*one*DOI[2012]

CIO Vision for Partnership with The GIO and Geo-spatial Community at DOI

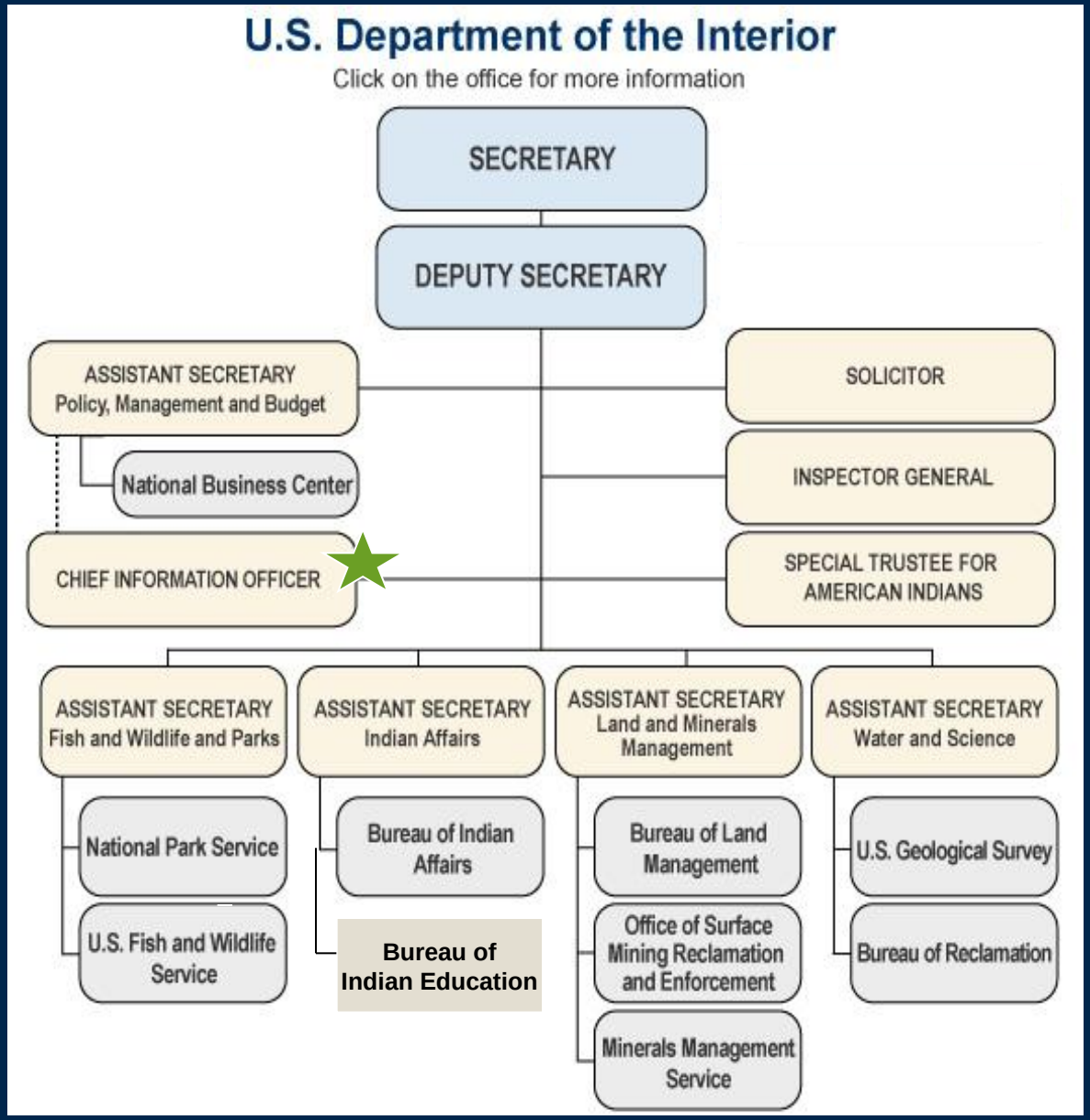
Sonny Bhagowalia
Chief Information Officer, DOI

Geospatial 2009 Conference
Salt lake City, Utah
April 28, 2009

Agenda

- The Importance of DOI and Geospatial Information to the United States
- The Role of Geo-spatial in Government-wide Information Management and Information Delivery Initiatives
- CIO Vision for *one*DOI 2012
- DOI Commitment to the Geo-spatial Modernization Blueprint and Geo-spatial Program

DOI Organization



What is a CIO?

DOI GIS User?

Source: DILBERT by Scott Adams

Role, Responsibilities and Authorities of a Federal CIO

Source: http://www.ndu.edu

- Addresses Laws and Requirements:
  - Clinger-Cohen Act (1996)
  - Government Performance Result Act (1993)
  - Paperwork Reduction Act (1995)
  - Federal Information Security Management Act (1996)
  - President's Management Agenda (2001)
  - Chief Privacy Officer
  - Chief FOIA Officer etc……
- Clinger Cohen Act (CCA 1996) - Twelve Core Competency Areas and 83 Sub-competencies (Federal CIO Council)
- People, Organization, Technology and Process

DOI is an Important Department…

US Government (Legislative + Executive + Judiciary Branches)

Executive Branch

Department	Creation	Order of succession	2007 Budget (Billions of dollars)	Employees (2007)
State	1789	1	9.96	30,266
Treasury	1789	2	11.10	115,897
Defense	1947	3	439.30	3,000,000
Justice	1870	4	23.40	112,557
Interior	1849	5	10.70	71,436
Agriculture	1889	6	77.60	109,832
Commerce	1903	7	6.20	36,000
Labor	1913	8	59.70	17,347
Health and Human Services	1953	9	543.20	67,000
Housing and Urban Development	1965	10	46.20	10,600
Transportation	1966	11	58.00	58,622
Energy	1977	12	21.50	116,100
Education	1979	13	62.80	4,487
Veterans Affairs	1989	4	73.20	235,000
Homeland Security	2002	15	44.6	208,000
Total budget (fiscal year 2007):			1,523.42	4,193,144

US GDP:
$13.86 trillion (2007 est.)
~ $ 2.7 Trillion (US Gov't)

Area:
Total: 9,826,630 sq km
land: 9,161,923 sq km
water: 664,707 sq km

Land use:
arable land: 18.01%
permanent crops: 0.21%
other: 81.78% (2005)

Irrigated land:
223,850 sq km (2003)

US Population:
303,824,646 (July 2008 est)
White 81.7%
Black 12.9%
Asian 4.2%
Amerindian and Alaska native 1%, Native Hawaiian and other Pacific islander 0.2% (2003 est.)

Source: Wikipedia; CIA World Factbook

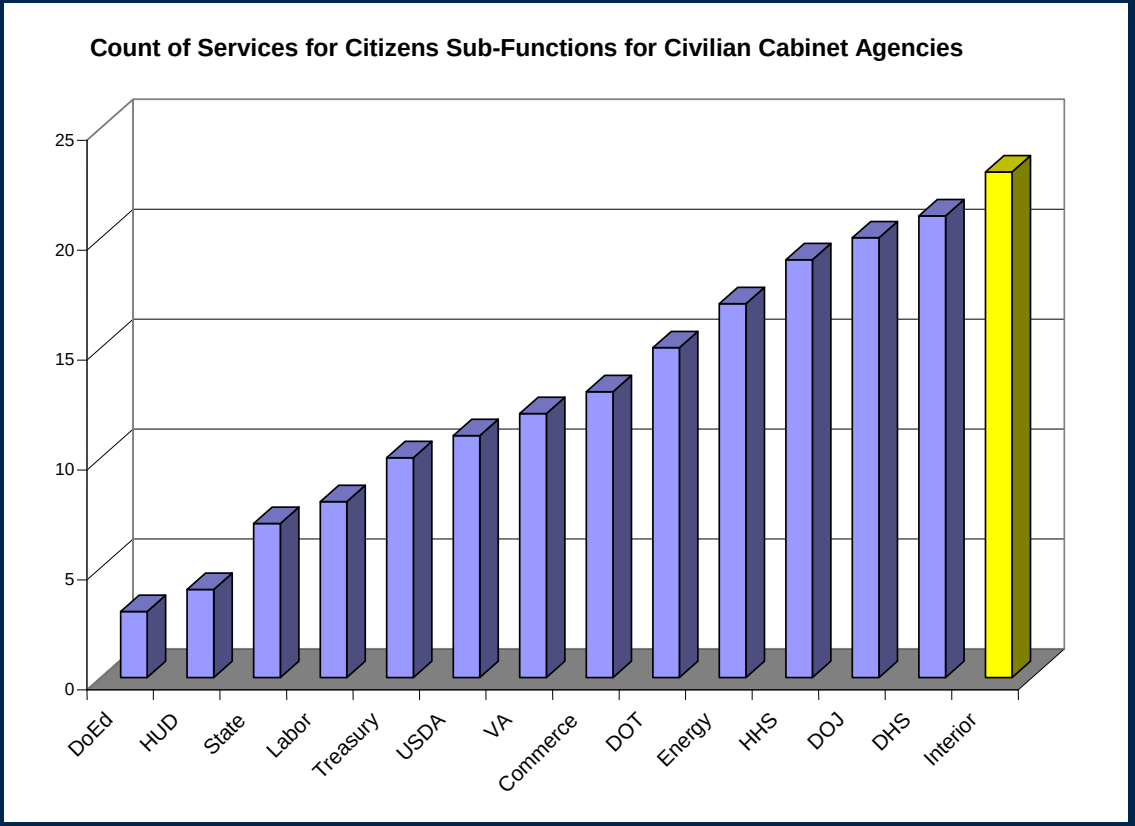
DOI's IT strategy is being adjusted based on the 6 new priorities set by the President in his Technology Agenda*

- **Ensure the Full and Free Exchange of Ideas through an Open Internet and Diverse Media Outlets**
- **Create transparency and access to DOI's information technology systems**
- **Deploy a Modern Communications Infrastructure**
- **Improved Information Sharing to Solve DOI's Most Pressing Problems**

* http://www.whitehouse.gov/agenda/technology/

Why Does America Depend on DOI?

