IDS AIM Suite

AIS Today

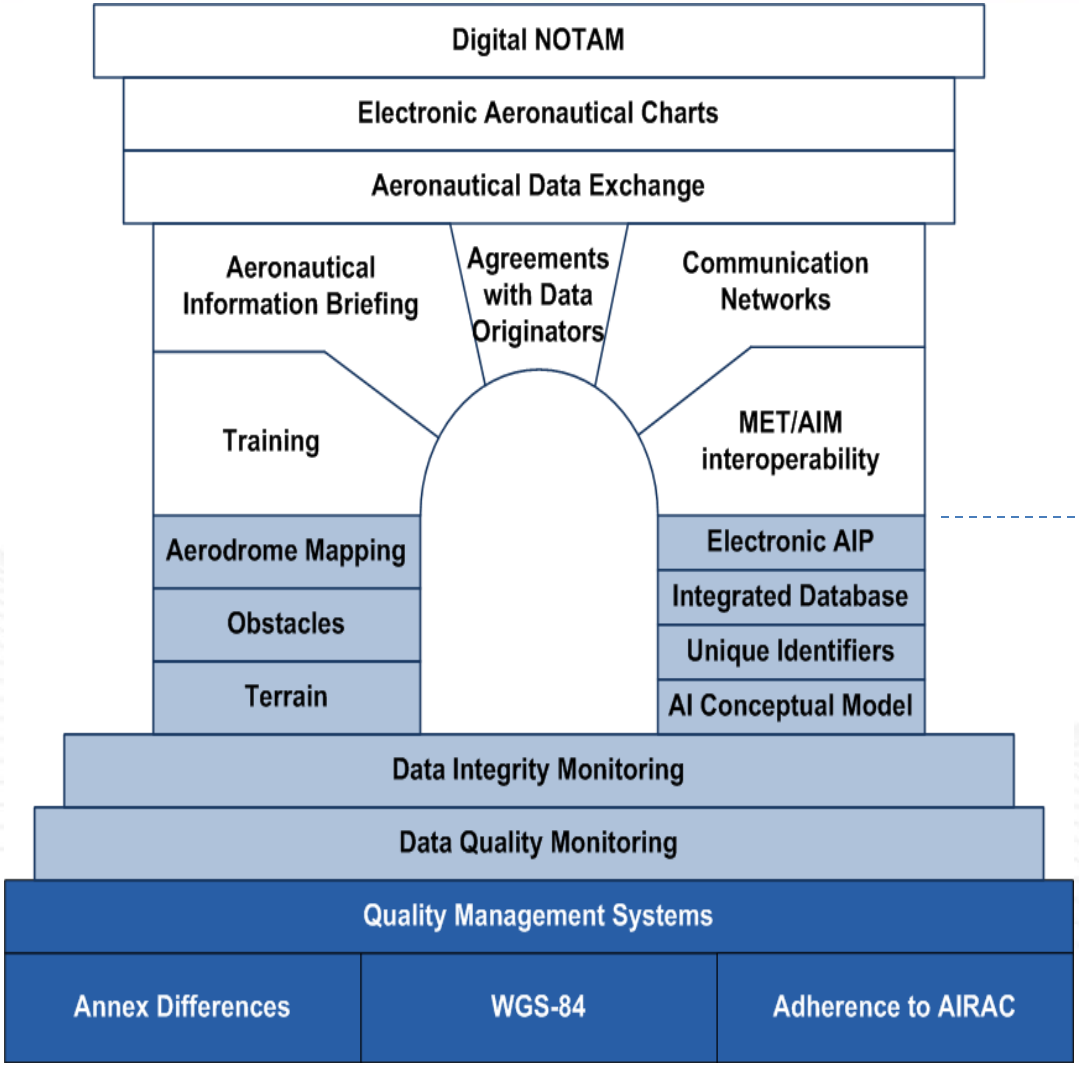
- What about today's distributed AIS information (mainly AIP and NOTAM)?

- Aeronautical Info distribution based on:
  - paper charts
  - paper documentation & DVD
  - telex – based messages

```
A3322/06 NOTAMN
Q)LIXX/QXXXX/IV/M/E/000/999/400
7N01358E330
A)LIMM LIRR LIBB
B)0607092045 C)0607092115
E)SPECIAL NOTICE: GERMANY 2006
FIFA WORLD CUP -
WINNER :  ITALY
CAMPIONI DEL MONDO
CHAMPIONS OF THE WORLD
MEISTER DER WELT
CHAMPIONS DU MONDE
CAMPEONES DEL MUNDO
CAMPE/ES DO MUNDO
MESTERE AV VERDENEN
KAMPIOENEN VAN DE WERELD
```

- Systems exist in isolation
  - much of the data is entered more than once
  - different computers
  - Little use of Services

ICAO's 21 Steps to AIM



Phase 3: Information Management

- WP-09 Aeronautical Data Exchange
- WP-10 Communications Networks
- WP-12 Aeronautical Information Briefing
- WP-16 Training
- WP-18 Agreement with Data Originator
- WP-19 Interoperability with Meteorological Products
- WP-20 Electronic Aeronautical Charts
- WP-21 Digital NOTAM

Phase 2: Going Digital

- WP-01 Data quality
- WP-02 Data integrity
- WP-06 Integrated Aeronautical Database
- WP-07 Unique Identifiers
- WP-08 AICM
- WP-11 eAIP
- WP-13 Terrain
- WP-14 Obstacles
- WP-15 Aerodrome Mapping

Phase 1: Consolidation

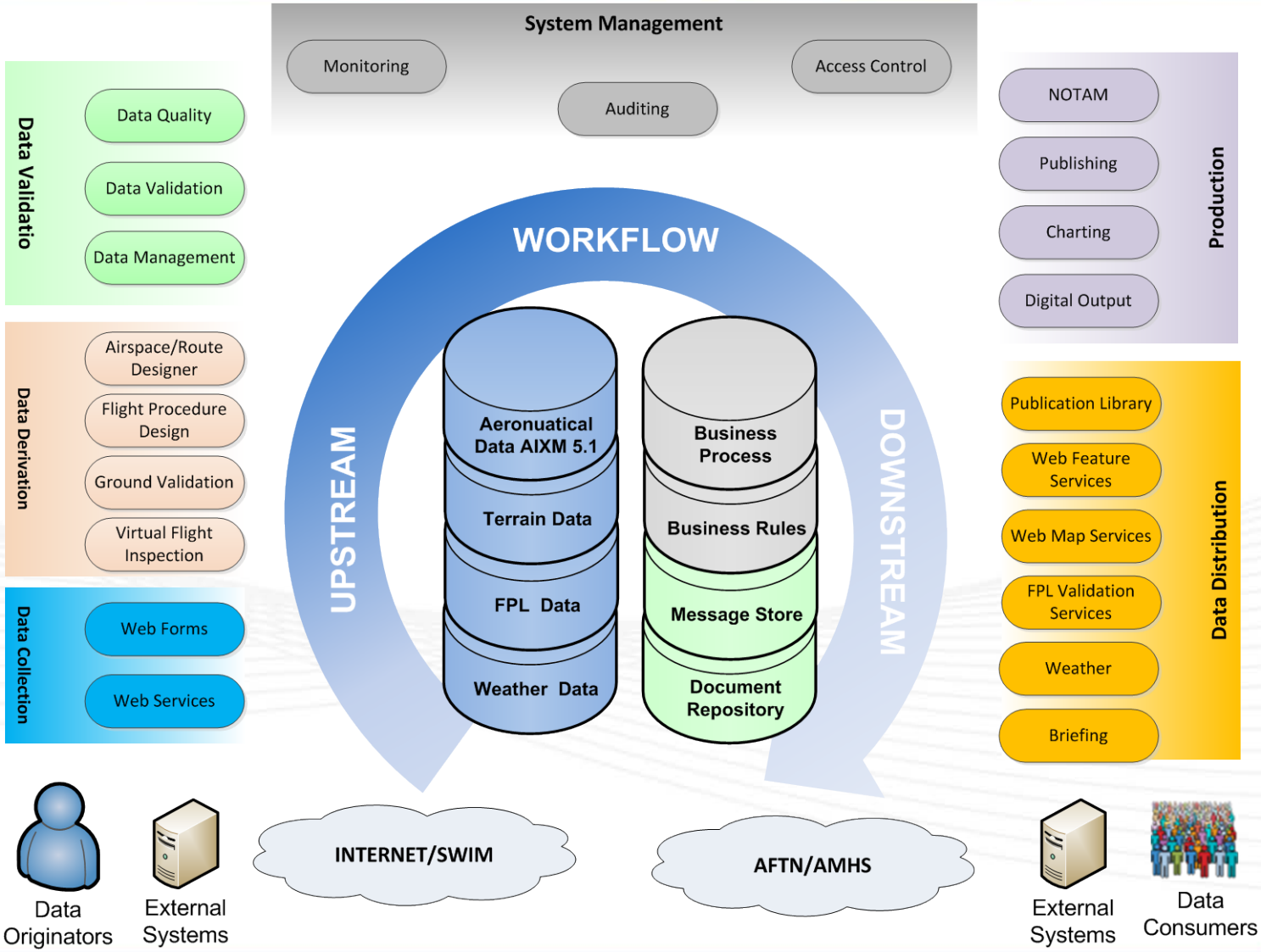
- WP-03 Airac adherence
- WP-04 Monitoring differences in Annex 4 and 15
- WP-05 WGS-84
- WP-17 Quality

