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European AIS Database

Developments of the EAD

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Topics

- Introduction
  - Principle & Concept
- Services
  - Static Data Operations (SDO)
  - International NOTAM Operations (INO)
  - Published AIP Management System (PAMS)
  - EAD the integrated Solution
- Operations
  - Stakeholders & Clients
- Safety and Quality
- Future Developments
  - (EC) IR 73/2010 ~ ADQ, Workflow Management
  - Challenges and further way ahead
  - Strategic Objectives

Principles

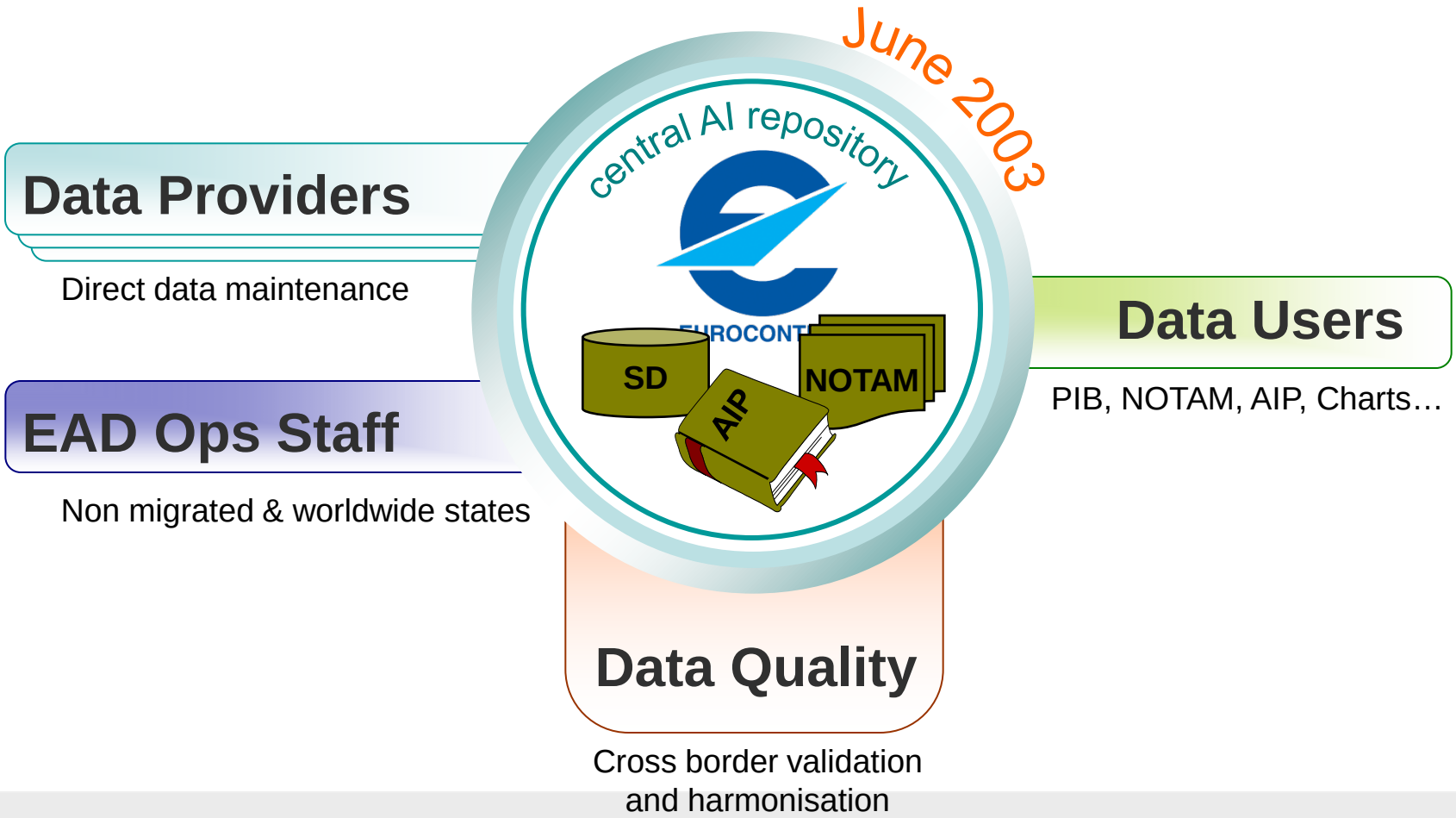
- EUROCONTROL operates and manages the EAD on behalf of its Member States, and provides a system/service to AIS Providers supporting the delivery of AIS Services as defined by ICAO Annex 15

- States remain responsible for providing the AIS and the information published. AIS Providers of migrated States (Civil & Mil) are responsible for inserting, maintaining and correcting their national data directly in the EAD

- Provision of the EAD IT, Data Operations and Training services are contracted to private Service Provider

Concept

- EAD is a service provided and owned by EUROCONTROL on behalf of its Member States – *PC Decision n° 83 ~ July 2000*



Operational Areas

- **SDO** – Static Data Operations
- **INO** – International NOTAM Operations (Worldwide)
- **INO BF** – ARO Briefing Facility (Worldwide)
- **PAMS** – Published AIP Management System (ECAC)

Additional

- **eAIP** – Electronic AIP production using SDO
- **CHP** – Chart production using SDO

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Available Data (1)
Static Data Operations (SDO)

SDO

- **AIP data in AIXM Format**
  - AIXM 4.5 legacy system
  - AIXM 5.1 full data exchange available since Jan 2016

- Currently **30 ECAC States fully migrated**
  - Remaining States to complete in 2016 & 2017

- **EAD Data Catalogue (based on ICAO Data Catalogue)**
  - Data Set Definitions
    - Min SDO (NOTAM validation, Pre-Flight Information Bulletin)
    - Full AIP (Annex 15 data)
  - More data sets under development
    - Based on User Requirements
    - CS5 EAIMS additional data

Available Data (2)
International NOTAM Operations (INO)

- **Worldwide NOTAM**
- **Pre-flight Information Bulletin (PIB) inquiry**
  - Aerodrome, Area, Special area, Route, Narrow route
  - Profile management
  - Route management
  - PIB scheduling
- **Single NOTAM retrieval**
- **TAM Subscription**

Available Data (3)
Published AIP Management System (PAMS)

PAMS

- **ECAC AIP Database**
- **PDF & eAIP**
- **Search: all document types**
  - possibility to search for updates doc only
- **Download: download chart**
- **Effective, future & past documents**

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EAD ~ the Integrated Solution