DOI has the Largest Number of Missions in the US Government According to OMB

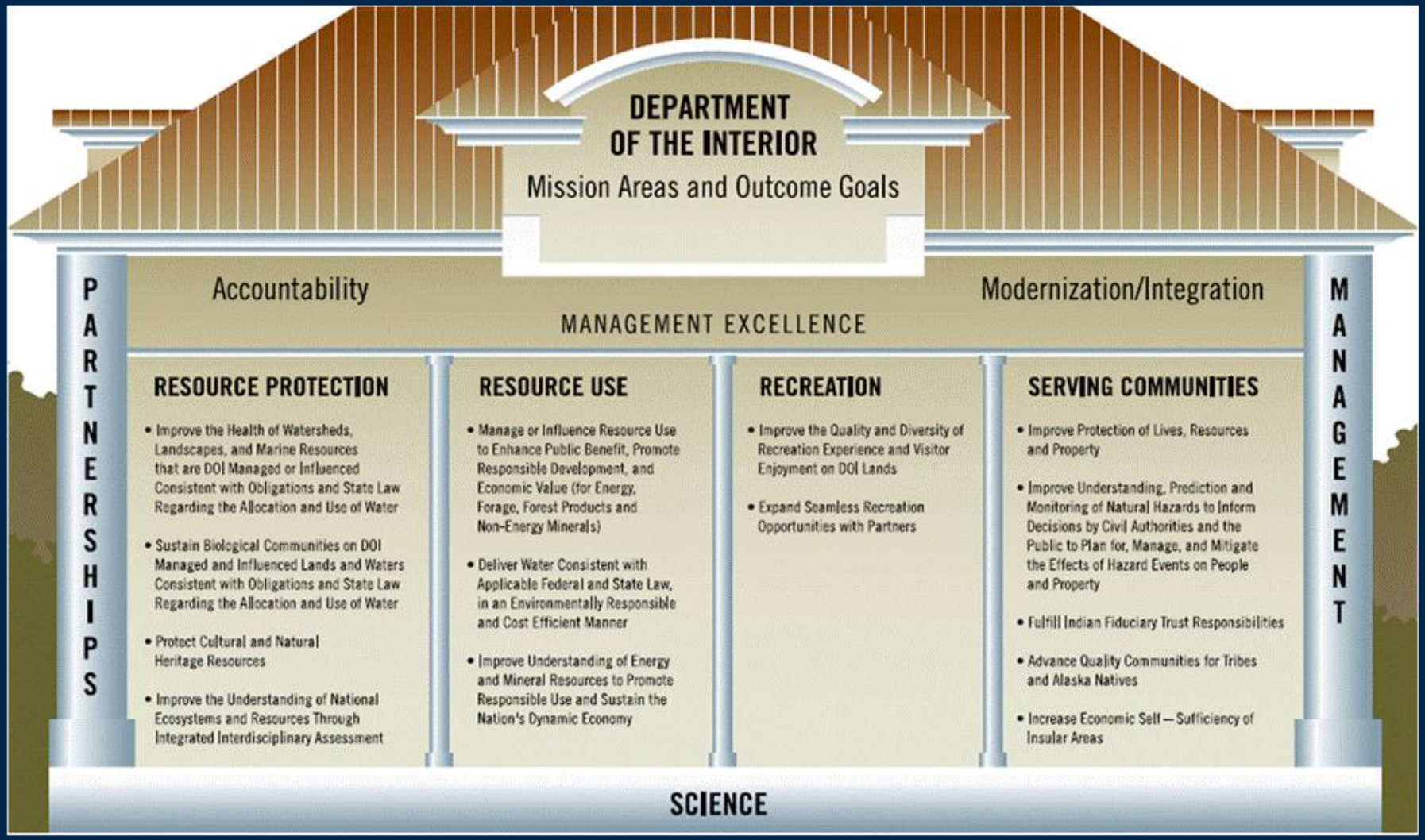


(Source: OMB Updated Annual Report on Information Technology (IT) Spending for the Federal Government)

Our Customers are Numerous….

- **Government-to-Business**
  - Vendors
  - Oil/Coal companies
  - Universities
  - Power Marketing Agencies
  - Media
- **Government-to-Citizen**
  - Citizens
  - Indians and Indian tribes
  - Non-Profits and Special Interest Groups
  - Grantees
  - Future Generations
- **Non-Citizens**
- **Government-to-Government**
  - Congress/GAO
  - OMB & other Federal Agencies
  - Tribal Governments
  - State and Local Governments
  - Foreign Governments
  - Quasi Government Trusts
  - DOI Mission Areas
- **Government-to-Employee**
  - DOI Employees
  - First Responders
  - Federal Employee Unions
- **Volunteers**

The DOI Mission Areas



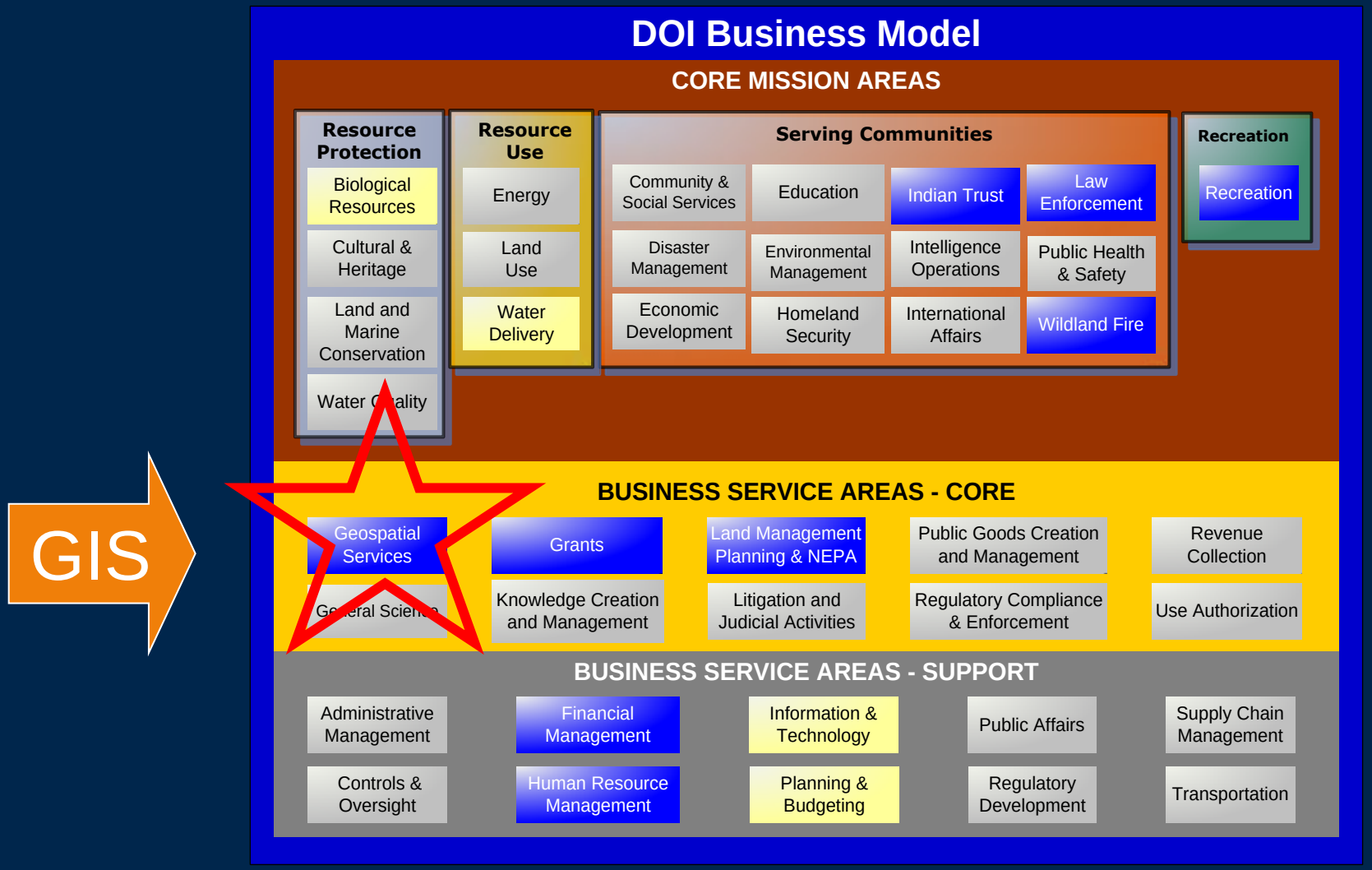
DOI Has One of the Most Diverse Missions in US Government*

- Missions
  - Resource Protection
  - Resource Use
  - Recreation
  - Serving Communities

- **Wildland fire**
- **Law enforcement**
- **Water management**
- **Habitat management**
- **Mineral extraction**
- **Grazing**
- **Recreation**
- **Scientific research**
- **Education**
- **Rural development**
- **Shared Service Environment**
- **Etc.**

*We have mapped this to OMB FEAF BRM etc. and confirmed

…and Geospatial Services are a Core Business Service Area



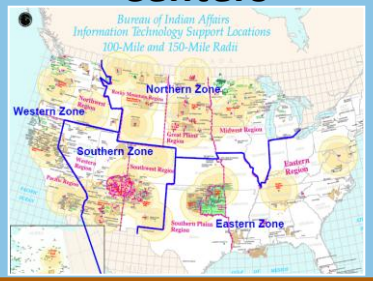
GIS

DOI's IT Environment is Dispersed, Diverse, Complex and Fragmented

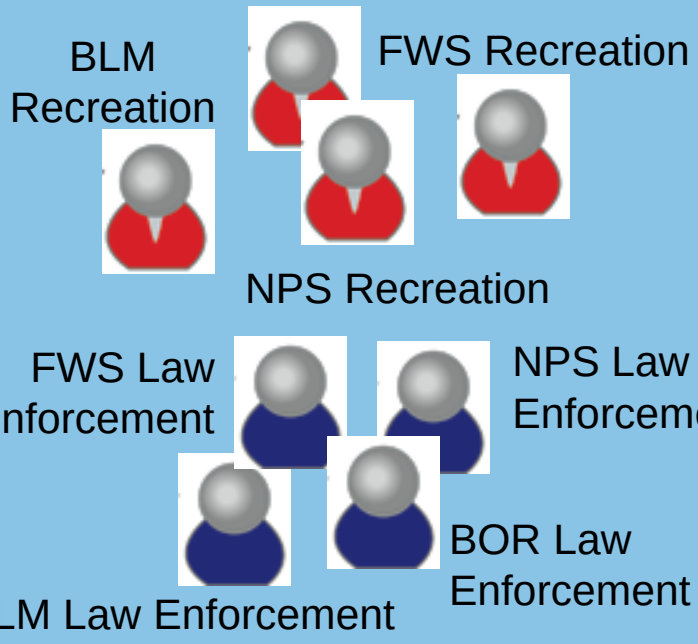
A Vast Array of Missions and Programs

20 Core Mission Segments

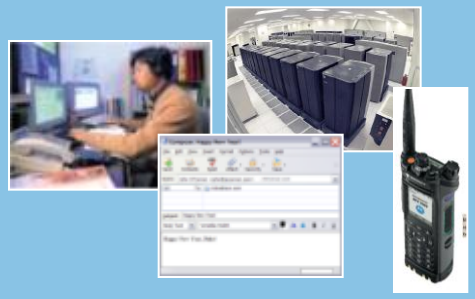
2400 Locations, 70,000 Users
> Many Help Desks
> Many Data Centers



Bureaus Using their Own Mission Specific IT Systems (>750)



Bureau Specific IT Infrastructure



9 Bureaus
5 Offices

Low-Medium IT Spending as % of Budget

- DOI: ~6.8% of budget
- Industry: 10-25% of budget
- Government: 8-11% of budget

This Very Complex IT Environment…..

