


Financing the Evolution from AIS to AIM

Presentation to the ICAO SAM Region

by

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Lima, Peru

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Outline

- Problem Overview
- Introduction to MDA
  - Corporate Overview
  - MDA's Aviation Experience
- The AIS-to-AIM Challenge
  - AIS-to-AIM Roadmap
  - How MDA Can Help
- Summary

Overview

- **Evolution from AIS to AIM is a challenge requiring 4 key ingredients for success**

People, Processes, Policy

Primarily the responsibility of the States

Information Technology

MDA has developed AIM solutions for many customers, including the FAA, USAF, AsA, and others

Data, including terrain & obstacles

MDA has unique capabilities to address the challenges of Annex 15, Chapter 10

Financial Resources

MDA can arrange financing solutions for AIM projects

Introduction to MDA

Corporate Overview
MDA's Aviation Experience

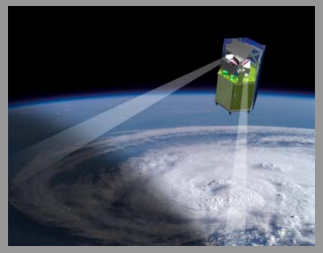
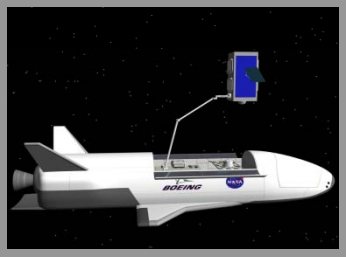
Corporate Overview

- Founded in 1969; headquartered in Vancouver, Canada
- Major projects and businesses around the world
- Best known as developer of robot arm on Space Station & Shuttle
- Continuously active in Aviation systems since 1979
- More than 3,200 employees
- Revenues in FY09 of $ 1B

Information Systems

MDA delivers essential information infrastructure through three operating units

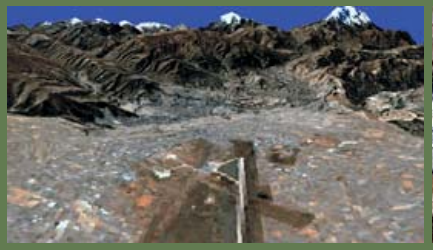
Space Missions

Integrated Information Solutions



Geospatial Services


MDA's Aviation Experience

Aeronautical Data Management Solutions

Flight Briefing Systems

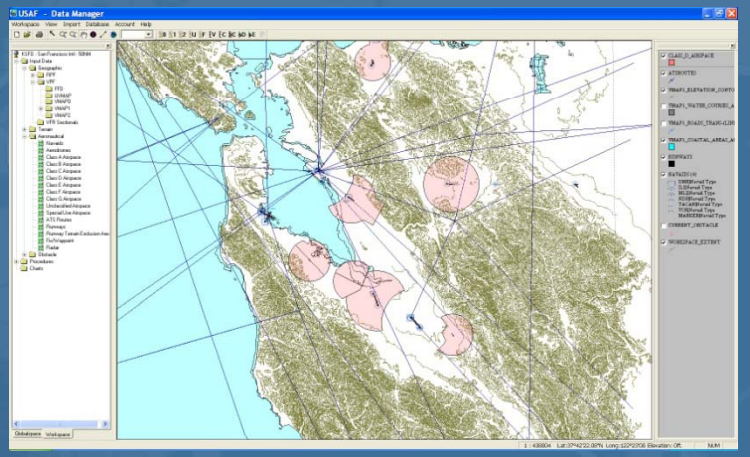
Instrument Procedure Design Automation

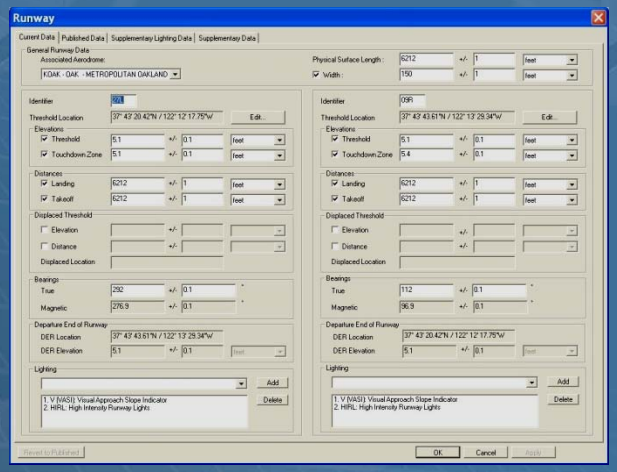
Aviation Geospatial Services

Aeronautical Data Management Solutions

Capabilities: *Aviation Information Systems ♦ Data Management Systems ♦ Data Exploitation & Fusion Systems ♦ Web Services*

