



Air National Guard Geo Integration Office (GIO)

Governance and Compliance

Ensuring Data Quality

Air National Guard QAP Workflows: PLTS Foundation

Justin Wolff(GIO Regional Administrator)

Mark Alexander(GIO Data Architecture Manager)

**ESRI FedUC
18 February 2010**



ANG GIO Data Management

This presentation presents:

- the concept of using recognized architecture and data management frameworks that describe what constitutes the ANG GIO data governance program.
- The influence of these frameworks for planning and assessing data quality and data quality maturity.
- Tactically, how these frameworks assisted the ANG in defining the integration of automated QC technology to support data quality efforts.



Implementing Best Practice Frameworks

Strategic

Planned

Tactical

- Data Governance
- Ensuring Data Quality
- Evolution ANG QAP Workflows: PLTS Foundation “A Case Study”

Implementing Authorities

DoD Compliance Drivers



EA and IT “Best Practice” Frameworks

- Frameworks assist in describing major concepts and their interrelationships.
- Frameworks assist in organizing the complexity of a subject.
- Frameworks facilitate communications and discussion.
- Additionally, data governance frameworks assist in demonstrating how data governance relates to other aspects of data management, data architecture, and enterprise architecture.



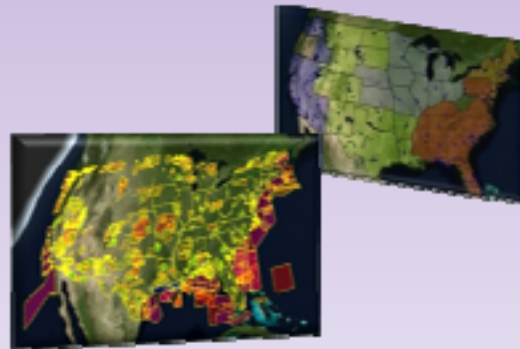
ANG GIO Data Management GI&S Domain Areas

Installations



All DoD

Domestic Operations



National Guard

Expeditionary



Active Duty AF

**Implementing
Authorities**

IGI&S



DISDI



NGB GIO



IGI&S





ANG GIO Data Management

GI&S Domain Areas

Expeditionary



Deploying ANG

2002 – Ongoing

- **Training**

(Producing data outside our enterprise)



ANG GIO Data Management GI&S Domain Areas

Installations



All ANG I & E

- 2005 – Ongoing**
- Training Development
 - Producing
 - Consuming

Expeditionary



Active Duty AF

- 2002 – Ongoing**
- Training



ANG GIO Data Management

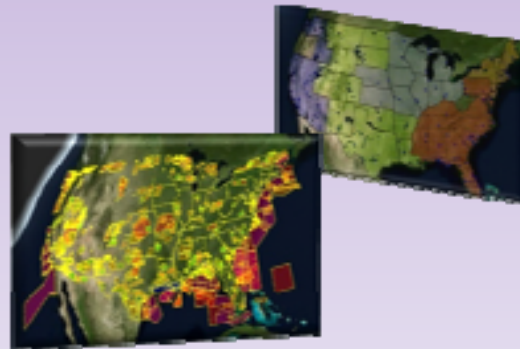
GI&S Domain Areas

Installations



All ANG

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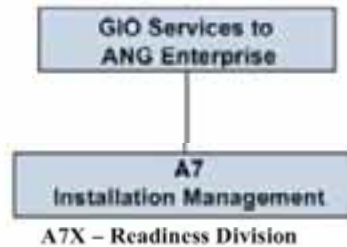
**2005 – Ongoing
Training
Producing
Consuming**

**2008 – Ongoing
Consuming
Producing**

2002 – Ongoing



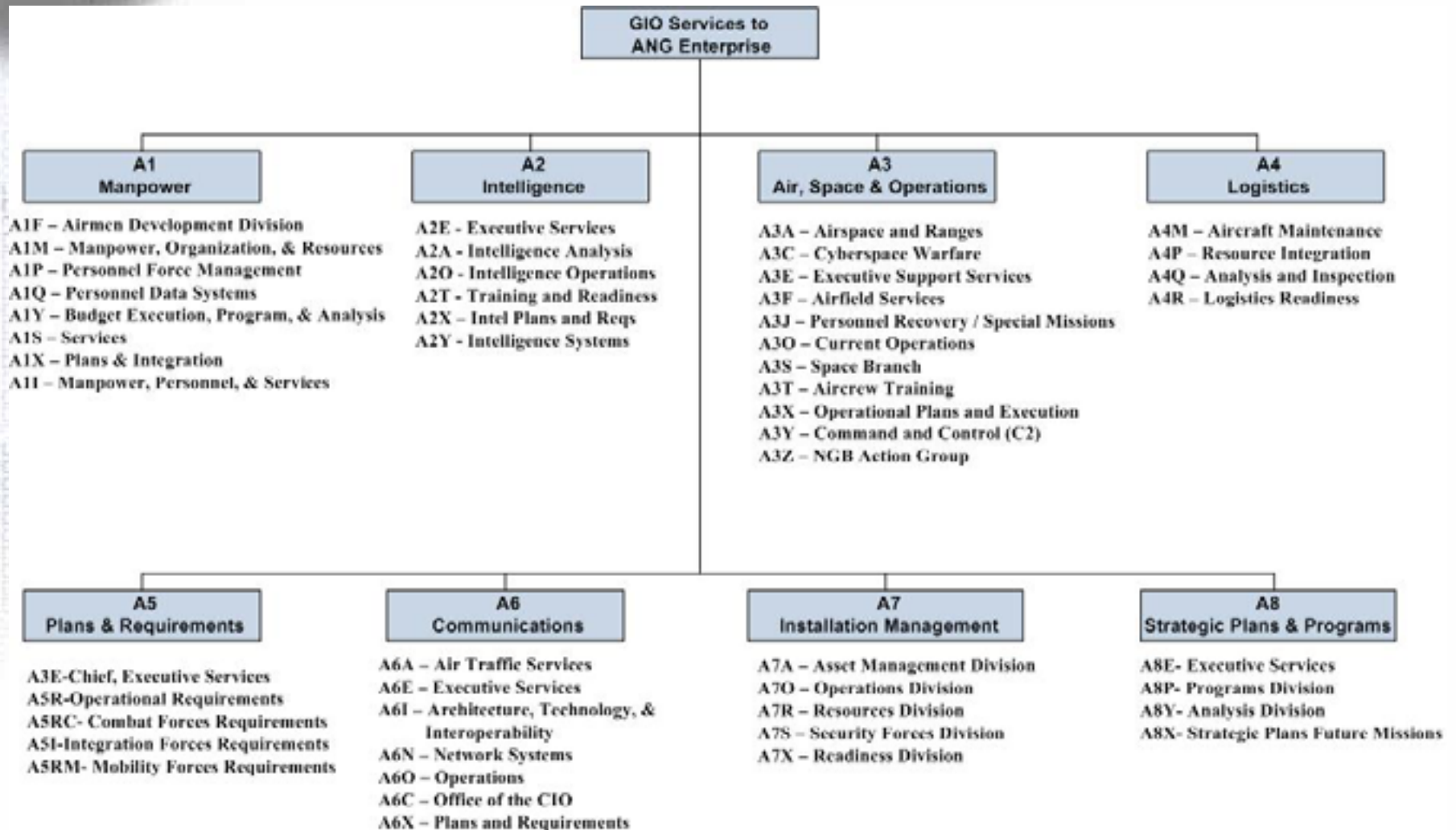
ANG GIO Data Lines of Business (BRM) 2002