FBMS	OST	Law Enforcement	Infrastructure	HR LOB	Geospatial One Stop	CTOC
• Portal • Forms	• Portal •Forms	• IMARS • Bird Flu • Emergency Response • Portal • Forms	• Asset Management* • AD • ESN • Portal • Forms	• HSPD-12 • Portal • Forms	• Portal	• Portal • Forms

Common Project Needs: Change/Problem/Release Management; Application Hosting Infrastructure; Technical Skill Sets; Help Desk; Solution Architecture; Acquisition; PMO; SLA; Development & Test Environment; Data Center

Common Technologies Needs: SAP; Microsoft; J2EE and .NET; Web Services; Service Oriented Architecture; Oracle; Portal; Doc/Record Management; Websphere; Collaboration; Business Processes Integration; Business Intelligent

DOI/President Mandate/ Others: IPV6; Telecommute; Radio Telecom; COOP; Disaster Recovery; E-authentication; Security; Desktop Management; Encryption; HSPD-12; Remote Access; VOIP; Help Desk

Common Infrastructure Needs: Web Servers; Firewalls; Encryptions; Security; System Managements; Application Servers; O/S; Database Servers; IDS; Network; Performance Monitoring; Storages

NOTIONAL – FOR ILLUSTRATION PURPOSE ONLY

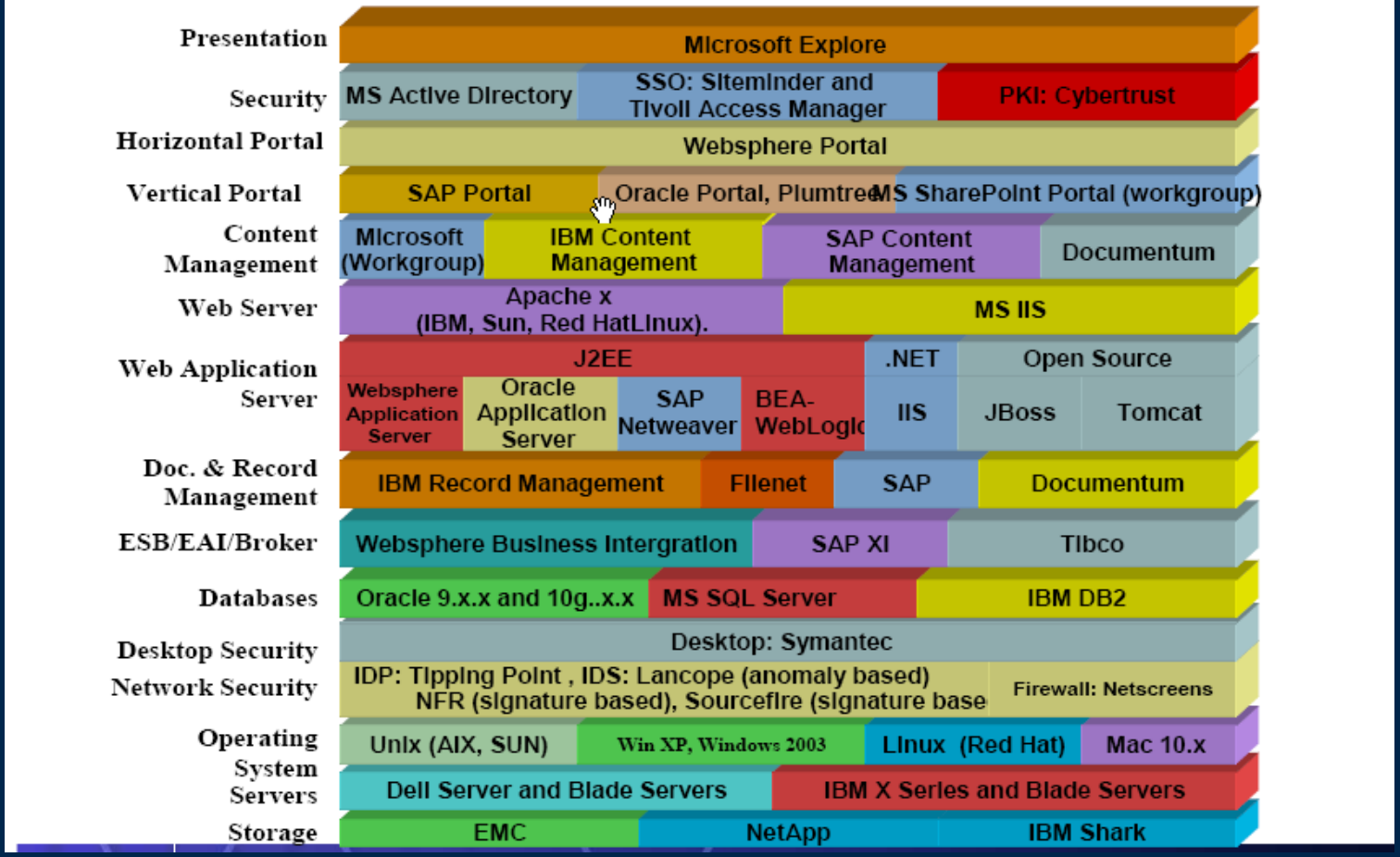
Source: CTOC

….Needs More Focused Choices and Investments in Technology….

Too Many Choices in TRM….

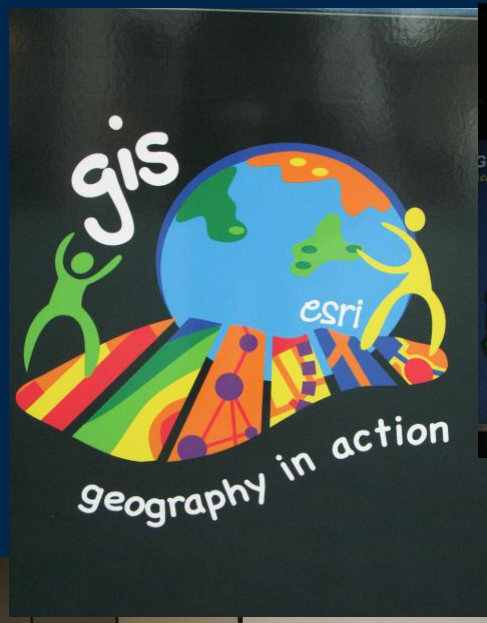
….Yield $, Security, Support And Inter-operability Challenges

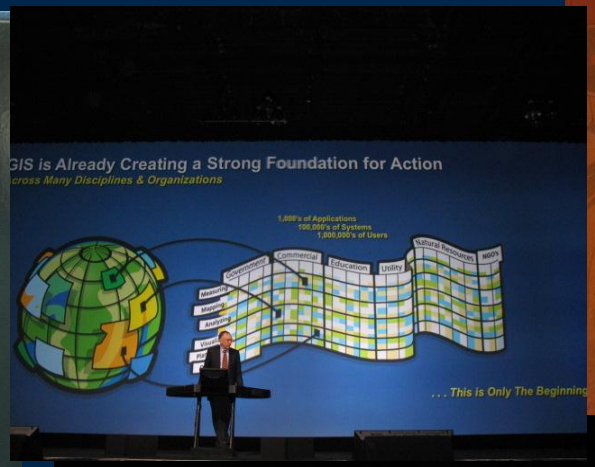
DOI Strategy: Choose the best technology from TRM to support Enterprise Solution (Product Mapping)

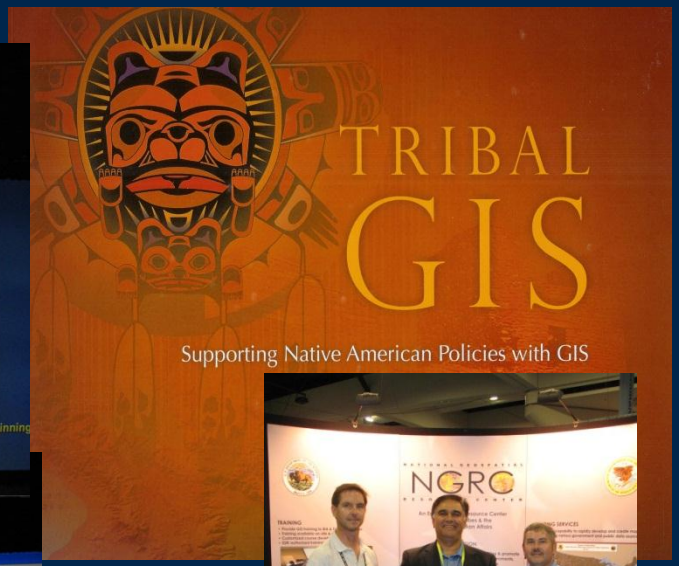


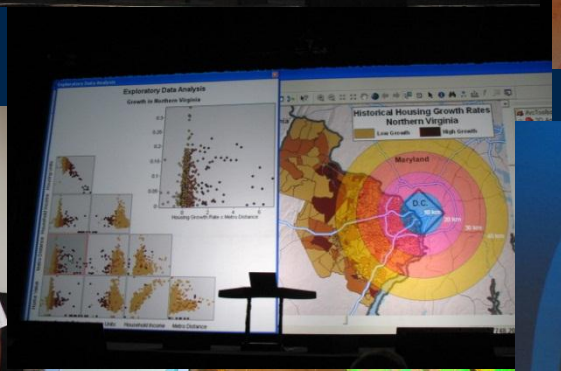
NOTIONAL – FOR ILLUSTRATION PURPOSE ONLY

Last Year's ESRI Conference was an Eye-opener to the Possibilities of Better Leveraging GIS at DOI…









Future Shock (What is Value of GIS)?

- "Human knowledge is expected to be doubling by the year 2012" – Alvin Toffler
- "By 2015 the power of an off-the-shelf computer will exceed the intelligence of that of a human being" – Ian Jakes & Ted McCalu
- "A medical graduate who graduated 15 years ago has only 1/10 of the original relevant knowledge" – www.mertonline.com
- "An average of 20,000 new, amended, and changed laws, statutes and ordinances are added to the books of our country's Federal, State, County, and City legal systems each month their governing bodies are in session."

  - Bonita Quesinberry, buzzle.com

A Geo-Spatial Value Proposition for DOI

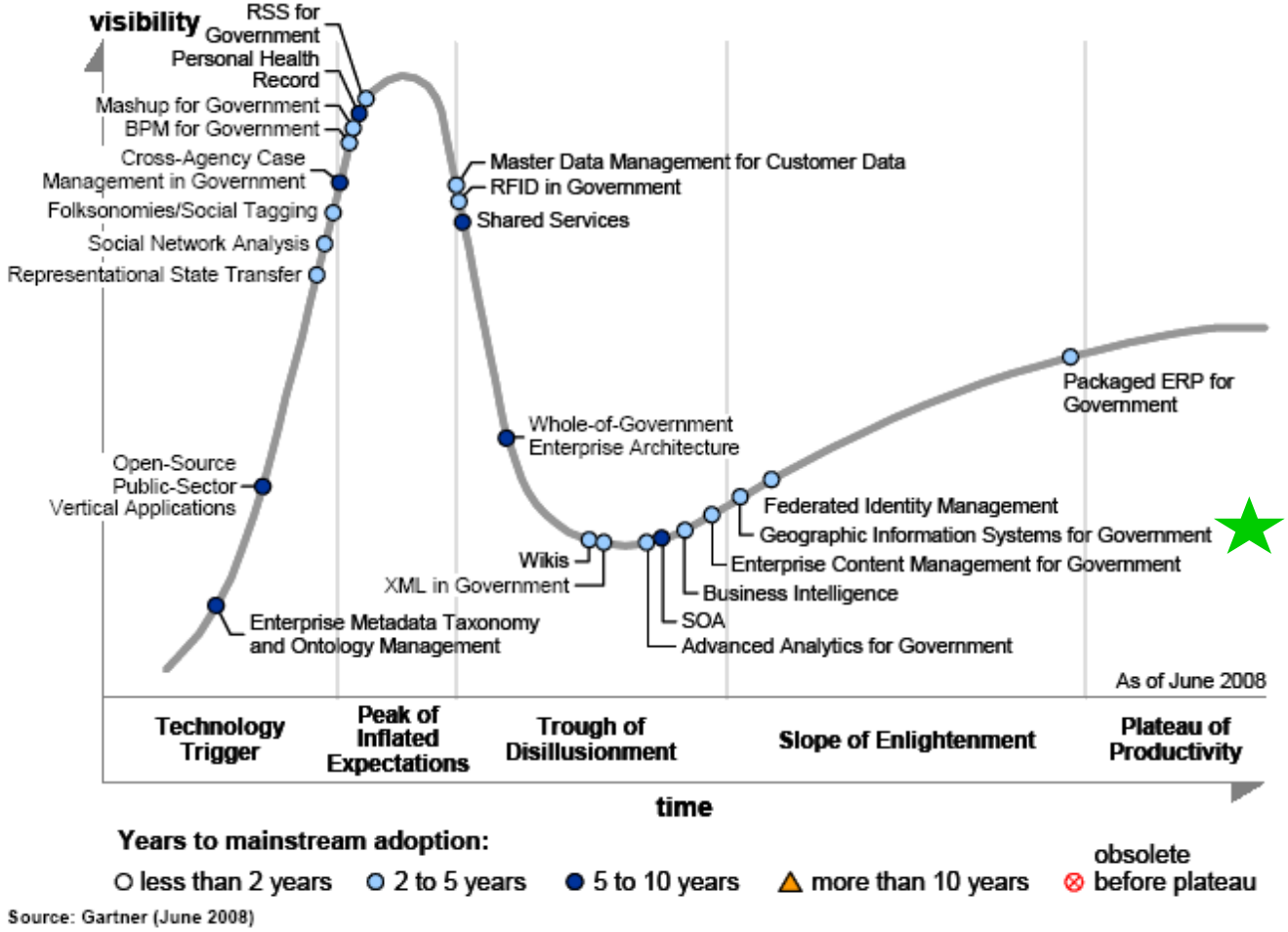
How are government agencies impacted by the information Age and Economy?