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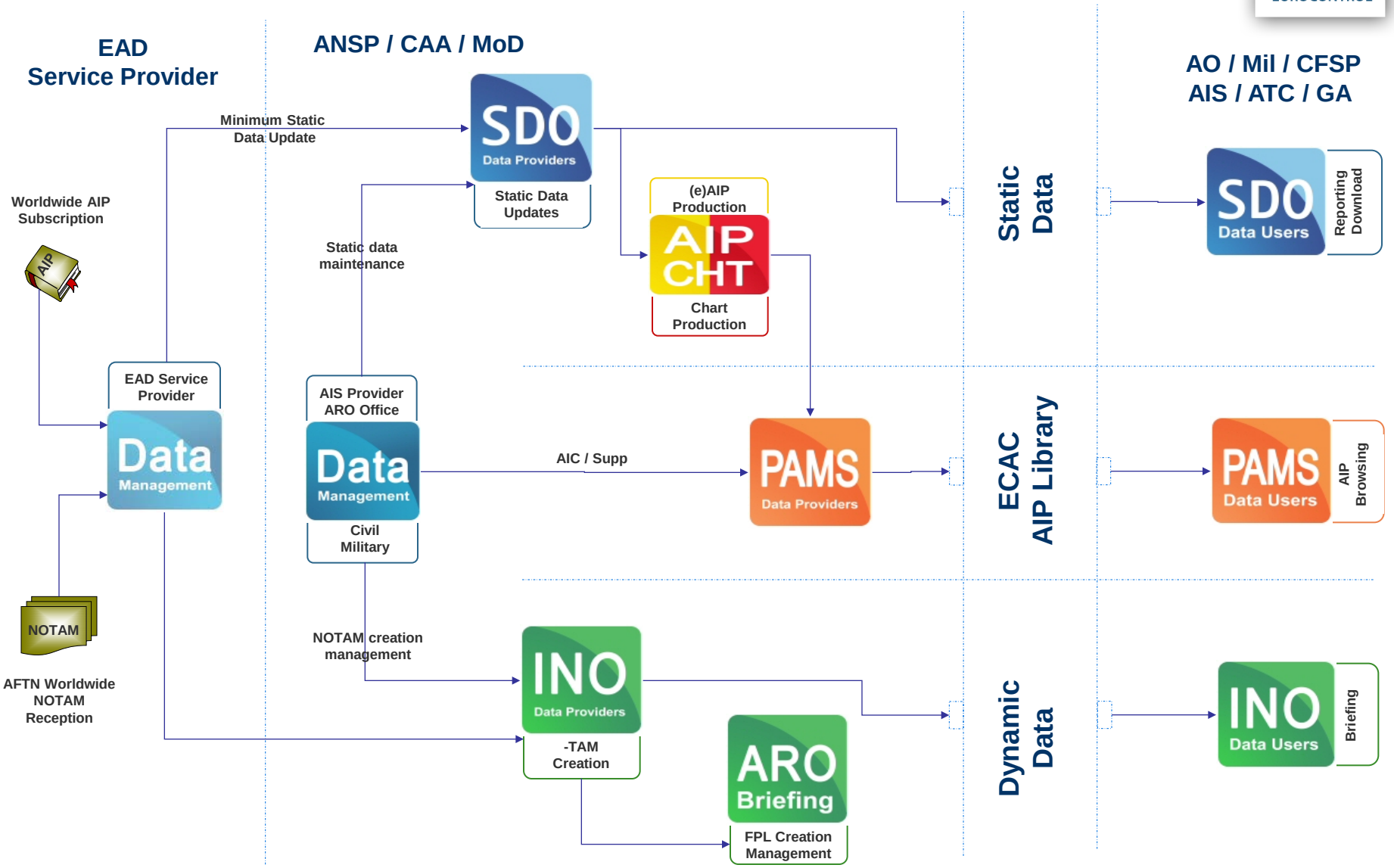

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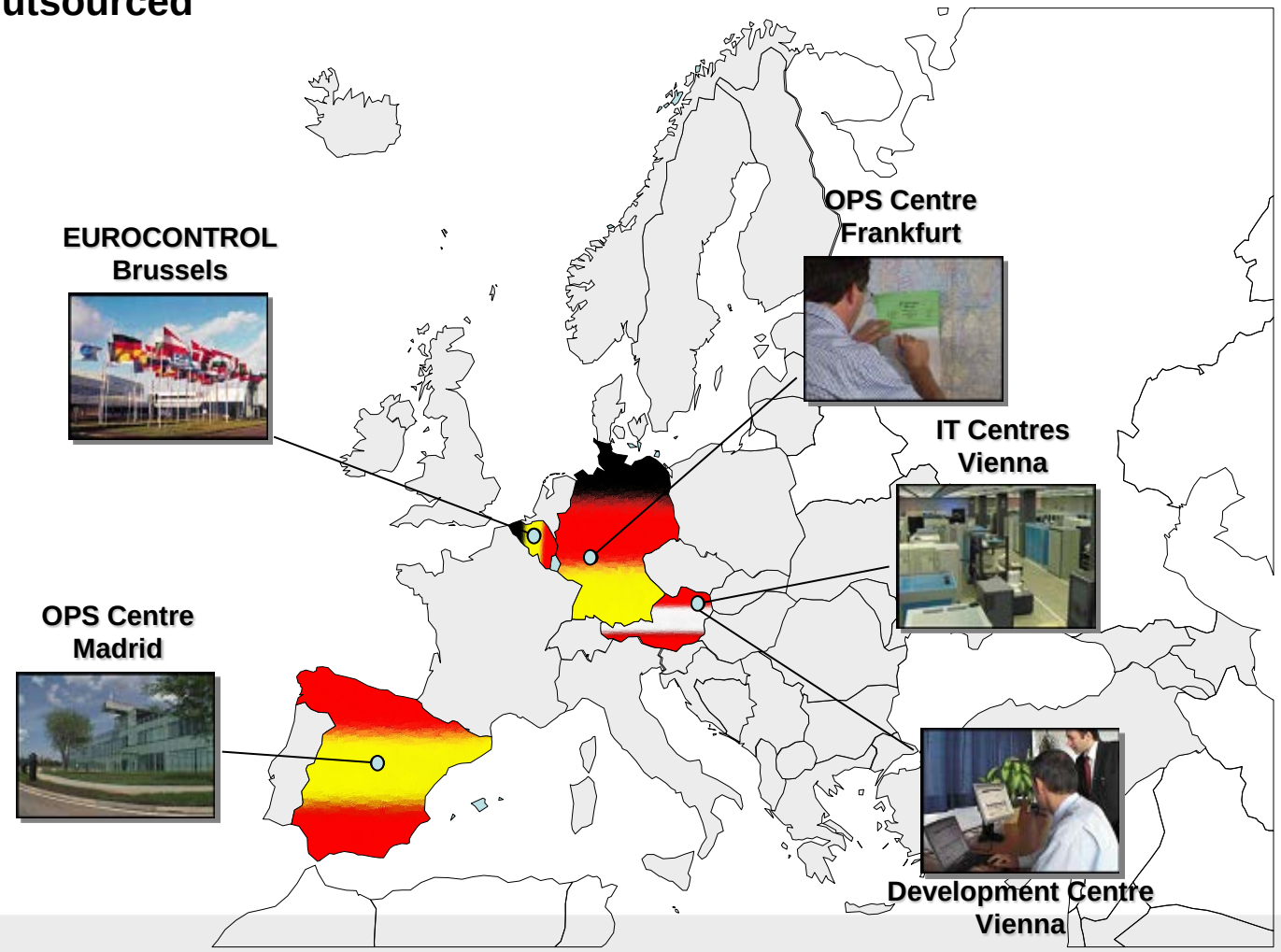
Operations

