



International Civil Aviation Organization

Appendix-A to APIRG/18

AIM/IP4

AIM Operational Concept

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ICAO Aeronautical Information Management (AIM)

AIS-AIM SG Meeting, Montreal, 7-11 November 2011

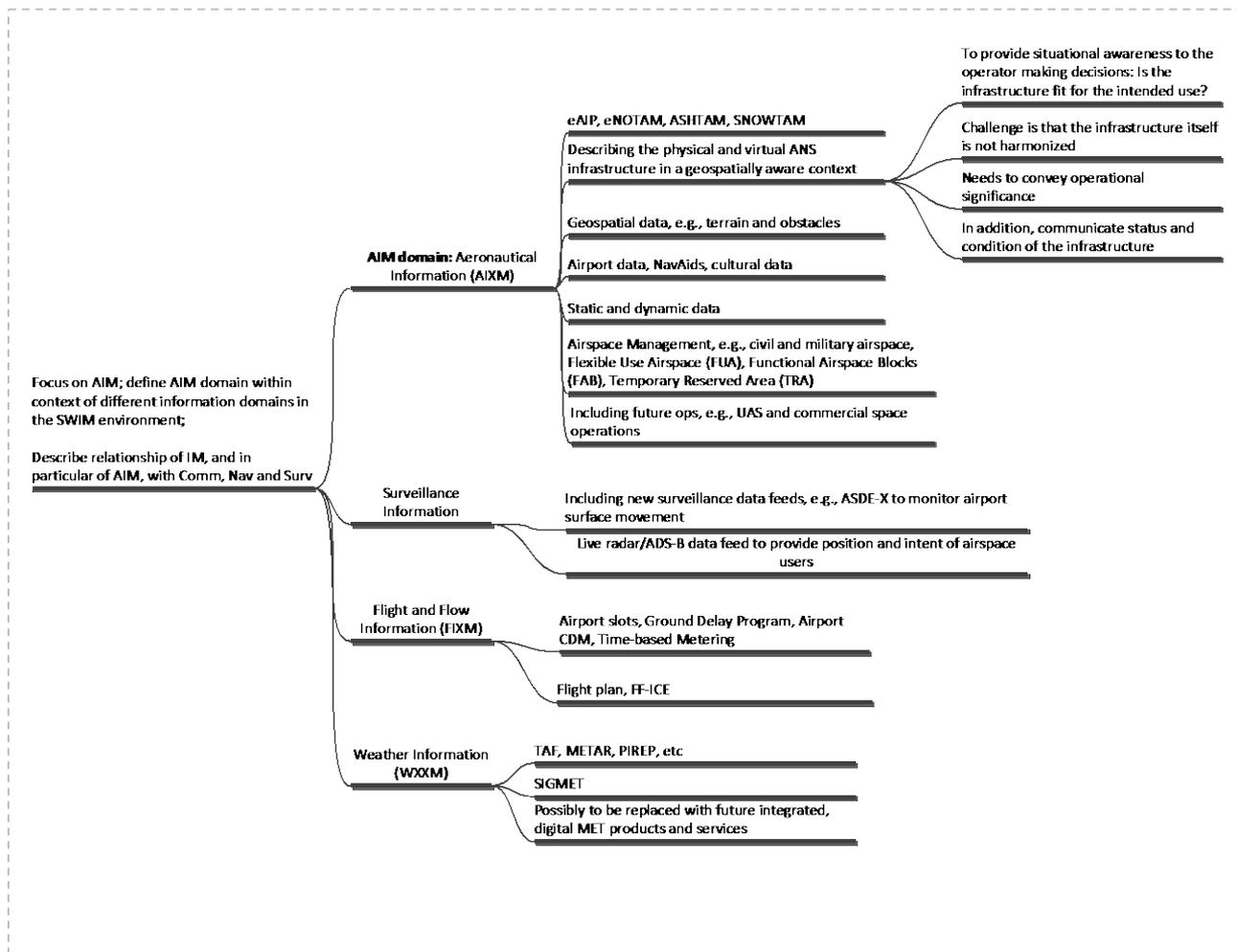
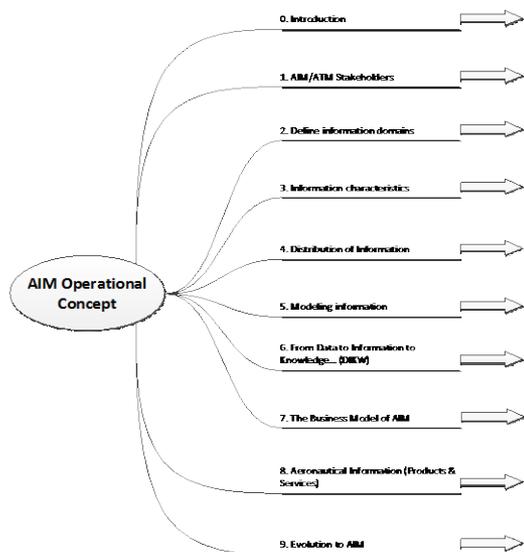
Presentation Outline

