

# Aeronautical Information Management (AIM) *Modernization*

## Segment 1 – NOTAM Modernization

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Date: August 19, 2008



Federal Aviation  
Administration



# Topics

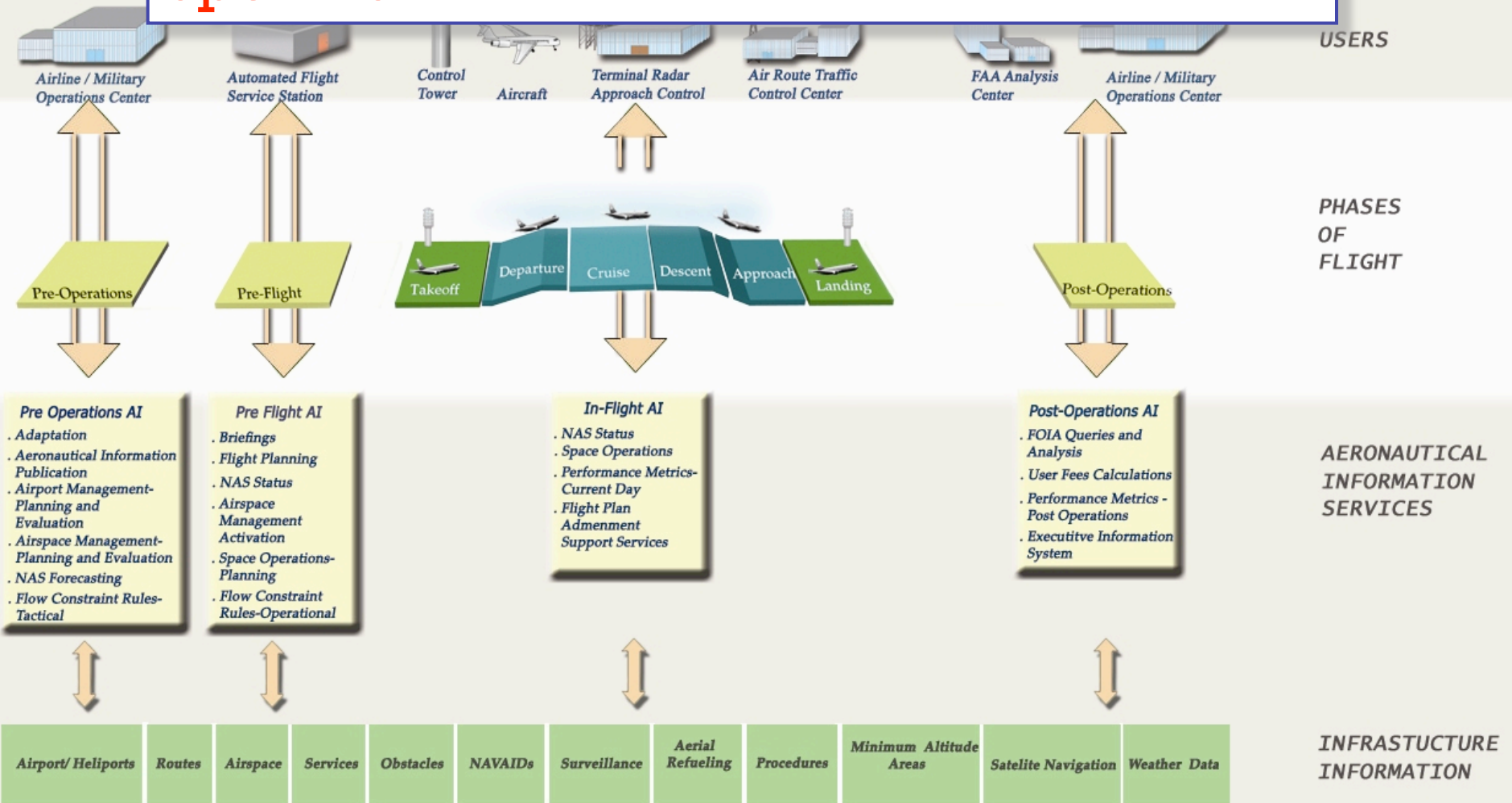
- **AIM Modernization program**
  - Mission
  - Shortfalls and Goals
  - Planned capabilities
  - Automation roadmap
- **Federal NOTAM System (FNS)**
  - Concept of Operations
  - FNS 1
  - Short term milestone schedule
  - Future FNS releases
- **Digital NOTAM and xNOTAM**
  - Language of Digital NOTAMs
  - Stakeholder coordination
  - Summary of xNOTAM
  - Summary of Digital NOTAM



# Aeronautical Information Management (AIM)

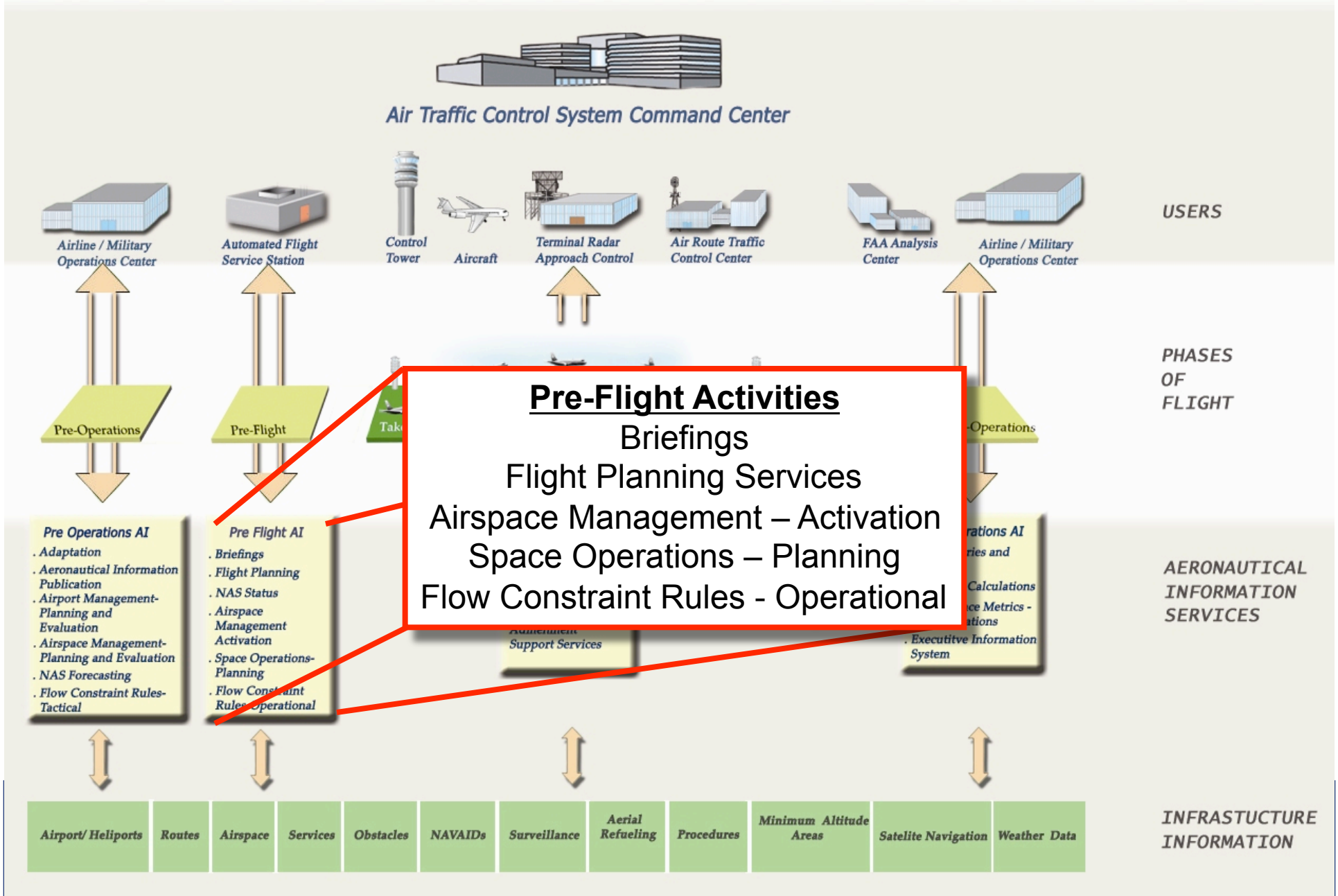
AIM - Interactive, On Demand information interchange between entire aviation community to support safe, efficient flight operations.