From Stan Davis, MIT

Agencies provide information products and services to consumers. Success = Usage.

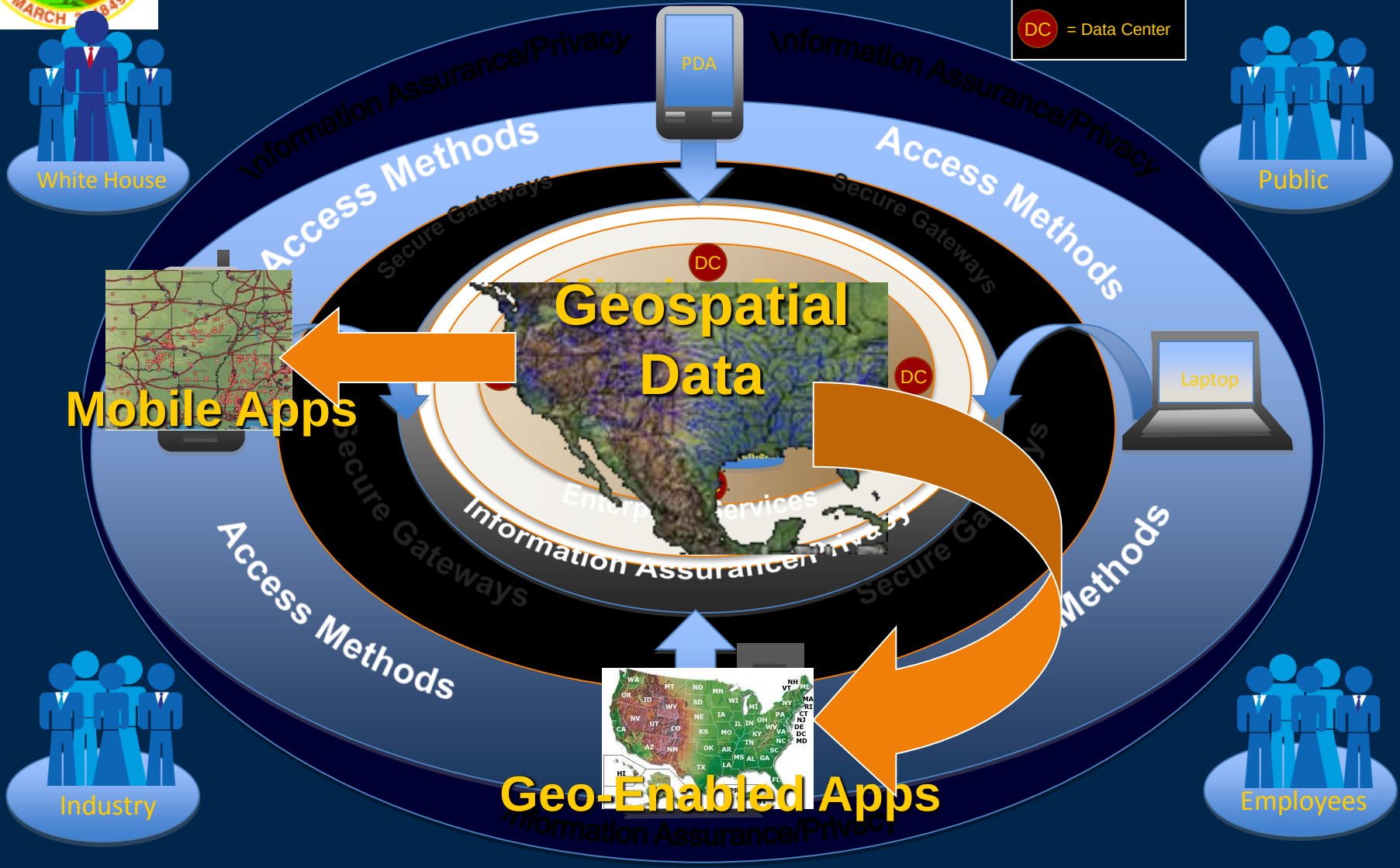
<u>Challenge</u>: How do we institutionalize information and knowledge practices where "geo-enabled" information and knowledge is integrated into systems/Apps, widely shared and is available in a Timely, Secure Manner?

Gartner's Hype Cycle for Government Transformation 2008



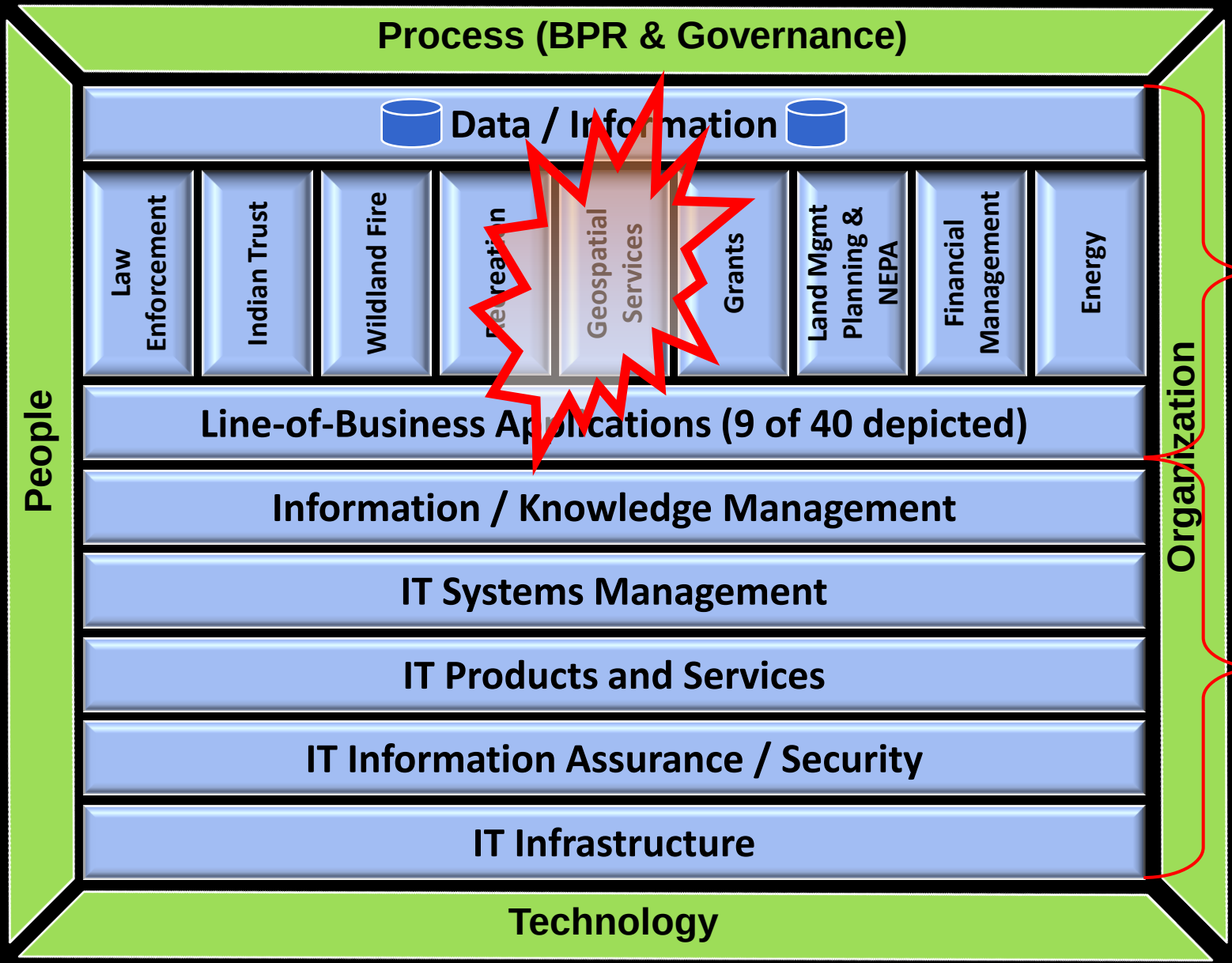
2012

CIO's Vision: *one*DOI



Access to the right information for authorized users any time, anywhere, any mission, securely and reliably.

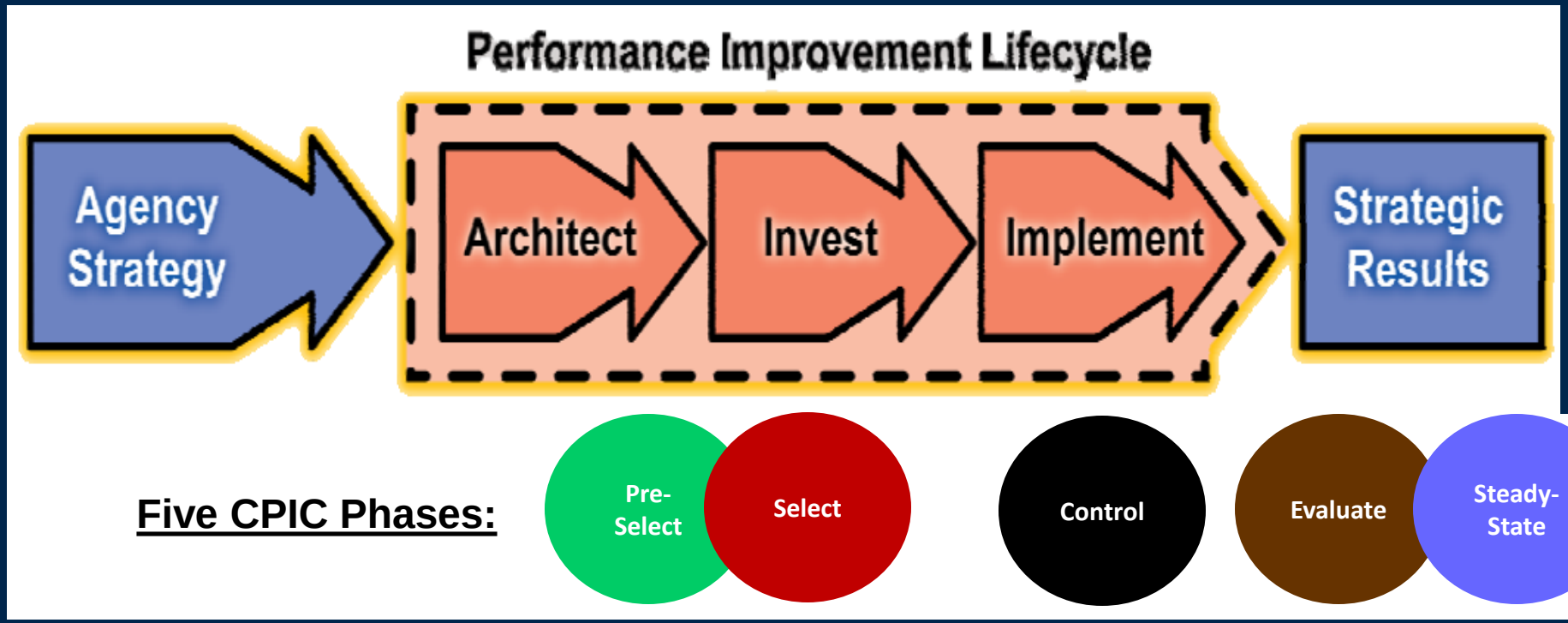
*one*DOI[2012] – A New Framework to Unify Efforts