- Objectives
- AIM Operational Concept Brainstorm (Visio)
- Scope of AIM
- Proposed Document Structure
 - Diagrams for discussion
- Key AIM Principles
- Key AIM Concepts
- Select Discussion Topics

Objectives

- Create global AIM Operational Concept document
 - Builds on Roadmap for the Transition from AIS to AIM
 - Conceptual framework for Annex 15, Amendment 38
 - Higher level of specificity that Doc.9854 could provide
- In alignment with existing AIM efforts by providing
 - A forum for international coordination
 - Common definitions and terminology
- Approach is to ask the right questions first and then to find the best answers
- Focus on intent (e.g., operational efficiencies, safety) and then to find best language to articulate intent
- Let's have some open and constructive discussions

AIM Operational Concept Brainstorm



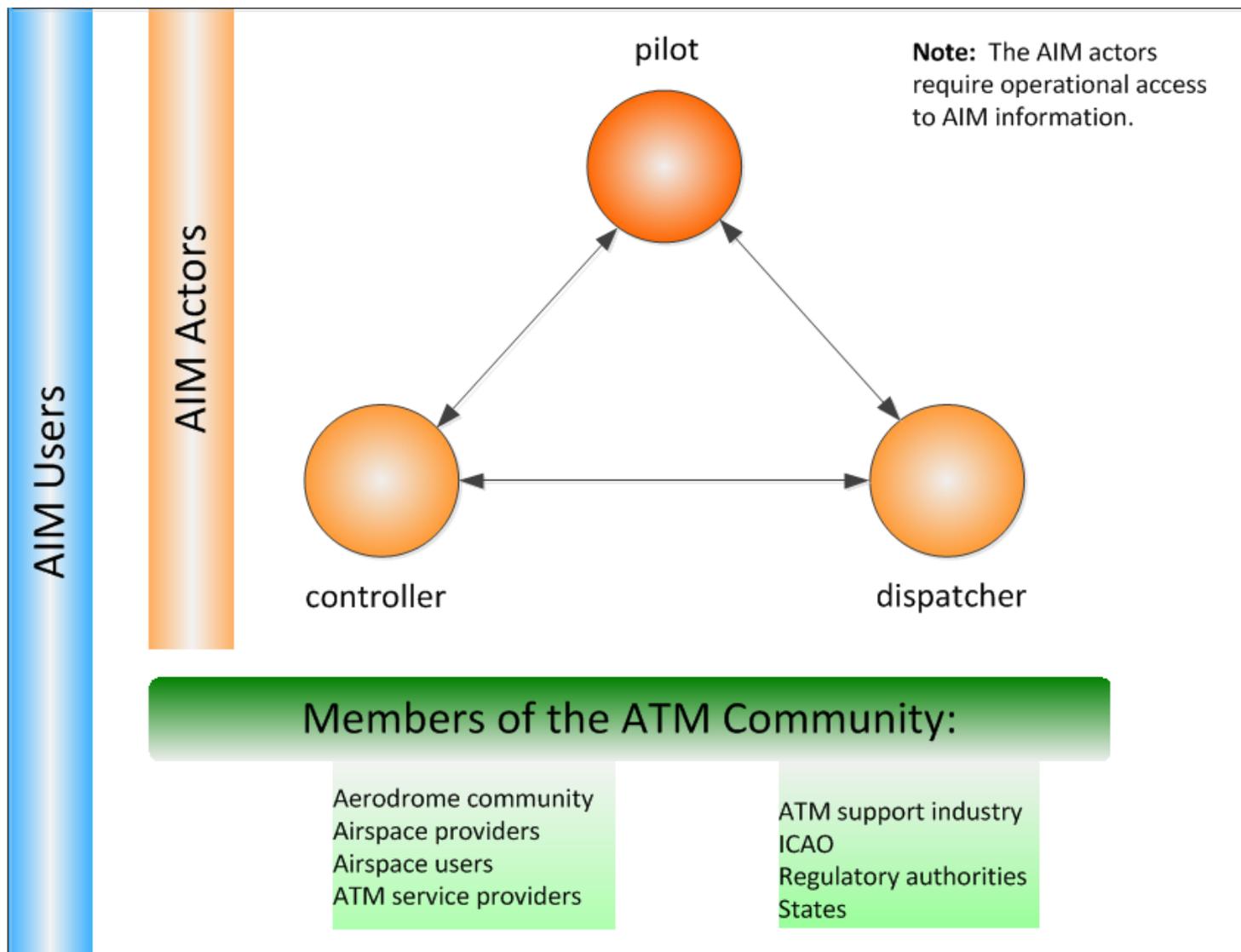
Scope of AIM

- The scope of AIM encompasses the information necessary to completely describe the physical and virtual Air Navigation Services (ANS) infrastructure, along with its status and condition, within its geospatial context, and including the temporality of Planning and Reference, pre-flight, in-flight as well as post-flight.