**“...Interactive, on-demand information supporting safe and efficient flight operations...”**



# Aeronautical Information Management (AIM)

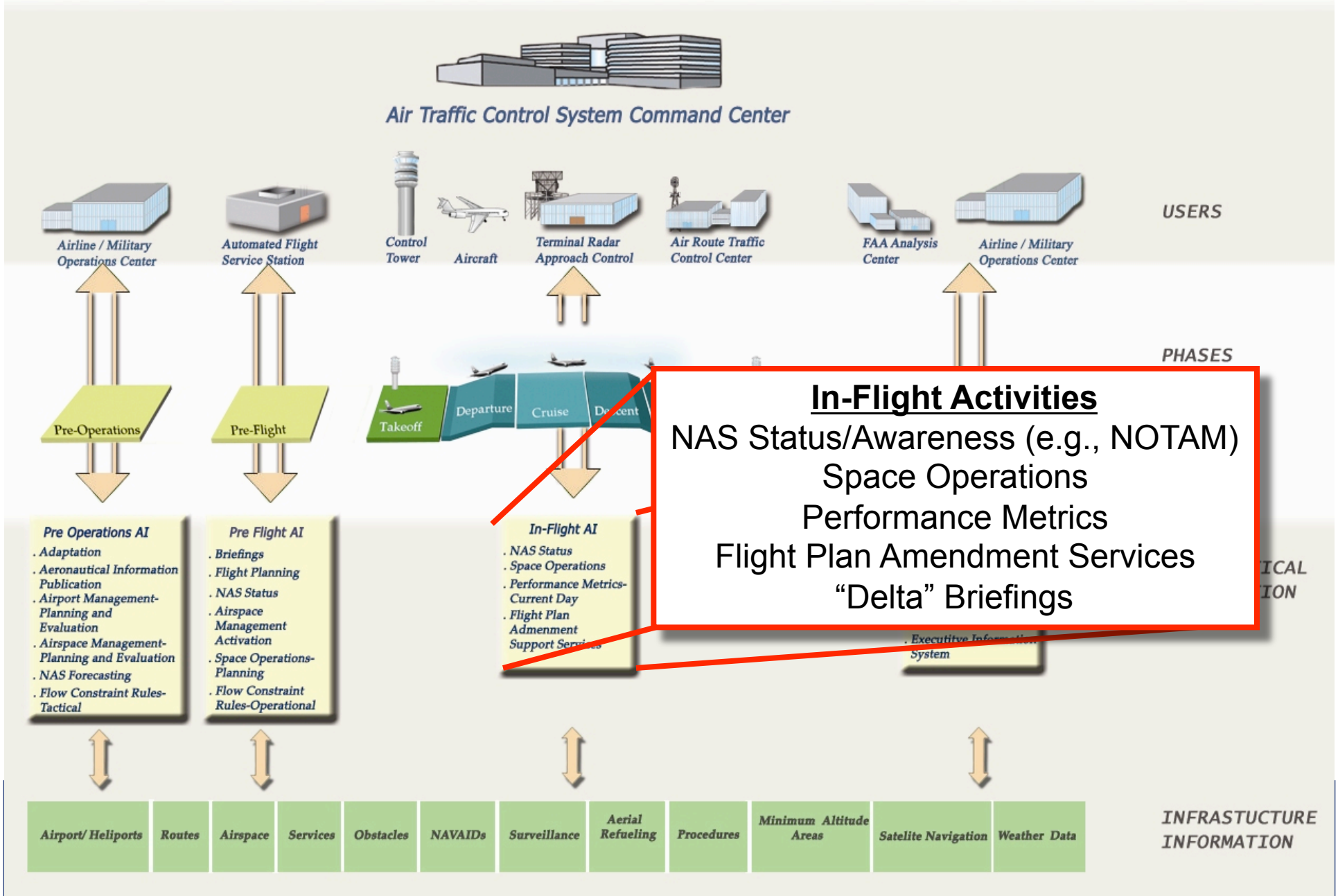
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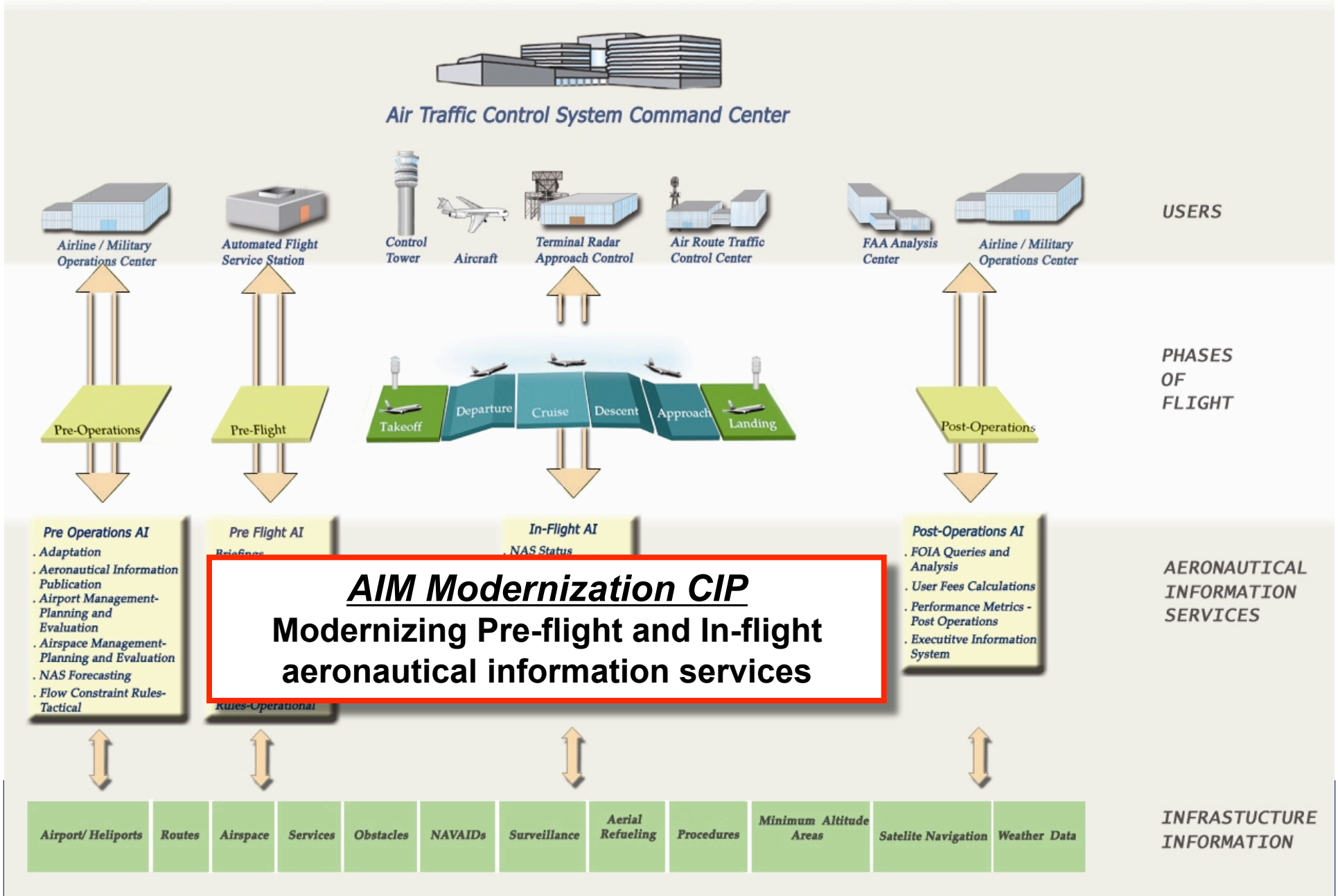
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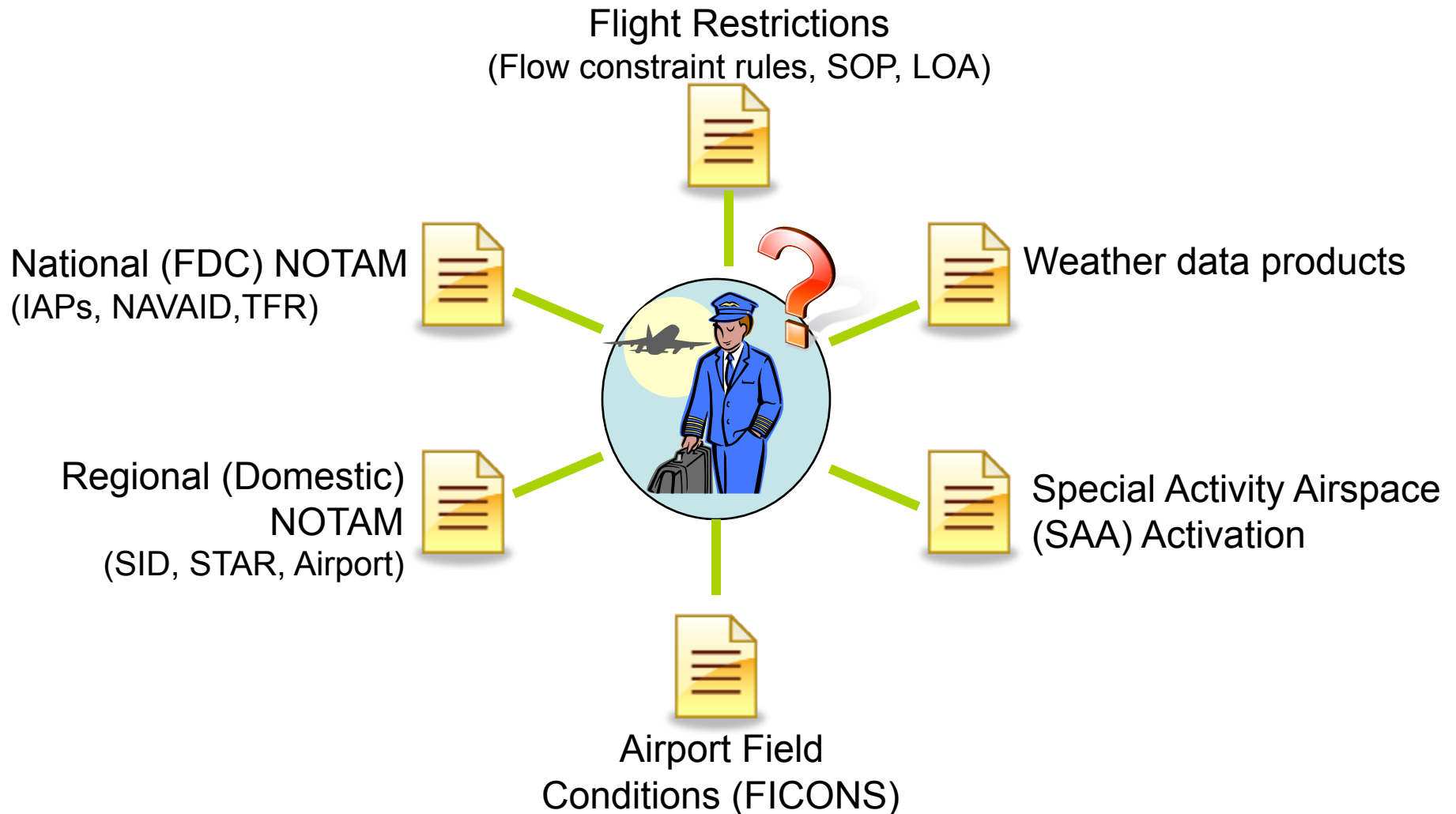
# Aeronautical Information Management (AIM)