- **Integrated aeronautical database to visualize, edit, store and export data**
  - **Geospatial data (terrain, obstacles, etc)**
  - **Tabular data (aerodromes, navaids, etc)**
- **Integrates with other systems using international aeronautical data exchange standards (AIXM)**
- **Provides a single national repository for all aeronautical data**
  - **Reduces data management costs**
  - **Improves data quality, accuracy, safety**
- **MDA solutions in service with USAF, FAA and commercial customers**

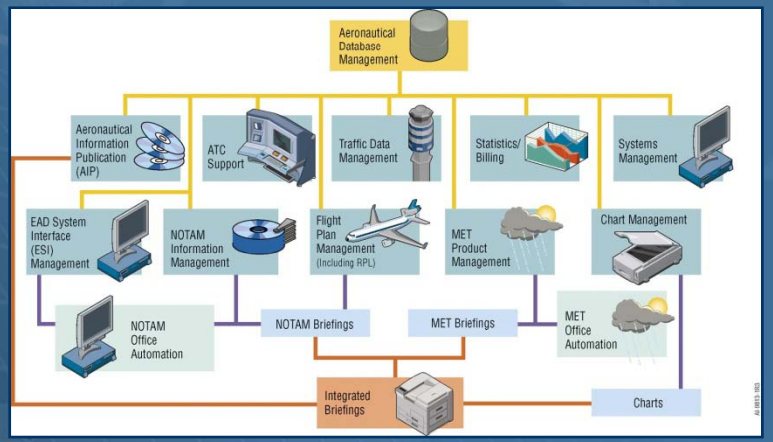




Flight Briefing Systems

Capabilities: *Aviation Information Systems ♦ Data Management Systems*

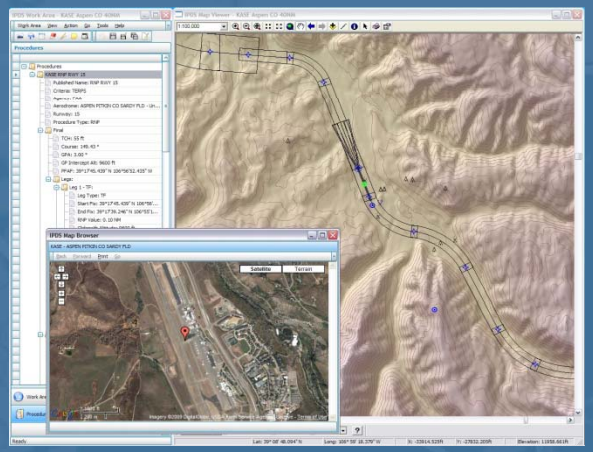
- **Pegasus-AIM™**
  - **Automated flight planning & filing**
  - **Full NOTAM Office automation**
  - **Internet narrow-route preflight briefing**
  - **National air movements tracking, billing**
- **Automated national system brings important benefits**
  - **Reduces cost of service provision**
  - **Improves accessibility for pilots**
  - **Improves briefing accuracy, quality**
- **Installations in Norway, Australia, Belgium, Malaysia**