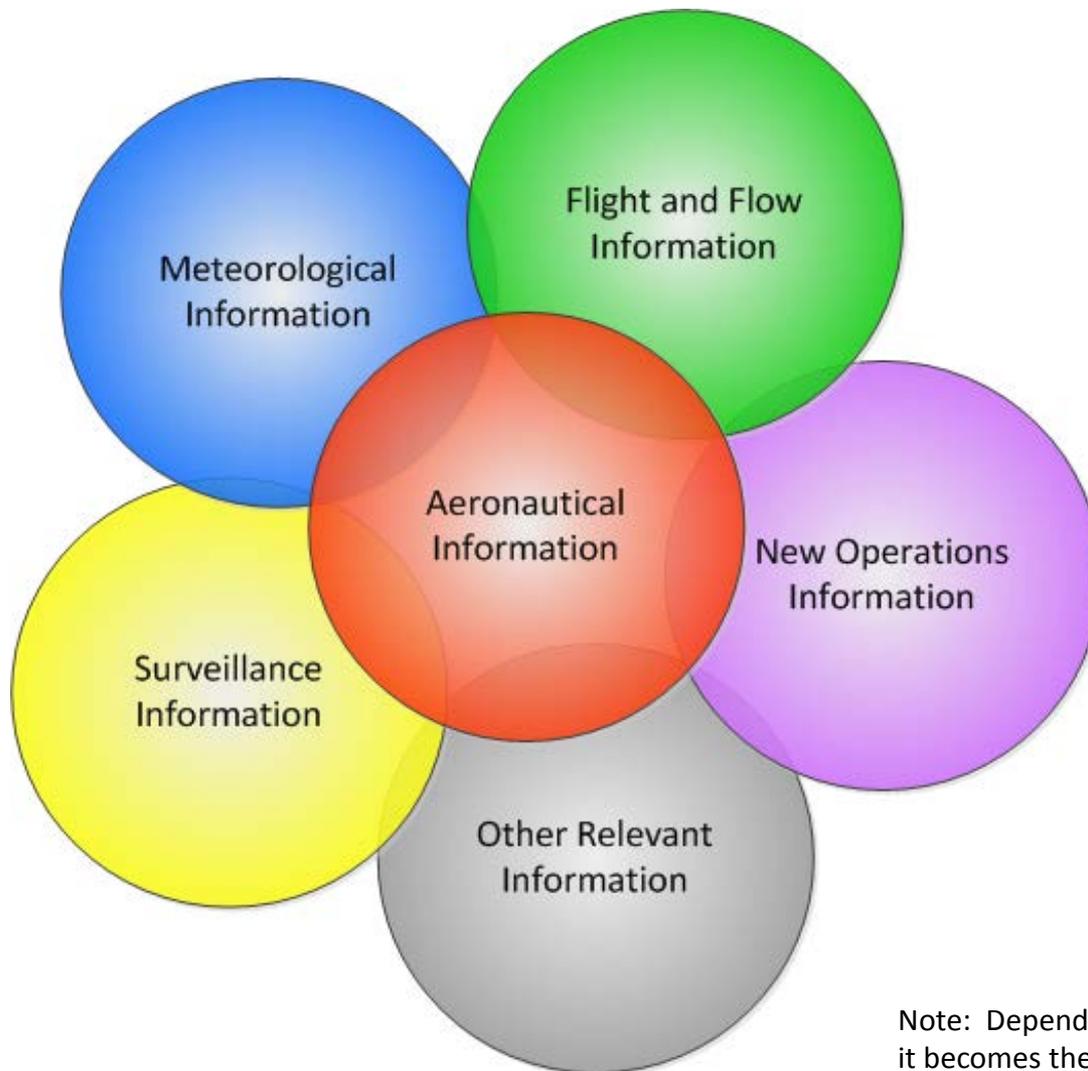
Proposed Document Structure

1. Introduction
2. ATM Community and AIM Actors
3. Information Domains
 1. Aeronautical Information Domain
 2. Meteorological Information Domain
 3. Flight and Flow Information Domain
 4. Surveillance Information Domain
 5. New Operations Information Domain
 6. Other Relevant Information Domains
4. Information Characteristics
5. Modeling Information
6. Distribution of Information
7. Transition from Data to Information to Knowledge
8. The Business Model of AIM
9. Aeronautical Information Products and Services
10. Evolution to AIM

