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AIXM / WXXM Conference

AIXM-Centric Automation in AIS France

Presented by Stephane DUBET, AIS France

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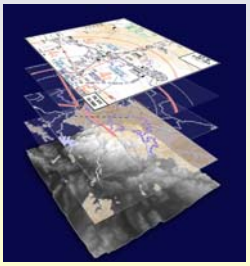
CONTENTS

➢ **The drivers of AIS automation**
- The context (*focus on AIM*)
- Requirements and shortcomings

✓ **AIS automation in France**
- Introduction to NOPIA
- NOPIA and AIXM

✓ **Benefits from the AIXM-centric approach**
- Overall benefits
- Link to procedure design
- Regional approaches

✓ **Conclusions**



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Washington DC, May 12th, 2009

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THALES

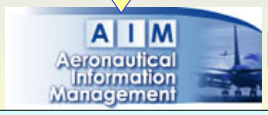
THE CONTEXT

AIS

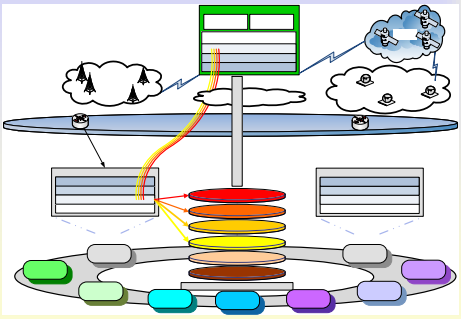
Go Digital

Evolution to AIM to prepare System Wide Information Management

- *Quality assured*
- *Interoperable*
- *Shared*
- *Timely*



Go SWIM



AIM (draft) definition

The dynamic, integrated management of aeronautical information services - safely, economically and efficiently - through the provision and exchange of quality assured digital aeronautical data in collaboration with all parties

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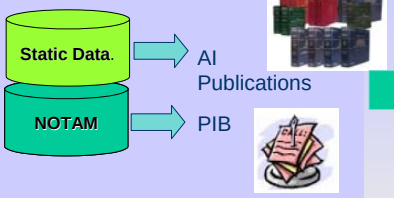
THE CONTEXT FOCUS ON AIM

Current AIS = Delivery of Paper Products



AIM Concepts = Data access services (+ products)

Current AIS process is not an option

- Extended data scope
- Air / ground required consistency
- Safety requirements (eg PBN)

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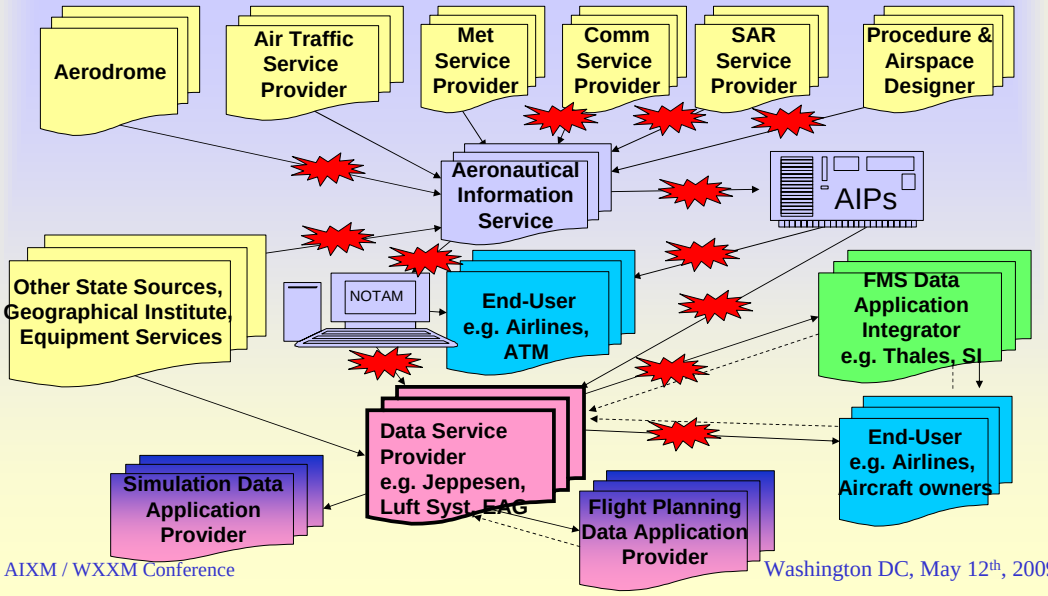
COMPLEXITY OF THE DATA CHAIN