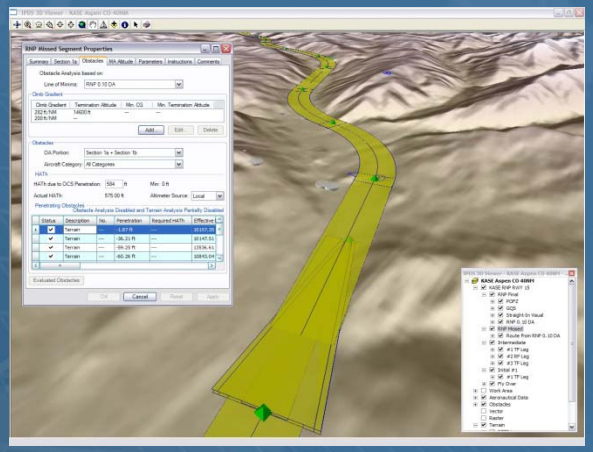


Instrument Procedure Design Automation

Capabilities: *Aviation Information Systems ♦ Data Management Systems ♦ Data Exploitation & Fusion Systems*

- **Enroute and terminal Instrument Flight Procedure (IFP) design system**
  - **TERPS, PANS-OPS, NATO criteria**
  - **Conventional and RNAV procedures**
  - **Automated procedure maintenance tools**
  - **Integrates with national aeronautical databases**
- **National flight procedure design and maintenance system has key benefits**
  - **10x improvement in design productivity**
  - **100x improvement in maintenance productivity**
  - **Facilitates national RNAV program**
- **200+ worldwide users, including FAA and USAF**





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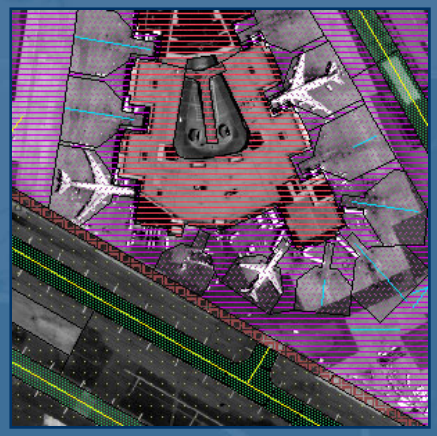
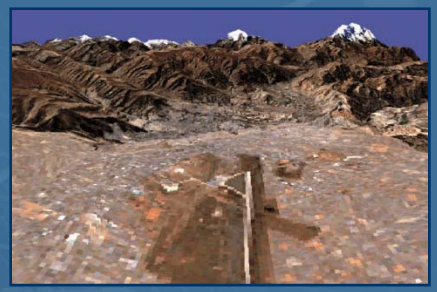
Geospatial Services – Aerodrome Mapping

Capabilities: *Mapping Services ♦ Data Exploitation & Fusion Services*

- **Creating Aerodrome Mapping Databases (AMDBs) for >400 airports worldwide for Jeppesen-Sanderson**
  - **Data collected using high resolution satellite images**
  - **Data used in airport moving maps in Jeppesen Electronic Flight Bag (EFB)**
  - **Providing regular updates to maintain and add new airports**
- **Generating airport maps from satellite data has key advantages**
  - **More cost-effective than aerial imagery**
  - **Can revisit airport frequently for change detection**
  - **Data collection is not disruptive to airport operator**