Ch.2 ATM Community and AIM Actors

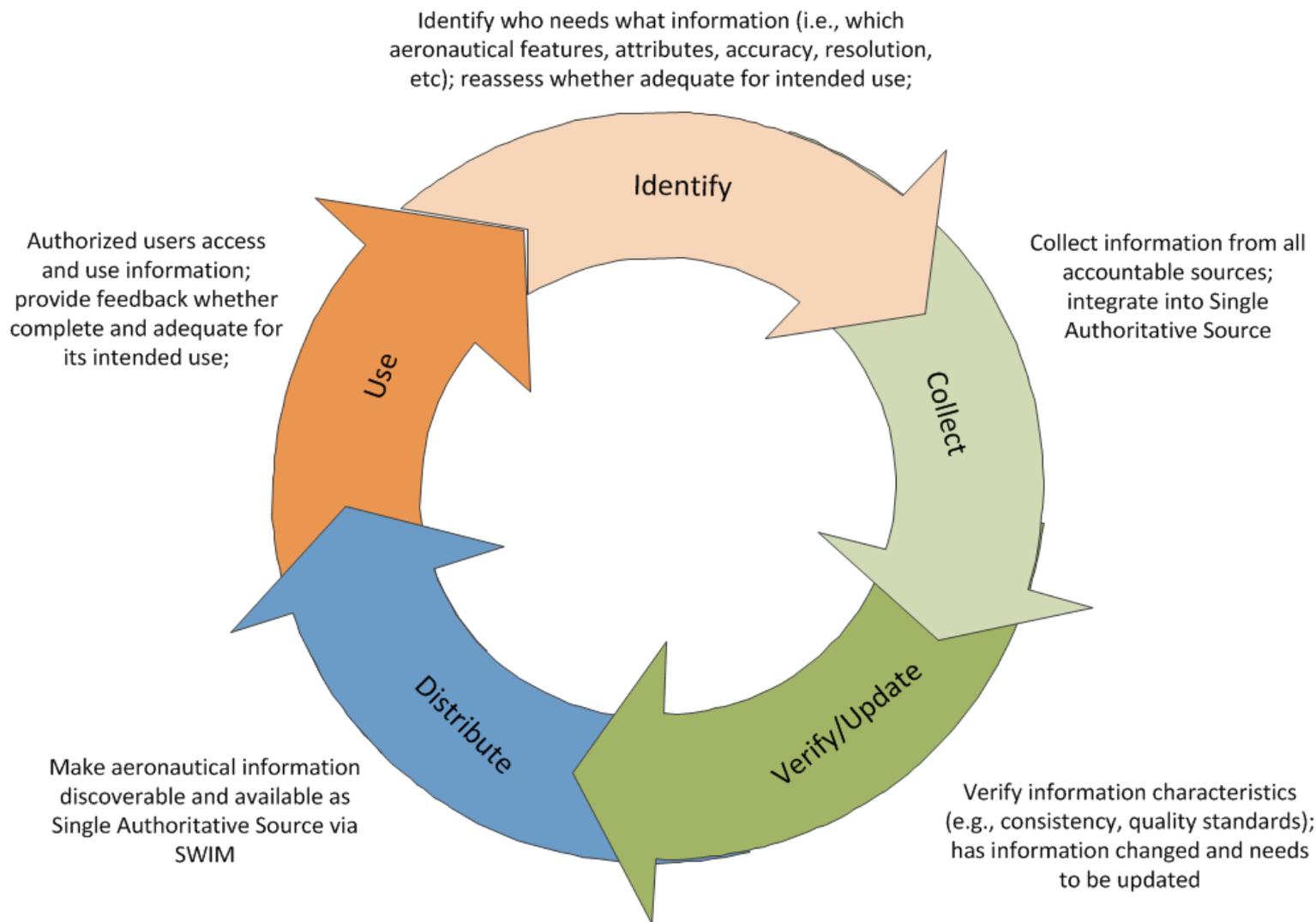


Ch.3 Information Domains



