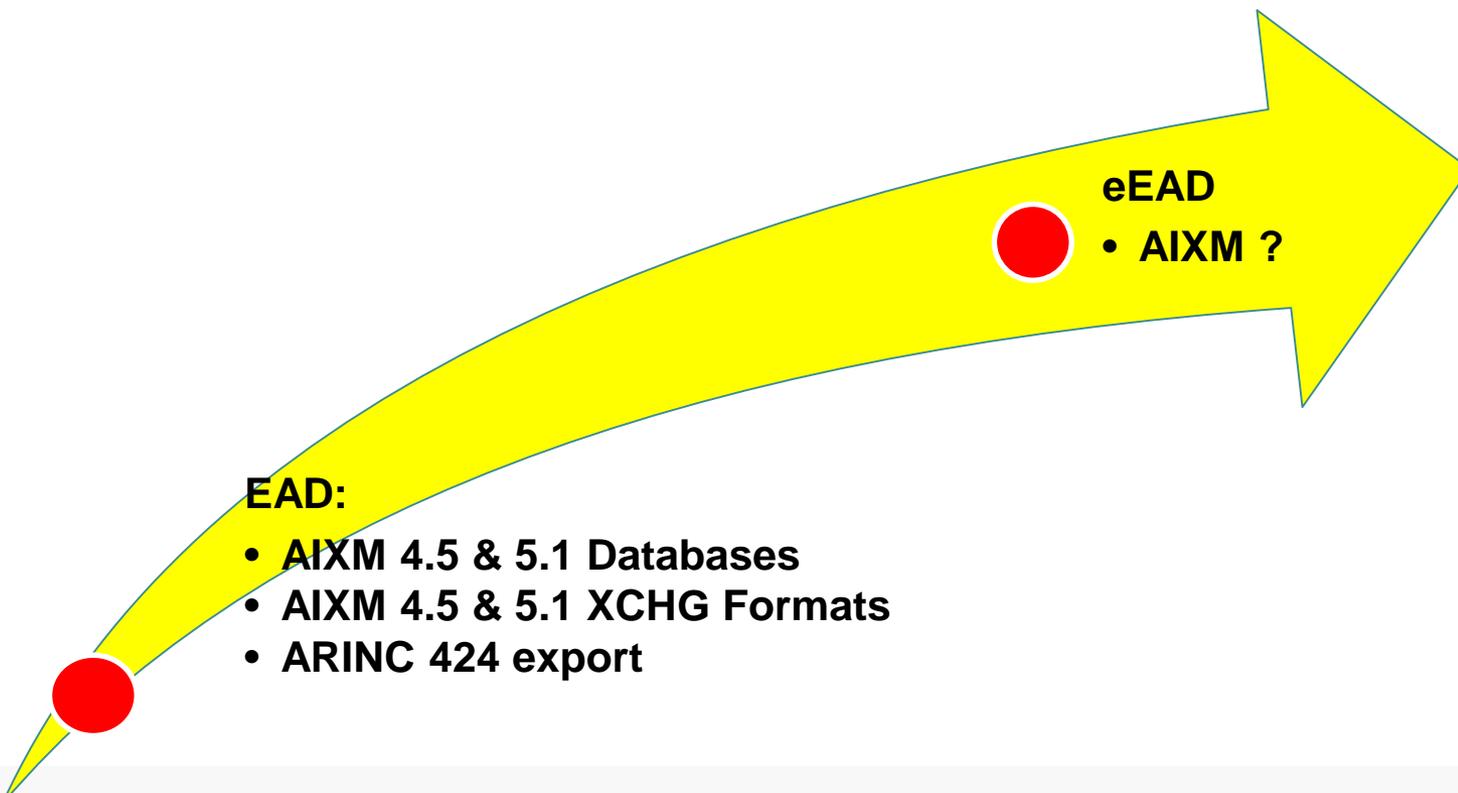
Evolution with eEAD – Potential Way Forward

Decouple database model from exchange format

⇨ More flexibility in data exchange

⇨ Facilitate the catalogue development

⇨ Response to EASA finding

Evolution with eEAD – Potential Way Forward

Decouple database model from exchange format

1. Start from EAD Data Catalogue

2. Map with desired exchange models (reflecting the operational reality)

3. Develop database with new catalogue

4. Develop appropriate Xchange interfaces

⇨ Data Catalogue stays the reference for the data scope of the system

⇨ Data Catalogue evolution triggers the evolution of the system

Conclusion

EAD Data Catalogue

➢ Alignment with ICAO Annex 15 requirements ongoing

➢ Transitioning to PANS AIM and new Annex 15 ongoing

➢ Meets European Regulations

➢ Recurring alignment with operational requirements