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USER REQUIREMENTS

- ✓ **Quality - Assurance that the data meet the quality requirements (« error-free data »)**
- ✓ **Consistency of data (no discrepancies between sources)**
- ✓ **Traceability of the data**
- ✓ **Completeness of the databases (including eTOD, AMDB)**

CURRENT SHORTCOMINGS

- ✓ **Errors in data origination (« garbage in … garbage out »)**
- ✓ **Paper-based information**
- ✓ **Low level of automation or…**
- ✓ **Multiple tools without interoperability**
- ✓ **Redundant data captures**
- ✓ **Incomplete datasets**

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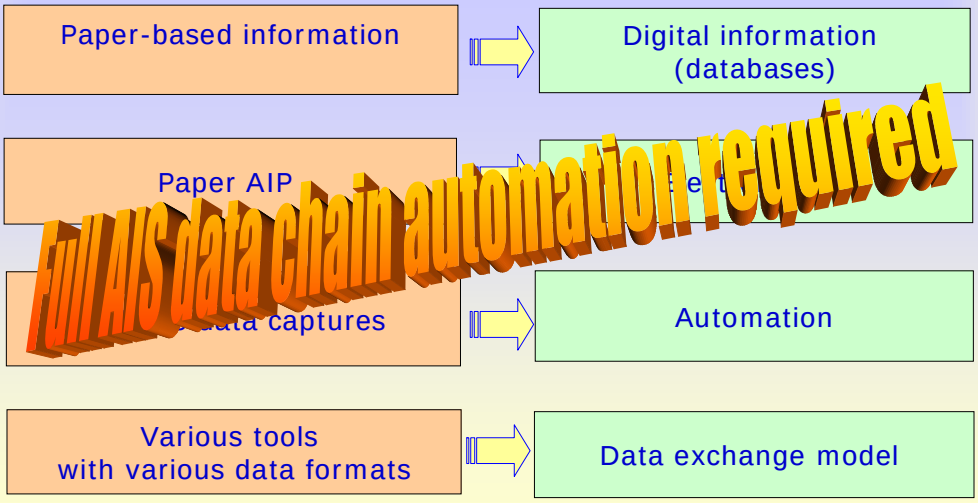
FRANCE DATA QUALITY WG RECOMMENDATIONS



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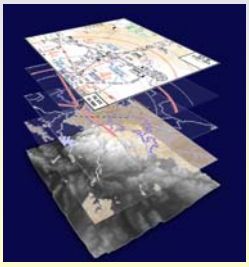

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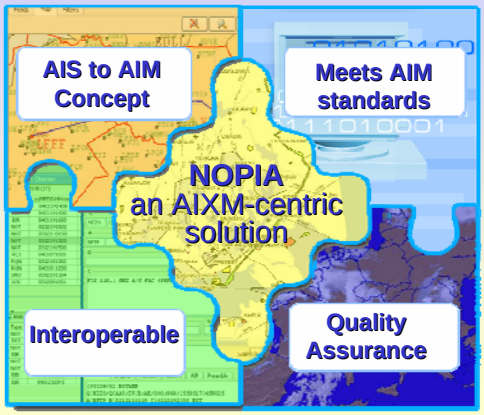
AIS AUTOMATION IN FRANCE

NOPIA : New tOol for the Production of aeronautIcal informAtion



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THE ACTORS

The French Air Navigation Service Provider

✓*Integrated service provider for ATM, CNS and AIM*

✓*Management of 29% of flights in Europe*

THALES AIR SYSTEMS

A leading provider of ATM solutions

✓*Proven capabilities in the delivery of mission critical systems*

✓*Strongly committed in the AIM initiative*

✓*Global understandings of the ANSP operational context and constraints*

A specialist of GIS based solutions for aeronautical operations

✓*developing advanced COTS solutions for Aeronautical Charting and procedure Design*

✓*Technical partnership with ESRI, the GIS leading editor*

Partners (eg Military)