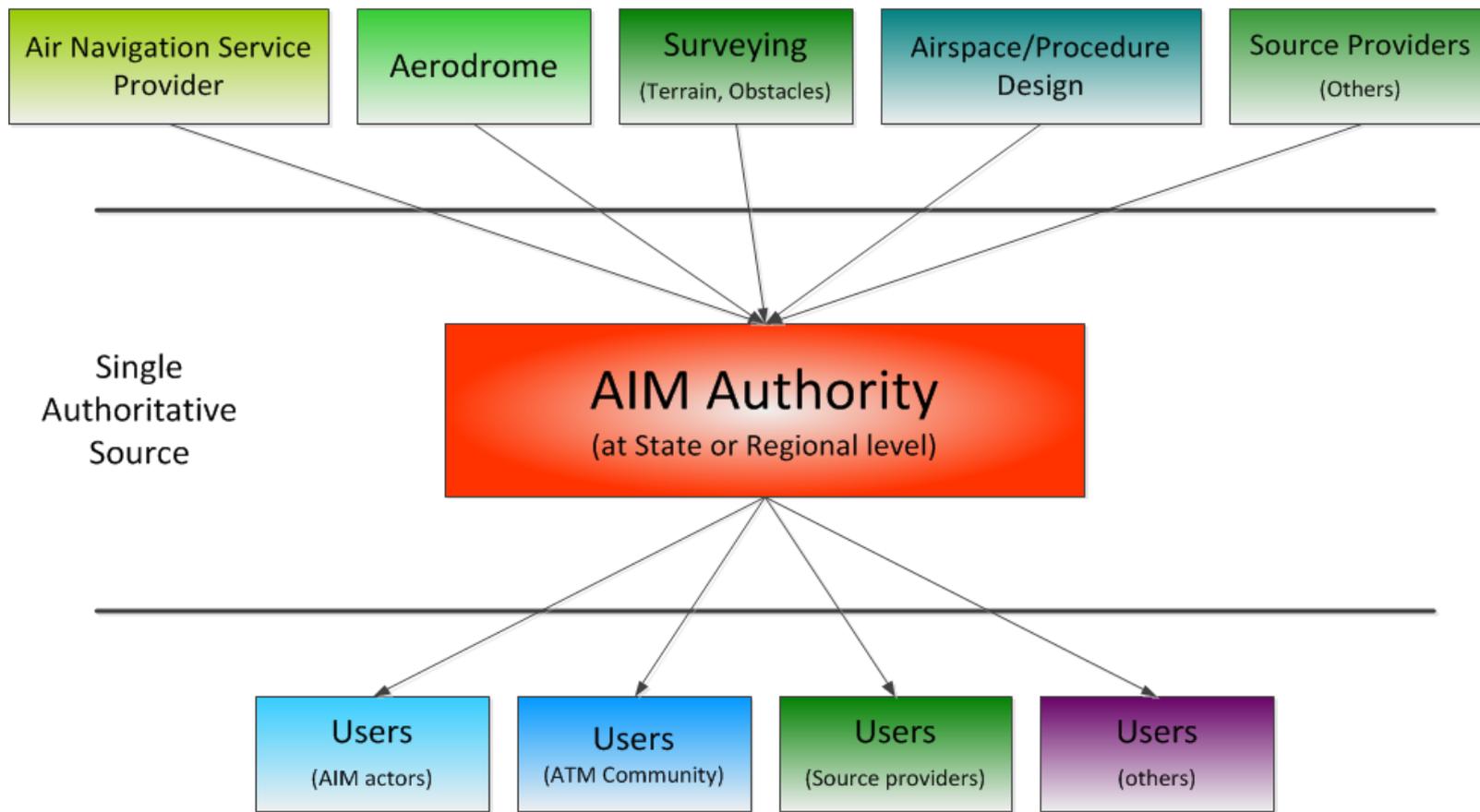
Note: Depending on one's individual perspective, it becomes the "central" information domain.