Training



ANG GIO Data Lines of Business (BRM) 2010



Training

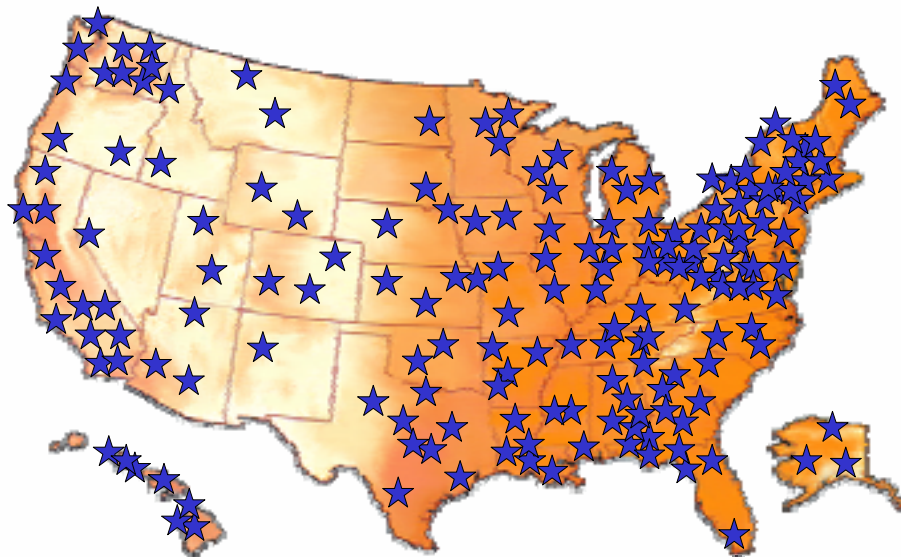
Producing

Consuming



Reality Check...

Over 100 ANG installations/sites

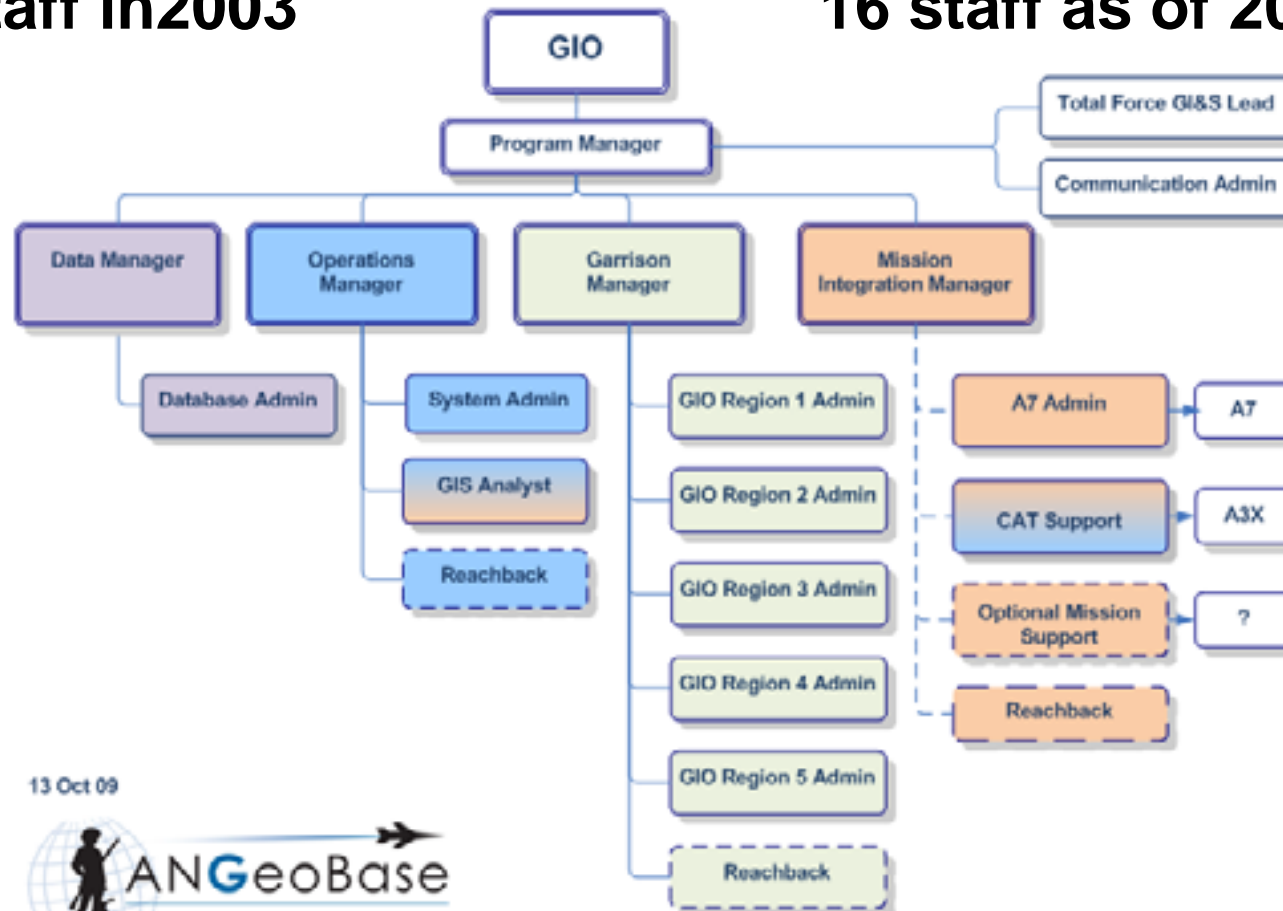




Reality Check...

9 staff in 2003

16 staff as of 2010



13 Oct 09





PLTS Foundation – Purchase 2006

How?

Why?