*one*DOI[2012] Requires a Unity of Purpose

One-DOI[2012]	Unity of Purpose = One Team, One Mission, One Vision, One Set of Goals, Objectives and Core Values		
Mission	Deliver Information and IT Solutions to Empower DOI Programs to Fulfill Their Missions		
Vision	Open and Transparent Access to the Right Information for Authorized Users Anytime, Anywhere, Any Mission Securely and Reliably		
Goals	Faster	Better	Cheaper
Objectives	Timely (Agile)	Quality (Effective/Efficient)	Affordably (Cost Competitive)
Performance Measures	IT/Information Products and Services		
	Agility in Delivery **Partnership with Business**	Transparency Accessibility Security Simplicity Availability, Reliability **World-Class IT** Interoperability Productivity	Accountability of Portfolio Affordability Benchmark ($ per Product/Service) **Tax-Payer Value**
Core Values	Customer Satisfaction		
	Commitment to Excellence		
	Respect		
	Integrity		

DOI leverages *OMB's Performance Improvement Lifecycle* which is designed to integrate OCIO functions to optimize performance and achieve mission results



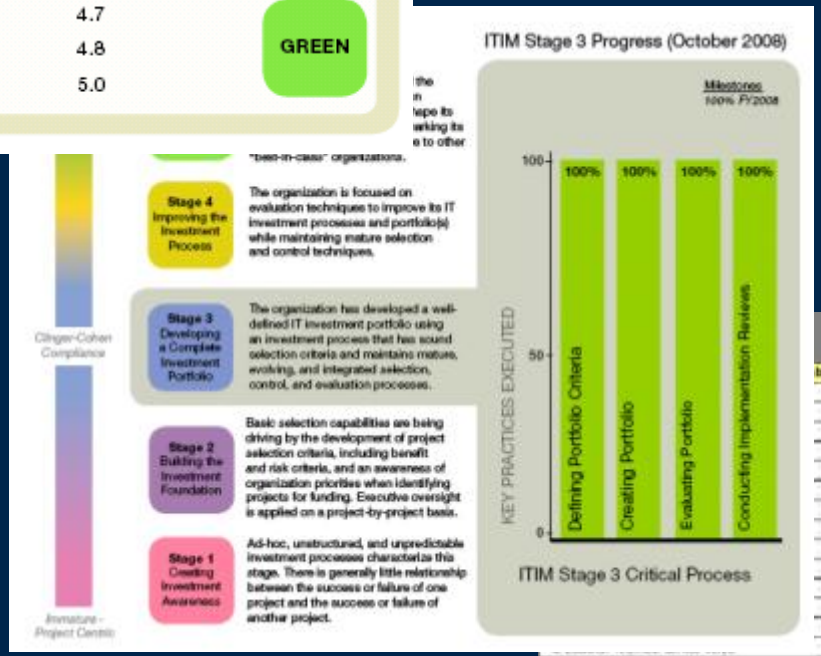
By following this lifecycle, OCIO has a greater chance at mitigating the challenges and achieving its vision

DOI is a “Top Performer" in the Federal Government in EA and OCIO has achieved many successes in FY2008 in each of the phases

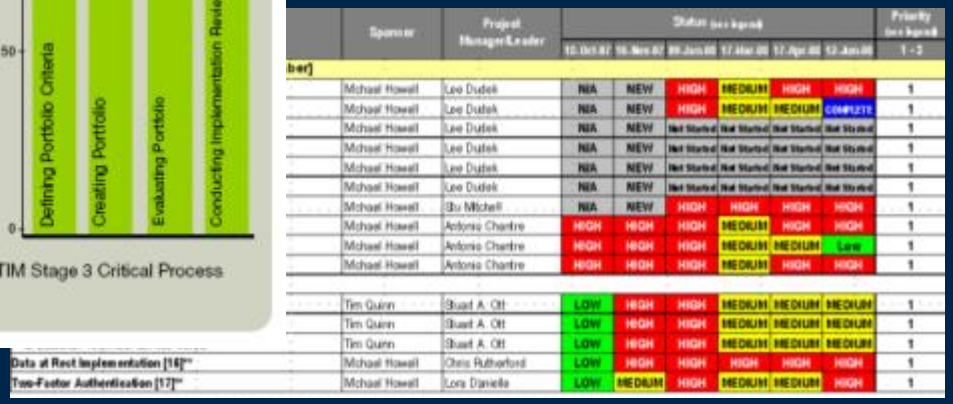
Q2 FY2008 Overall EA Assessment Rating: GREEN

Summary Data:	DOI Self Assessment Q2 FY2008	OMB FEA PMO Assessment Score Q2 FY2008	Rating Indicated by Score
Completion	5.0	4.7	GREEN
Use	5.0	4.8	
Results	5.0	5.0	

Architect

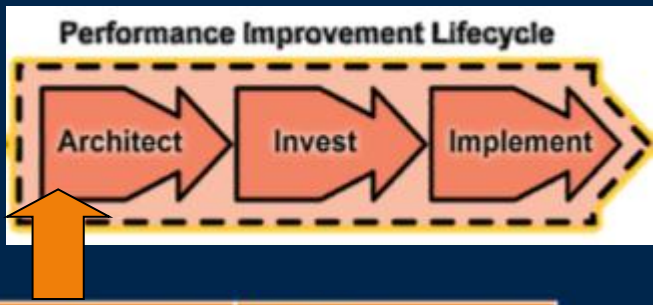


Invest



Implement

DOI continues to make progress in developing architected segments, but existing program performance measures do not always provide adequate indicators of overall segment performance……

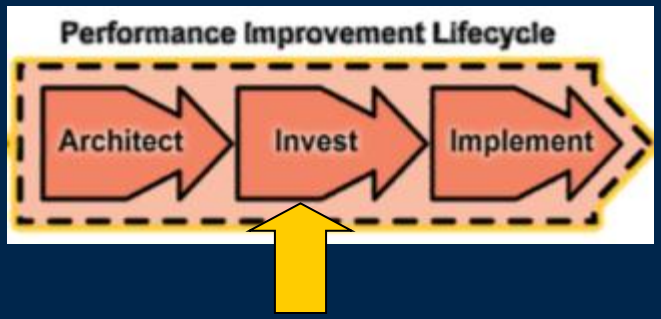


DOI Architected Segments	Architect	Invest	Implement	No. Investments
Law Enforcement	Complete	Partially Funded	In Process	4
Recreation	Complete	Partially Funded	Partially Complete	6
Finance	Complete	Partially Funded	Phase 3 of 8 Complete	30
Planning & Budget	Complete	Partially Funded	Partially Complete	9
Grants	Complete	Partially Funded	Partially Complete	7
Human Resources	Complete		In Process	13
Geospatial	Complete	Partially Funded	Partially Complete	19
Wildland Fire	Complete	Partially Funded	In Process	13
Land Management Planning & NEPA	Complete	Partially Funded	In Process	6
Indian Trust	In Process			13
IT Infrastructure	In Process			9
Water Delivery	In Process			14
Biological Resources	In Process			15
Community & Social Services	In Process			5
Information Assurance				

Segment Status	Complete	Planned	Notional
No. Segments	9	5	36

PART Key		
	Effective	A
	Moderately Effective	B
	Adequate	C
	Ineffective	D
	Results not Demonstrated	E

Investments by Line of Business*



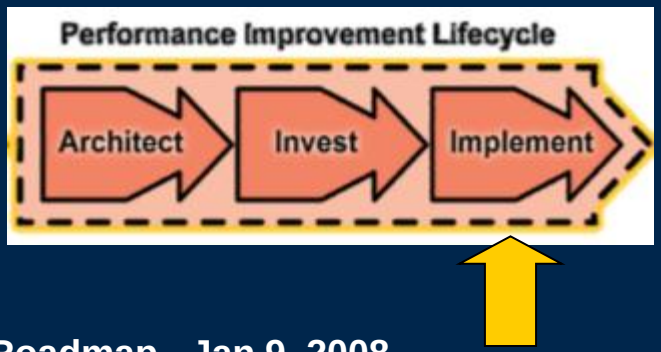
By Line of Business:	Organization	# Investments	Million $ DME '09	Million $ SS '09	TOTAL Funding	% in SS
Administrative Management	BIA, BLM, BOR, EGOV, DOI-wide, FWS, NPS, OS, SOL, USGS	17	4.18	12.51	16.69	75
Collaboration	BLM	2	0.00	0.55	0.55	100
Community and Social Services	BIA	2	1.85	0.69	2.54	27
Controls and Oversight	BIA, OHTA	2	0.00	3.14	3.14	100
Data Management	BLM	1	0.00	0.31	0.31	100
Disaster Management	BLM, BOR, NPS, USGS	11	1.35	11.81	13.16	90
Economic Development	BIA, EGOV	3	0.50	0.42	0.92	46
Education	BIE, DOI-wide, NPS	4	0.00	3.06	3.06	100
Energy	BIA, BLM, BOR, MMS, OSM, USGS	18	16.19	33.93	50.11	68
Environmental Management	BIA, BLM, DOI-wide, NPS, OSM, USGS	12	24.23	22.52	46.75	48
Financial Management	BIA, BLM, BOR, DOI-wide, EGOV, FWS, MMS, NBC, NPS, OIG, OS, OSM, OST, USGS	62	69.61	57.35	126.96	45
General Government	BLM, DOI-wide, FWS, MMS, OS, SOL	6	1.32	0.34	1.66	20
General Science and Innovation	NPS	1	0.00	0.25	0.25	100
Human Resource Management	BIA, BLM, BOR, DOI-wide, EGOV, FWS, IG, MMS, NBC, NPS, OS, OSM, OST, SOL, USGS	46	3.90	25.87	29.77	87
Income Security	EGOV	2	0.00	0.20	0.20	100
Information and Technology Management	BIE, BIA, BLM, BOR, DOI-wide, EGOV, FWS, IG, MMS, NBC, NPS, OHA, OIG, OS, OSM, OST, SOL, USGS	317	1.68	520.02	521.69	100
Internal Risk Management and Mitigation	BLM	2	0.00	0.19	0.19	100
Law Enforcement	BIA, BLM, BOR, DOI-wide, FWS, NPS	12	6.02	6.95	12.97	54
Litigation and Judicial Activities	BIA, BLM, BOR, MMS, NBC, OIG, OS, OSM, OST, SOL	13	1.32	3.54	4.85	73
Natural Resources	BIA, BLM, BOR, DOI-wide, EGOV, FWS, NPS, OST, USGS	93	5.68	115.19	120.87	95
Planning and Budgeting	BIA, BIE, BLM, BOR, DOI-wide, EGOV, FWS, MMS, NBC, NPS, OS, OSM, OST, USGS	39	2.06	22.07	24.14	91
Public Affairs	BLM, DM, DOI-wide, FWS, NPS	6	0.02	1.15	1.17	98
Regulatory Development	EGOV	1	0.00	0.35	0.35	100
Revenue Collection	NPS, OSM	4	0.68	0.64	1.32	48
Supply Chain Management	BIA, BLM, BOR, DOI-wide, EGOV, FWS, MMS, NPS, OSM, USGS	17	0.00	1.36	1.36	100
Grand Total		693	$140.58	$844.40	$985	86

★ **Geospatial = 17 Investments**

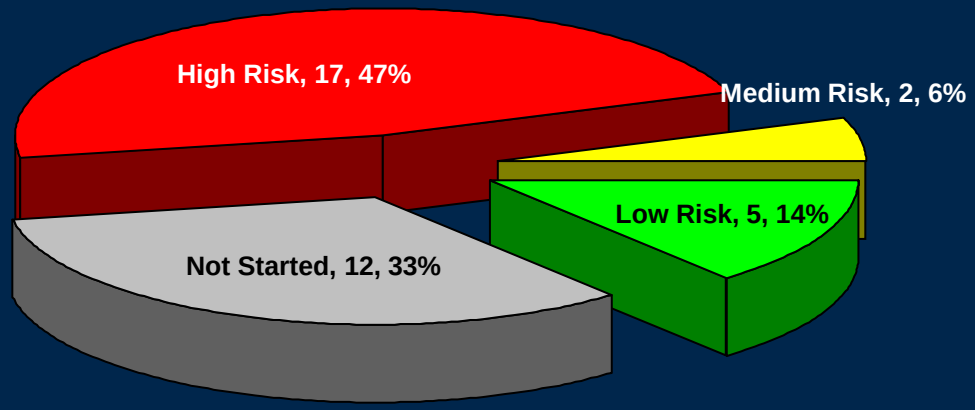
*Data as of 9/2008

Bottom Line – IT Environment:
693 Investments and $ 985 Million Annual Expenditure supporting 25 Lines-Of-Business