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# Product-driven policy

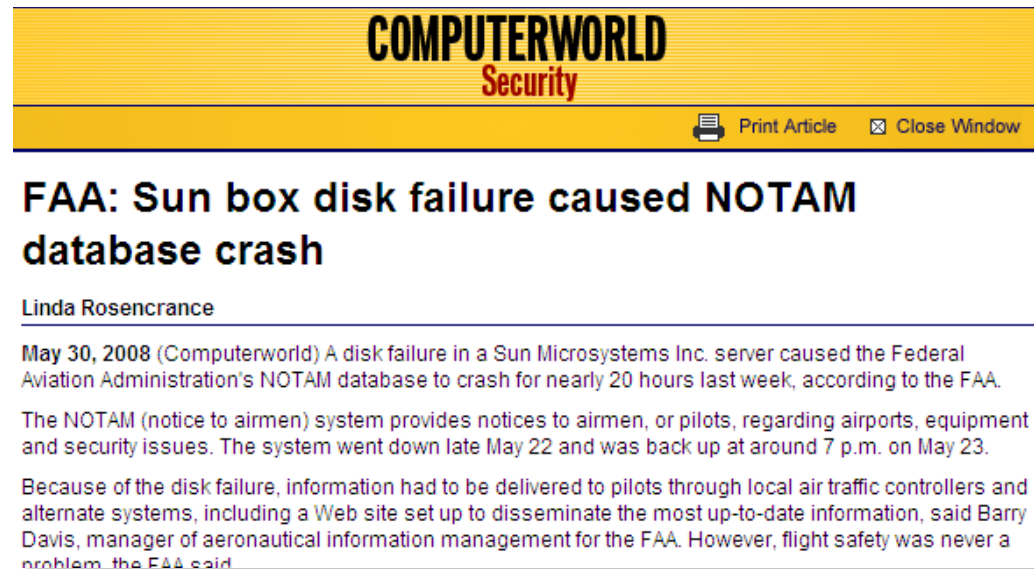
## Challenges facing AIM



# Aging Infrastructure

## Challenges facing the US NOTAM system

- **“Accidental Architecture”**
  - Convoluted
  - Duplicative
- **High maintenance costs**
  - Achieving essential system availability
- **Difficult to change**
  - Increased cyber-security requirements
  - Unable to handle information agility required by SWIM and NextGen