IDS AIM Suite

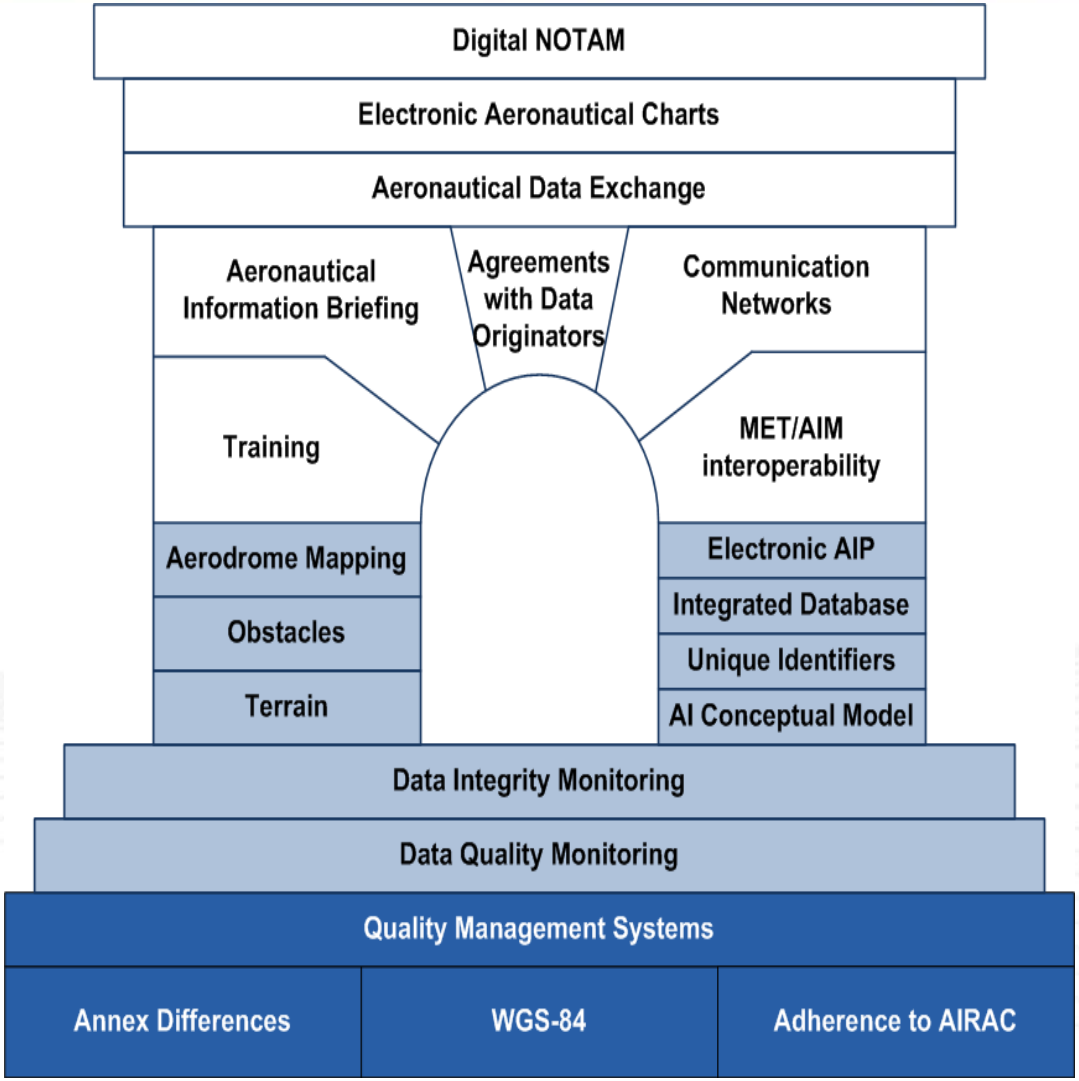
*IDS provides an **Integrated Suite** of SW Products to different kind of AIM organizations including:*

- ***Civil ANSP** (Air Navigation Service Providers)*
- ***CAA** (Civil Aviation Authorities)*
- ***Air Force***
- ***Airport Operators***

Functional Architecture



IDS Offering Mapped to ICAO



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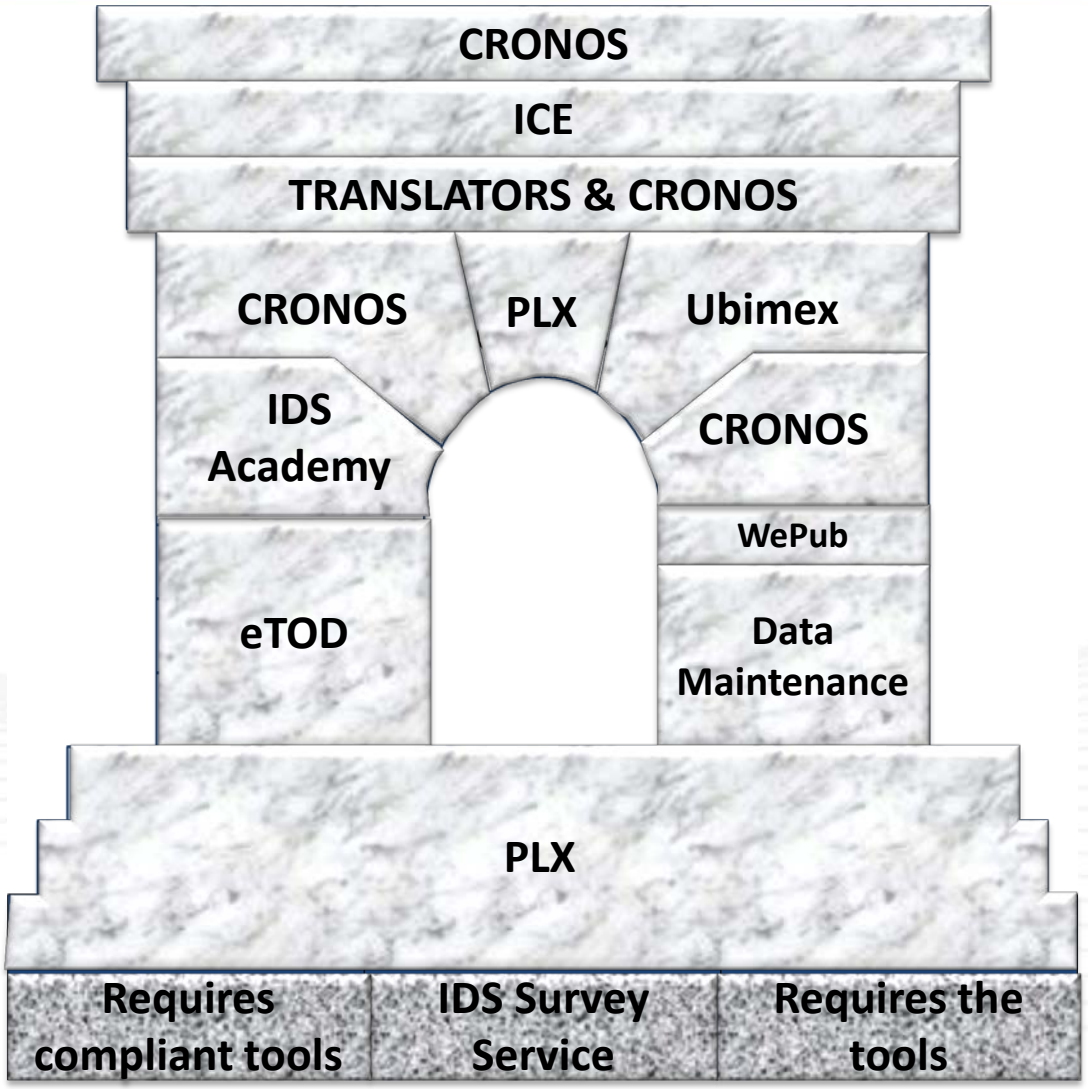


Key Design Aspects

Data Centric: *all application share the same data stored in a central Aeronautical Database (AeroDB)*

- ***Highly Configurable:*** *administration and configuration functions are provided to address customer specific needs*

- ***Modular:*** *the different modules can be implemented separately allowing a phased implementation approach*

- ***Interoperable****: both Standard and Custom interfaces are supported to allow interoperability with external systems*

Regulations & Standards

ICAO

- Annex 3 Meteorological Service for International Air Navigation
- Annex 4 Aeronautical Charts
- Annex 14 Aerodromes
- Annex 15 Aeronautical Information Services
- Doc 8697 Aeronautical Chart Manual (specimen Charts)
- Doc 8126 Aeronautical Information Services Manual (specimen AIP)
- Doc 8168 Pans Ops
- ICAO AIS to AIM Roadmap
- SWIM System Wide Information Manegement

RTCA

- RTCA DO-200A Standards for Processing Aeronautical Data
- RTCA DO-201A Standards for Aeronautical Information

EU

- EU 552/2004 Interoperability Regulation
- EU 73/2010 ADQ Aeronautical Data Quality
- EU 139/2014 ADR Airport Design and Certification

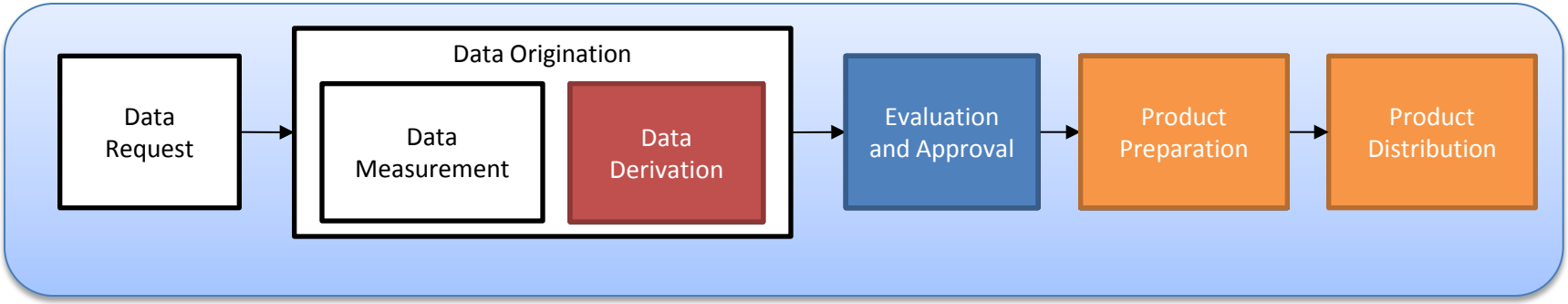
Eurocontrol

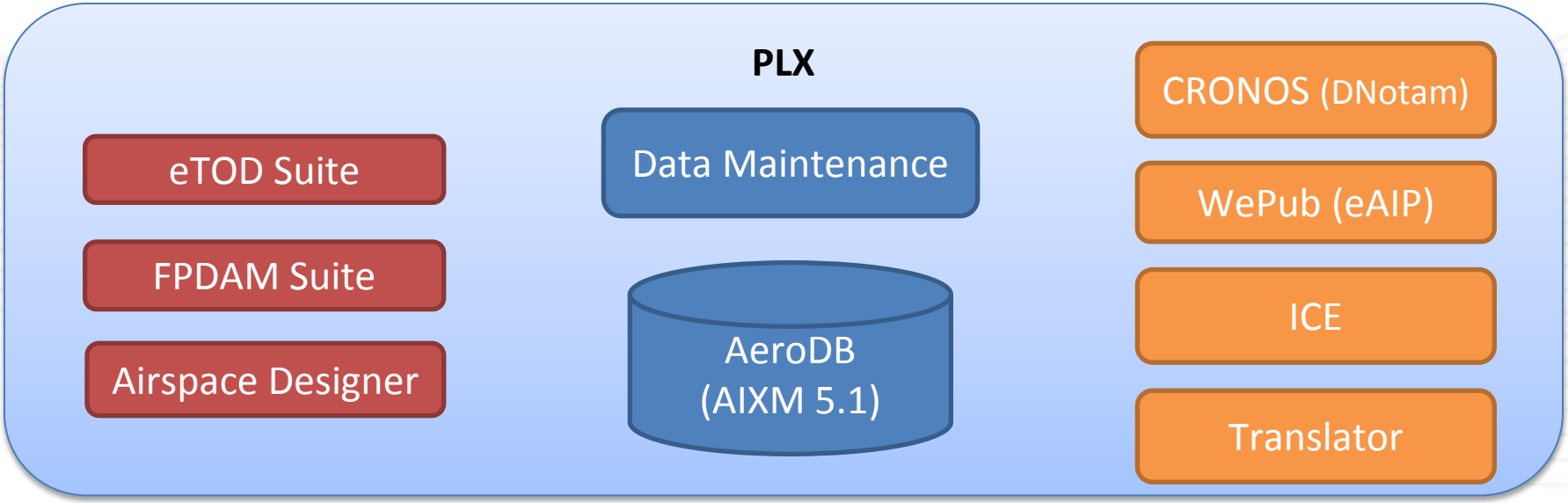
- ECTL eAIP Specification v. 2.1
- Aeronautical Information Exchange Model (AIXM) version 4.5 and 5.1