A EUROCONTROL Service of which the provision of the IT and data operations services are outsourced



Stakeholders

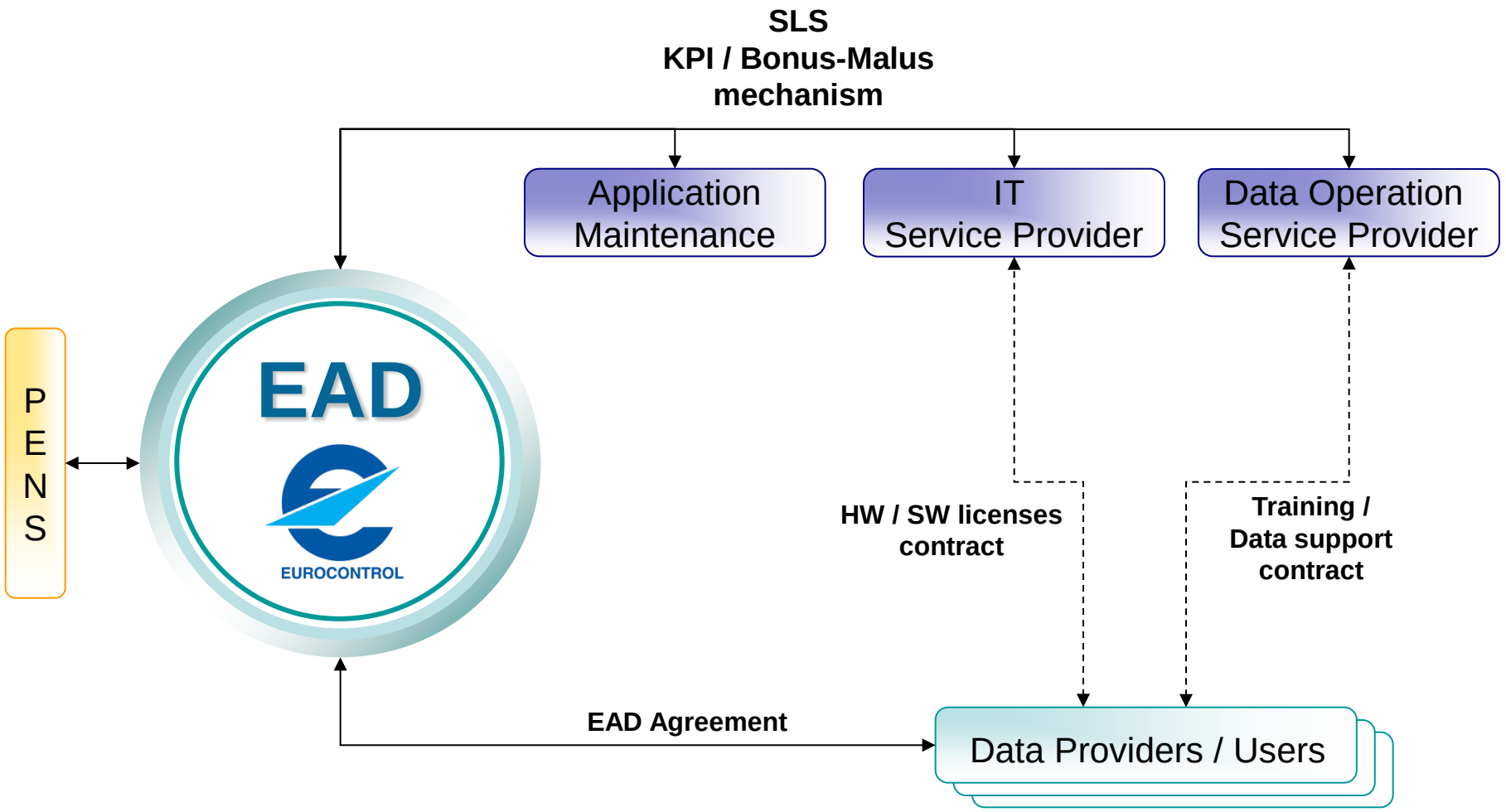
Data Providers

- CAA
- ANSP
- EUROCONTROL
- Military Organisations

Data Users

- Aircraft Operators
  (commercial & business)
- Private Pilots
- ATC
- Commercial
- General Public