# Shortfalls in meeting customer needs

## Challenges facing AIM

- **Human factors and operational needs**
  - Difficult to read
  - Difficult to sort and identify
  - Difficult to identify originator if there are questions
  - Confusion with no “end date”
- **Incompatible with computer systems**
  - No long term repository or archive
  - Cannot be reliably parsed or queried for advanced flight planning systems
  - Cannot be reliably mapped
- **Convoluted business processes**
  - Manual collection, processing and distribution
  - Missing service delivery guarantees
  - Quality management

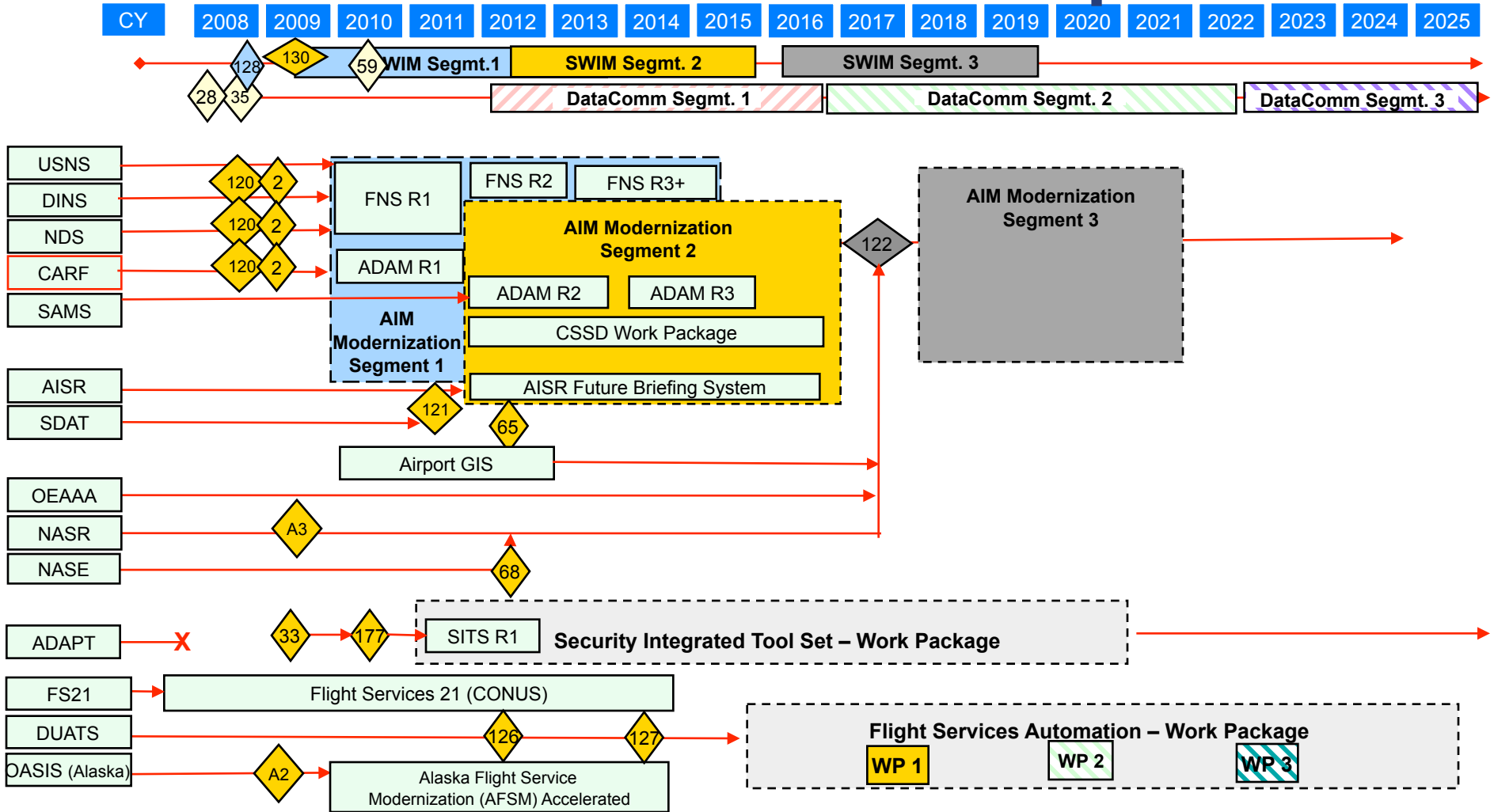


# Goals for AIM Modernization

- **Improve the quality**
  - Automate and streamline business processes
  - Collect metadata
- **Provide a single source**
  - One collection and distribution point for all information
  - Consolidate inefficient legacy systems for improved customer service
- **Conform to ICAO standards and recommended practices**
- **Balance diverse customer needs**
  - Airlines, ATC, General Aviation, International, Military
- **Complete digital capture and delivery**
  - Enable automated fusion of published and dynamic data
  - Automate and streamline bu