EUROCAE

- ED-99A, User Requirements for Aerodrome Mapping Information
- ED-153 : Guidelines for ANS Software Safety Assurance

IDS AIM Suite vs ADQ



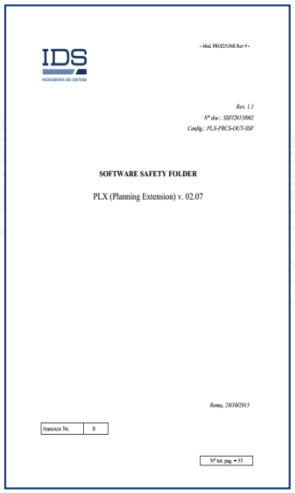


SoftWare Assurance Level (SWAL)

IDS products are devoleped in compliance with EUROCAE ED 153 (SWAL 4).
IDS will release documentation for **SWAL 3** compliance form 2017

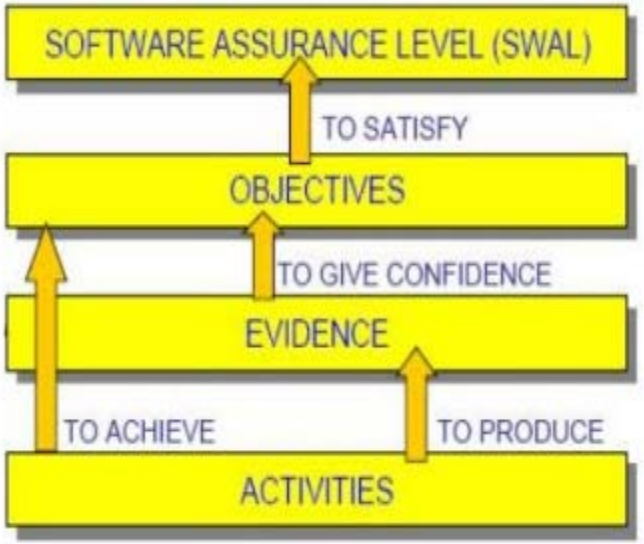
Each product relaease is accompaigned by:

- Declaration of Suitability for Use (**DSU**)
- Software Safety Folder (**SSF**)


IDS

SOFTWARE SAFETY FOLDER

PLX (Planning Extension) v. 02.07



Benefits

- ***Wide Customer Basis:*** *the IDS AIM Suite is used in operation by more than 70 ANSPs/CAA/APT*

- ***Complete Integrated AIM Solution:*** *the IDS AIM Suite covers all the key AIM aspects with a set of fully integrated and interoperable modules*

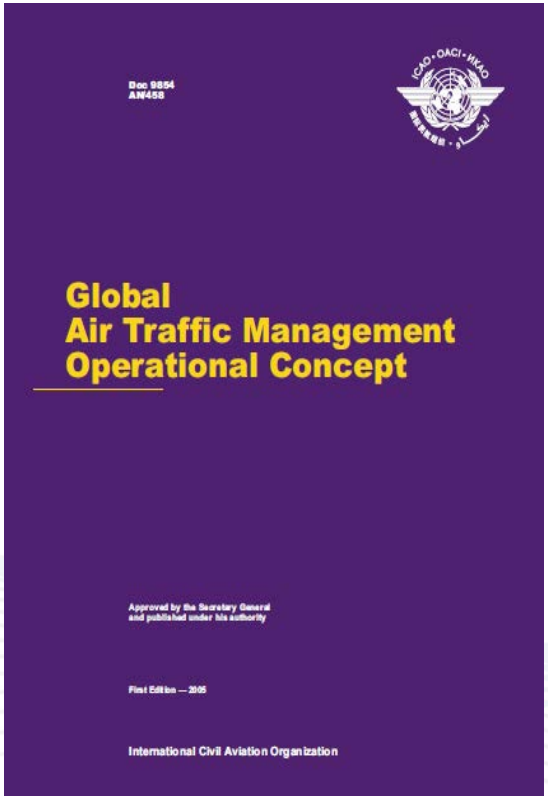
- ***Standards Compliance:*** *the IDS AIM Suite complies with the main Aeronautical Regulations and Standard*

- ***Modularity:*** *the IDS AIM Suite has a modular architecture and can be implemented in phases according to the specific organization needs.*

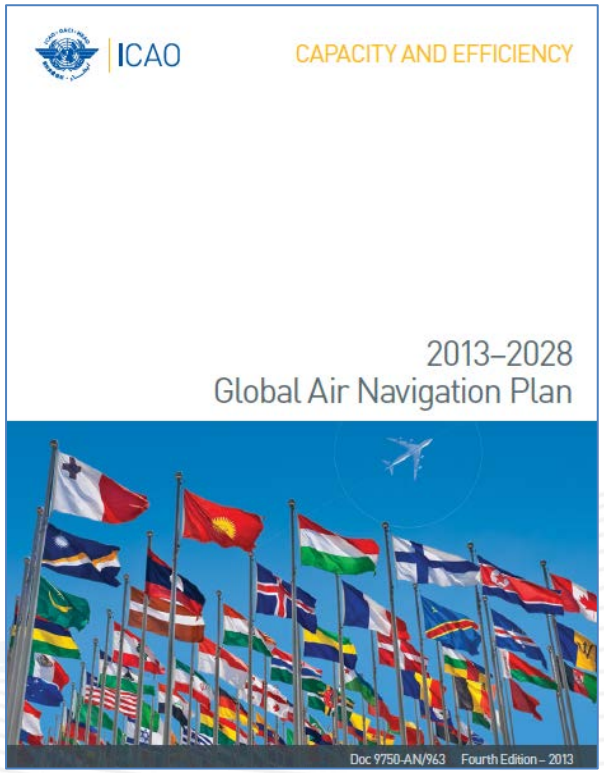
- ***Flexibility:*** *the IDS AIM Suite provides powerful configuration functions that allow to adapt to the specific organization needs.*