Contractual Structure



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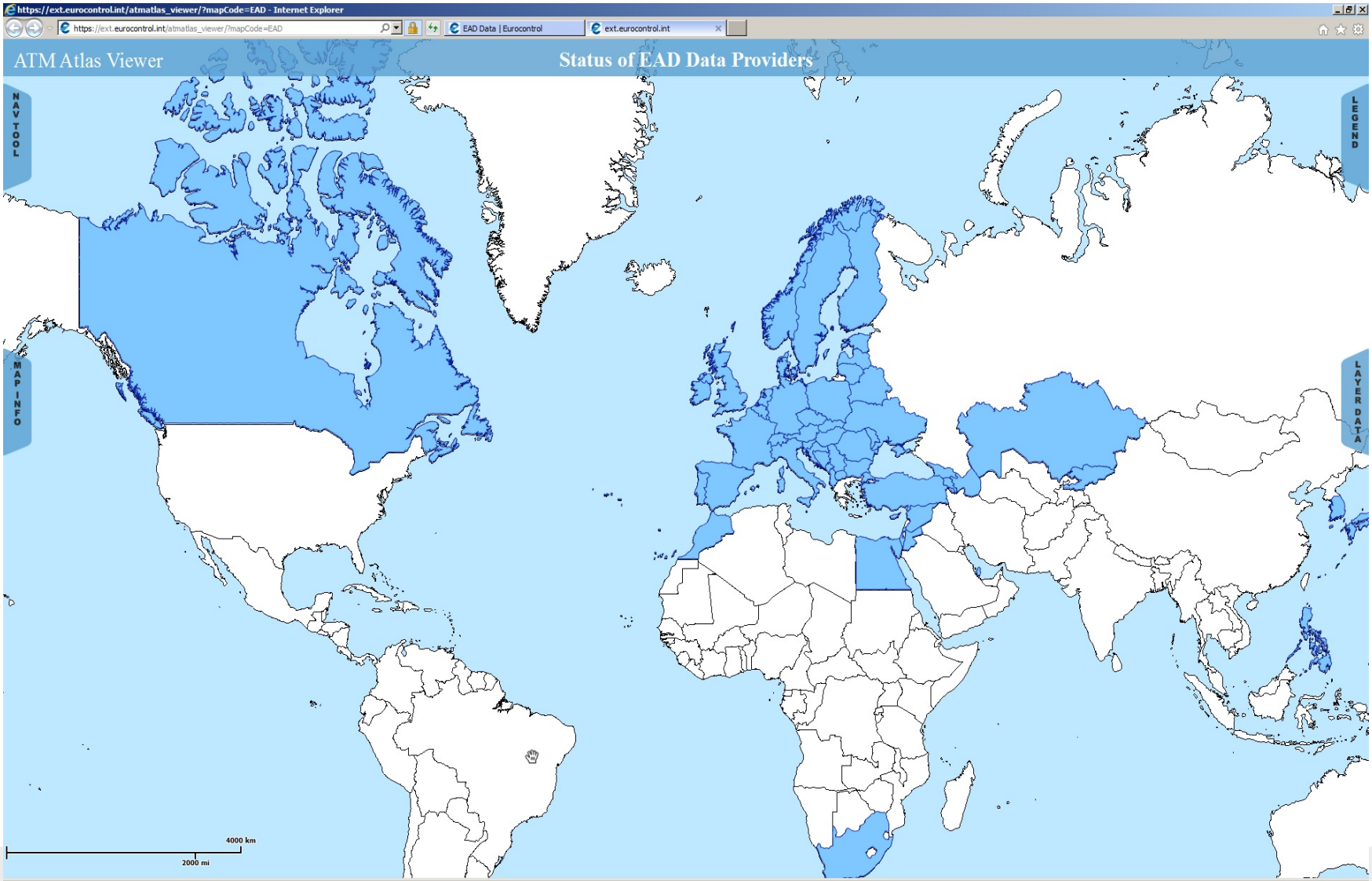
EAD Customers



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EAD Clients (Data Users)

	Apr 2016
Type 1	68
Type 2	19
Type 3	59
Developers	12
Discussing Data Users Agreements	27
Total	**185**

For EAD Basic more than 25.000 subscribed users (free online registration)

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Safety & Quality

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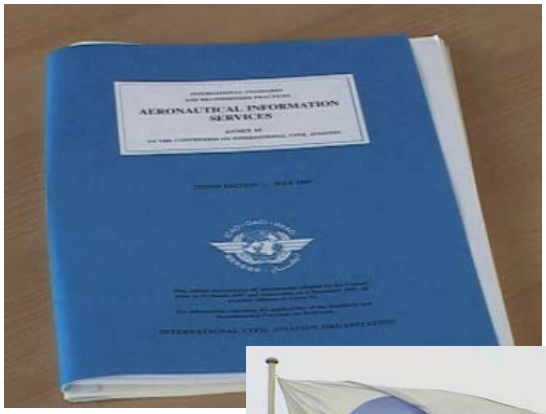
- **Service in line with:**
  - ICAO Standards
  - EUROCONTROL Recommendations
    - OPADD, SDP, AICM/AIXM applied
- **Future evolutions**
  - AIS to AIM roadmap, AIXM 5.1, ADQ, EAIMS



- **Safety Case (ESARR compliance)**
- **ISO Certified**
- **EASA Certification ongoing**

- **Data Quality**
  - Data Quarterly Review
  - Validation rules
  - Coordination of cross border conflict resolution

- **Data completeness monitoring**

EAD ~ ADQ (EC) IR 73/2010

- **Data set and data exchange requirements**
  - XML, XML Schema, GML => **AIXM 5.1**

- **Data Quality requirements**
  - Supported through **Workflow Management Tool** (WFM)
  - Seamless data flow from origination to the responsible authority (ANSP, Data Provider)

- **Adaptation of processes + provided documentation.**
  - Tools and software requirements;
  - Assessment of conformity / suitability for use;
  - Requirements for verification of systems.

Implementation of AIXM 5.1 (1)

- **AIXM 4.5 legacy system**
- **AIXM 5.1 available**
  - Core Data is backwards mapped and stored in AIXM 4.5
  - SDO display/reporting/download only for limited b/w mapped data set
- **No equivalent in AIXM5.1 for tools that support AIXM4.5**
  - ARINC download – NM decision in the context of the EAIMS scope
  - Graphical Validation (but COTS products are available)

Implementation of AIXM 5.1 (2)

- **Reporting tool for AIXM5.1 provided**
  - only available through EAD Pro (not MyEAD/B2B or EAD Basic)
- **Lower priority on certain AIXM 5.1 packages and features not implemented yet**
  - Military Specific features (HMAI Project)
  - Features supporting AMDB
  - Features supporting Digital NOTAM (surface contamination etc.)
  - Surveillance package (radar)

Workflow Management Tool – WFM (1)

- **Commission Regulation (EC) IR 73/2010 ADQ**
  - Data exchange by direct electronic connection
  - Data protection & traceability on each data item

- **Implementation in EAD**
  - Support ADQ regulation compliance
  - Bridge the gap between Data Originators and Data Providers (AISPs)
  - Based on standard AIS procedures to facilitate usage by any AISP and their Data Originators
  - Customisation possibilities to on order to fit user needs

Workflow Management Tool – WFM (2)

- **Added values**
  - Manual data entry restricted to Data Originator
  - All data transferred via electronic means
  - Traceability through the entire data chain and data lifecycle
  - Automated data management process through workflow system
  - Generic Metadata storage for all subsystems

- **Main Functions**
  - Customisable organisation set-up with the tool
  - Process monitoring/history
  - Document management system
  - Reporting facilities
- **Support, documentation, Service Desk, Training, Licensing**