# AIM Modernization Roadmap

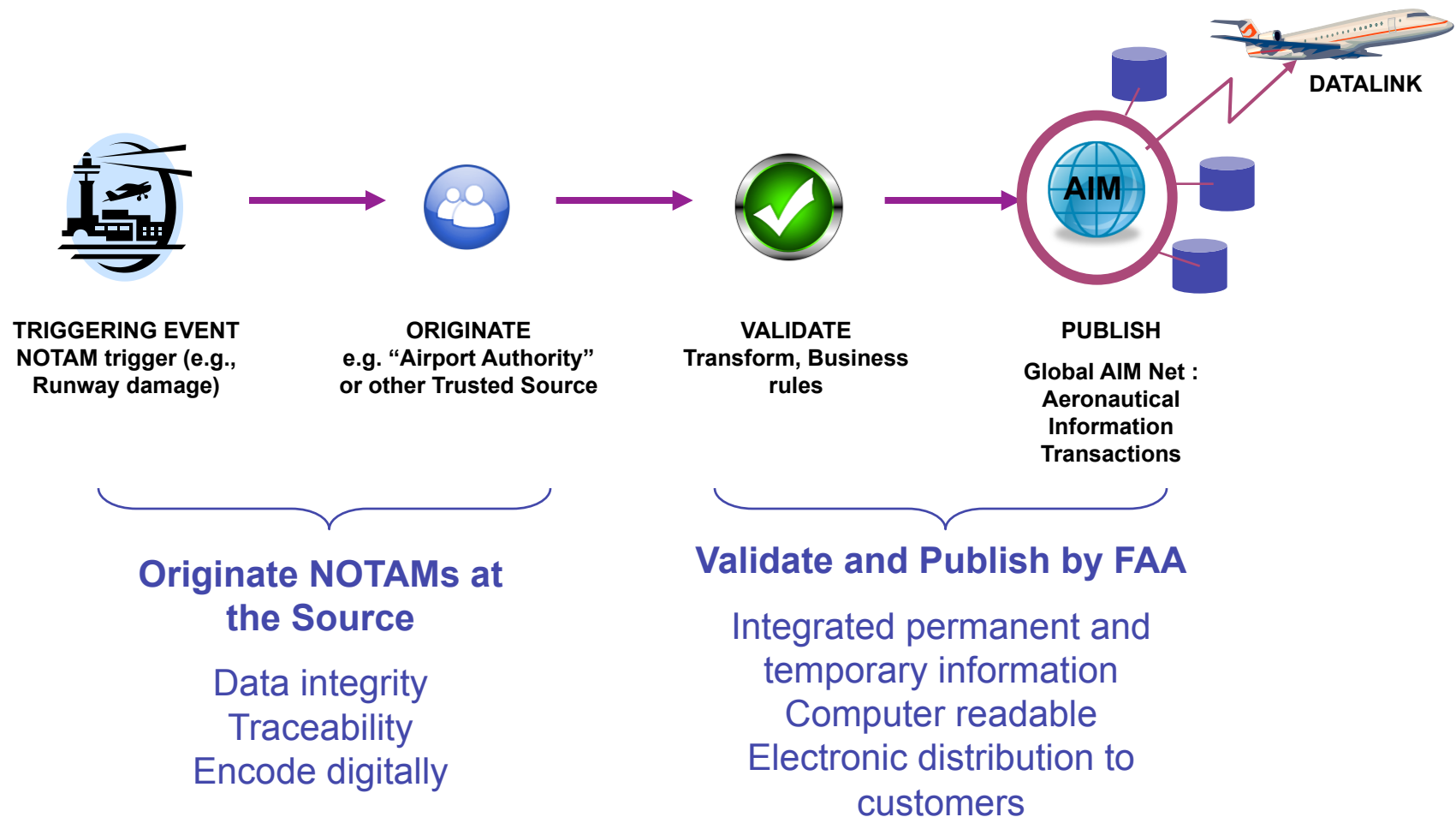


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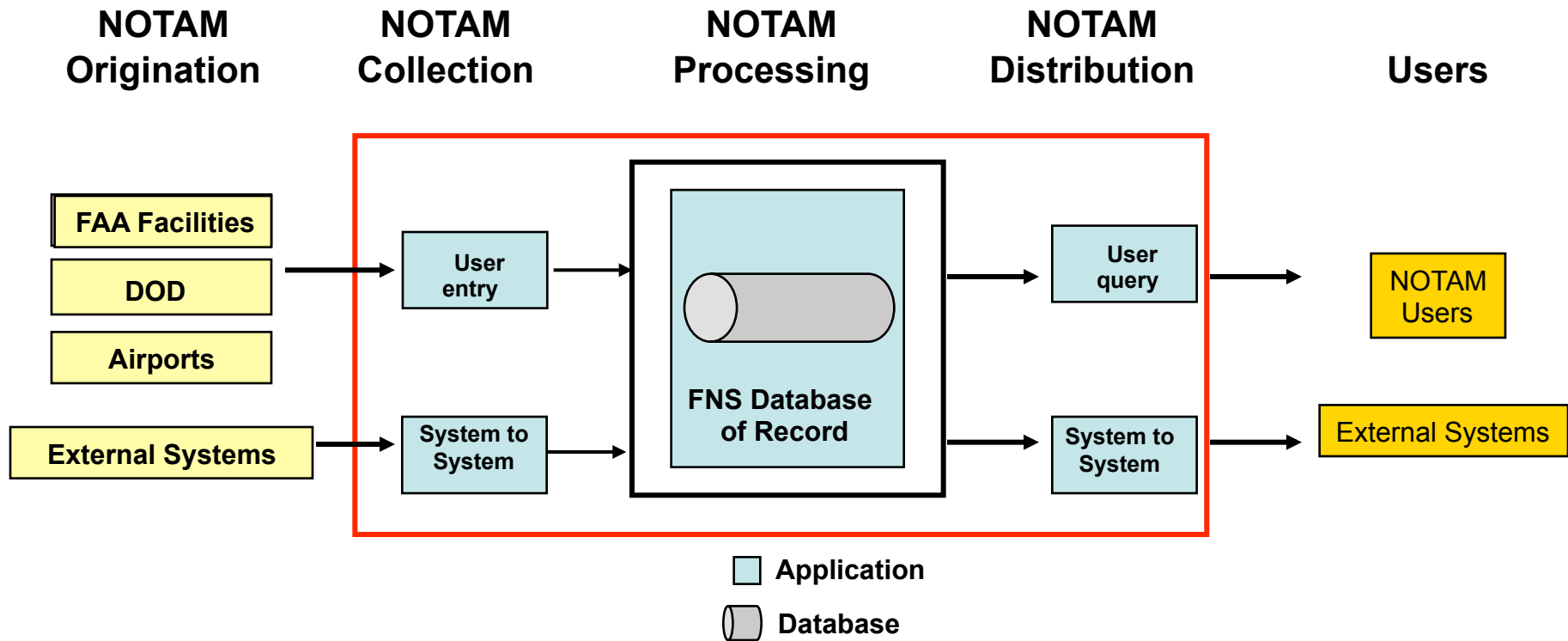