Internal Business Need

Intuition

GIS Data ReViewer

MPS Atlas

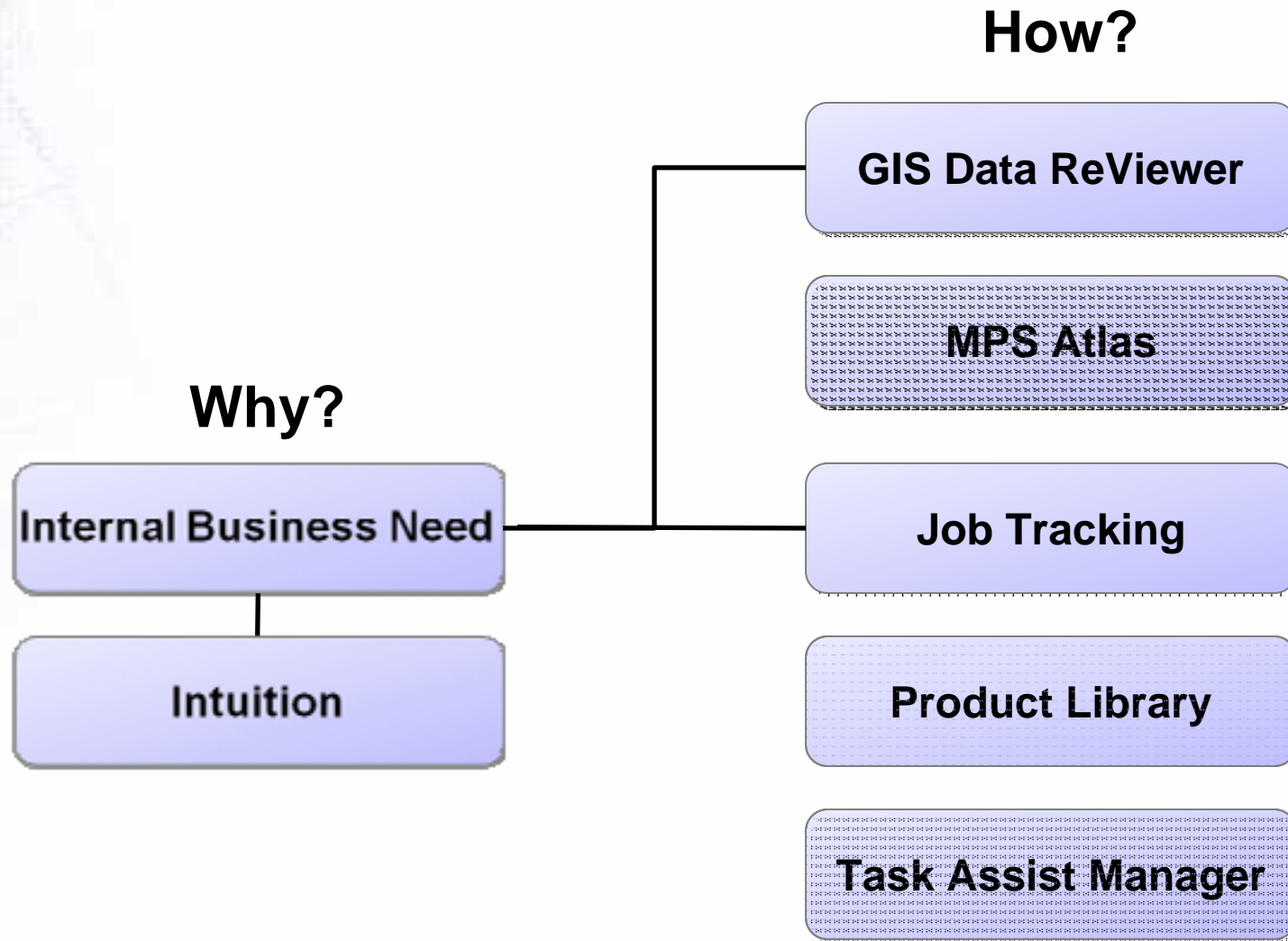
Job Tracking

Product Library

Task Assist Manager

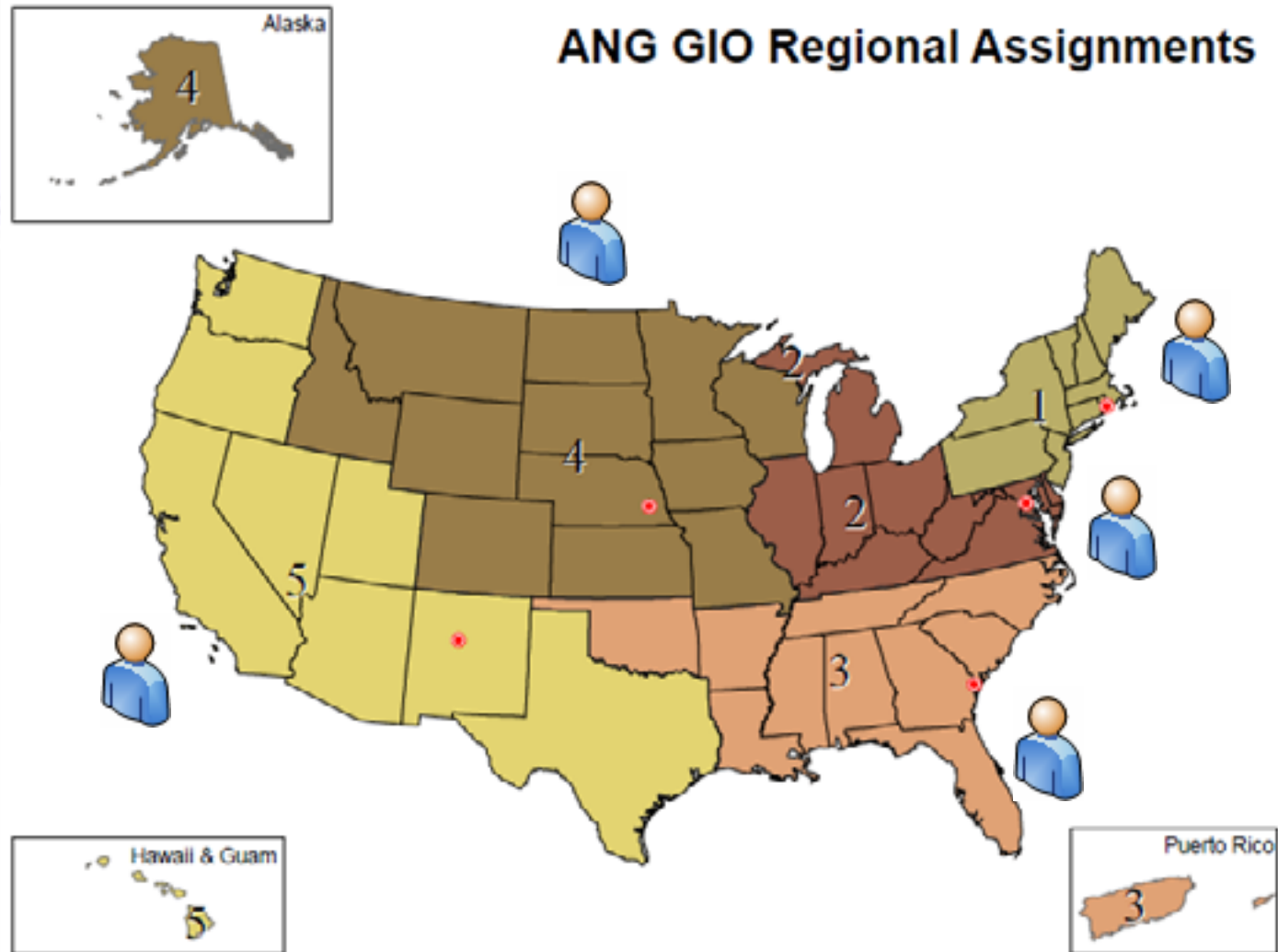


PLTS Foundation – 2008





Over 100 ANG installations





PLTS: Job Tracking Client Side

Jobs

- Public Queries
 - General Queries
 - All Jobs
 - Unassigned Jobs
 - Group Queries
 - Jobs assigned to my gr
 - Jobs with steps assign
 - Personal Queries
 - Jobs assigned to me
 - Jobs with steps assign
 - User Queries
 - Searches

Job Query Results - List View

ID	Name	Assigned To	Job Type
5602	AJVF_Andrews_AFB_113th_5602	mark.alexander.1	AJVF_Andrews_AFB_113th Baseline CIP Data Load
5603	FWJH_Ellington_Field_147th_5603	mark.alexander.1	FWJH_Ellington_Field_147th Baseline CIP Data Load
5604	VTNB_Sky_Harbor_161st_5604	mark.alexander.1	VTNB_Sky_Harbor_161st Baseline CIP Data Load
5605	QJRL_Minneapolis_Paul_133rd_5605	mark.alexander.1	QJRL_Minneapolis_Paul_133rd Baseline CIP Data Load
5606	LSGA_Jacksonville_125th_5606	mark.alexander.1	LSGA_Jacksonville_125th Baseline CIP Data Load
6001	SPBN_Otis_102nd_6001	mark.alexander.1	SPBN_Otis_102nd Baseline CIP Data Load
6003	Mission_Integration_6003	mark.alexander.1	Mission Integration Data Load
6004	Mission_Integration_6004	mark.alexander.1	Mission Integration Data Load
8001	HAAW_Hancock_Field_174th_8001	mark.alexander.1	HAAW_Hancock_Field_174th Baseline CIP Data Load
8401	WHAY_Stewart_105th_8401	mark.alexander.1	WHAY_Stewart_105th Baseline CIP Data Load
8402	SZCQ_Peace_157th_8402	mark.alexander.1	SZCQ_Peace_157th Baseline CIP Data Load

