



Geospatial Line of Business Data Call Analysis Report

July 14, 2006

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Information contained in this report has been designated as proprietary and shall not be duplicated, used, or disclosed in whole or in part, other than to inform the Geospatial LoB effort.

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1 PURPOSE

This report describes information gleaned from analyses of agency responses to FY07 budget guidance issued by the Office of Management and Budget (OMB) to all Departments or agencies. This budget guidance directed all Departments or agencies to identify and report to OMB their geospatial investments and activities as defined by OMB Circular A-16.¹

On April 21, 2006, OMB prepared and released guidelines for agencies to report all major and non-major geospatial investments back to OMB by June 15, 2006. These guidelines reiterated the OMB reporting requirement, provided instructions and a template through which agencies were required to report.

The FY 2008 Geospatial Line of Business (LoB) Joint Business Case (JBC) has or will be informed by the information obtained through this data call.

2 KEY FINDINGS

Agency responses yielded the following key findings:

- The Federal government financed directly or indirectly, in whole or in part, \$2.33 Billion over a three year period (FY 2005 – FY 2007) in spatial data and geographic information systems (GIS) activities (geospatial activities)
- Level of geospatial investment was relatively consistent year over year for the three year reporting period
- Forty six percent (46%) of agencies reported a three year average of less than one million (\$1M) per year in geospatial activities.
- A high degree of unnecessarily redundant investment types was not readily apparent in comparison with more traditional, vertical LoBs (i.e. HR, FM, BFE)
- 20% of all reported investments did not specify the investment type as directed. This fact limits readily identifiable opportunities for LoB collaboration across like-type investments; possibly resulting in missed opportunities to develop common requirements
- 49% of all reported investments did not specify the GIS, or location-based data theme as directed. This fact limits readily identifiable opportunities for LoB collaboration across like-type data themes; possibly resulting in missed opportunities for cross-servicing of data theme requirements
- 37% of all reported investments did not specify the service component (or capability) provided by the investment as directed. This fact limits LoB-wide

¹ OMB Circular A-16, Coordination of Geographic Information and Related Spatial Data Activities, §6 identifies these investments and activities as, “All spatial data and geographic information systems activities - financed directly or indirectly, in whole or in part, by federal funds.”

- enterprise architecture capabilities; possibly resulting in sub-optimal investment decisions
- Lead agencies are majority investors in geodetic control, elevation, transportation, and hydrography nationally significant data themes
 - Lead agencies are not the majority investor in orthoimagery, cadastral, and governmental units nationally significant data themes

3 PRELIMINARY RECOMMENDATIONS

1. The Geospatial LoB could benefit from an enhanced capability to report geospatial investments and activities in an accurate, consistent, and less burdensome way. A lesson learned from the current method is that without standard definitions and consistent agency reporting execution, information obtained from this activity will remain difficult to capture, be non-conclusive and have limited utility.
2. The Geospatial LoB could benefit from continued analysis of common type, theme, and capability investments. It appears that commonality exists, but limited LoB-wide business planning and investment strategy capabilities lead to unrealized cost savings through intergovernmental collaboration
3. The Geospatial LoB could realize potential cost savings by leveraging SmartBuy or other aggregate purchasing programs to fill common capability requirements. It appears that redundant investments are being made by multiple agencies in GIS software and related service activities to fill similar capability requirements. This needs further study to determine whether or not the development of future service centers or centers of excellence will provide expected savings.
4. The Geospatial LoB could benefit from organizing communities of interest and partnerships around clusters of related activities and investments to improve benefits and the return on investment.