Evolution Roadmap

ATM Evolution Plan



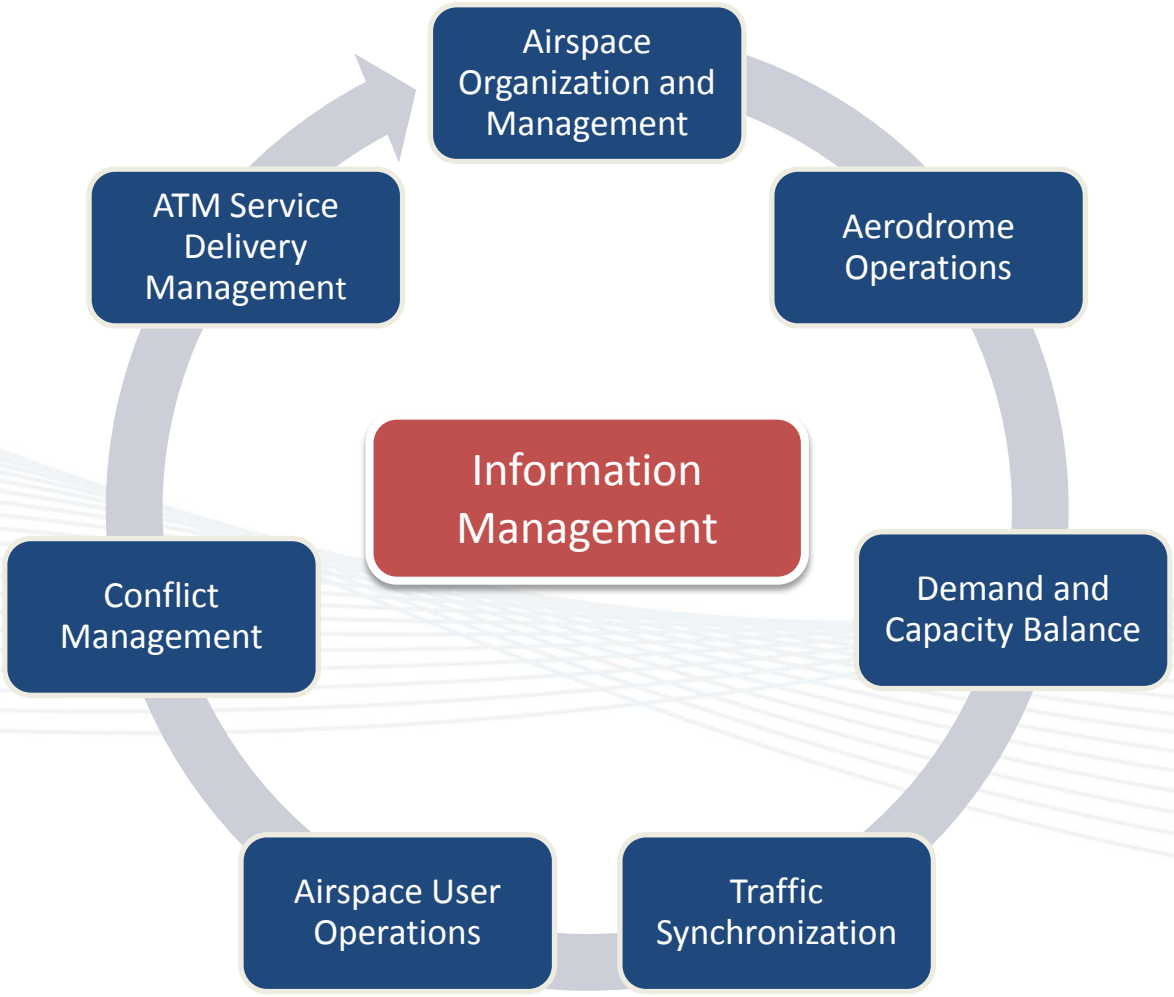
WHAT



HOW & WHEN

Global ATM Op. Concept

ICAO Doc 9854



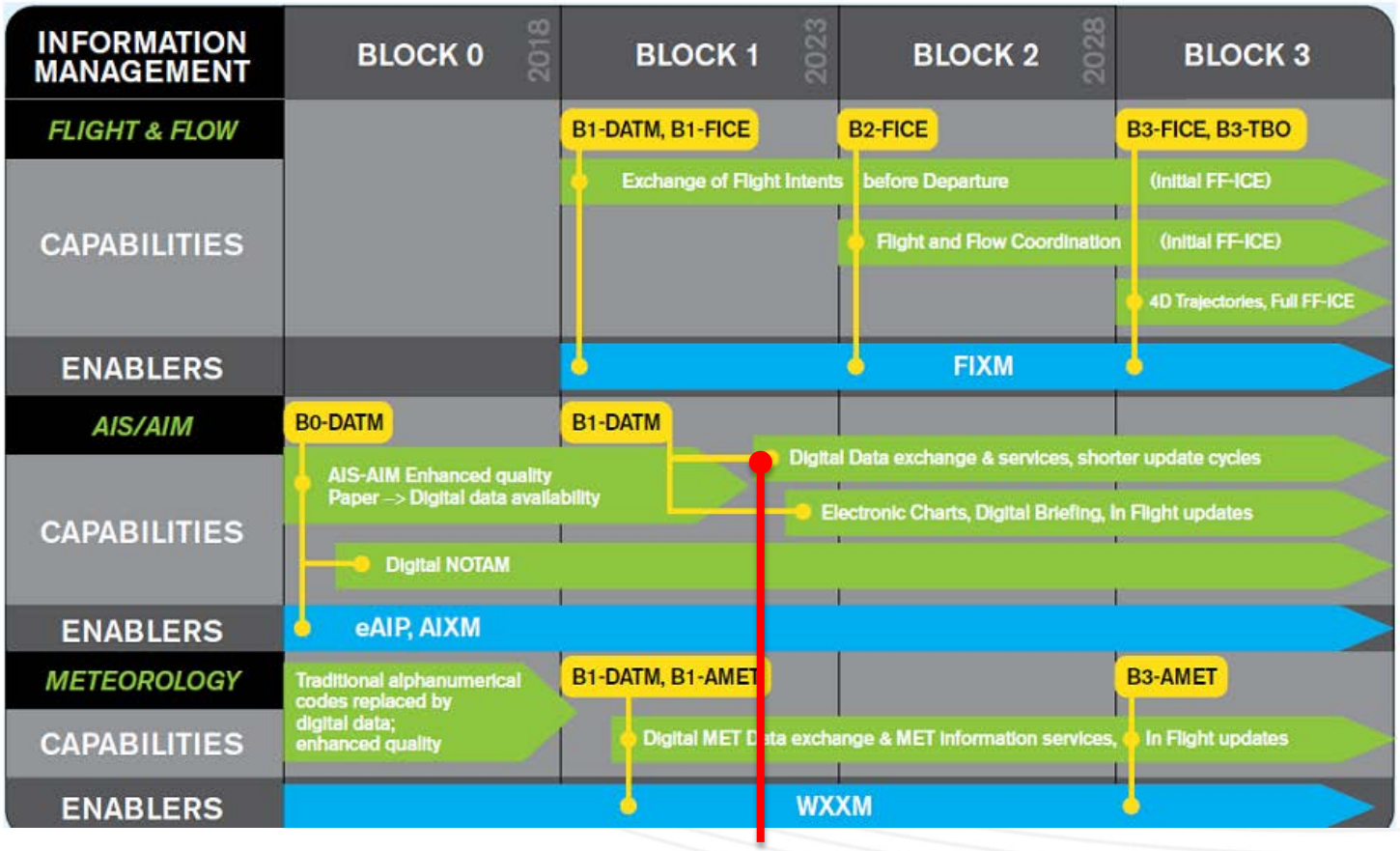
IM provides **accredited**, **quality-assured** and **timely** information used to support ATM operations

IM will assemble **historical**, **real-time** and **planned** or **foreseen** future state of the ATM situation.

IM will provide the basis for improved **decision making** by all ATM community members.

Key to the concept will be the management of an **information-rich** environment.

Technology Roadmap

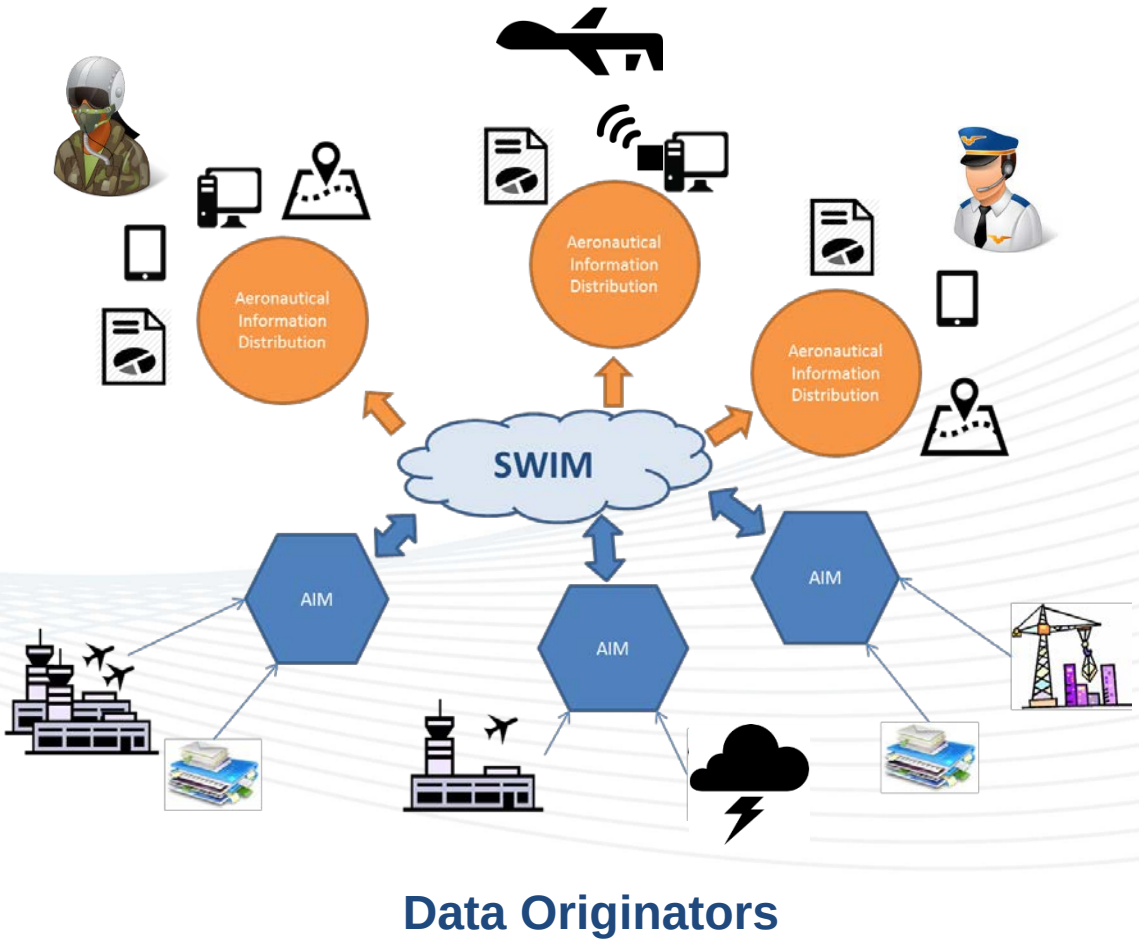


From AIRAC to Real Time Data Exchange

Any valid and relevant information shall be made available as soon as it becomes available

Operative Scenario

- Data Originators will produce **distributed digital data** sources.
- Data Consumers will request **integrated information** easily accessible and **up to date**
- Separation between:
  - AIM responsible to **integrate data** and make it available in **real time**
  - Information Distributors responsible to **format data** make them **easily accessible** to end users



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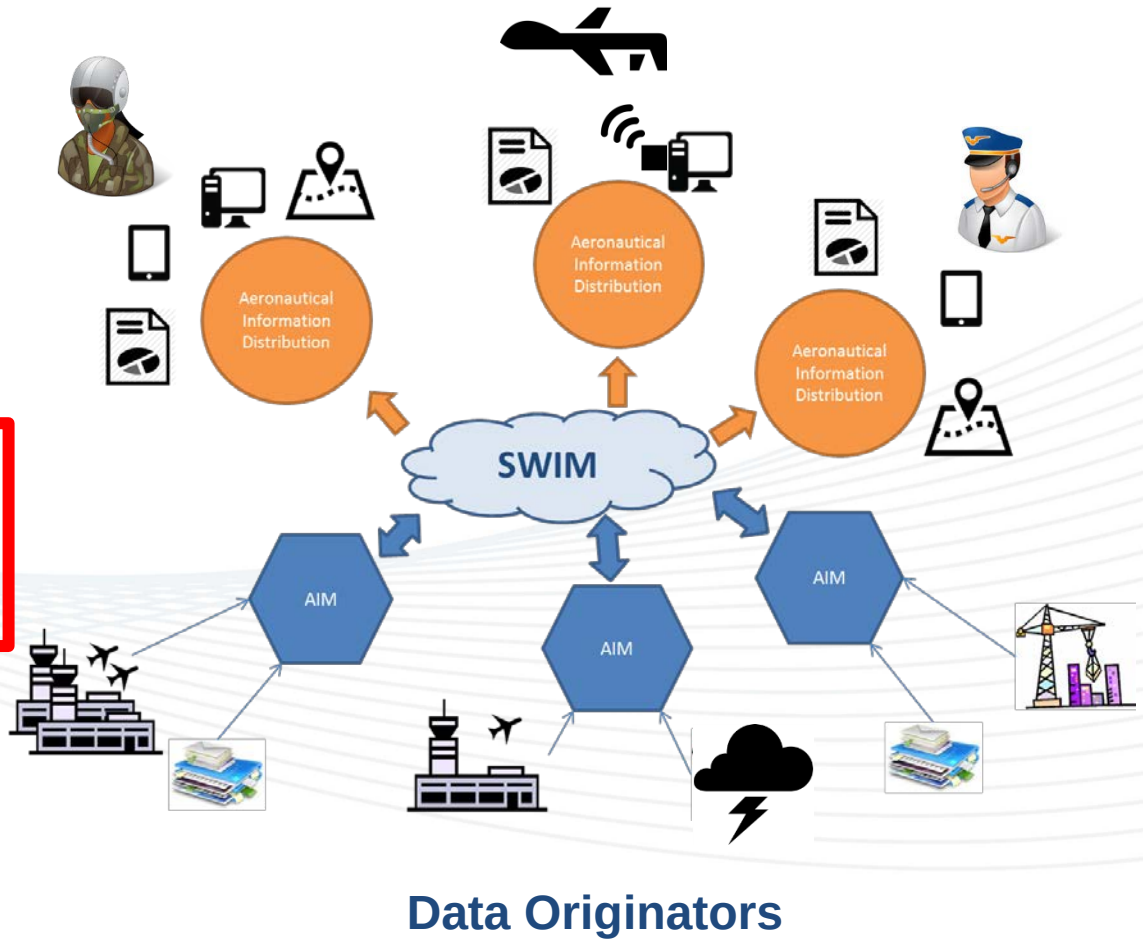


Data Integration – As Is

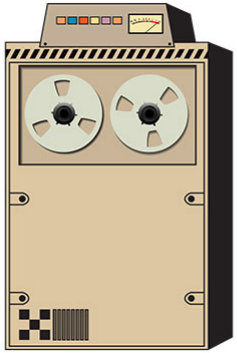
Manual

Custom Adapters

- Low Reuse (High Costs)
- Bad Quality
- No Traceability

Standards help...