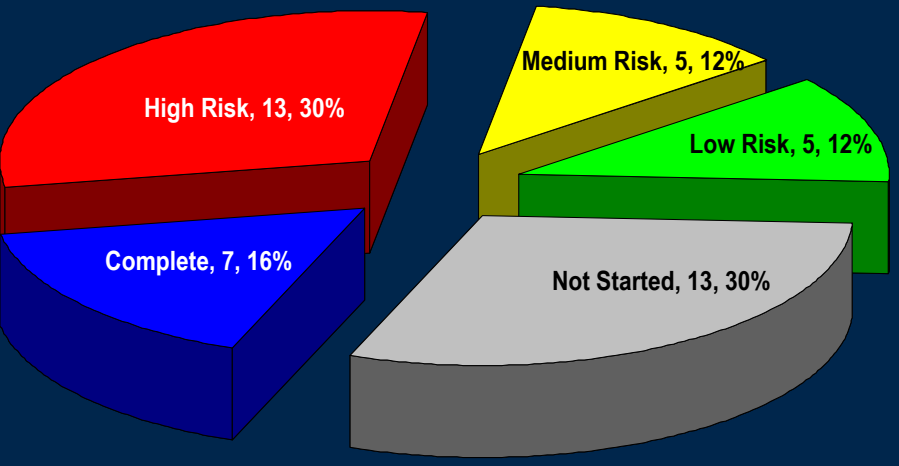
OCIO is currently in the process of Maturing our PMO to manage the High-Priority Projects



Launch of Roadmap - Jan 9, 2008



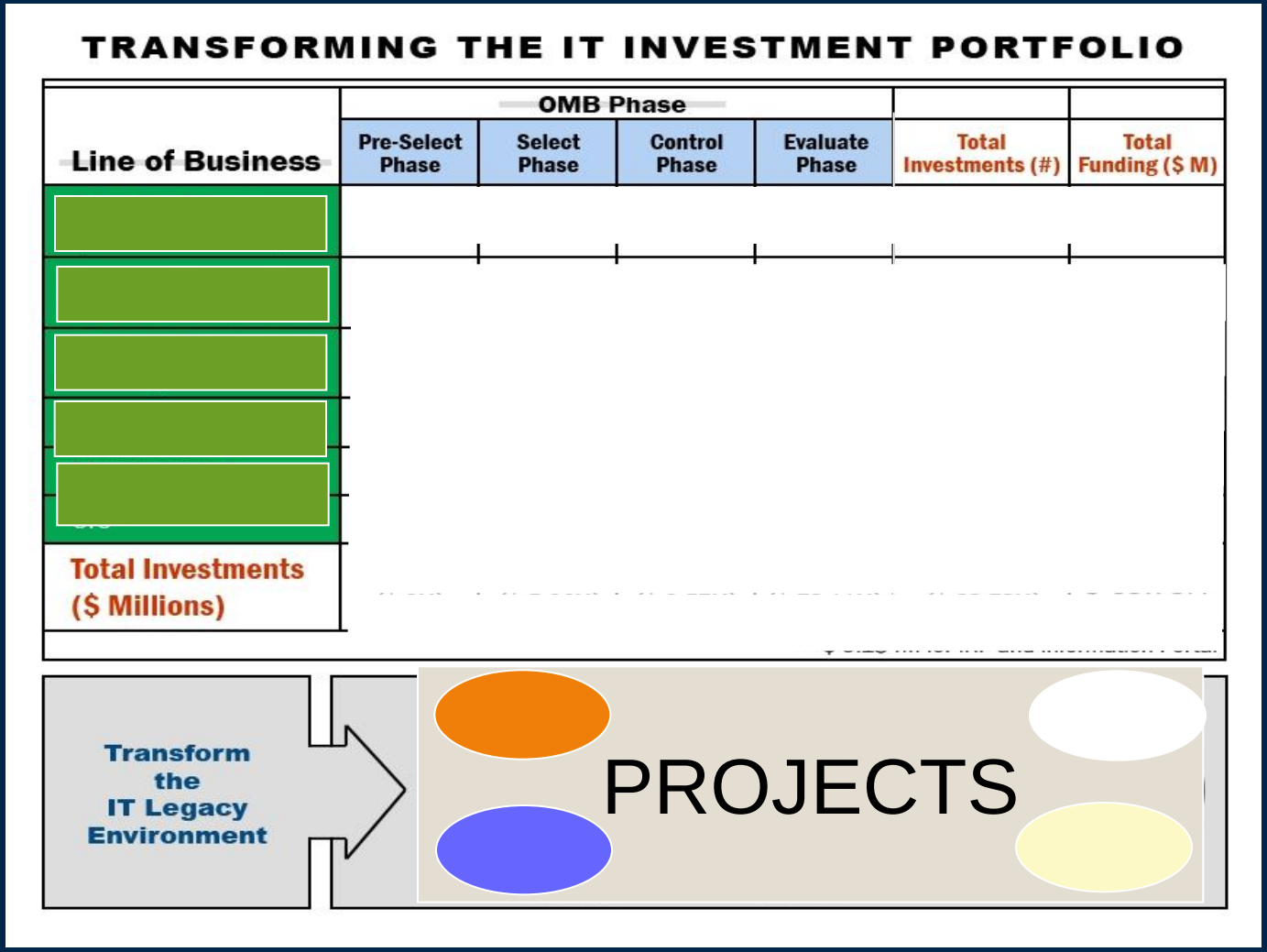
Current Status



OCIO uses the IT Roadmap to manage and assess risk for high-priority projects. The improved PMO is being built on this foundational dashboard.

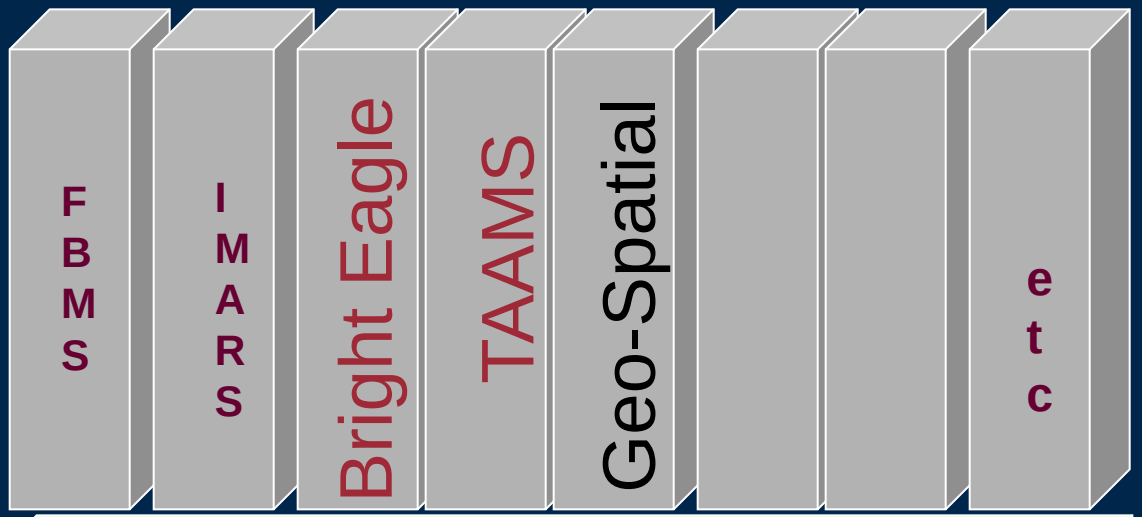
With proper oversight and tracking systems, projects are able to move from red to green and from green to blue (complete)

We Must Transform Across Lines of Business (Segments)…



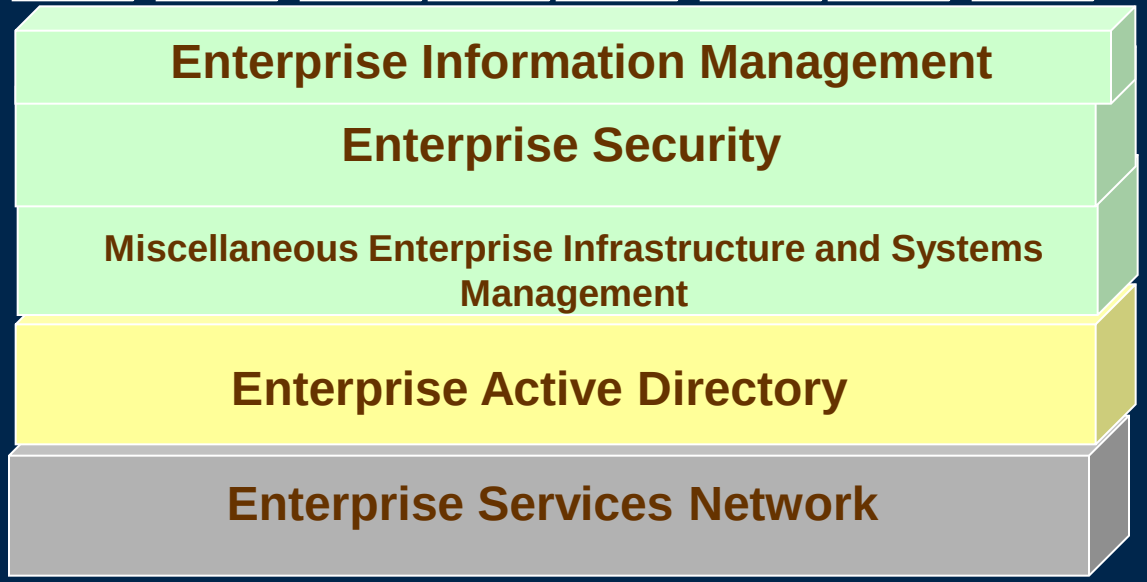
With Clearly Defined Programs/Projects…..