List Map

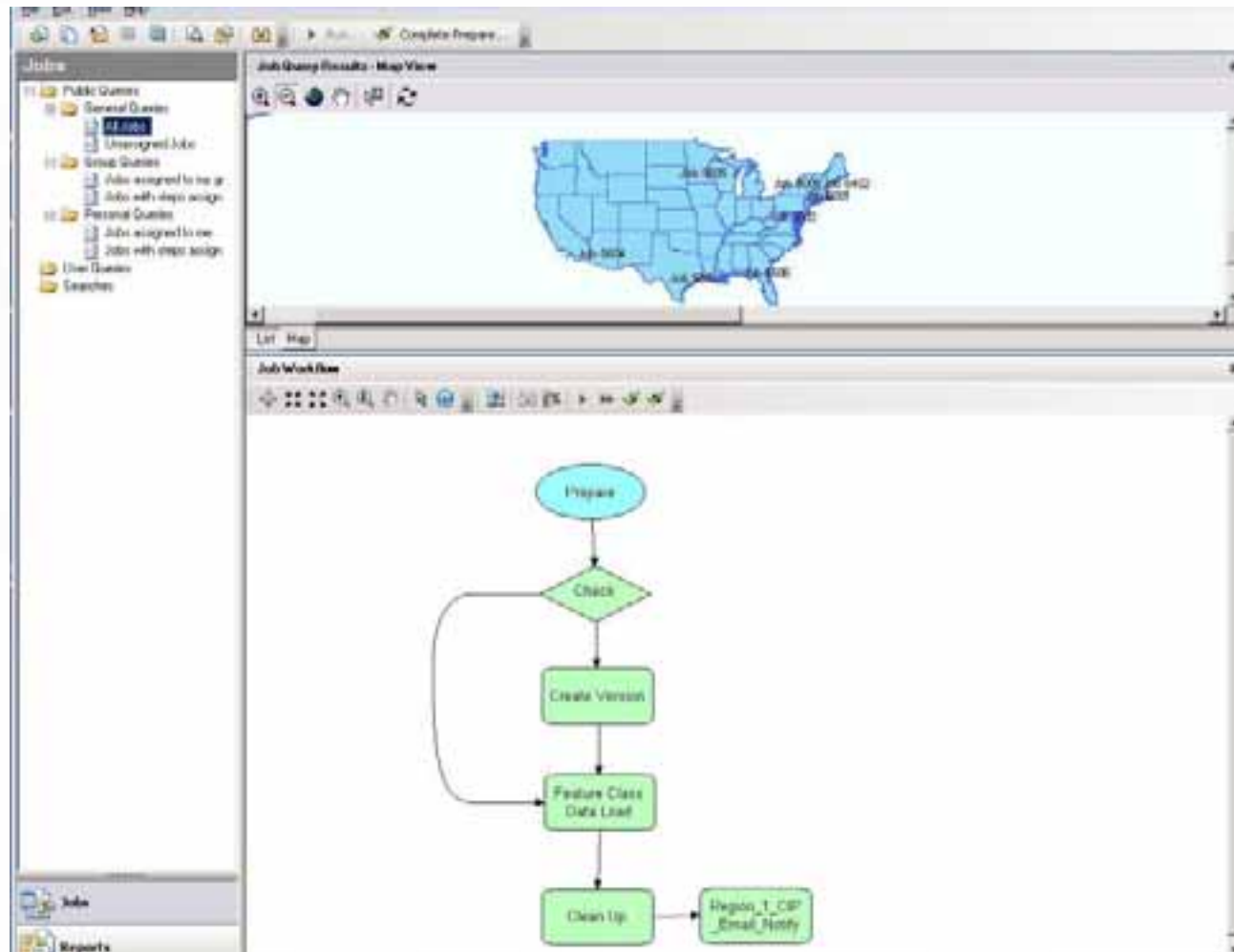
Job Workflow

```
graph TD; Prepare([Prepare]) --> Check{Check}; Check --> CreateVersion[Create Version]; CreateVersion --> FeatureClassLoad[Feature Class Data Load]; FeatureClassLoad --> CleanUp[Clean Up]; CleanUp --> Region1CIP[Region_1_CIP_Email_Notify]; FeatureClassLoad --> Check;
```

Jobs Reports

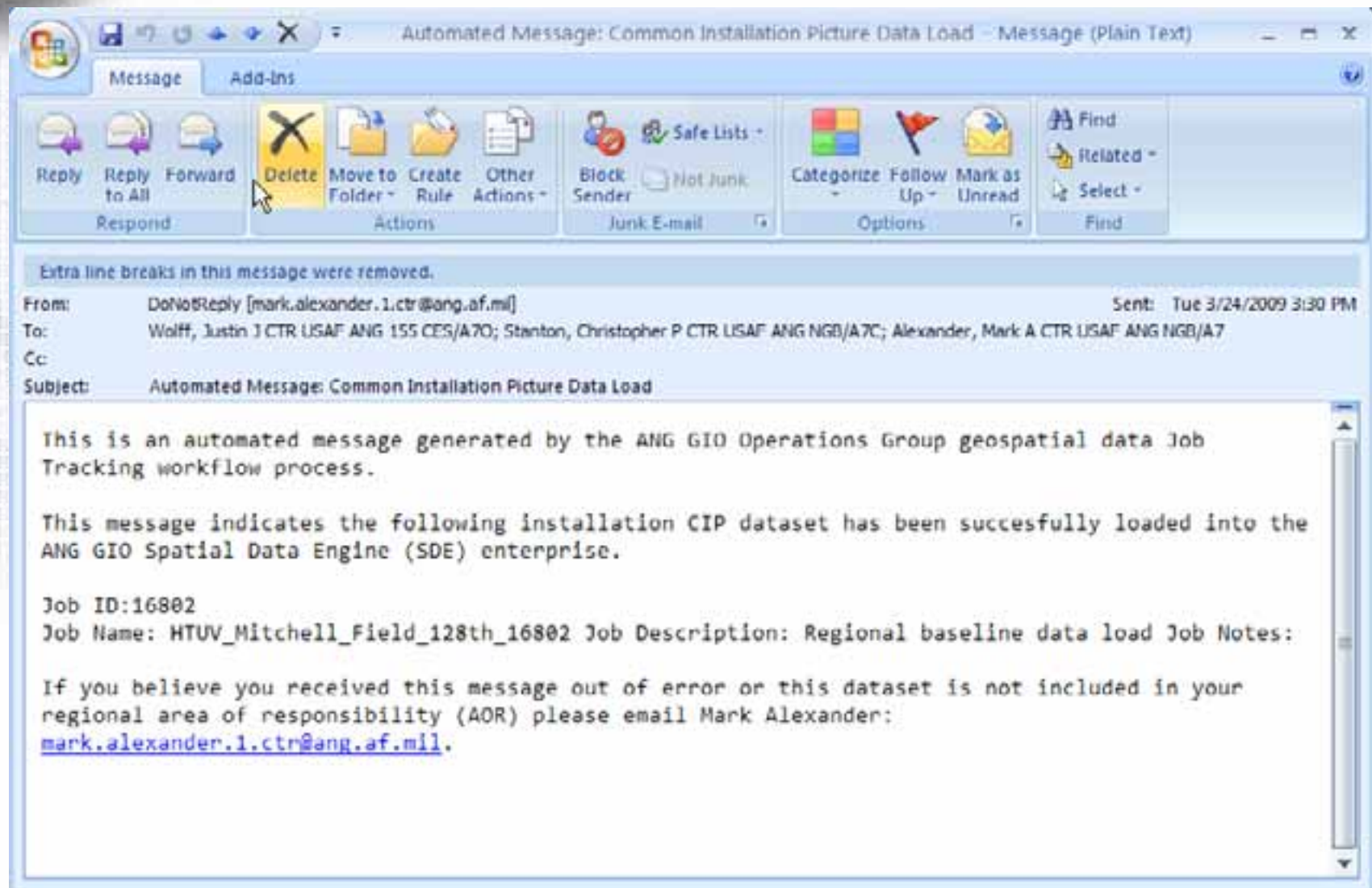
Extended Properties Linked Properties History Notes AGI Attachments Holds Dependencies Step Descriptions Workflow