… but are not enough

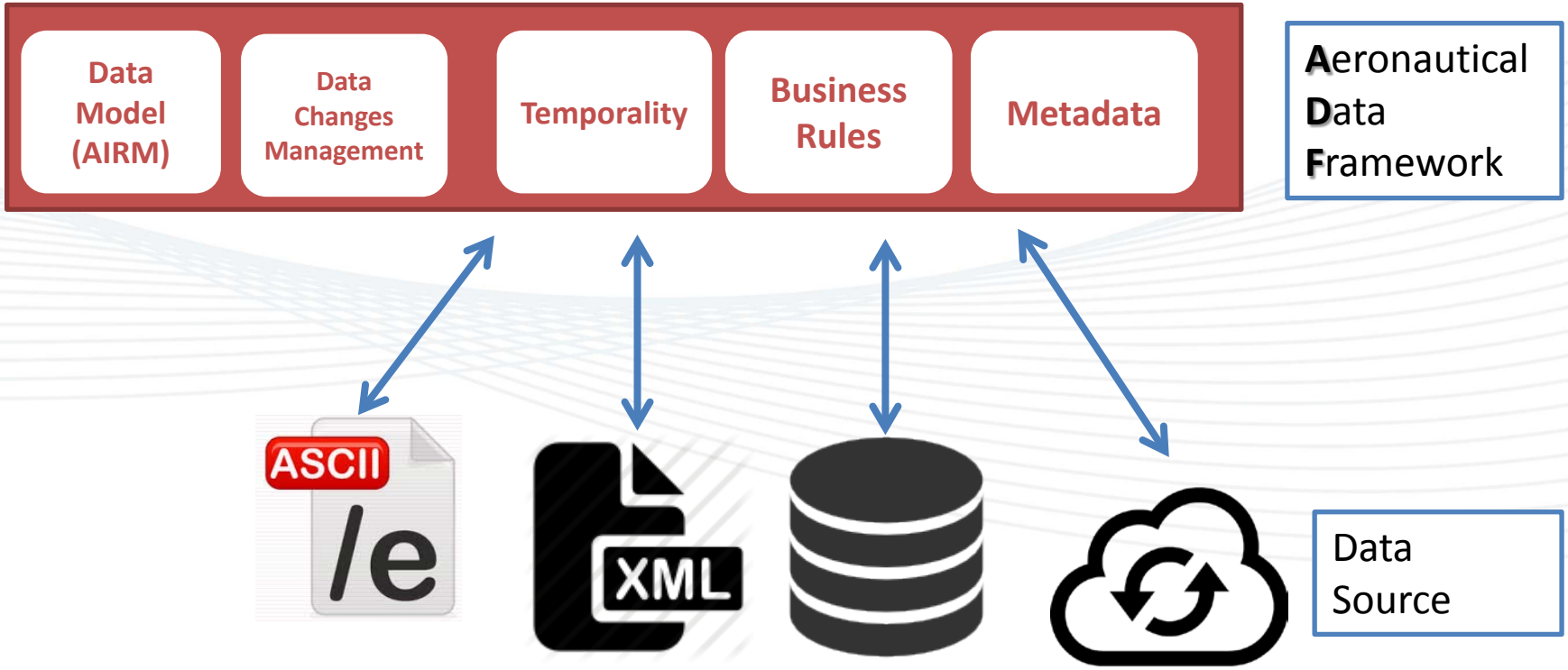


Legacy Systems

Not Harmonized
Data Sets

IDS Solution

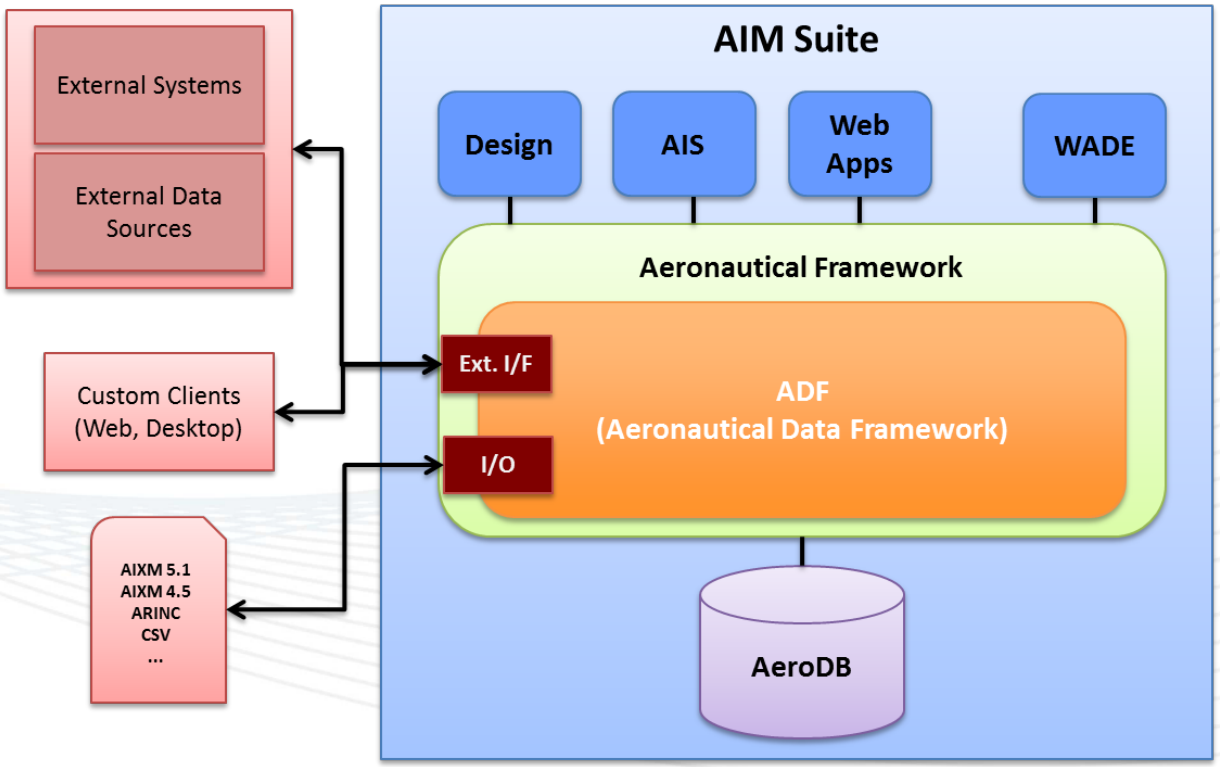
***Scope**: Integrate data coming from multiple, distributed, not harmonized data sources to provide an integrated and updated view of aeronautical information in real time*



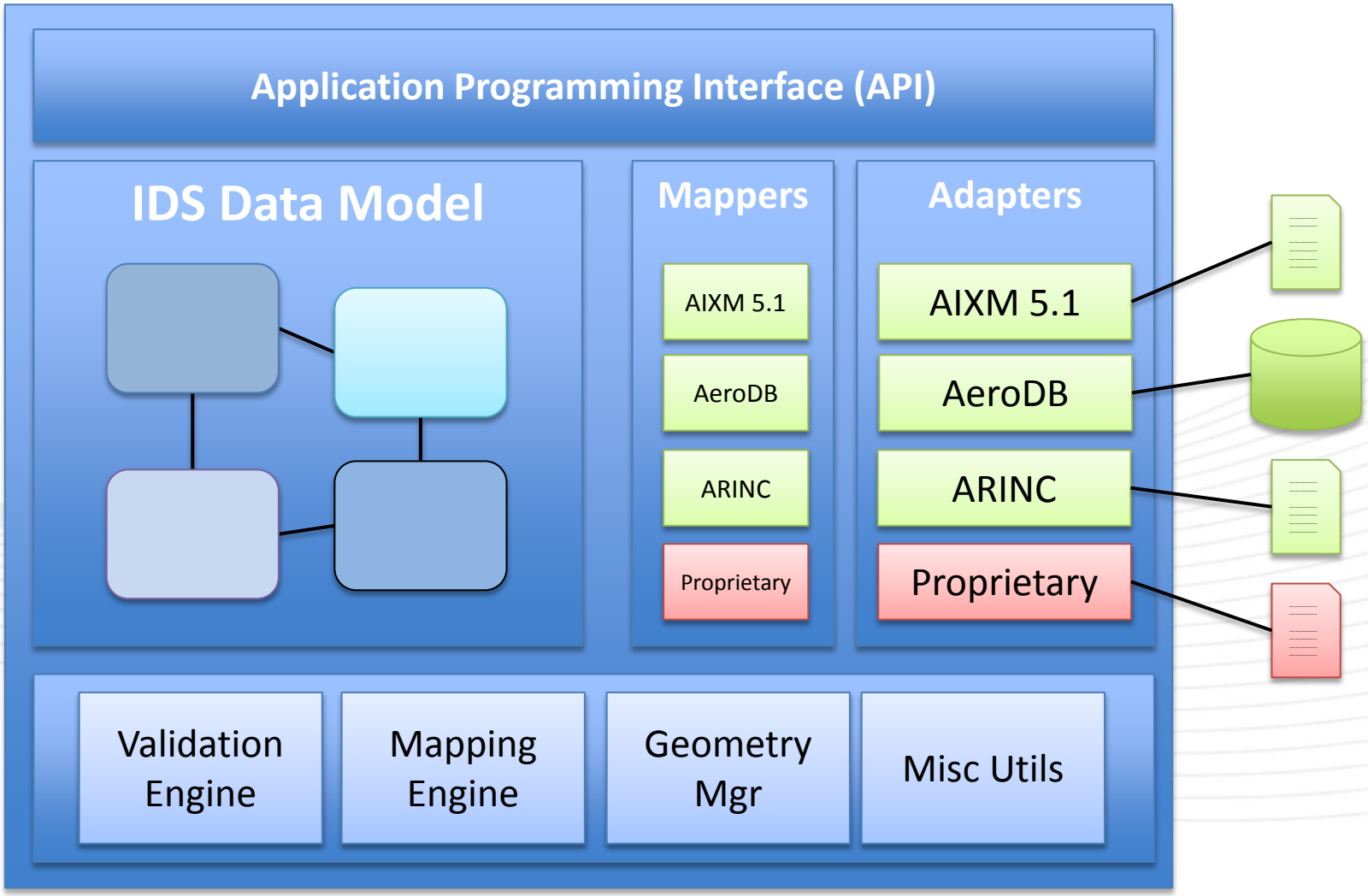
Aeronautical Data Framework
Overview

➢ **ADF (Aeronautical Data Framework)** is a major component within the Aeronautical Framework