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EAD Certification by EASA

European Aviation Safety Agency

- **Official application for EAD Certification provided to EASA and accepted on June 16th 2015.**
- Compliance Matrix received (Aug 2015)
- Phase 1 - Kick-off meeting (Sept 2015)
- Phase 2 - Initial Review (Oct–Nov 2015)
- Phase 3 - Detailed Document Review (Nov–Dec 2015)
  - Review of complete system: SM-, QM-, CM-, RM-processes & Oversight Management (i.e. EAD SSG, Change Control Board, Ops Manuals, etc.)
- Phase 4 – Audits (Jan-Feb 2016)
  - EUROCONTROL, IT Service Provider (Frequentis), Data Operations Service Provider (GroupEAD)
- Corrective Action Plans (CAPs) provided and accepted by EASA
- EASA Certification of EAD Service and Functions expected June 2016

Challenges (1)

Free Route Airspace (FRA)

FRA is a **specified airspace** within which aircraft operators may **freely plan a route** between a defined **entry point** and a defined **exit point**, with the possibility to route via intermediate (published or unpublished) way points, **without reference to the ATS route network**, **subject to airspace availability**. Within this airspace, flights remain **subject to air traffic control**

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Challenges (1) FRA

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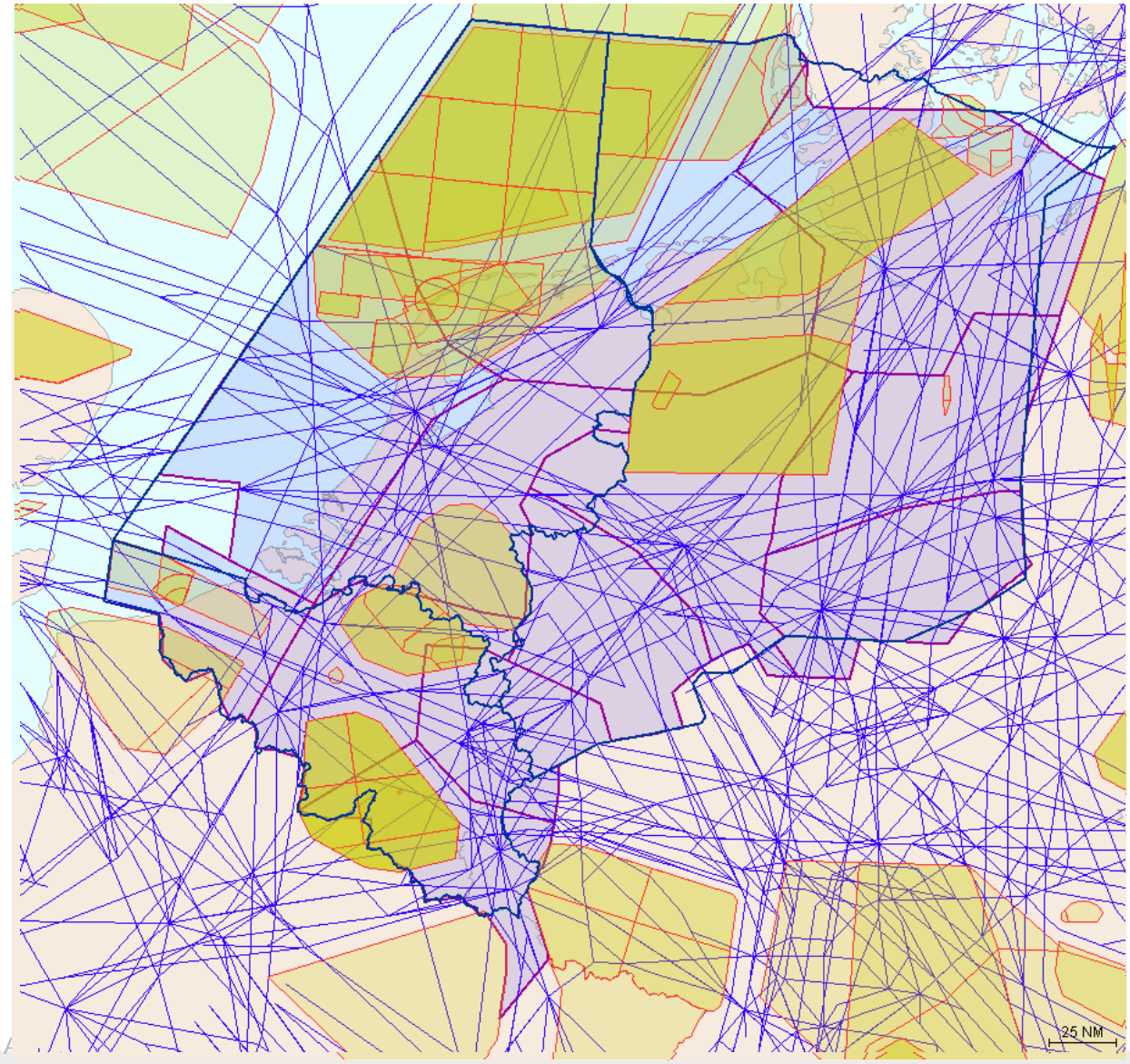