# Concept of Use



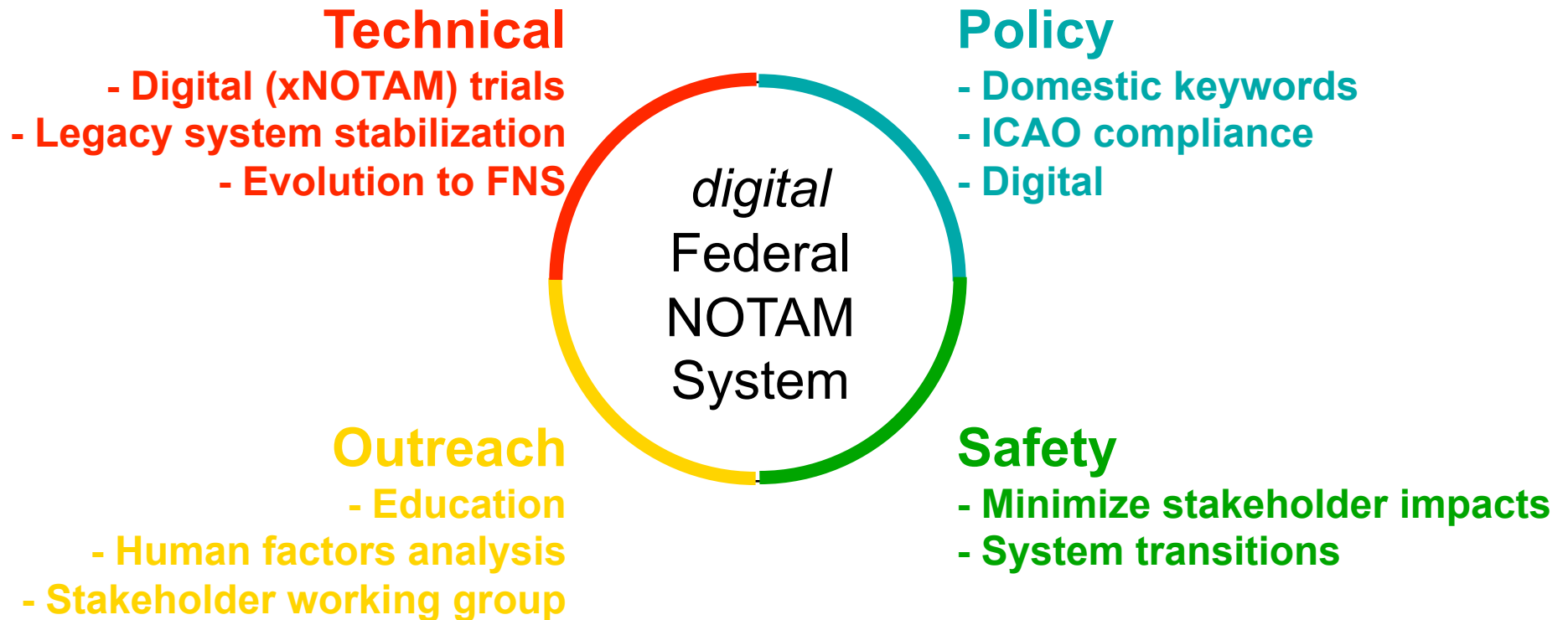


# Federal NOTAM System (FNS)

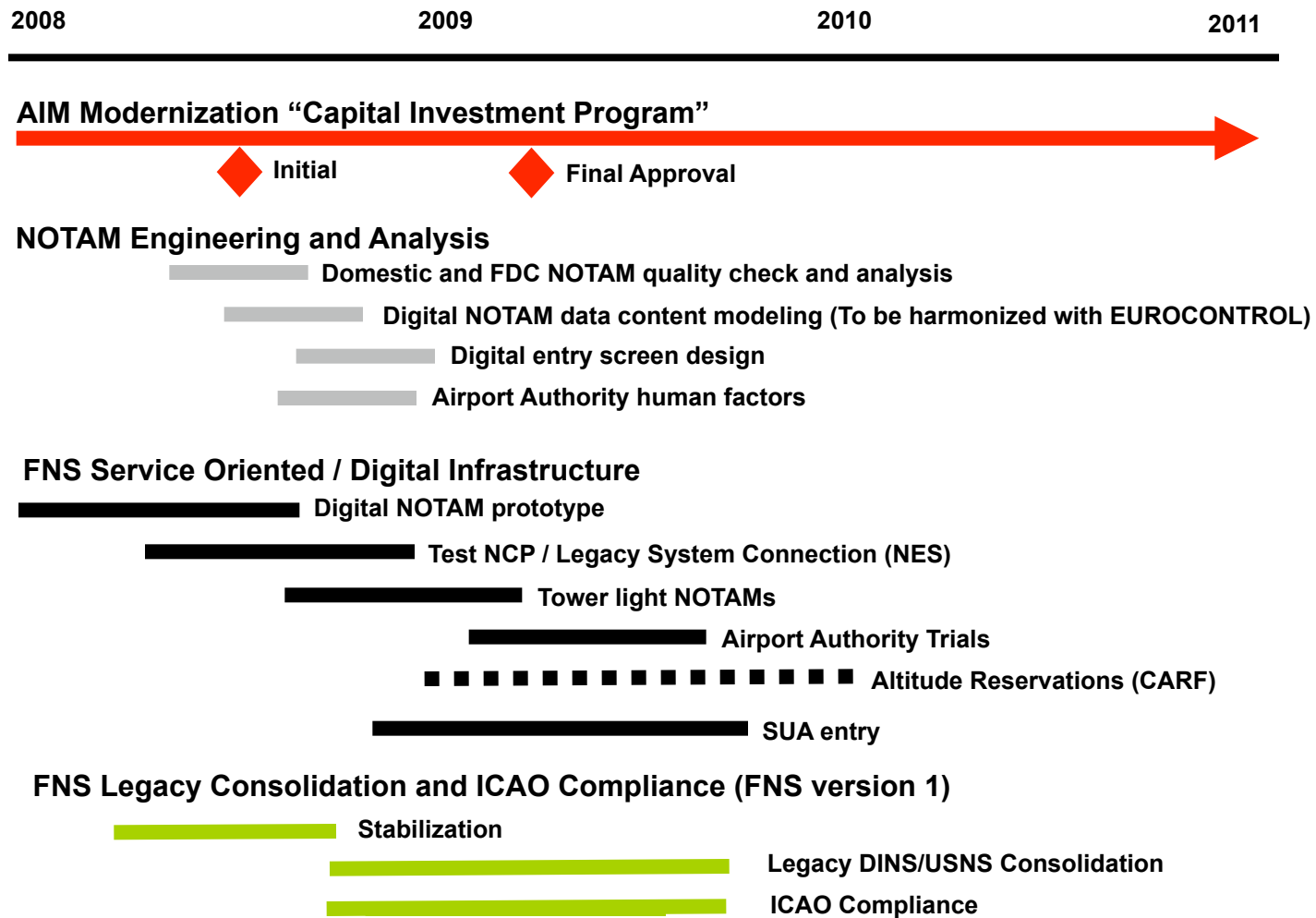


- Joint system for managing US military and civilian NOTAMs
- ICAO compliant and digital

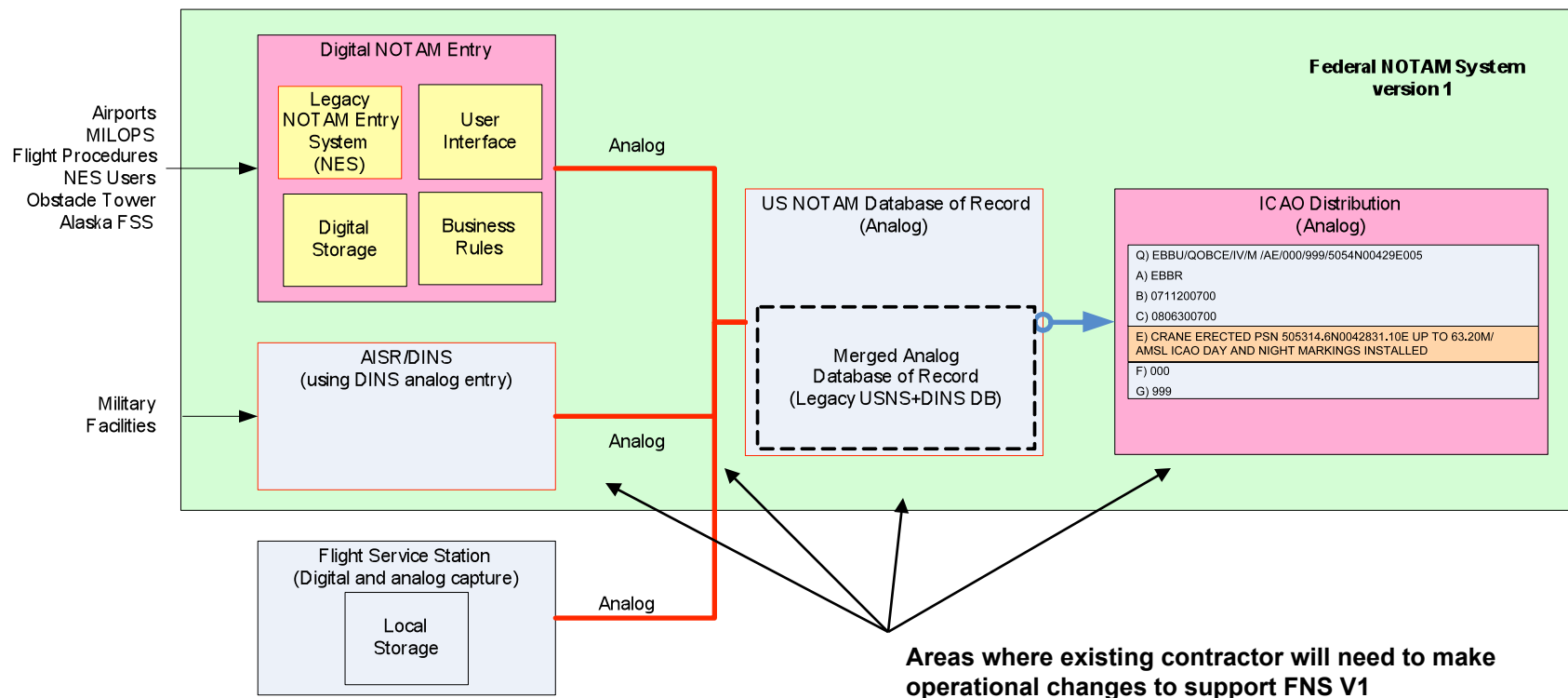
# FNS Strategic Plan



# Federal NOTAM System (FNS) Milestone Schedule



# What is Federal NOTAM System (FNS) V1?



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  - Summary of Digital NOTAM