- ✓ Provides **data management** functionalities to products
- ✓ Allows to **interoperate** with third-parties systems
  - ❑ Integration of different data sources
  - ❑ Data provisioning to external systems
- ✓ Enables data distribution **on-demand** (not necessarily based on AIRAC cycle)



Aeronautical Data Framework
Internal Structure



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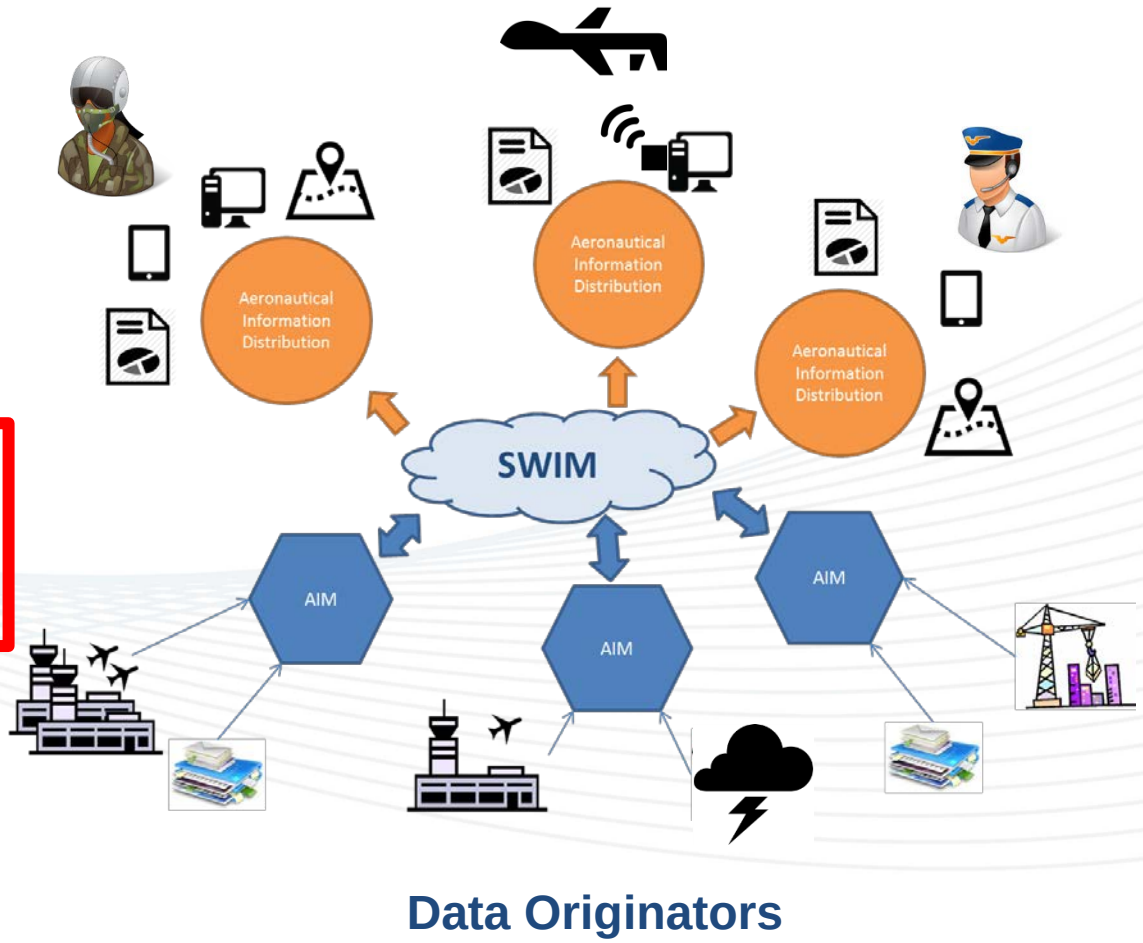
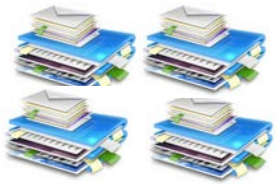


Shorter Update Cycle

AIM

From **Products** to **Data** Distribution

From **AIRAC Based** Data Management + NOTAMs



Collection → Analysis → Validation → Publication

To **Real Time** Data Management

WADE

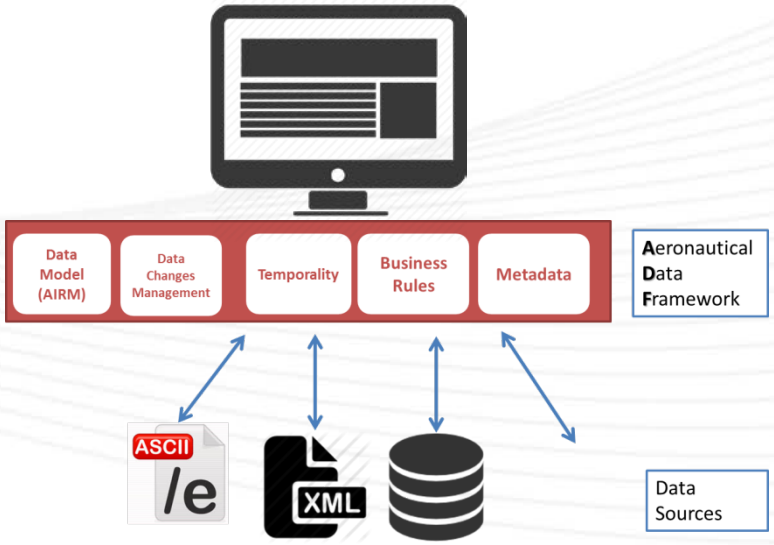
- **Web Based**
  - Simplified Deployment
  - Distributed Access
- **Automated Validation\Correction**
  - Reduced Operator Workload
  - Reduced Human Error Risk
- **Usability**
  - GUI based on standard data models
  - Reduced training requirements
- **Integration**
  - Built on top of ADF
- **Advanced Temporality Concept**
  - Ready for Real Time data Exchange
- **Modularity**
  - Multiple Interfcae Modules
  - Configuration Tailored on the Specific User Needs

AIXM View

Special Interfaces (Airspace, Routes,...)

MAP View

AIP View



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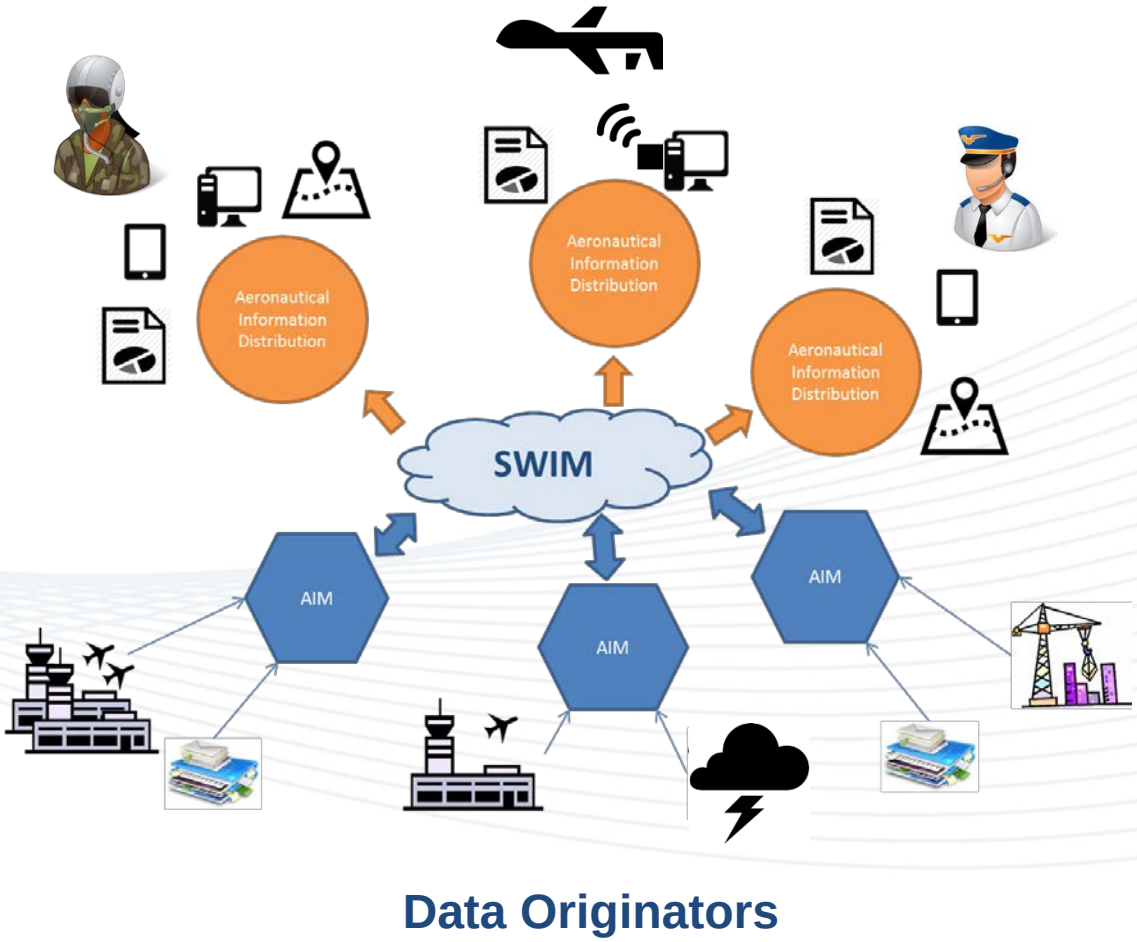