Ch.4 Information Lifecycle



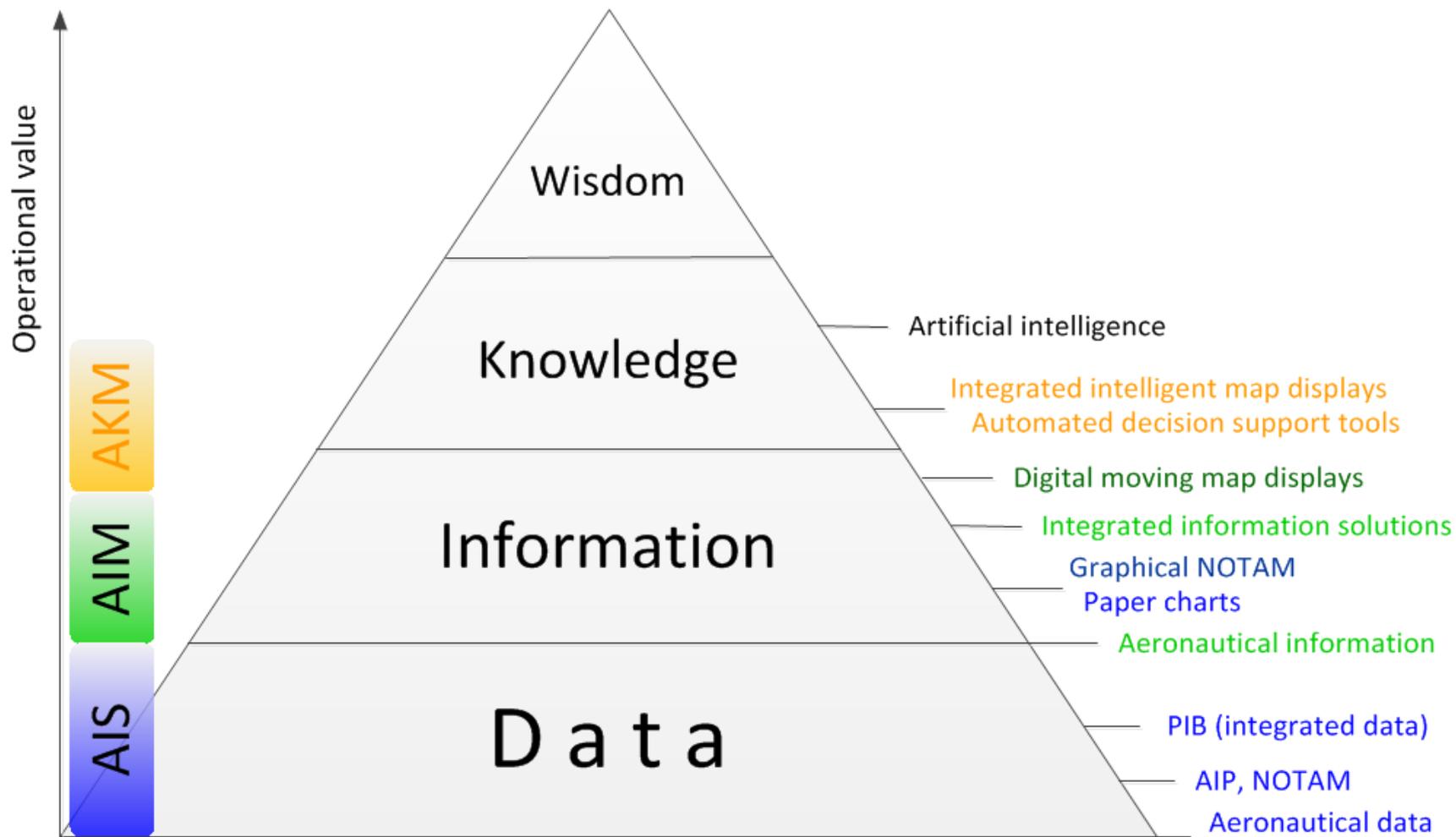
Ch.6 Distribution of Information

Accountable Source(s) of information



Consumers of AIM Information

Ch.7 From Data to Information to...



AIS = Aeronautical Information Service

AIM = Aeronautical Information Management

AKM = Aeronautical Knowledge Management

Ch.10 Evolution to AIM

Temporality	<i>Planning and Reference</i>	<i>Pre-flight</i>	<i>In-flight</i>	<i>Post-flight</i>
Current description	Static	Dynamic		
Current AIS products	AIP AIP Supplement AIC Charts (some of which are used in-flight)	NOTAM SNOWTAM ASHTAM PIB	No definitive AIS products; Updates are disseminated by voice (and data link)	No specific AIS products; Opportunity for pilots to provide ad-hoc feedback
Future AIM applications	Single Authoritative Source (aggregating information from accredited sources)	Fully integrated and up-to-date Pre-flight Information Briefing	Critical information disseminated via data link	Analysis of single and aggregate trajectories for systemic improvements, as per Performance Based Methodology

Key AIM Principles

Aeronautical information

- is digital
- is safe, secure and quality-assured
- is part of the network-centric environment (e.g., SWIM)
- can be digitally stored, managed, and displayed (in textual and/or graphical format)
- can be digitally disseminated (via ground network and various data links)
- is integrated and readily integrate-able with other information domains
- is increasingly harmonized (including data definitions, data models, data formats, etc) the closer we get to the aircraft
- has temporality (Planning and Reference, Pre-flight, In-flight and Post-flight)