# What is a Digital NOTAM?

## Digital Aeronautical Information *Digital NOTAM (xNOTAM)*

```
- <AirspaceUsageTimeSlice gml:id="VID014">
+ <gml:validTime>
  <interpretation>TEMPDELTA</interpretation>
  <sequenceNumber>1</sequenceNumber>
- <isComposedOf>
  - <AirspaceLayerUsage>
    <activity>UAV</activity>
    <statusActivation>ACTIVE</statusActivation>
  - <concerns>
    - <LevelAndTimeBlock>
      <upperLimit uom="FL">95</upperLimit>
      <upperLimitReference>STD</upperLimitReference>
      <lowerLimit uom="FT">4500</lowerLimit>
      <lowerLimitReference>MSL</lowerLimitReference>
    - <isActiveBy>
      - <Timetable>
        - <isComposedOf>
          - <Timesheet>
            <timeReference>UTC</timeReference>
            <startDate>24-07</startDate>
            <endDate>24-07</endDate>
            <day>MON</day>
            <startTime>09:00</startTime>
```



# Digital Input translated to multiple output formats

**Runway**

Runway:

Runway Operation Status:

Marking:

Modify Runway Length

**Entry**

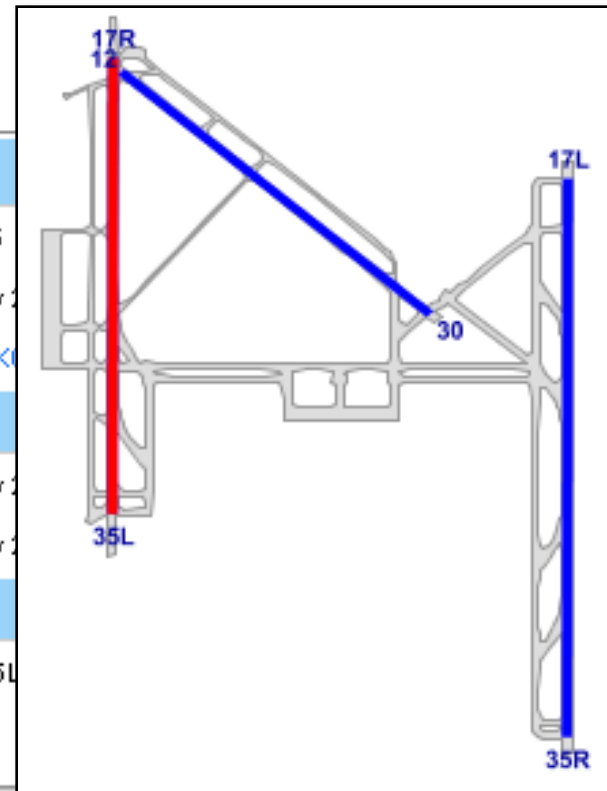
```

</gml:validTime>
<aixm:interpretat
<accountabilityFe
<isChanged_AIXMFe
  <aixm:_FeatureId
    <aixm:has_Fee
ef="//aixm:Runway[
  </aixm:_Feature
</isChanged_AIXM
<textUSNS>!COS 10
  
```

**AIXM XML**

Description	
NOTAM Number	10/005
Issue Date	19 Nov 2005
Airport	COS (KOS)
Effective Times	
Beginning	20 Nov 2005
Ending	20 Nov 2005
Affected Area(s)	
Runway	17R/35L
Operation Status	Closed
Issuing Authority	City of Colorado Springs Muni

**Plain Language**



**Charts**



# Aeronautical Information Exchange Model

## Enabling AIM Modernization

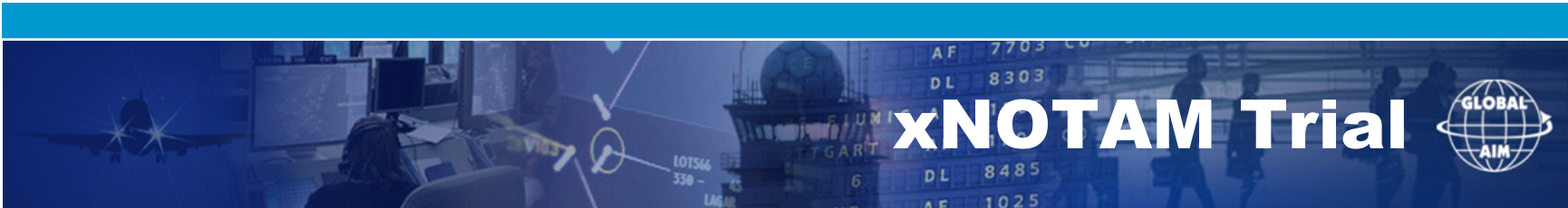


Others...



More information at [www.aixm.aero](http://www.aixm.aero)

- Complete data model (Airport AC 150/5300-18B)
- OGC GML 3.2 Compliant
- Static and dynamic data
- Common meanings and definitions
- Eliminate free form text



● Features

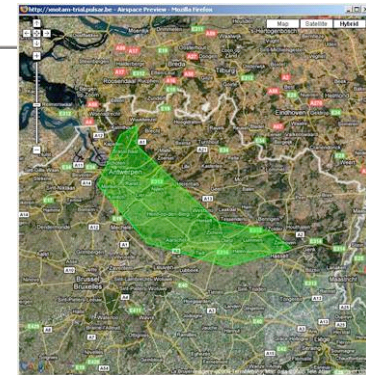
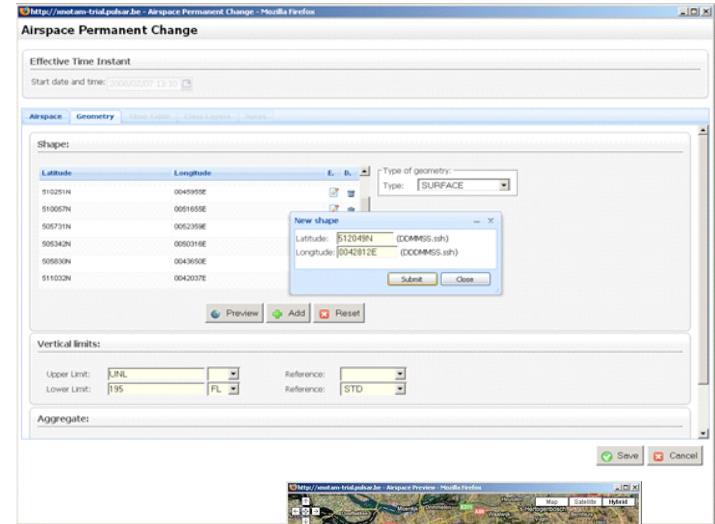
- Airport, Runway, Airport Usage
- Airspace, Airspace Usage
- Navaid, Points, Routes
- Obstacle

● Data providers

- Almost 3000 NOTAM encoded
- On average, 50% of the NOTAM are covered!