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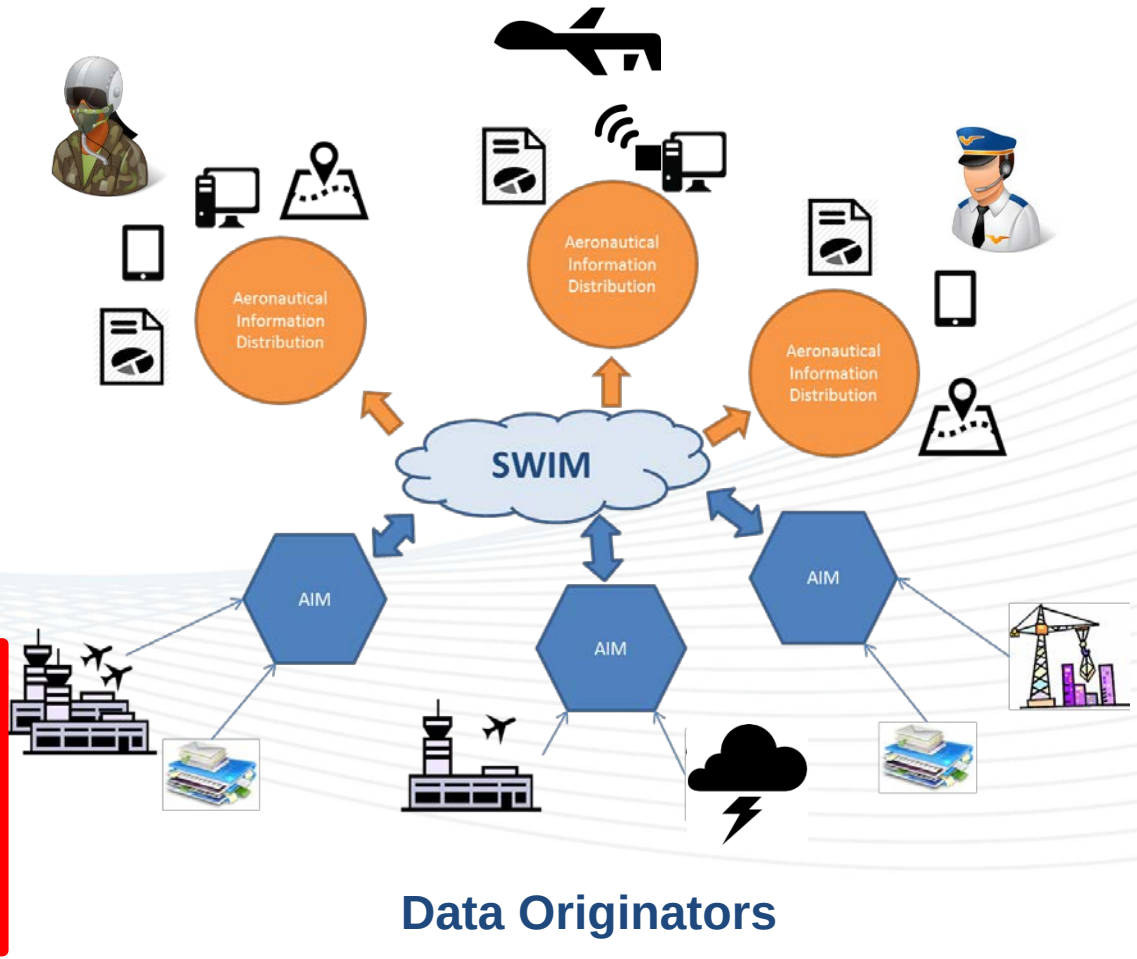
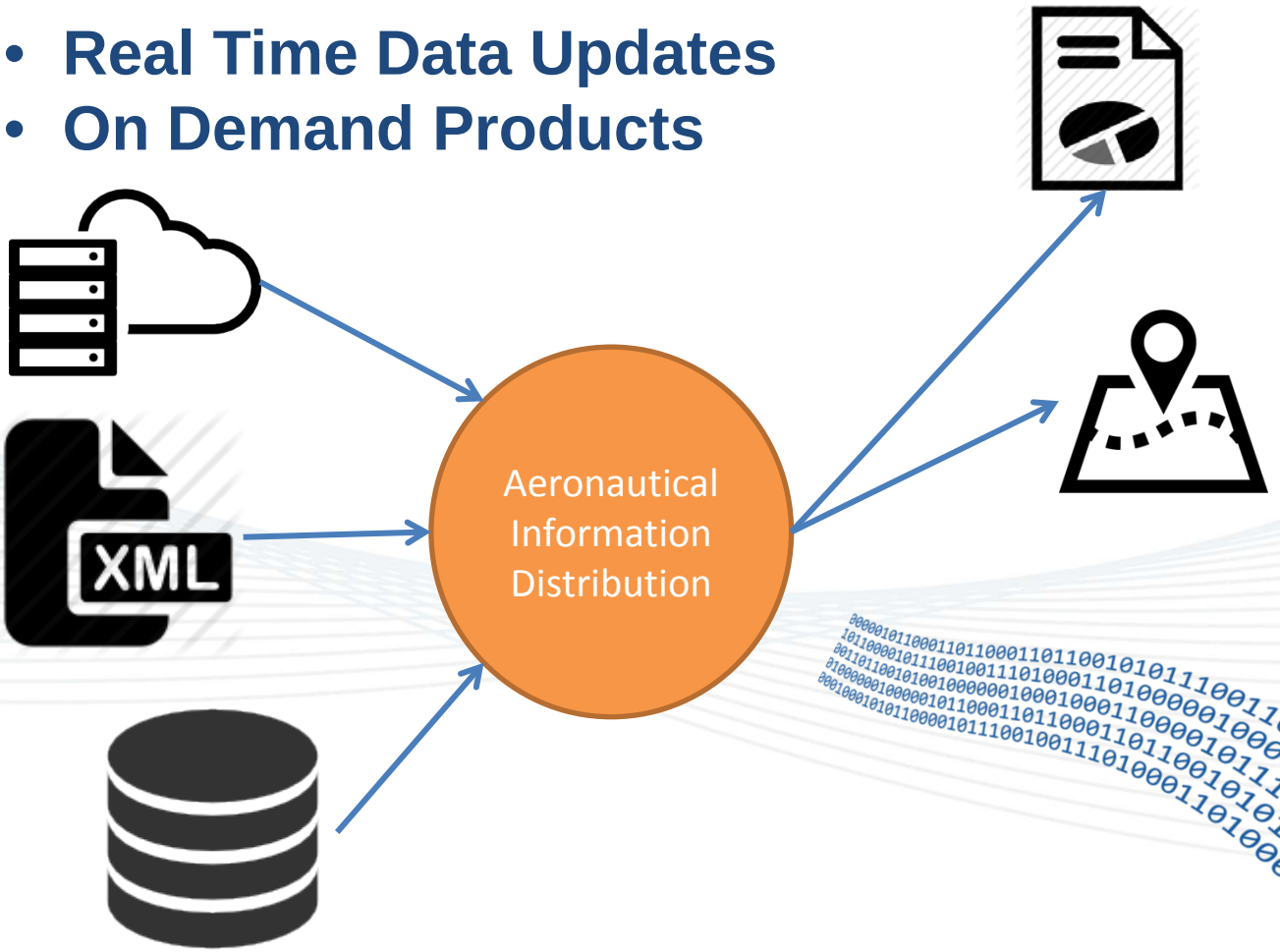


Aeronautical Information Distribution Evolution

- Distributed Data Sources
- Real Time Data Updates
- On Demand Products



Human Users

Systems

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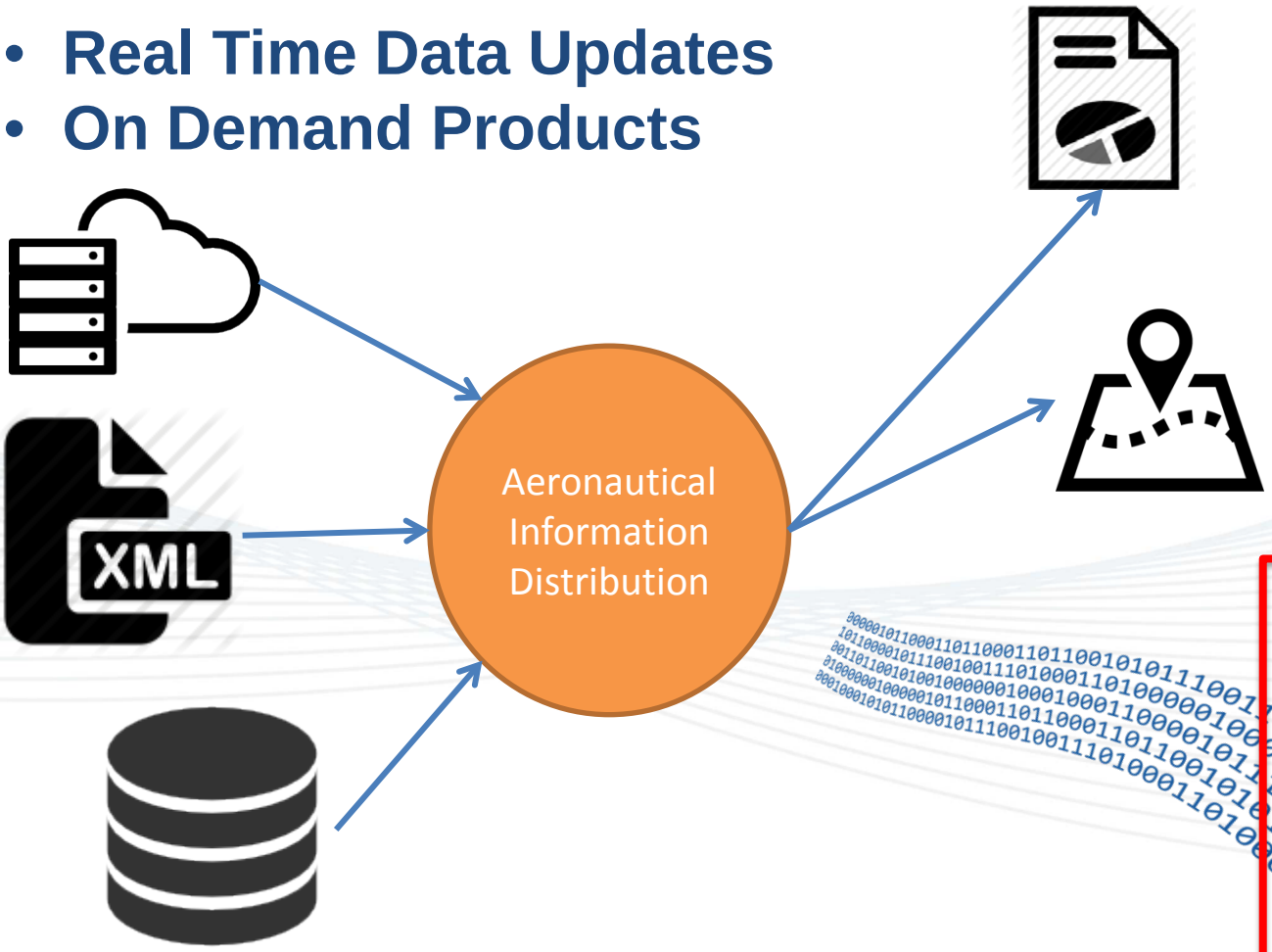
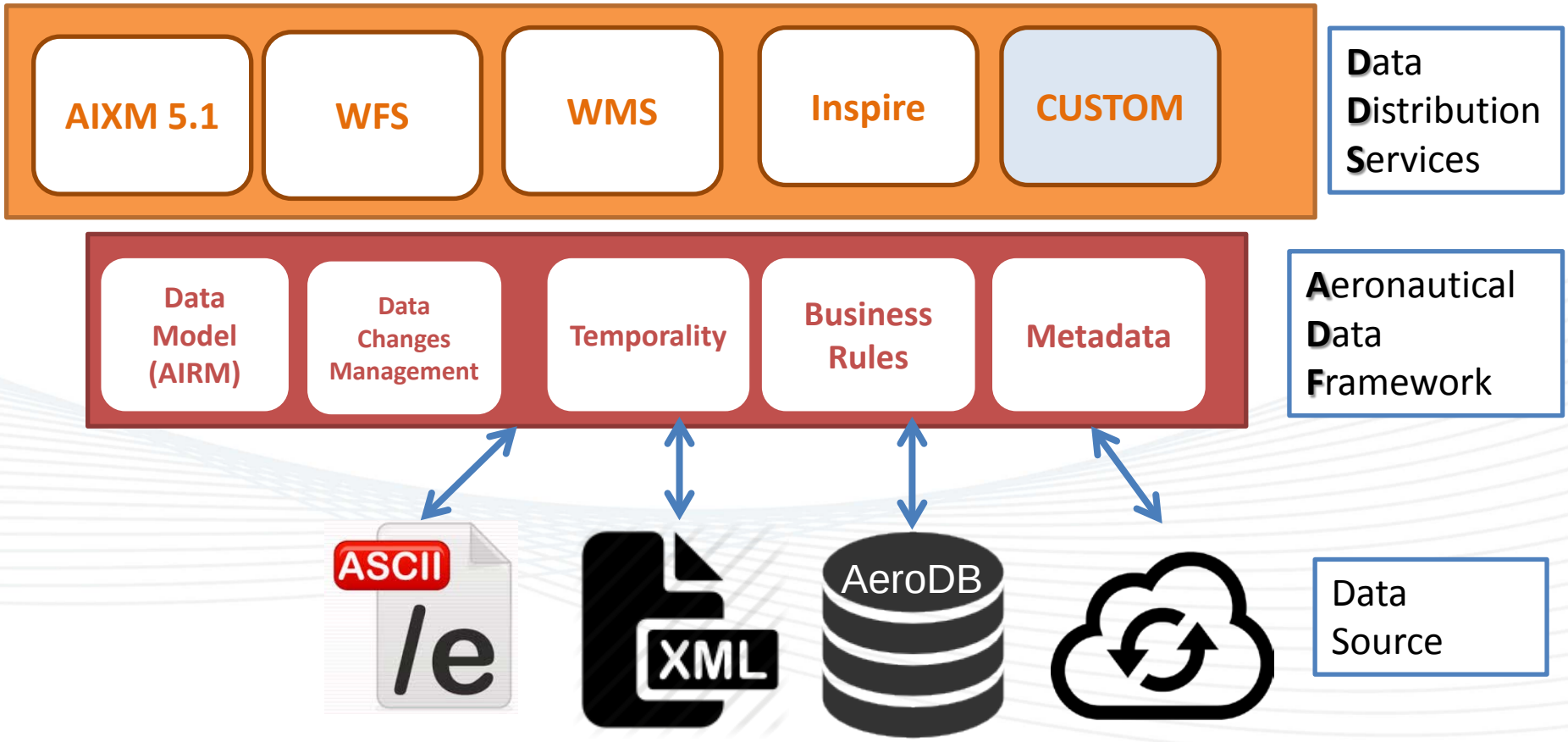
- On Demand Products