Enterprise Line-of-Business Programs



Enterprise Security Program

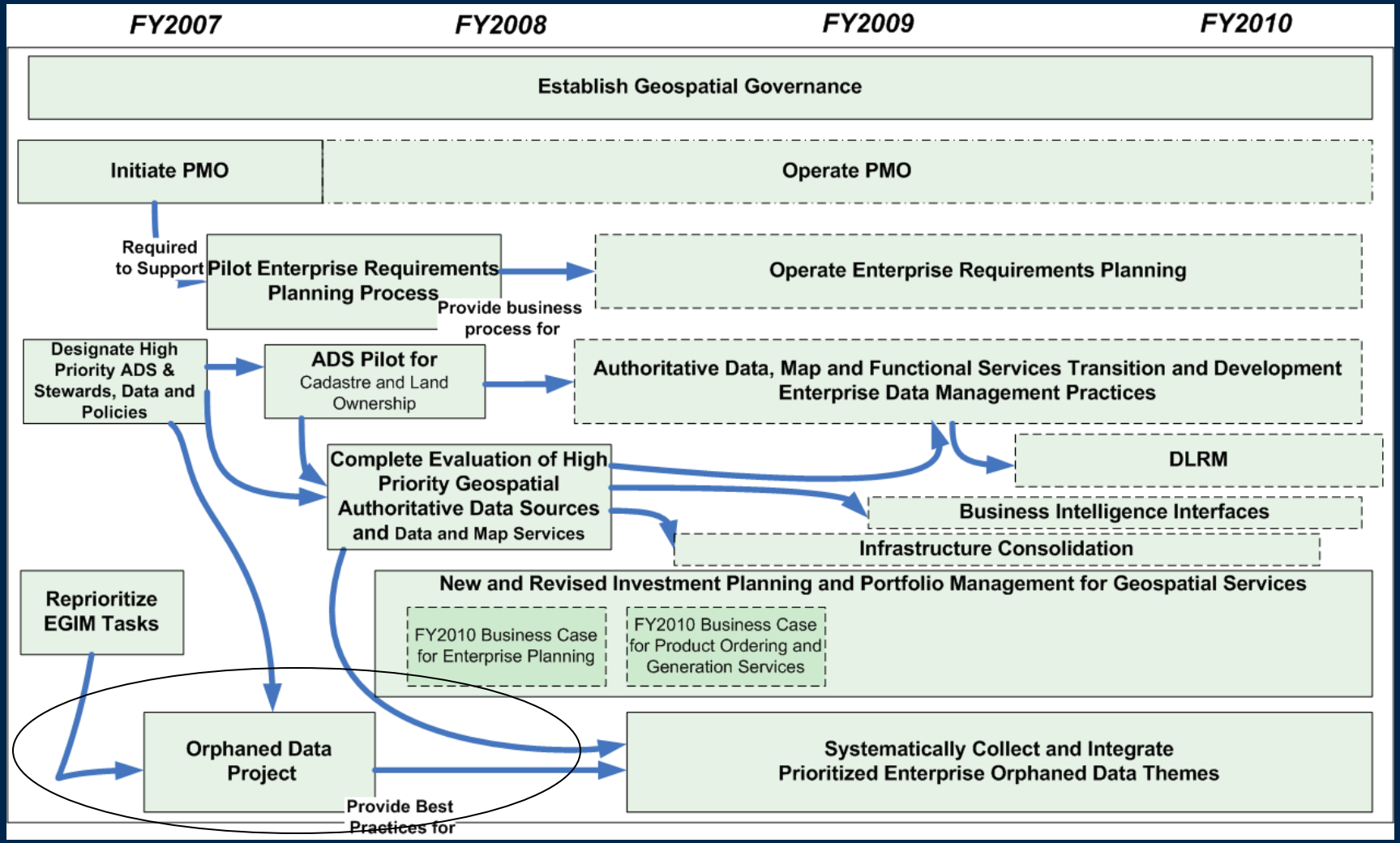
Enterprise Infrastructure Programs



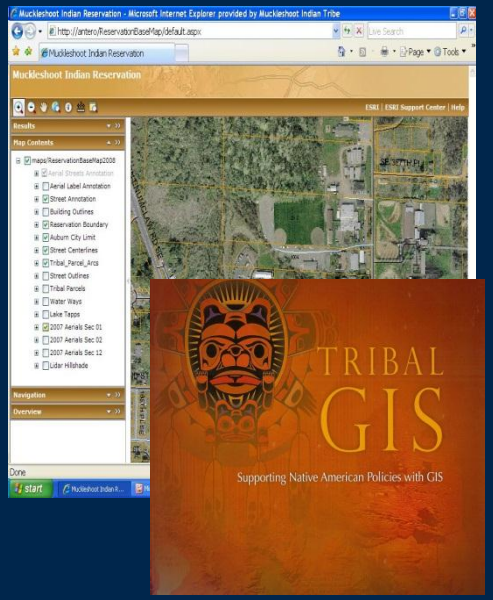
Potential IT Strategic Goals

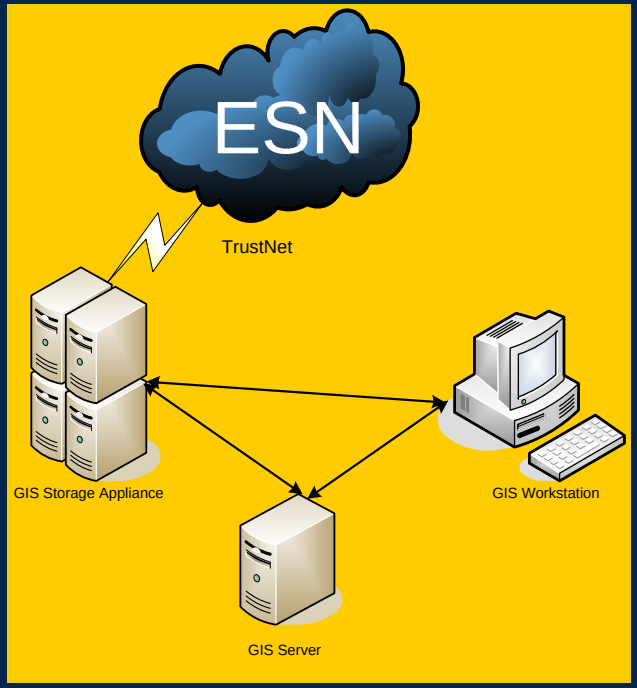
Goal	Rationale
Leverage DOI's GIS Assets to the Greatest Extent Possible	DOI's GIS data assets make it unique across the Federal government GIS applies to virtually every mission area within DOI DOI serves as the chair of the Federal Geographic Data Committee (FGDC) and lead for the Geospatial LOB
Provide Leadership in the Implementation of Transparent Government Initiatives	DOI should strive to be a leader within the Federal Government (e.g., Re-engineer DOI.gov, Create Data.Gov and improve our reporting to Recovery.Gov)
Deliver Modern Collaboration Services for Internal and External Constituents	New presidential initiatives for collaboration demand the delivery of these services
Ensure Efficient and Effective IT Support for all DOI Mission areas	This is the underlying goal for all of IT (e.g., Cloud Computing/Green IT)

Geospatial Blueprint Optimization and Standardization - Transition Planning



Geospatial Information Systems Programs (CIO/GIO Partnership)





What GIS Supports…

- ✓Realty
- ✓Title
- ✓Natural Resources
- ✓Forestry
- ✓Irrigation
- ✓Range Management
- ✓Transportation
- ✓Fire Management
- ✓Law Enforcement

What OCIO Provides for the GIS community…

- ✓Desktops and Servers
- ✓IT Support
- ✓Secure Wide and Local Area Networks
- ✓Patch Management
- ✓Large Capacity Data Storage Solutions

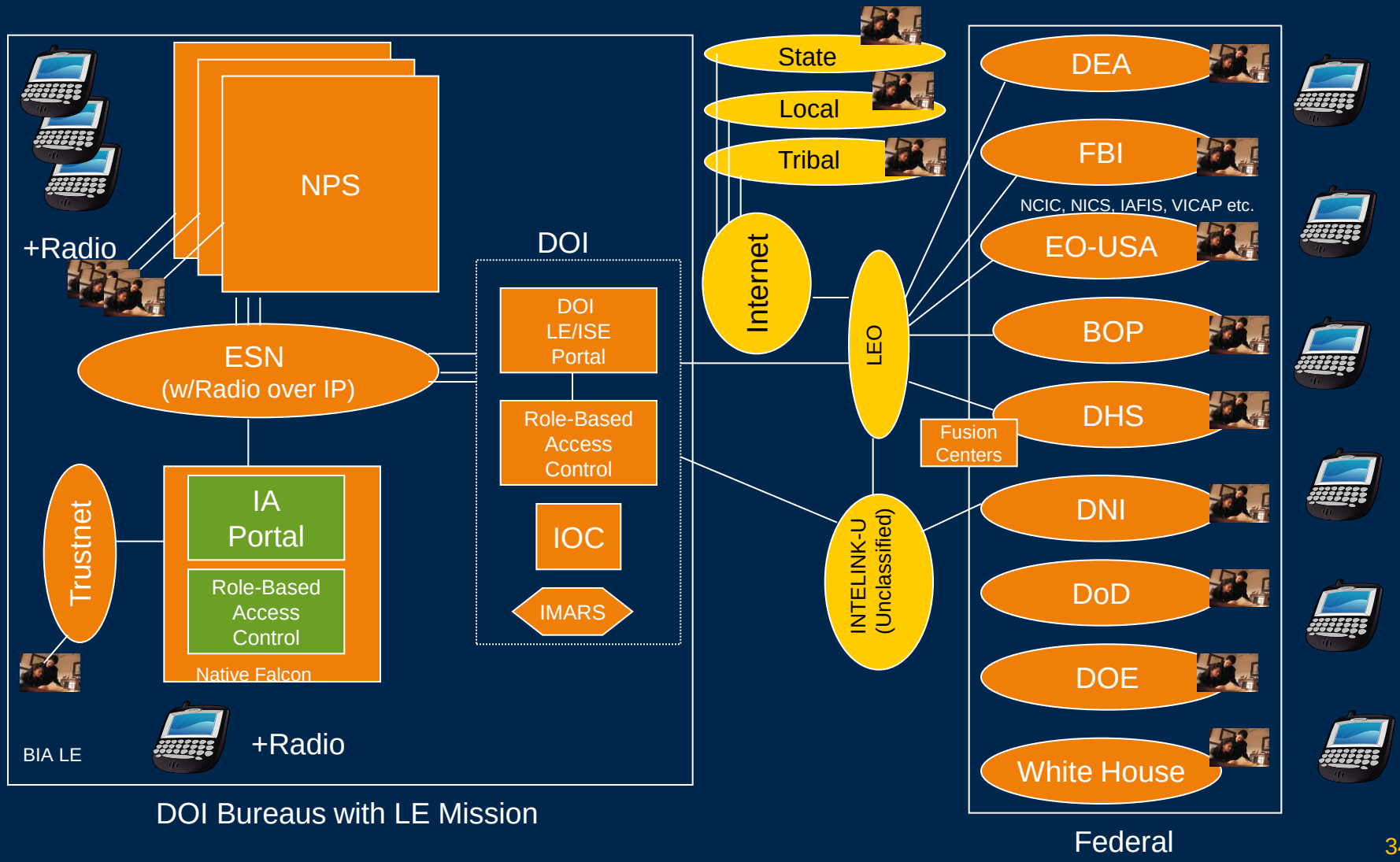
What GIS can do for DOI…

- ✓ **Translates and graphically displays land ownership and encumbrance information**
- ✓ **Accurately displays Natural Resource Spatial Data**
- ✓ SO MUCH MORE……

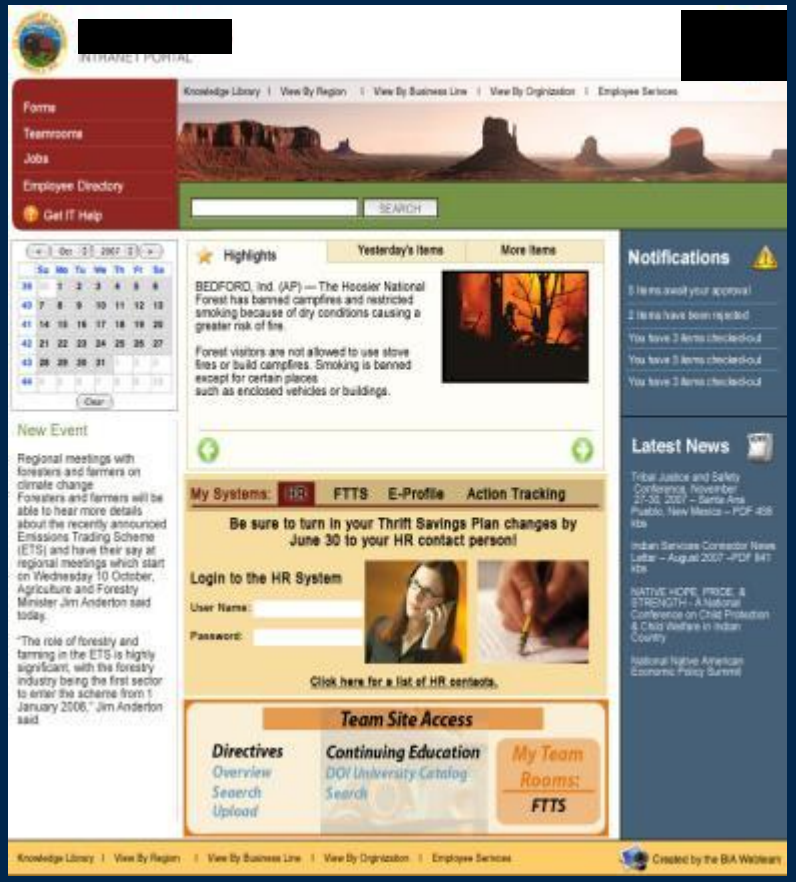
Geospatial is the "Killer App" for DOI!