● October – November 2008

- Second session
- 9 States already interested

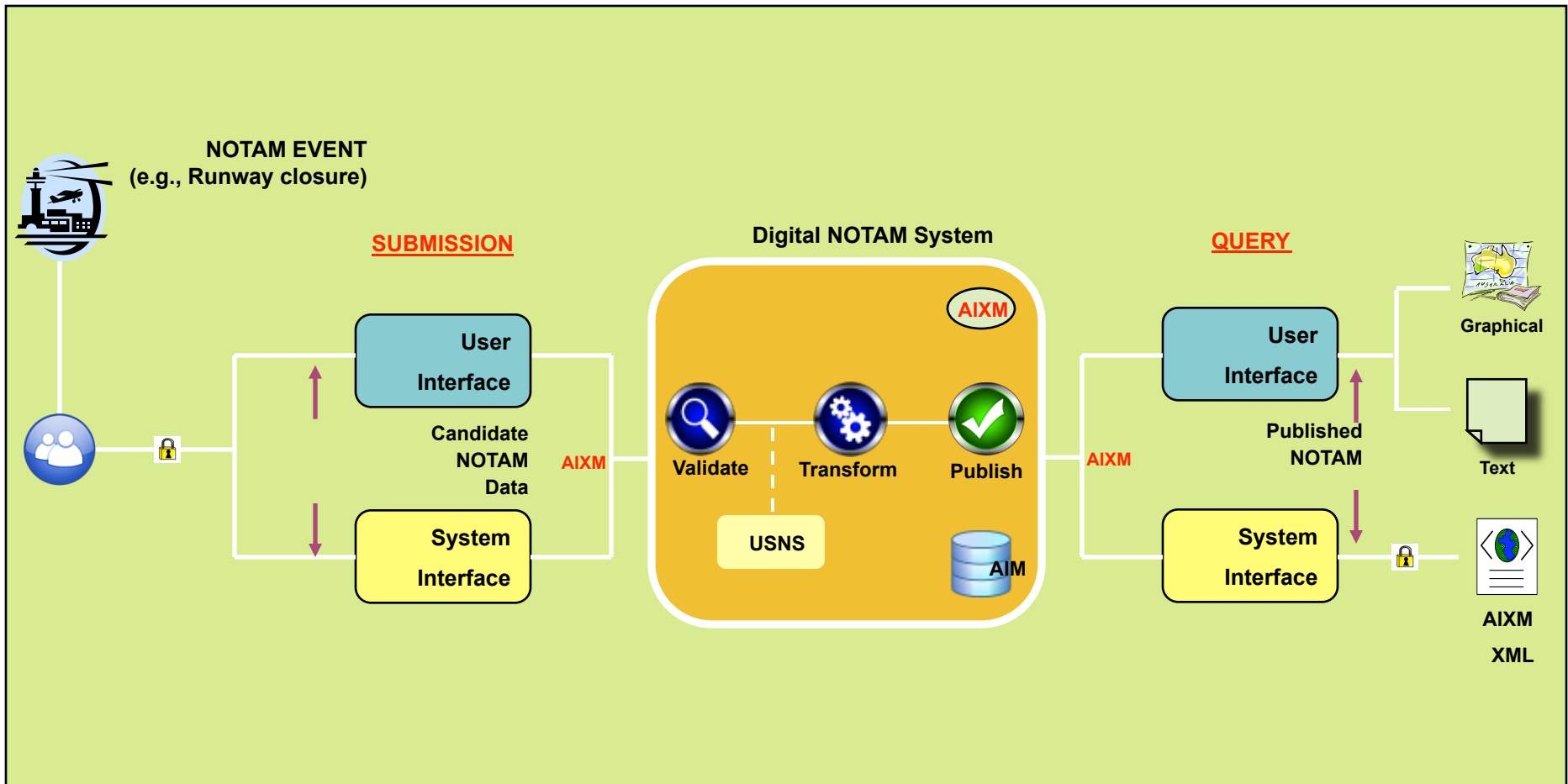


Proved feasibility of using AIXM to encode NOTAM information in XML!

Congress 17-19 June 2008



# FAA Digital NOTAM Submission

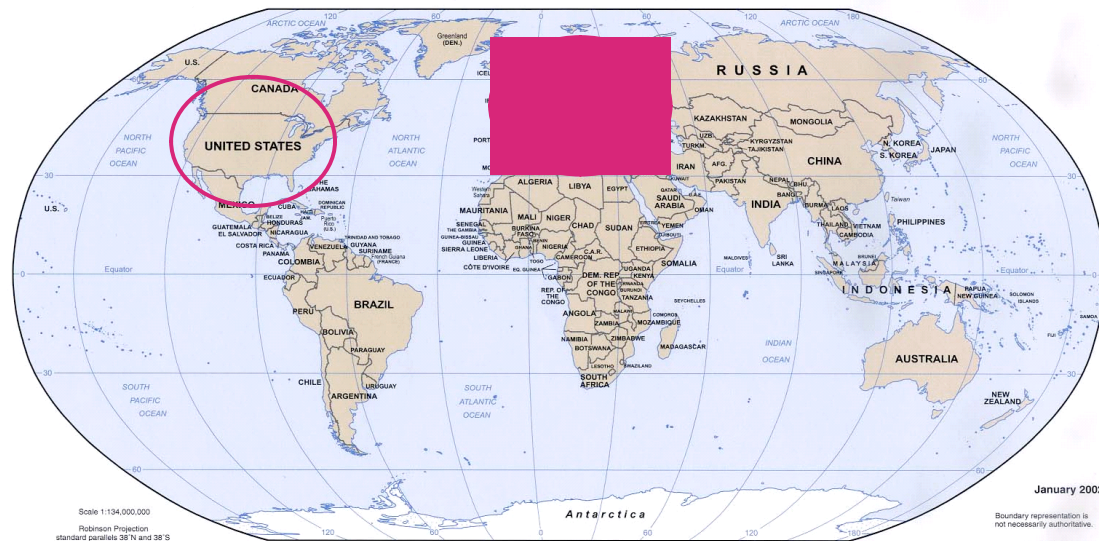




# Implementation Plans

- **Eurocontrol xNOTAM**
  - Trails in 2008/9
  - Safety and Benefits case
  - Implementation 2011+
- **FAA FNS**

**One world  
wide standard  
for digital  
NOTAM**



# Conclusions

- **We can enable a lot of future concepts when we move to digital NOTAM information**
  - AIXM is the language for digital NOTAM
- **Federal NOTAM System**
  - Joint FAA and DOD NOTAM capabilities
  - Evolution from legacy system to full digital 2008-2012+
- **Stakeholder coordination and outreach is essential**
  - See <http://nfdc.faa.gov/aimnews>
  - See <http://www.aixm.aero>
  - Email: [Brett.brunk@faa.gov](mailto:Brett.brunk@faa.gov)
  - Email: [Barry.C.Davis@faa.gov](mailto:Barry.C.Davis@faa.gov)