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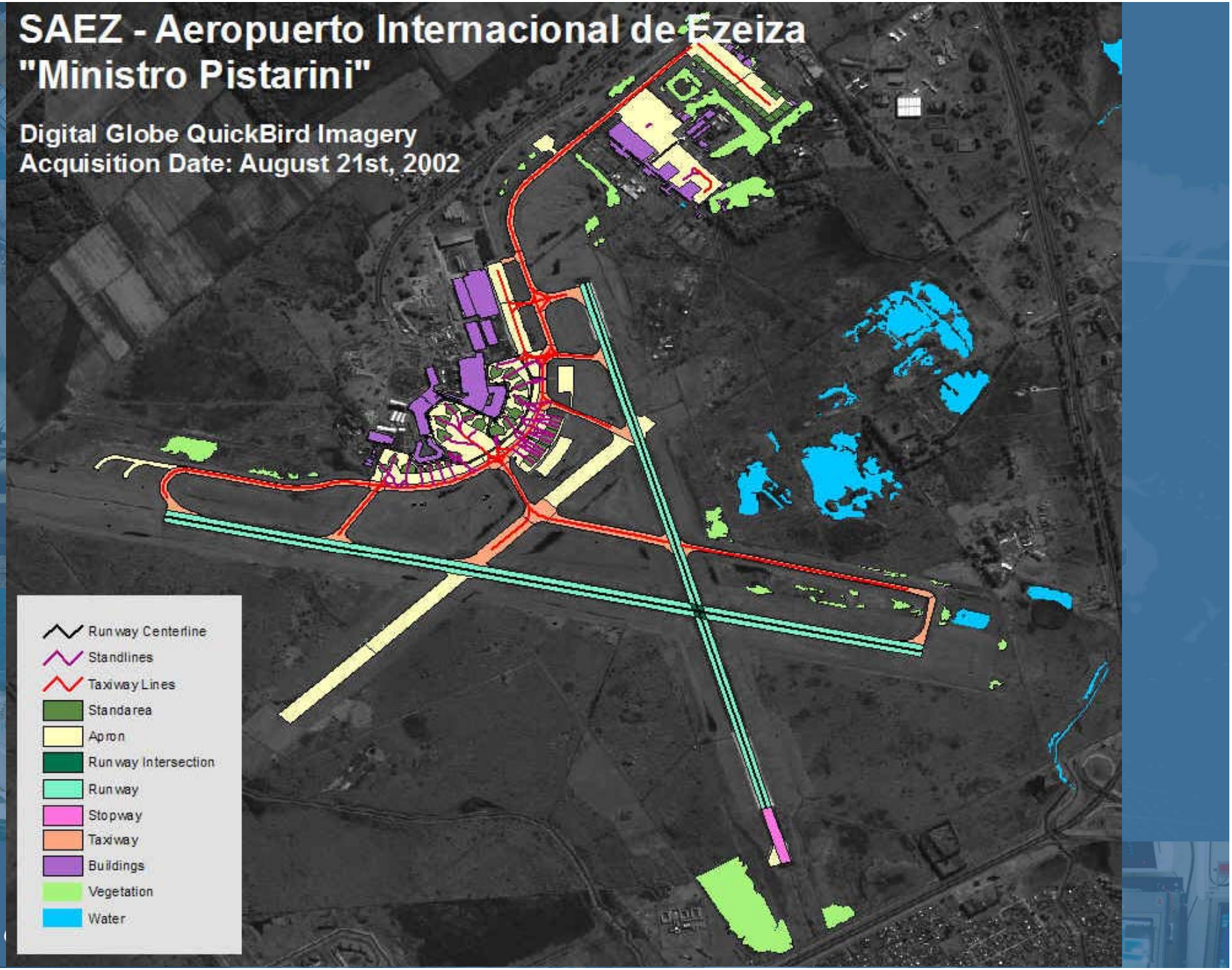