PLTS: Job Tracking Client Side





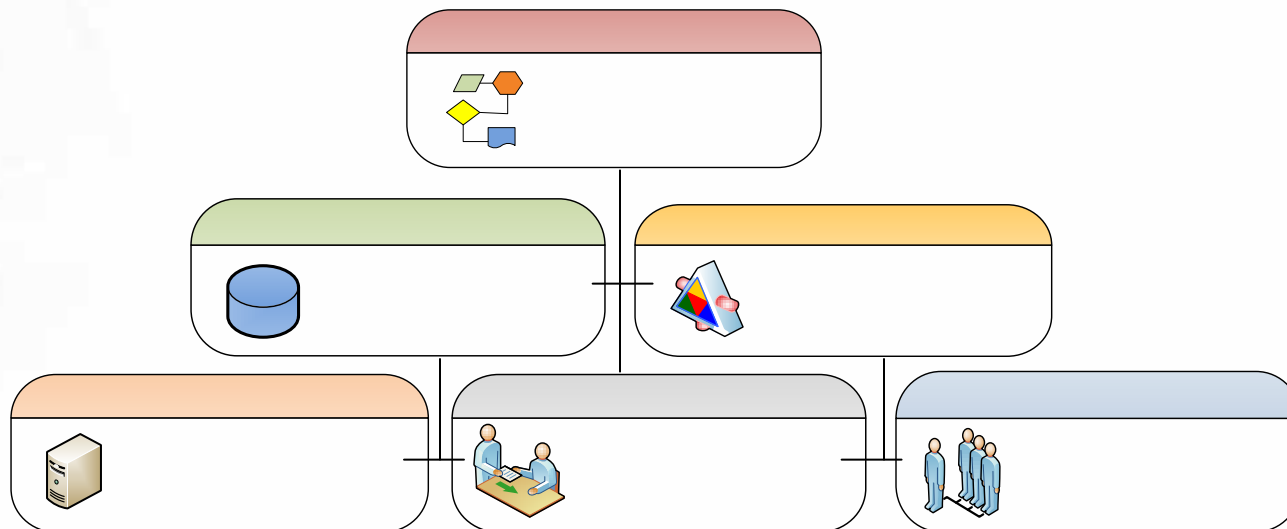
Job Tracking (JTX) 2008-2010





Geospatial Requirements Definition Process (GRDP) – 2007-Ongoing

The ANG GIO Geospatial Requirements Definition Process (**GRDP**) is a methodology ...used by the GIO for defining, analyzing and managing requirements...for enterprise geospatial capabilities, services and resources.



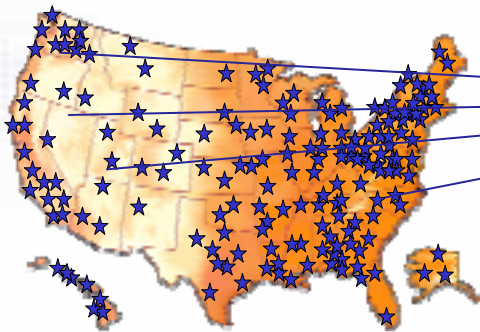
GRDP framework is modeled after the **Federal Enterprise Architecture Business Reference Model**



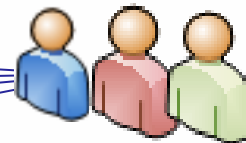
Requirements Definition

GRDP...is used for capturing & defining Installation level requirements enabling the GIO with: analysis, governance, management, and oversight of garrison requirements

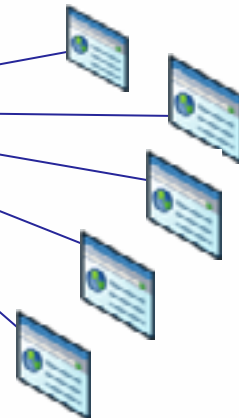
Over 100 ANG installations/sites



Regional GIO Administrators



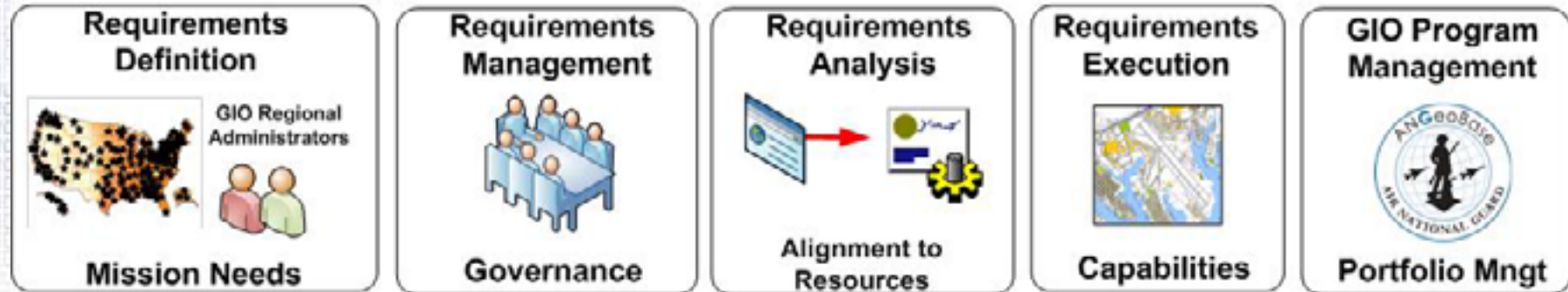
GRDP's





GRDP Purpose

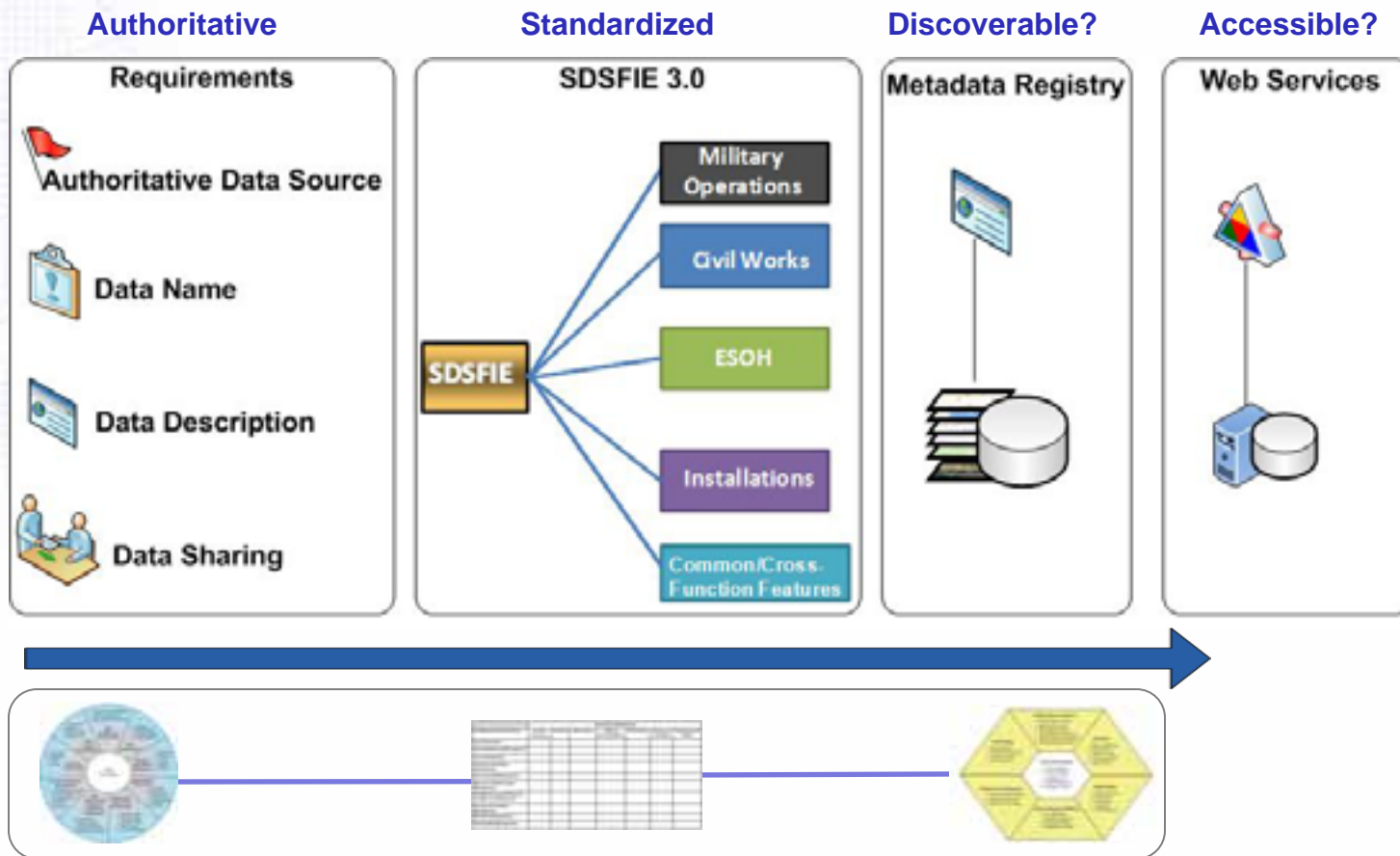
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Data (DRM) supported by a Data Management Framework

Data is managed & available as an asset to the enterprise, not just for the project that produced it...