Human Users

Systems

Data Distribution Services



Planned Release Q1 2018

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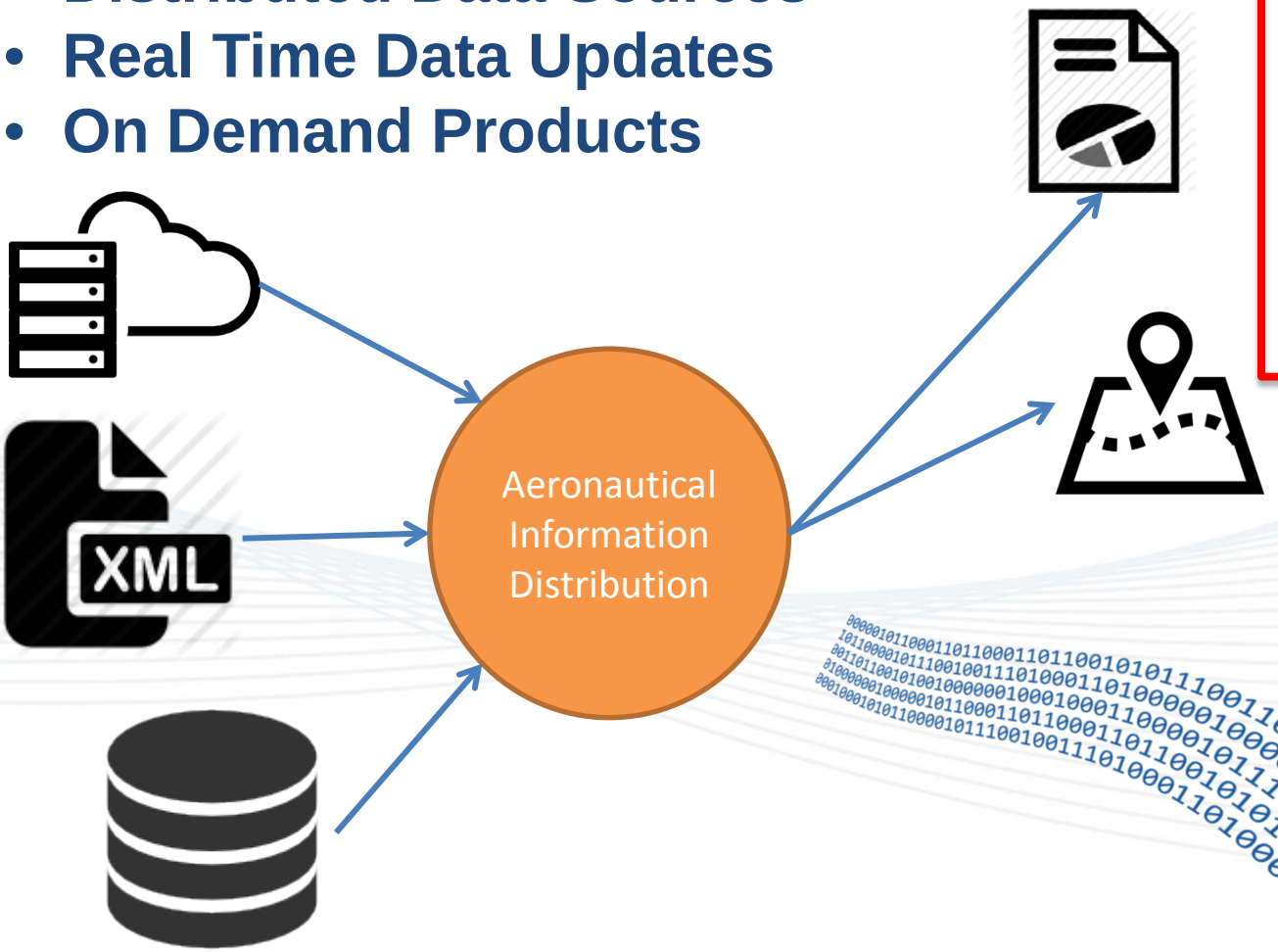
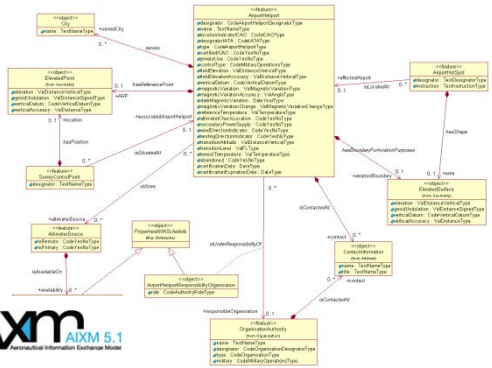
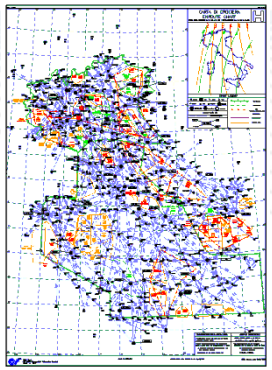
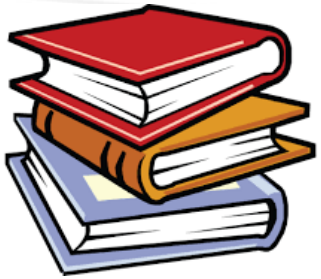


Data Distribution Portal

AIM orgainizations need to **distribute** Aeronautical Information to **internal and external** consumers







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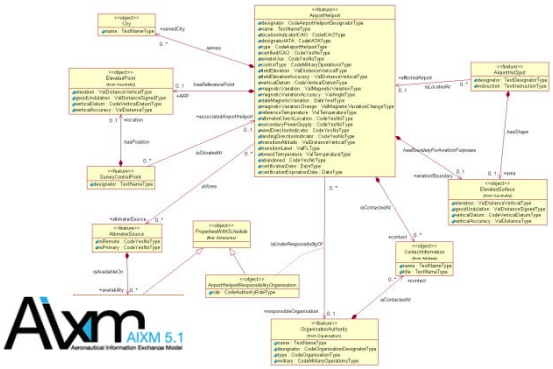
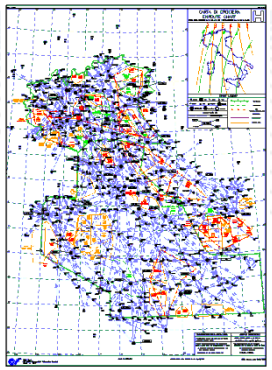
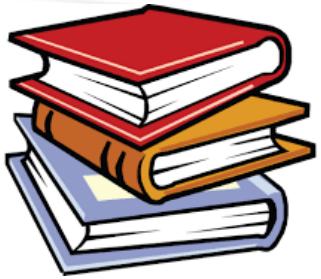
... in **user friendly** format







Data Distribution Portal

IDS **Data Distribution Portal** allows **authorized users** to access **Aeronautical Information & Documents**....

... from an integrated Web Based Application

- Data Browser
- eChart
- Changes Highlight
- On-Demand Reporting
- Documents Access

Data Distribution Portal

- The Data Distribution Portal main modules are:
  - **Data Browser:** to navigate Static & Dynamic Aeronautical Information effective within a **validity period**
  - **eCHART** to visualize aeronautical inforamtion on a configurable Map View
  - **Changes Highlight** to highlight changes between different dates
  - **On-Demand Reporting** over aeronautical data and export in multiple format (AIXM, KLM, SHP, etc.)
  - **Documents Access** electronic version of the Aeronautical Publication (**AIP, SUP, AIC, eAIP, Charts**)

Questions?