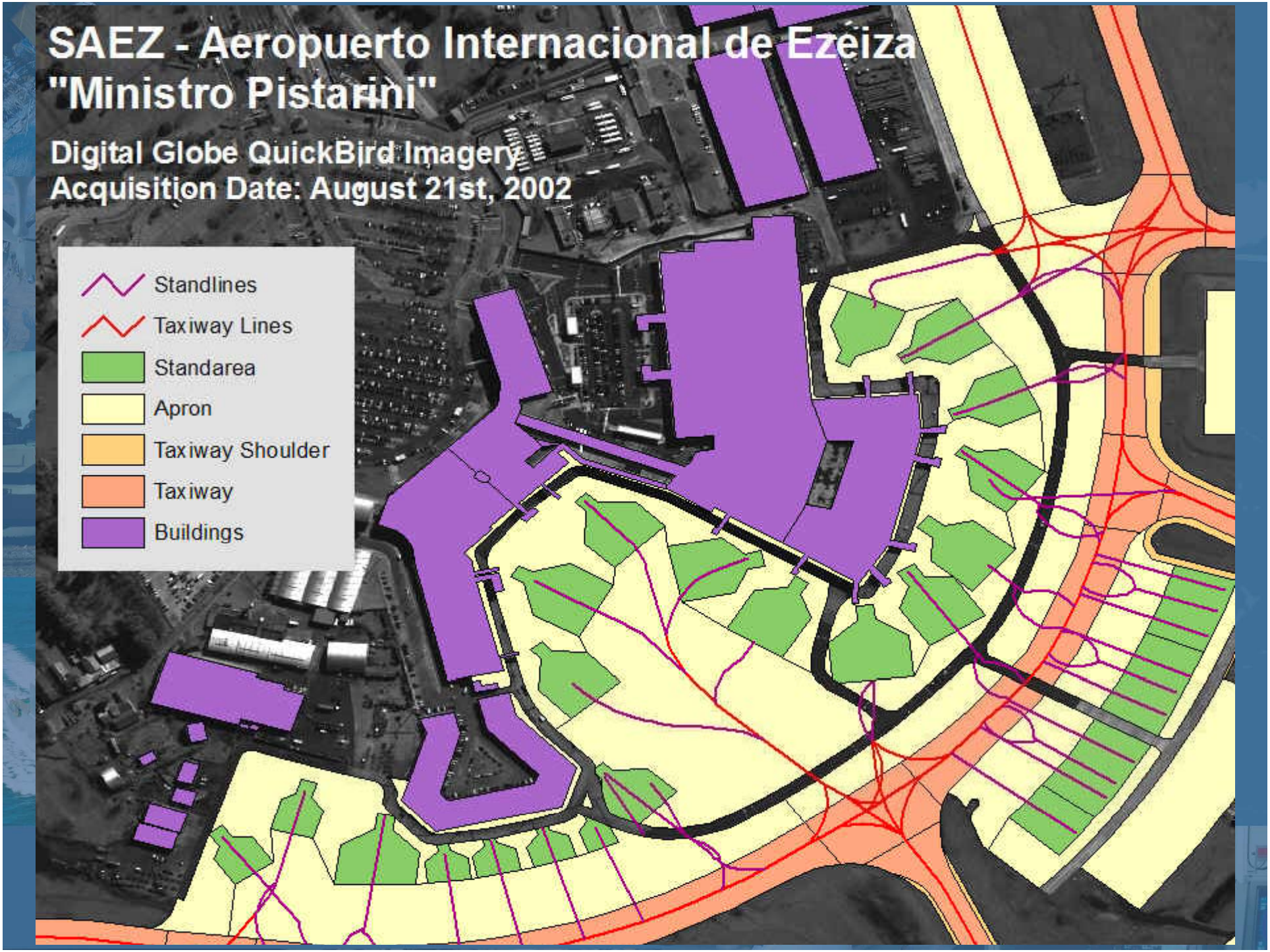
SAEZ - Aeropuerto Internacional de Ezeiza "Ministro Pistarini"