NOPIA user group

Other States or ANSPs

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NOPIA OBJECTIVES

- ✓ **Interoperability (based on AIXM) for ATM use – enables common ground / on-board reference information**
- ✓ **Data integrity and consistency to meet ICAO standards**
  - Impact assessment ,
  - Aeronautical chart production
- ✓ **Automation of the whole data processing chain**
  - Direct link between data originator and data base
- ✓ **User configuration management , traceability,**
- ✓ **Upgradable and adaptive system *(xNOTAM, e-TOD, procedure design)***

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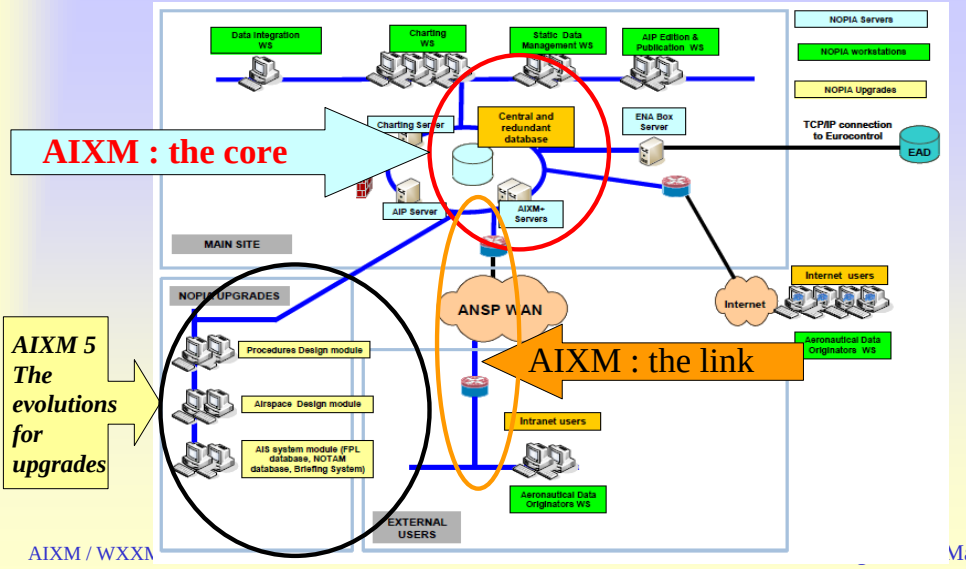
NOPIA : AN AIXM-BASED ARCHITECTURE



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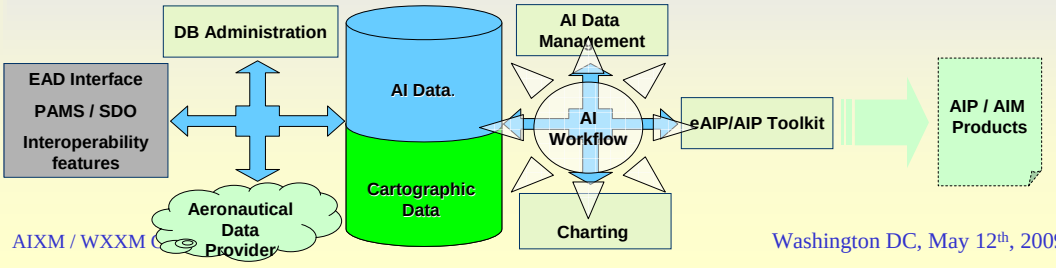
NOPIA : A FULL AIXM-BASED COVERAGE OF AIM REQ'TS

- ✓ **Static data management** (AIXM database management)
- ✓ **Aeronautical maps production** (using the static data of AIXM database)
- ✓ **AIP production function** (using the static data of the AIXM database and the aeronautical maps produced by the charting module)
- ✓ **Workflow function managing the AIM tasks**
- ✓ **Controlled access from external users via a dedicated software module** (using AIXM-based exchanges)



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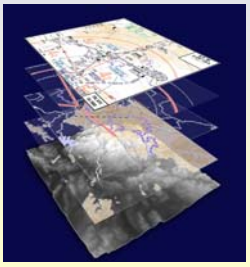

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OVERALL BENEFITS

- ✓ **Coverage of the full AIM requirements**
  - Centralized static data base (SDO)
  - Charting tools and geo-database
  - Electronic document management module for AIP and other products
- ✓ **Interoperability**
  - Direct link with EAD
  - Link with other AIXM-based data bases
- ✓ **Evolutions enabled by AIXM-5**
  - Procedure design
  - eTOD and AMDBs