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Challenges (1) FRA

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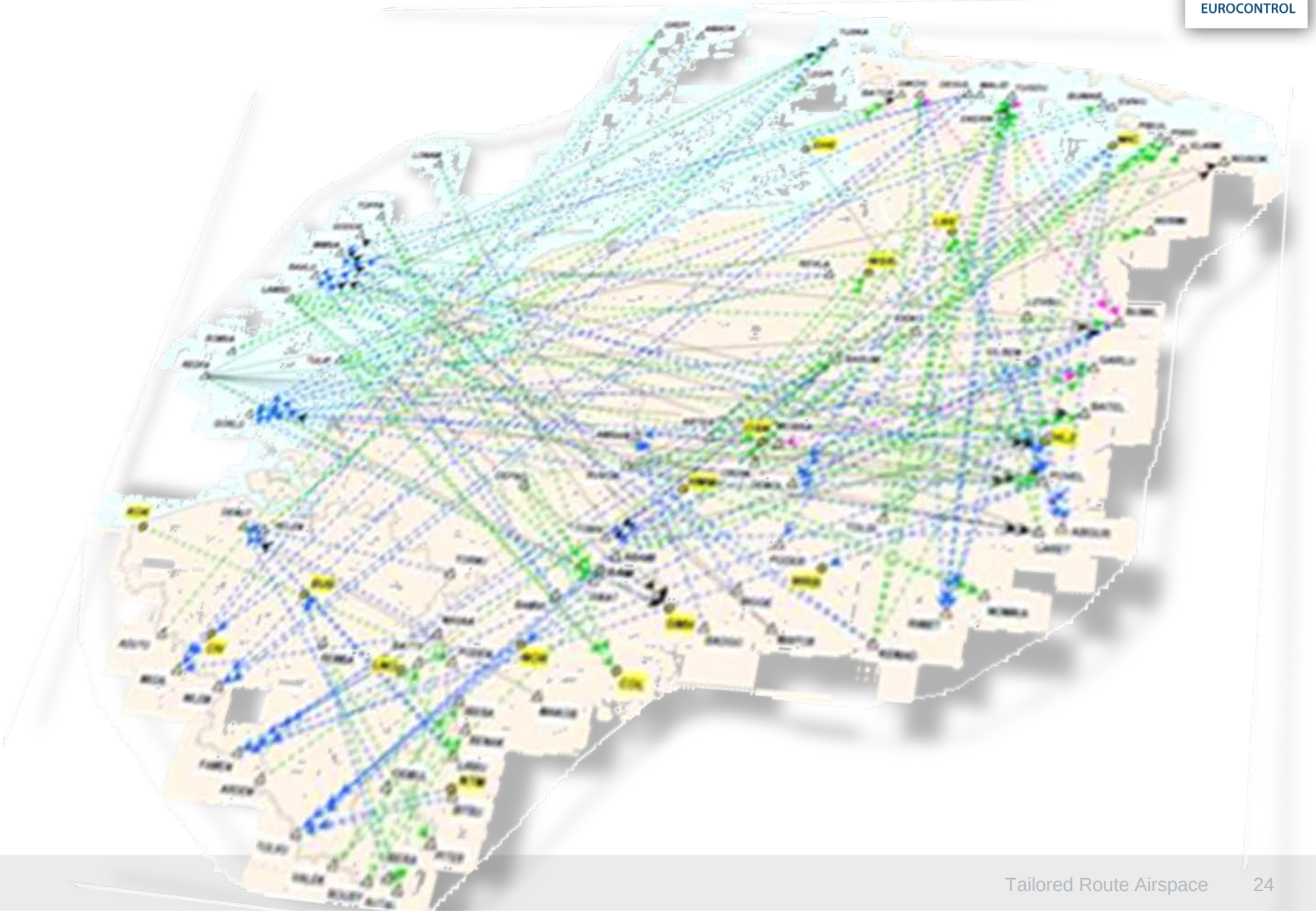
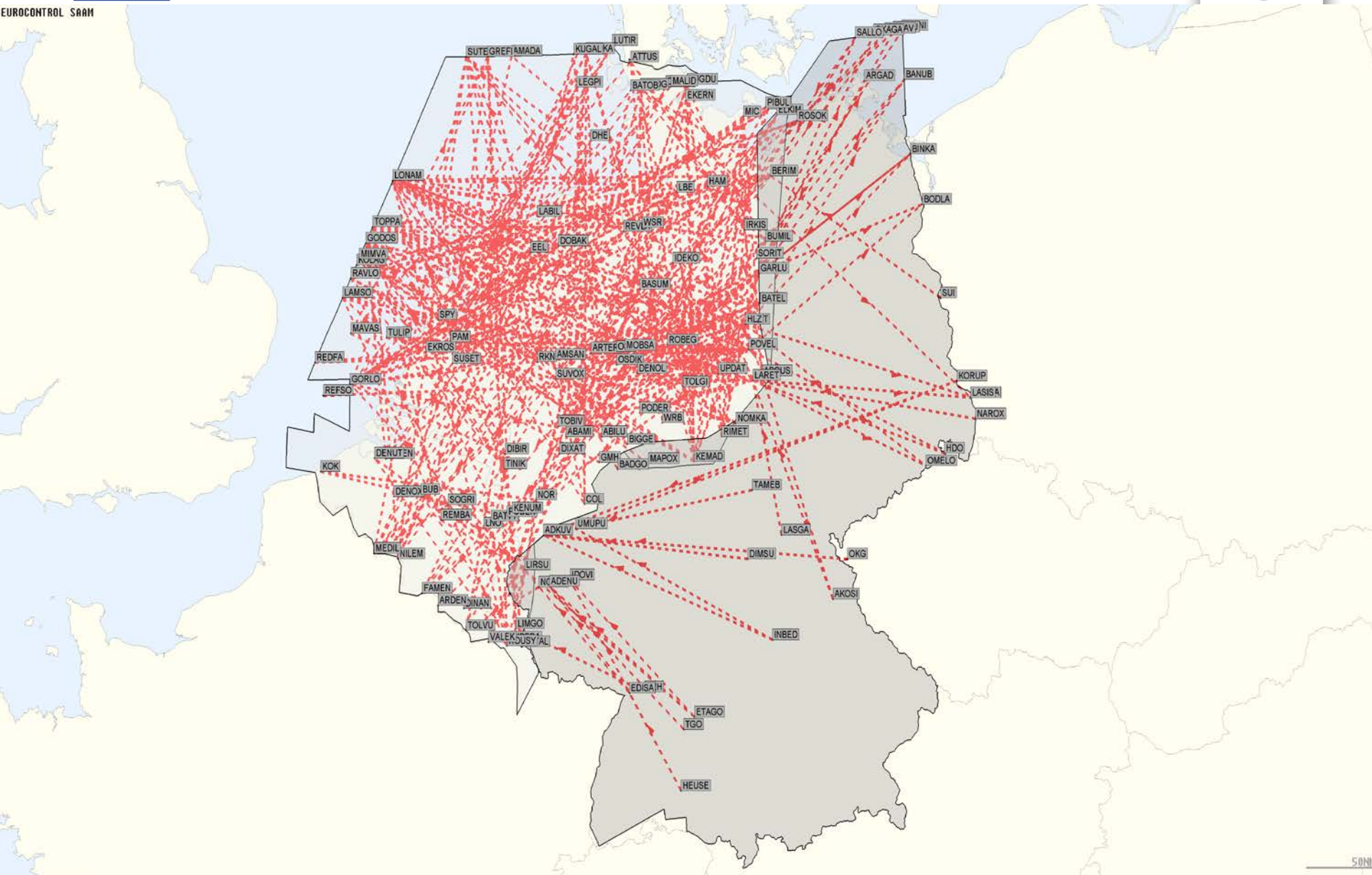