Digital Globe QuickBird Imagery
Acquisition Date: August 21st, 2002



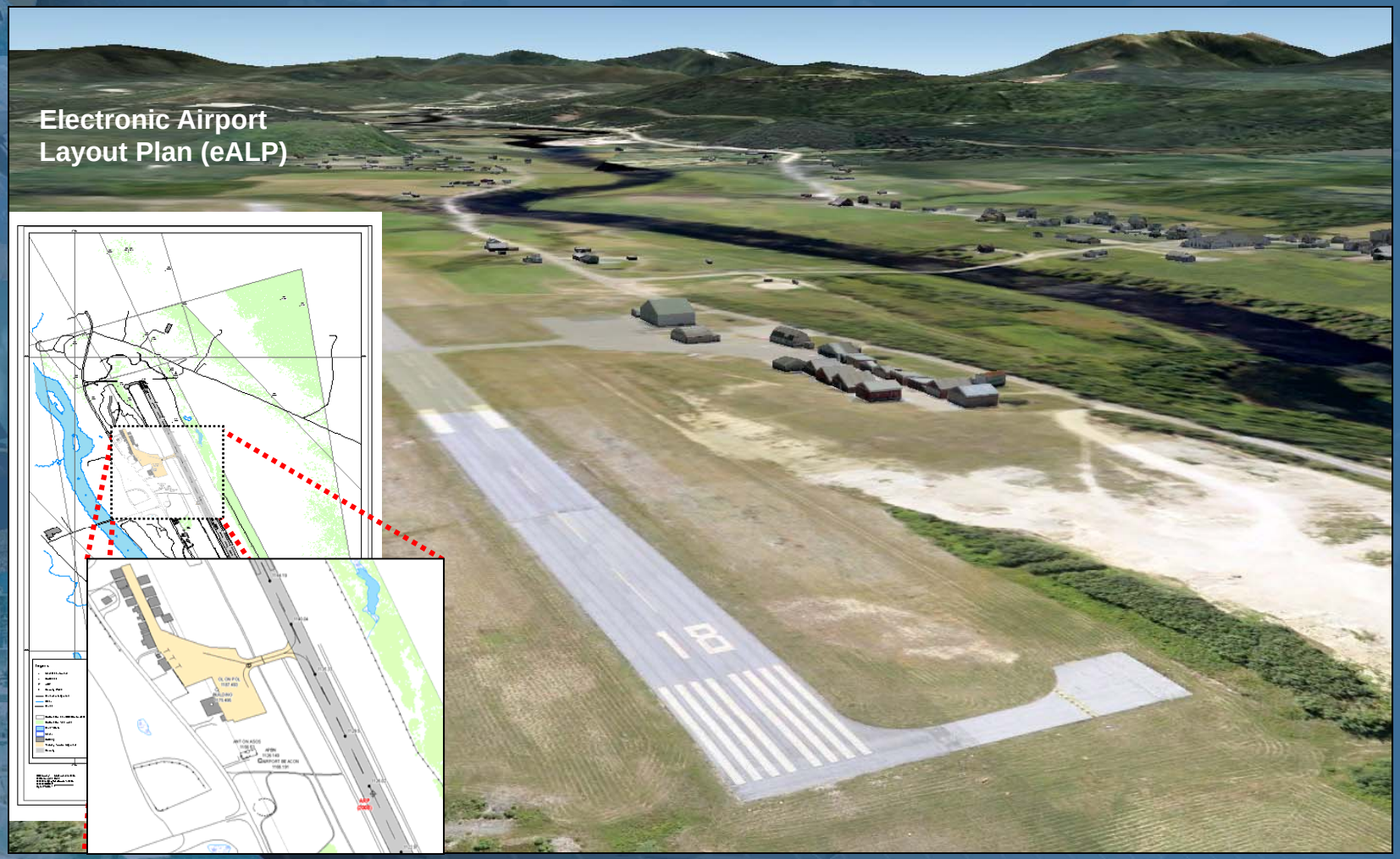

SAEZ - Aeropuerto Internacional de Ezeiza
"Ministro Pistarini"
Digital Globe QuickBird Imagery
Acquisition Date: August 21st, 2002
Standlines
Taxiway Lines
Standarea
Apron
Taxiway Shoulder
Taxiway
Buildings

Geospatial Services – Obstacle Detection & Validation

Capabilities: *Mapping Services ♦ Data Exploitation & Fusion Services*

- **Direct measurement of obstacles from 10cm-resolution oblique aerial imagery**
  - **Measurements made directly from imagery**
  - **Accuracies of < 1m vertical and < 15cm horizontal meet Annex 15, Chapter 10 specifications for Areas 3 & 4**
  - **Enables identification and classification of obstacles without stereographic images**
  - **Accuracies validated by FAA and NOAA for pilot project in Berlin, NH, USA**
- **Excellent technique for validating obstacle databases in preparation for national RNAV program**

Berlin, NH Synthesized from 3-d Model



The AIS-to-AIM Challenge

ICAO AIS-to-AIM Roadmap
How MDA Can Help

ICAO AIS-to-AIM Roadmap

AW1

Phase 3

- P-09 — Aeronautical data exchange
- P-10 — Communication networks
- P-12 — Aeronautical information briefing
- P-16 — Training
- P-18 — Agreements with data originators
- P-19 — Interoperability with meteorological products
- P-20 — Electronic aeronautical charts
- P-21 — Digital NOTAM

Phase 2

- P-01 — Data quality monitoring
- P-02 — Data integrity monitoring
- P-06 — Integrated aeronautical information database
- P-07 — Unique identifiers
- P-08 — Aeronautical information conceptual model
- P-11 — Electronic AIP
- P-13 — Terrain
- P-14 — Obstacles
- P-15 — Aerodrome mapping

Phase 1

- P-03 — AIRAC adherence monitoring
- P-04 — Monitoring of States' differences to Annex 4 and 15
- P-05 — WGS-84 implementation
- P-17 — Quality