- supports the needs of the ATM community, and the AIM actors in particular
- is adequate for its intended multiple uses, including operational decision making
- is usable by automated Decision Support Tools and Expert Systems
- ...

Key AIM Concepts

- AIM actors are controller, pilot, dispatcher
- Objective is to achieve shared situational awareness for collaborative decision making
- AIM is user-centric and focused on (trajectory-based) operations
- AIM temporalities include Planning and Reference, Pre-flight, In-flight, and Post-flight
- In-flight use requires near-real time updates for operational decision making
- AIM for post-flight phase to extend current AIS paradigm (improving data integrity) to Performance Based Methodology (closing the loop)
- AIM extends AIS and builds foundation for Knowledge Management
- Notion of Single Authoritative Source (SAS) to help avoid potential data duplication and fragmentation
- AIM as part of a network-centric environment

Select Discussion Topics

- How to reconcile the different data requirements that different stakeholders have?
- Can we define consistent and adequate terminology (e.g., data vs. information, static and dynamic, accredited vs. authoritative source)?
- How to ensure that Single Authoritative Source provides stakeholders with information that is fit for its intended use?
- How to ensure timely compliance with AIM concept? How best to address needed certification and training requirements?
- Can AIM exist without SWIM? Is SWIM a show-stopper for AIM?
- What is the business model for AIM? How can ANSP recoup investments?
- Others?

DISCUSSION