Challenges (1) FRA



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Challenges (1) FRA

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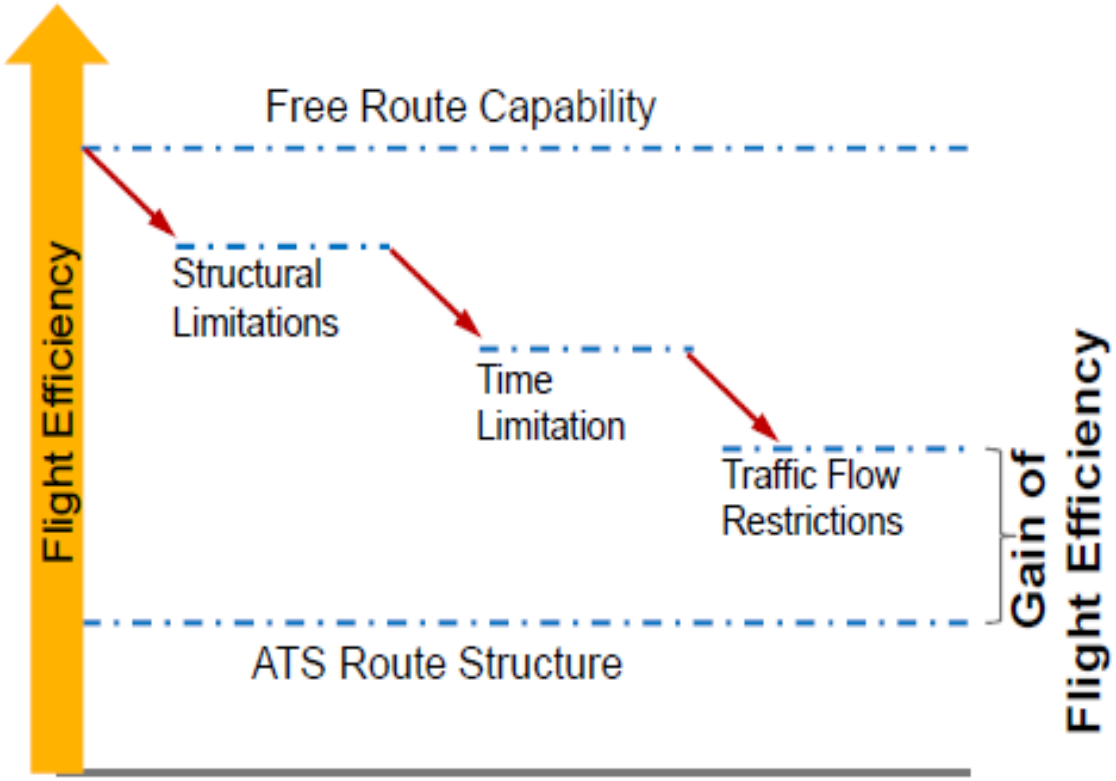
- Data Management Challenges
  - Area of Responsibility (AoR) versus FIR/UIR
  - FRA across 2 or more countries
  - Sector Data corresponds to AoR rather than FIR/UIR
  - Delegated ATS outside FIR/UIR are part of AoR



User Expectations

• Apply common FRA Design
• Implement large cross-border FRAs
• FRA data types/values in digital aeronautical data standards
• Maximum direct segment distance 250NM
• Minimum Safety Altitude above high mountains

Harmonised Data Model required together with clear defined Data Harmonisation Objectives such as EAD DHO7

Challenges (2) Drones

- **Unmanned Aerial Vehicles (Drones)**
  - About 360.00 aircraft worldwide compared to more than 4.000.000 drones already (increasing daily)
  - Drone incidents with airplane increasing daily (near misses about 4 per day and raising)
  - BA plane hit drone at Heathrow airport (spring 2016)
  - KLM plane had a near-miss with a drone recently at Amsterdam airport
  - Drone hinder rescue activities (blocking helicopter to land at accident site)

EAD is working close together with ANSPs, EC and industry to find and implement solutions in order to increase Safety!

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Challenges (2) Drones

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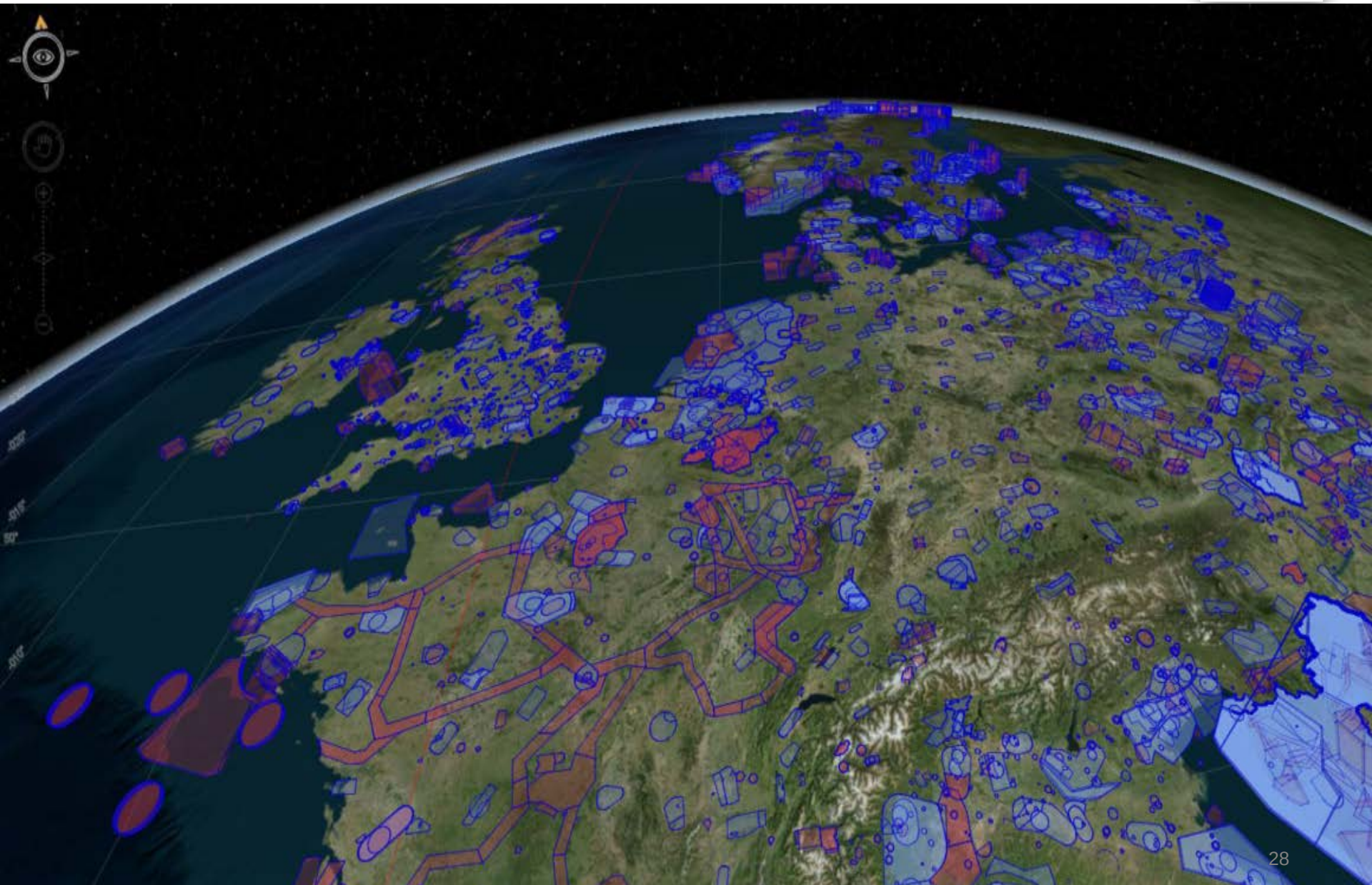