Data Management Framework



Data Management Framework

2008-09

Blended Data Management approach
i.e. DAMA, BEA, DoDAF etc

100+ Activities



10 Functions



7 Environmental Elements



DAMA Data Governance Framework-2009

- Strategic business intent – Business Goals and Objectives
- Strategic intent of data management
- Organization
- Policies
- Performance metrics



Data Management Functions	Environmental Elements						
	Goals & Principles	Activities	Deliverables	Roles & Responsibilities	Technology	Practices & Techniques	Organization & Culture
Data Governance							
Data Architecture Management							
Data Development							
Database Operations Management							
Data Security Management							
Reference & Master Data Management							
Data Warehousing & Business Intelligence Management							
Document & Content Management							
Meta Data Management							
Data Quality Management							



Data Management Maturity

ANG GIO Geospatial Program Characteristics Maturity Model-High Level

		1-ENTHUSIAST	2-FUNCTIONAL	3-CENTRAL	4-INTEGRATION	5-ENTERPRISE
Data Management Modeling, Editing, QA	Data Quality	Data copy/extracts are quickly out of date.	Multiple, inconsistent copies of data Initiation of standardized QC. QC Consistency not tracked	Data accuracy built into editing Defined Data Ownership Quality Control Procedures	Data in its source database, rather than use of data extracts.	Operational users have full control over data.
	Data Modeling	None	Initiation of AF standards	Advanced Data Model and Standardization Central database becomes source of Validation Intentional modeling of base datasets	Advanced Data Modeling Central source for enterprise systems. GIS Element integration into traditional databases	Rationalization of enterprise and GIS databases. Redundancy is reduced in direct integration of GIS into enterprise databases and vice versa.
	Data Management	None	Redundant efforts across departments. No standards or version management.	Central Data Repository Editor Procedures & Tools improve efficiency	Data maintenance starts to be imbedded in the business workflow and pushed out to operational data	GIS data maintenance on live production data. Data maintenance integrated with source systems edited by end-user owners of the data.