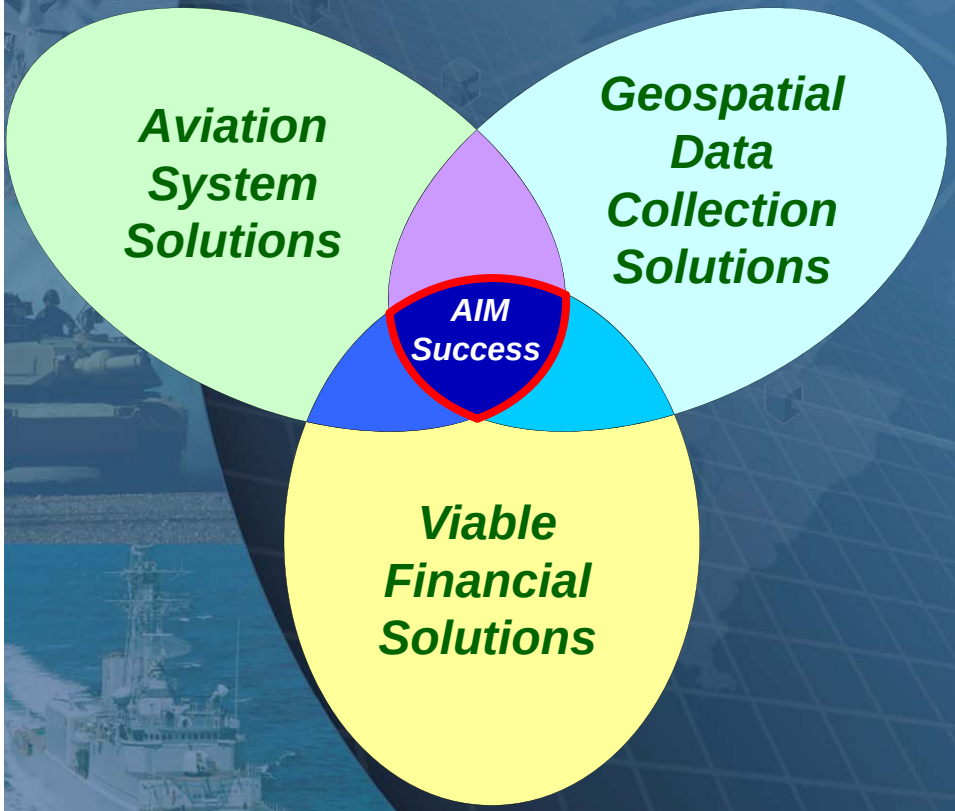
- **Roadmap helps identify ***what*** to do**
- **Has less to say about:**
  - ***How*** **to do it**
  - **How to ***fund*** it**
- **Some Phase 1 & 2 steps can be particularly problematic**
  - **Technically challenging (Anx 15, Ch 10)**
  - **Vital prerequisites for RNAV**
  - **Needed for many other Roadmap steps**
  - **Most solutions are financially unviable**
- ***MDA can help overcome these issues***

Slide 17

AW1 Change Doc 9750

Alan Wass, 5/24/2010

How MDA Can Help (Slide 1 of 2)



- MDA can provide:
  - Systems solutions and expertise
  - Unique geospatial capabilities
- Can also offer an ingredient for success that is often missing…
  - *Viable financial solutions*
- MDA has assembled partners that can offer States the means to finance AIM evolution
  - Removes key barrier to AIM success
- States continue to provide people, processes, policy, and collaborating systems / data

How MDA Can Help (Slide 2 of 2)

- For States that are interested in financing, the process is:
  - Initial meetings to assess high-level financial options, mechanisms, ways forward available to the State
  - If agreement on way forward reached, assess State's current AIM status, goals, priorities
  - Agree on scope, schedule of desired work
  - MDA presents business plan to State, including financial solution

Summary

- Evolution to AIM requires both technical and financial solutions
- Solving geospatial data collection problem must be done early in the evolution to AIM and RNAV
- MDA has unique geospatial data collection capabilities and strong system capabilities
- MDA can help with both technical and financial solutions

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Muchas Gracias

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