Further Way Ahead (tech)

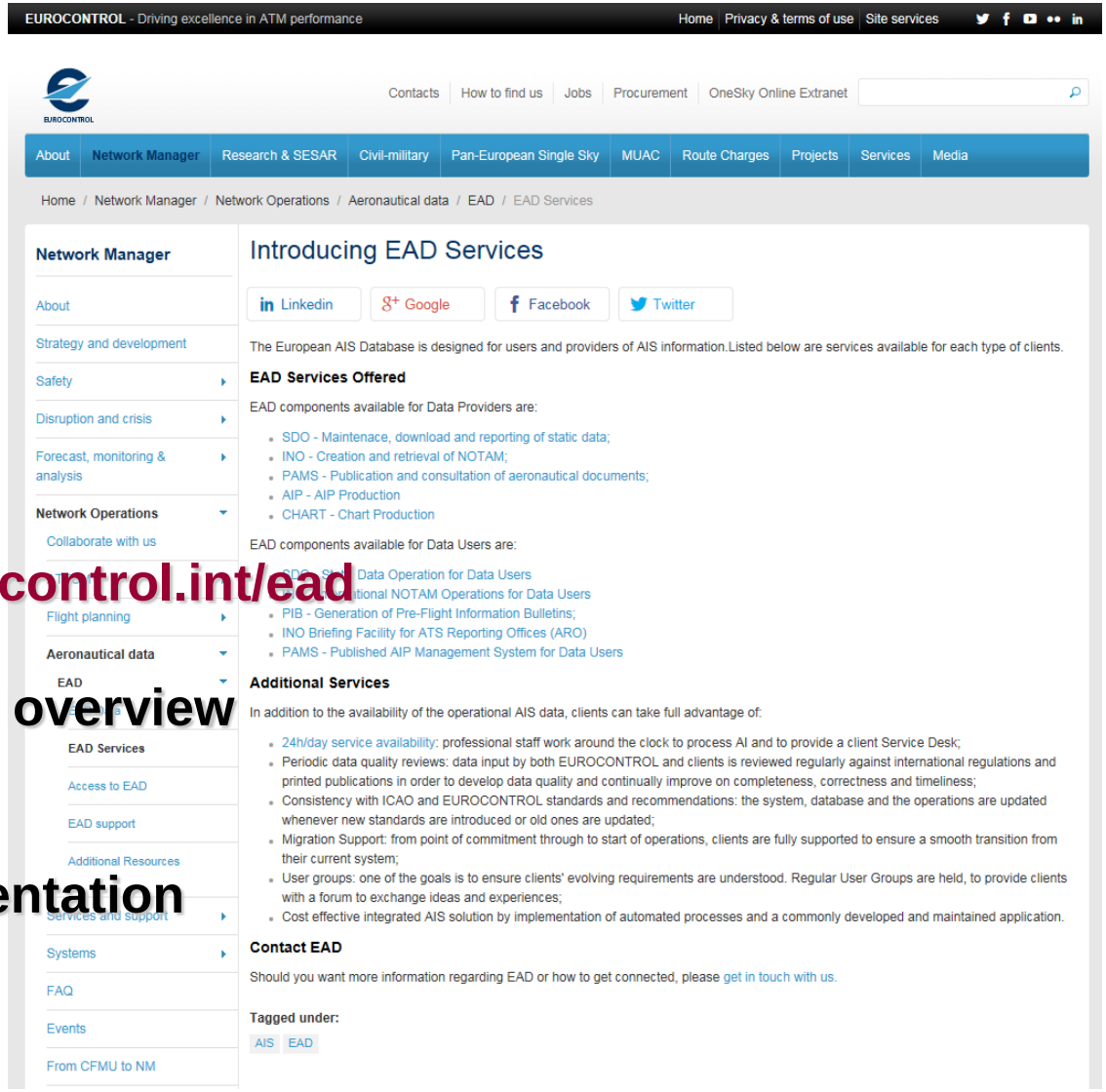
- **EAD Release 11**
  - Deployment planned for June 2017
  - New HMI for ECIT (B2C) Clients (Workshops)
  - ICAO Amendment 39 Requirements
  - System Performance Enhancements

- **European ATM Information Management Service (EAIMS)**
  - EAD+ (new state of the art System Architecture)
  - Enhanced Briefing Facility (digital NOTAM, WX, enhanced Graphical Display)
  - One single source for ATM data (Flow & Capacity data, Aircraft Performance Data etc.)
  - Deployment planned for winter 2020/21
  - CFT to be launched in Q2 2016

Strategic Vision (business)

- **EAD Royalty Charges**
  - The current EAD Royalty Charging Scheme needs to be reviewed
  - Royalty Charges should be applied for Commercial Data Usage
  - A first step has been made to develop a Credit Card Slot for the EAD Basic (Web Application) in order to simplify invoicing

- **Data Base “Hubs”**
  - Medium-. and Long -Term Strategy is the support of the creation of similar Data Bases “Hubs” worldwide
  - Connections (interfaces) to be established with EAD based on SWIM (yellow profile)
  - Data ownership stays in all cases with the Data Providers (Authorised Source)
  - Data Usage requires Liability Insurance in order to avoid that liability for “fine-tuning” of data is not pushed to Data Providers in case of incidents.



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Questions?

Thank you ☺

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