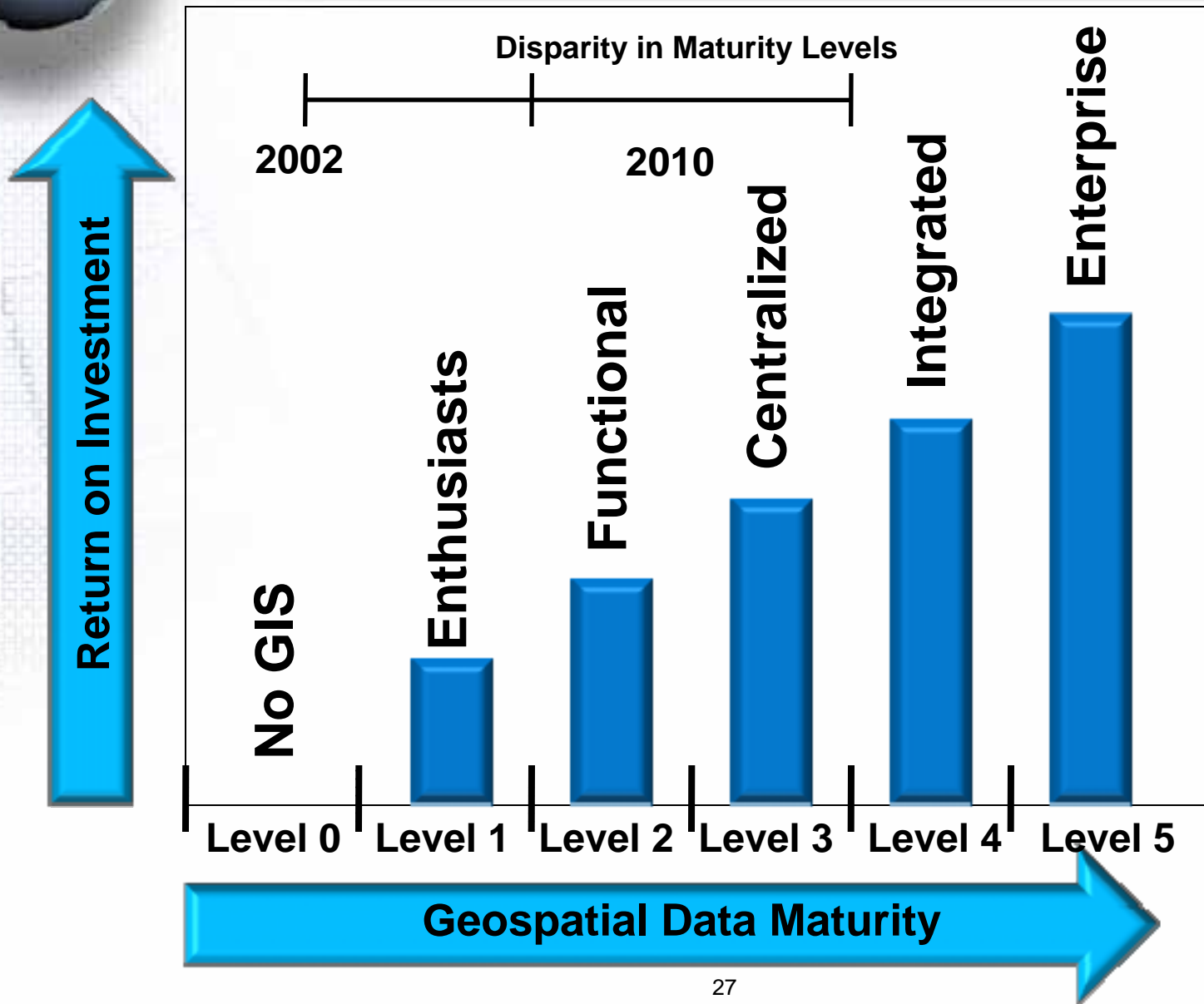
2002

26

2010

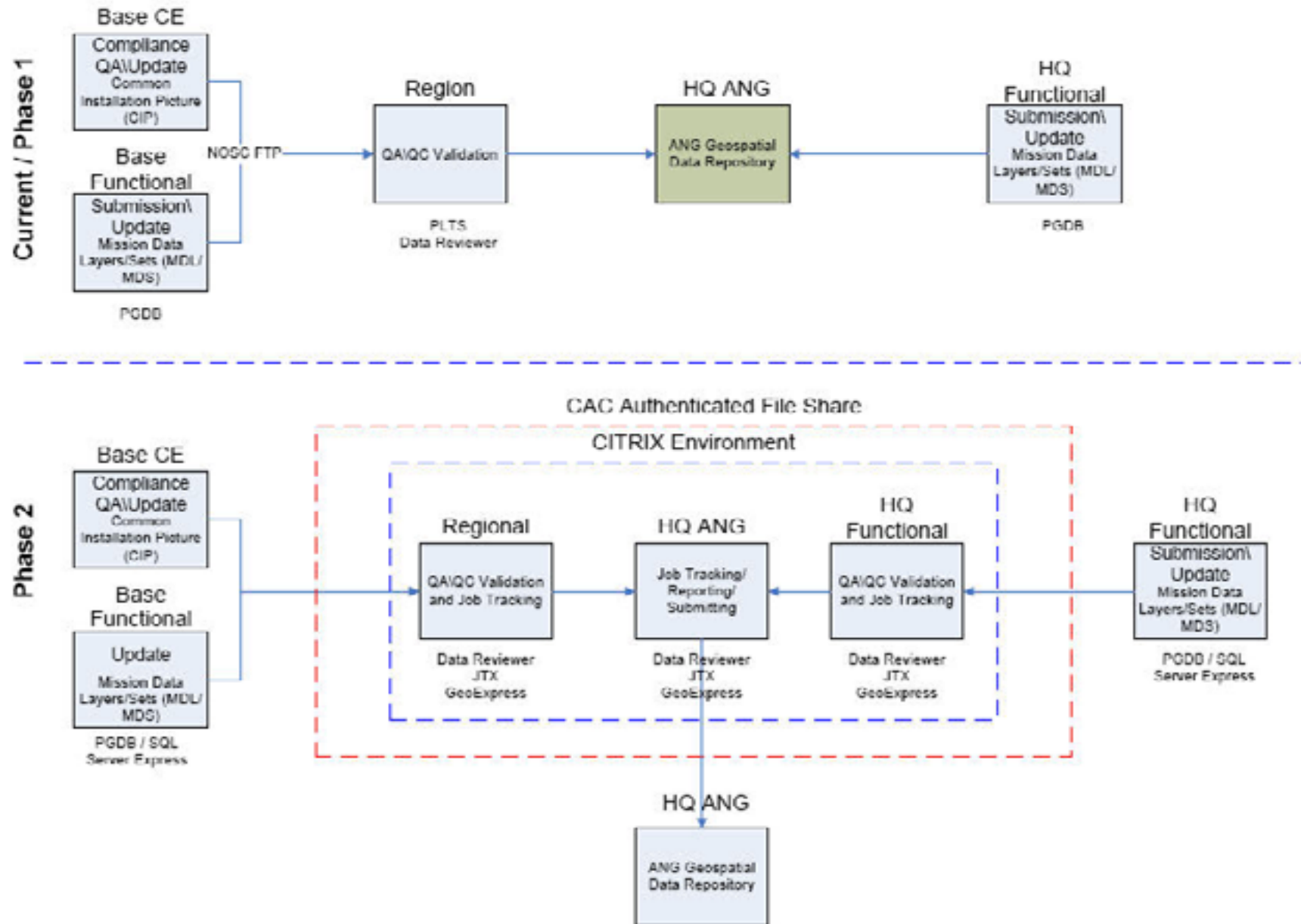


ANG GIO Data Architecture Maturity

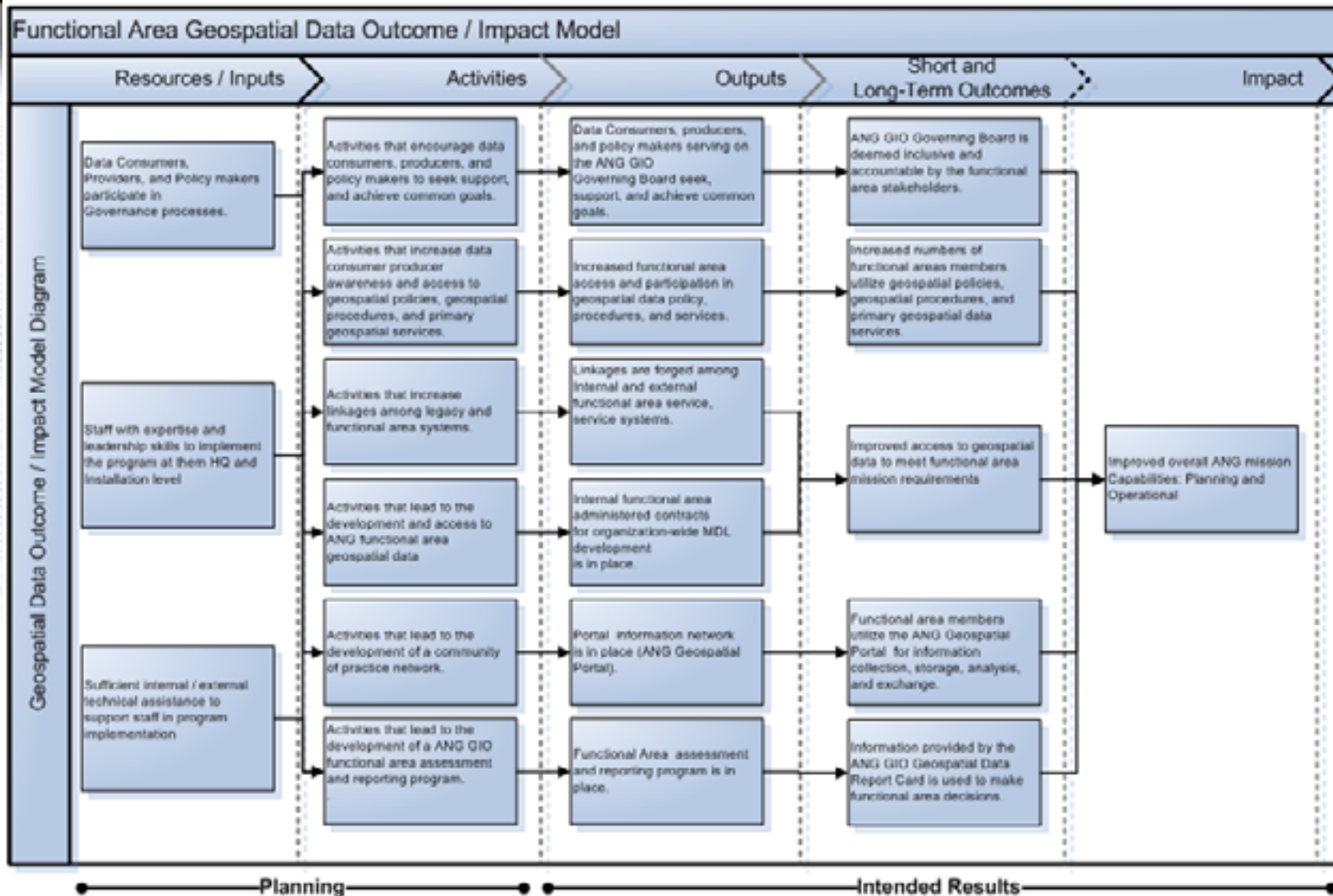


Operational Views

Phases of Maturity



Data Outcome / Impact Models





Data Quality Considerations

ANG GIO Quality Assurance	
Management	Design
<ul style="list-style-type: none">• Establish process and scope of internal and external assessment• Document Objectives• Identify Roles and Responsibilities• Define Workflow and Develop Procedures	<ul style="list-style-type: none">• Apply Data Management Procedures• Comply with the ANG/Air Force Data Model• Utilize ANG GIO SOWs for internal and external deliverables• Determine quality sampling controls
Data Assessment	Topology
<ul style="list-style-type: none">• Illustrate Quality Control Tasks and Workflow• Automate QC Checks• Assess Topology• Document QC Checks• Identify Relevant Documents	<ul style="list-style-type: none">• Defines QC reporting mechanism• Outlines a systematic approach for resolving data problems• Allows for review and assessment of plan and procedures



Data Quality Considerations

ANG GIO Quality Control Test Areas

ANG GIO Data Models	Geometry	Topology	Visual QC	Feature Counts & Content
<ul style="list-style-type: none">• Database Compliance• Database Properties• Spatial References• Field and Attribute Properties	<ul style="list-style-type: none">• Undershoots• Overshoots• Null Geometry• Self Intersection• Overlapping Features• Sliver Polygons• Validation Rules	<ul style="list-style-type: none">• Cluster Tolerance• Cracking/Clustering• Adhere to Rules (Point, Line, Polygon)	<ul style="list-style-type: none">• Digital Review• Hardcopy Review• Source Comparison• Labeling• <u>Symbology</u>	<ul style="list-style-type: none">• Feature Classes• Tables Source Vs. Delivered Attribute• Content



PLTS Foundation – 2009

Do we really need it?
Can we really use it?