Data Requested	Bureaus								
	BIA	BLM	BOR	FWS	IOS	MMS	NPS	OSM	USGS
Regional Boundaries, Regional Offices, Key Programs, International Programs and Offices	●	●	●	●		●	●	●	●
Reservations, Trust ands, Indian Education, Schools, and Universities	●								
Managed Lands, Mineral Lands, Federal Land Ownership, PLSS, National Land Conservation Units		●							
Dams, River Segments, Canals, Key Project Areas, Issue Areas, Inter-basin Transfer and Compacts			●						
Wetlands, Migratory Routes, Invasive & Endangered Species, Critical Habitat, Highlighted COOP Programs				●					
Trust Territories, Insular Areas, Key Program/Issue Areas (Polar Bears, Grand Canyon, Climate Change, OCS, Sacramento Bay, Command Centers, NBC, etc.)					●				
Oil Leases, Offshore Areas, Wells and Platforms, Pipelines, Stations, Protracted Areas, Alternative Energy Sources, Outer Continental Shelf						●			
National Trails, Major Issue Areas, Visitor Statistics							●		
Active Mines, Reclaimed Mines/Areas, State vs Fed Primacy, Standards Maps (subsurface mine areas, etc.)								●	
National Hazards, Status Maps, Liaison Location Map									●

Geospatial Application for DOI Law Enforcement



…With a focus on Delivering Geo-Enabled Services and Capabilities for Customers with Faster, Better and Easier Access to Information…



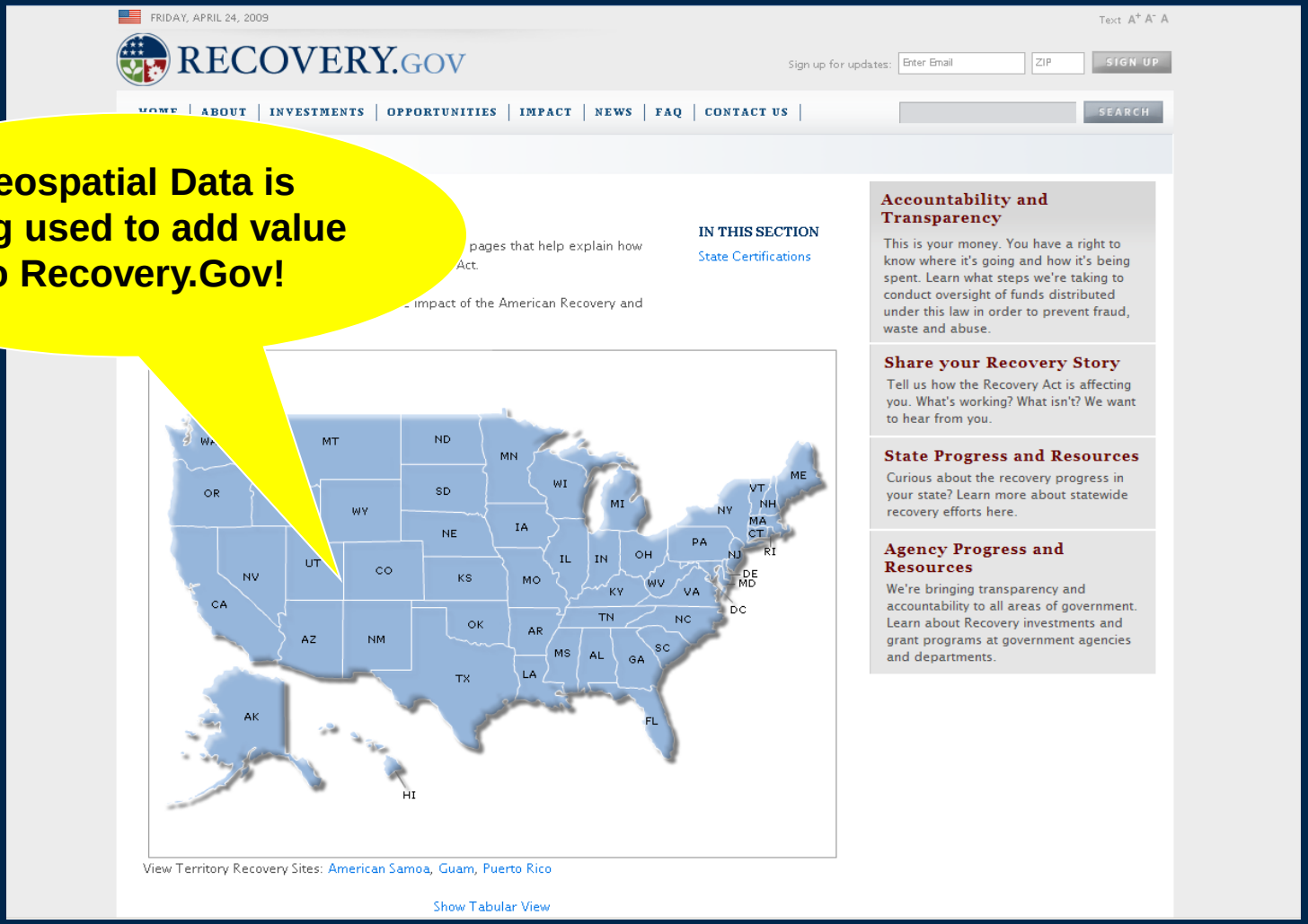
OMB Initiative Data.gov

- Data.Gov is an initiative that supports the President's principles of Open Government and Transparency
- The Federal CIO Council objectives for Data.gov:
  - Create a one-stop online website for free access to data produced or held by agencies across the Federal government
  - Enable the public to easily find, download, and use federal government data including databases, standardized data feeds, and maps, graphics, and other data visualizations
  - Target Audiences include general public, data analysts, data aggregators, web developers
- The Initiative is co-chaired by DOI and EPA CIOs and sponsored by Federal CIO

Geospatial Data can be DOI's unique contribution to Data.Gov!

Presidential Initiative: Recovery.Gov (www.DOI.gov/Recovery)

Geospatial Data is being used to add value to Recovery.Gov!

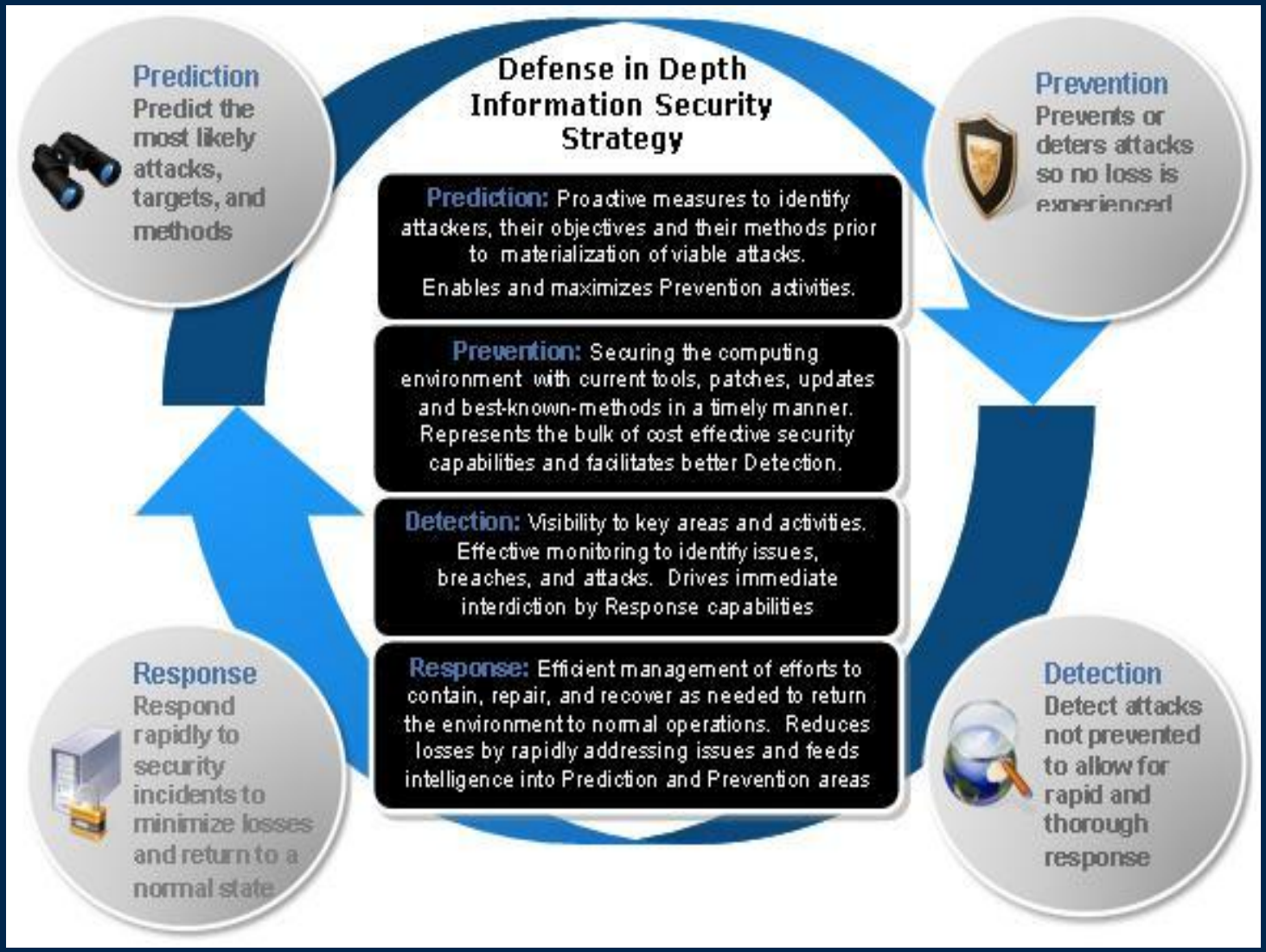


How Should Data Architectures be Coordinated between Programs, GIO and CIO?

We Need ACTIONABLE IMPLEMENTATIONS

DOI will use Information Assurance and Defense-In-Depth Strategies to Secure Our Information…

But, New Open and Transparent Government requirement, Social Media, New FOIA policies will require new balances….. Open Data and encrypt, protect only what you must….



We are at a Crossroads…..

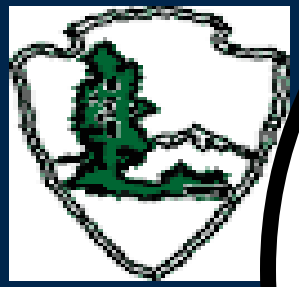
Fragmented, Stove-Piped, Sub-optimized Information, Geo-spatial and IT Environment (<FY2009)

Geo-enabled, Integrated, Transparent, Accessible, Federated, Enterprise Standards, Reliable, Secure Information and IT Environment (>FY2009 and Beyond)

We are at a Crossroads in History – Lets Choose the Pathway to Success!

Conclusion

- Geospatial data is a high priority for the United States and DOI
- Geospatial data will be integrated with high-priority Presidential initiatives
- DOI CIO and GIO continuing to work together to support the Geospatial vision
- The Geospatial Modernization Blueprint will be used to guide future activities



*one*DOI[2012]

9 Bureaus and 5 Offices with A Unity of Purpose

MMS