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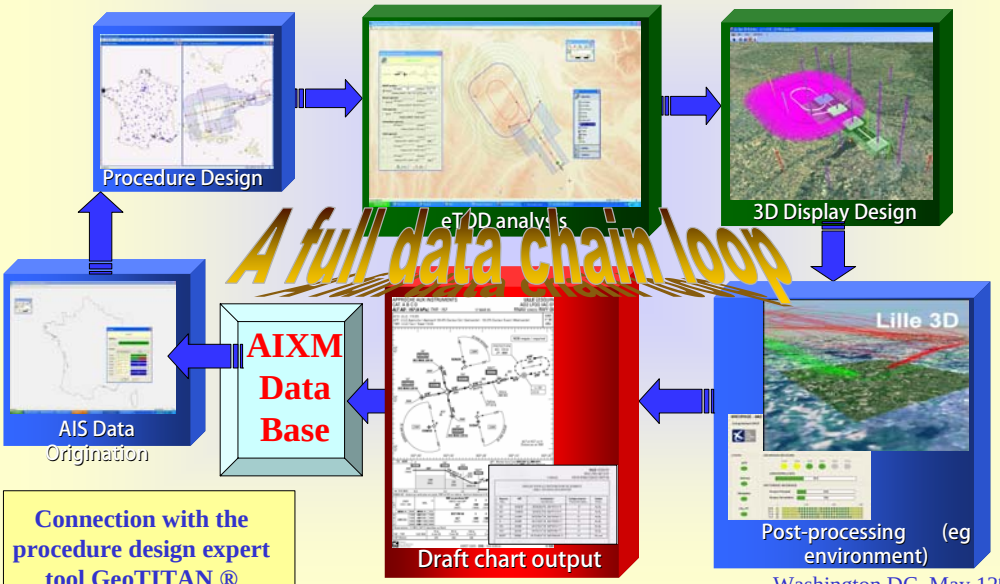
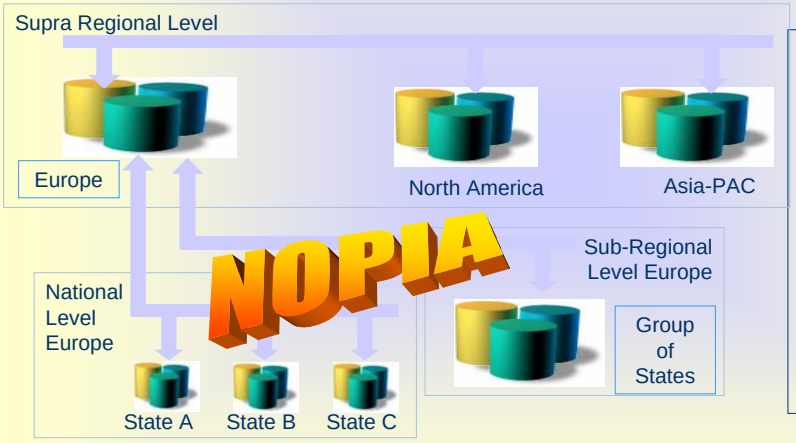
LINK TO PROCEDURE DESIGN



REGIONAL APPROACHES (e.g. FAB)



The Benefits

Financial Benefits
- Cost sharing of technical infrastructure

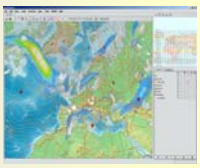
Organizational Benefits
- Human resources sharing
- Training and certification processes sharing

Operational Benefits
- Capability to adjust services to customer needs
- Provides new services (Integrating Briefing, enhanced Flight planning)
- Services to Airlines

CONCLUSIONS

- ✓ **AIXM is a key-enabler**
  - Interoperability at the national, sub-regional or regional level
  - Promotes automation while being compatible various AIS / AIM development stages

- ✓ **NOPIA builds on AIXM to meet the AIM challenges**
  - Inclusion of data origination for a full data chain process
  - A shared and open initiative applicable for French AIS which can be extended beyond (eg other States or FAB)



- ✓ **AIXM-centric approach for AIM is a success upon which new initiatives can be built** *(eg within SESAR and NextGen)*

SESAR JOINT UNDERTAKING