Why?



Internal Business Need



**DoD/AF
Linear Segmentation**

Intuition

GIS Data ReViewer

MPS Atlas

Job Tracking

Product Library

Task Assist Manage



Need for a Business Outcome

- Approach: choose a business outcome that is relevant, achievable and if possible, have significant impact.
- Benefit: In the process of understanding the business need, parallel ongoing activities can be undertaken to further support the enterprise-wide data governance capability.



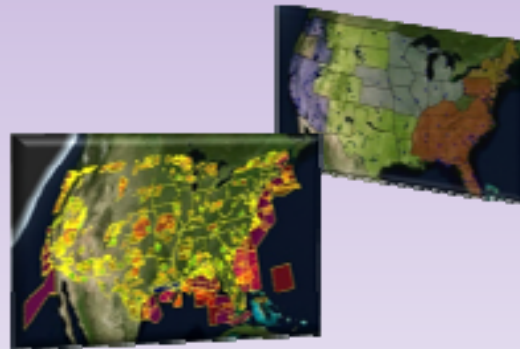
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**Implementing
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IGI&S





Installation (Garrison)

Installations



All DoD

- Evaluate centralized installation/regional workflows (Citrix)
- Evaluate centralized licensing
- Evaluate additional applications and components of PLTS Foundation
- Work closely with ESRI

- Large producer of data "The CIP"

Centralizing QA/QC



ANGRC Citrix Environment




Welcome

Citrix Applications

Welcome to your personalized Citrix environment. Click on an application icon to launch an application. Click on the help icon if you have problems using an application.

Message Center

If you are a PC user experiencing problems, click on the help icon.

 If you wish to use the Citrix client, click on the link below.

[Download the ICA Client](#)

Other clients are available.

Centralizing QA/QC

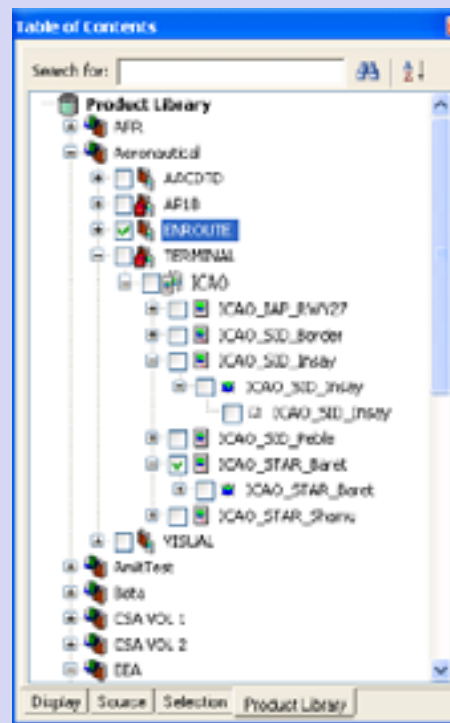


*Centralized management
of production rules, maps and documents*

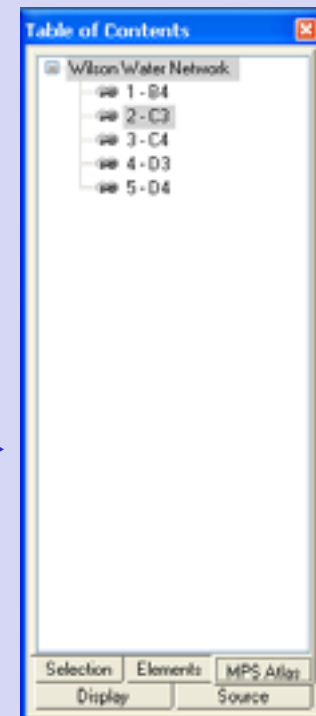


**GIS Data ReViewer
Error Reporting**

Product Library



MPS-Atlas





MapAtlas

Dynamic Table
GIS Data ReViewer Results



HTUV General Mitchell Field
PLTS GIS Data ReViewer Errors

UNCLASSIFIED

Error Identifier	GP Layer	Error Description	Area Description
1	Building Footprint	Building Footprint	Building Footprint
2	Building Footprint	Building Footprint	Building Footprint

Dynamic Link
between index map
and map tile



Disclaimer: The map and its contents are for the purpose of
displaying and reviewing the spatial data of the project
and are not intended for use in any other manner. Please contact the GIS Center
for more information or to request a copy of the data.

GP: Houston/HOU/Other Data
Data: Houston/HOU/Other Data
Data: Houston/HOU/Other Data

Map Date: 10/20/2010 10:00 AM



Dynamic Legend
and per map tile view



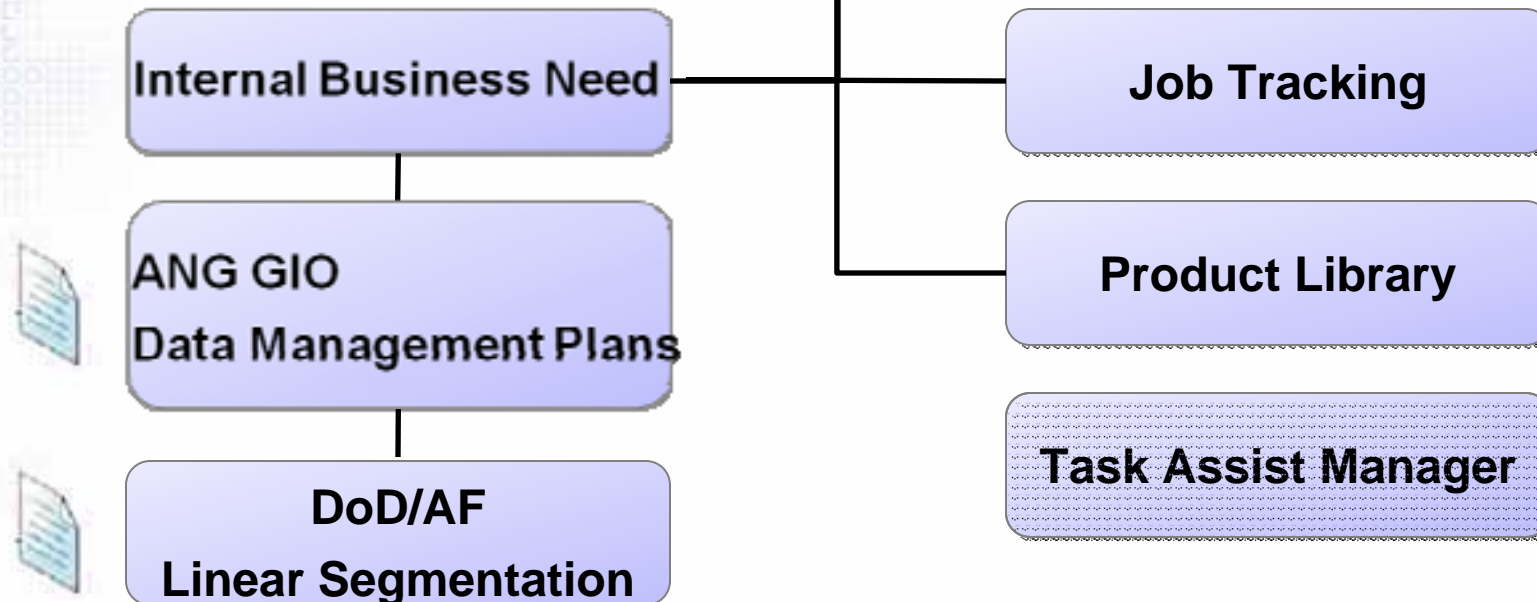
PLTS Foundation – 2010

Do we really need it?

Financially it makes sense

Technically, it makes sense

Why?





PLTS Foundation – Future