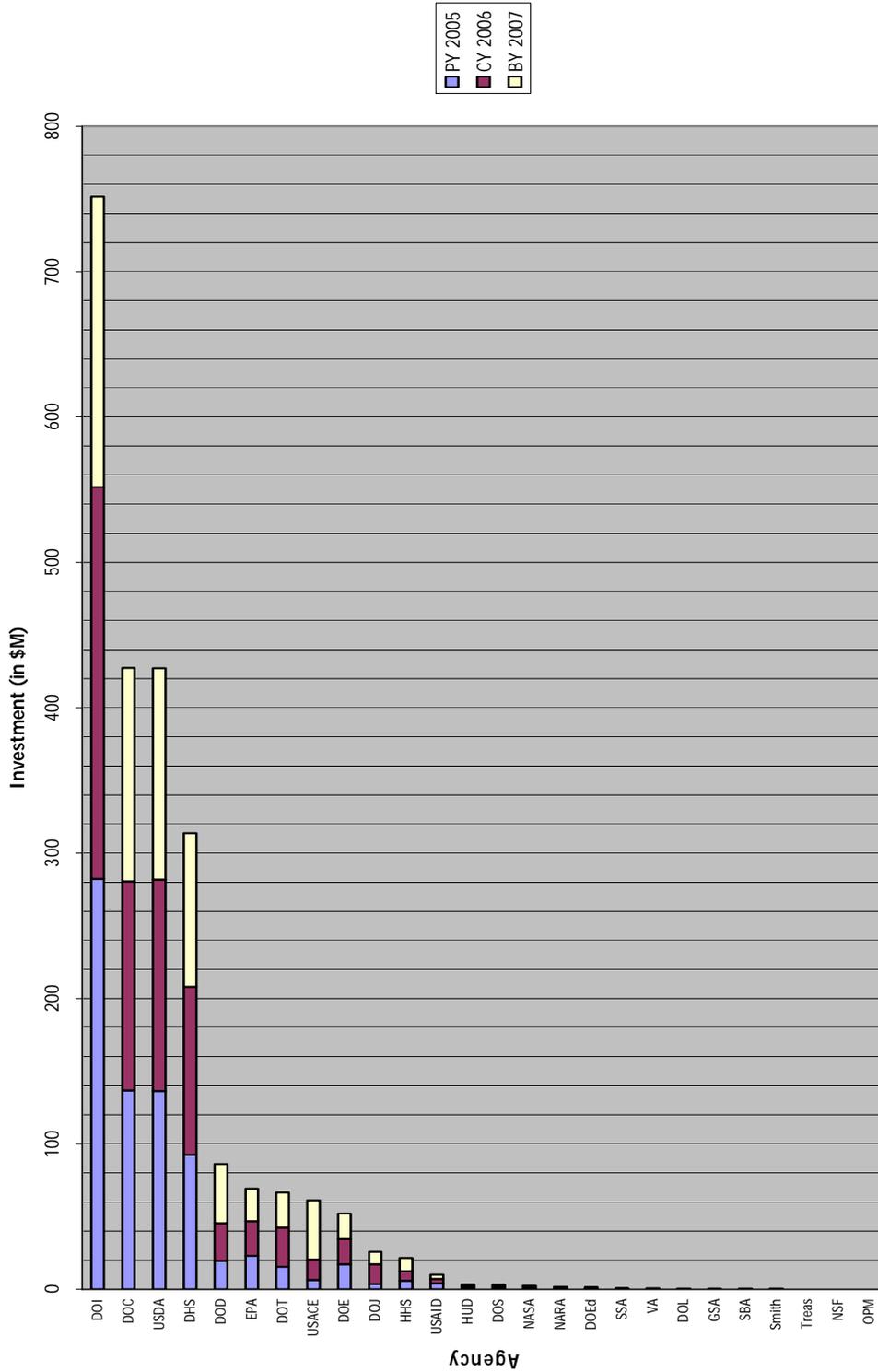
4 ANALYTICAL PERSPECTIVES

4.1 Total Reported Geospatial Investments

Overall, reporting agencies were consistent in their geospatial investment activities from FY 2005 through FY 2007. Small fluctuations in specific agency spending accounts for the 8.34% increase from FY 2005 to FY 2006, and the 5.34% decrease from FY 2006 to FY 2007. Chart 1 illustrates government wide investment figures by agency, by year. In the three-year span of the data, two agencies reported \$0.00 geospatial investment activity, and nearly half of all agencies averaged less than \$1M per year.

When analyzing the data at the three-year aggregate level, four natural break points occur at the \leq \$150M level, the \$150M to \$350M level, the \$350M to \$600M level and \geq \$600 M level.

Investment Summary (2005-2007)



	OPM	NSF	Treas	Smith	SBA	GSA	DOL	VA	SSA	DOEd	NARA	NASA	DOS	HUD	USAID	HHS	DOJ	DOE	USACE	DOT	EPA	DOD	DHS	USDA	DOC	DOI
BY 2007	0.000	0.000	0.097	0.123	0.160	0.134	0.309	0.265	0.259	0.840	0.333	0.788	0.896	1.020	2.870	9.139	8.578	17.589	40.750	24.116	22.361	40.730	105.694	145.281	146.768	199.489
CY 2006	0.000	0.000	0.033	0.169	0.165	0.320	0.156	0.291	0.243	0.109	1.196	1.196	1.196	1.195	3.110	6.437	13.667	17.279	13.963	26.909	23.764	25.832	115.593	145.381	143.944	269.486
PY 2005	0.000	0.000	0.028	0.142	0.219	0.135	0.126	0.132	0.236	0.778	1.235	1.235	1.235	1.170	4.040	6.030	3.521	17.244	6.550	15.500	23.166	19.664	92.495	136.479	136.734	282.417

Avg. <\$1M

Chart 1 - 2005-2007 INVESTMENT SUMMARY

4.2 Geospatial Investment Types

Total investment spending by type is portrayed in Chart 2, illustrating the division of investment types at the three-year aggregate level. It is noted that \$456M – or 20% of investments are unspecified by the reporting agencies. Another \$432M – or 19% of investments are identified as “other” and are likely not reported in a consistent manner.

Through an accurate understanding of LoB investment types, recommendations for enhancements or the establishment of new government-wide contract acquisition vehicles can be made, leading to better management of the Geospatial Portfolio.

2005 - 2007 Investments By Type

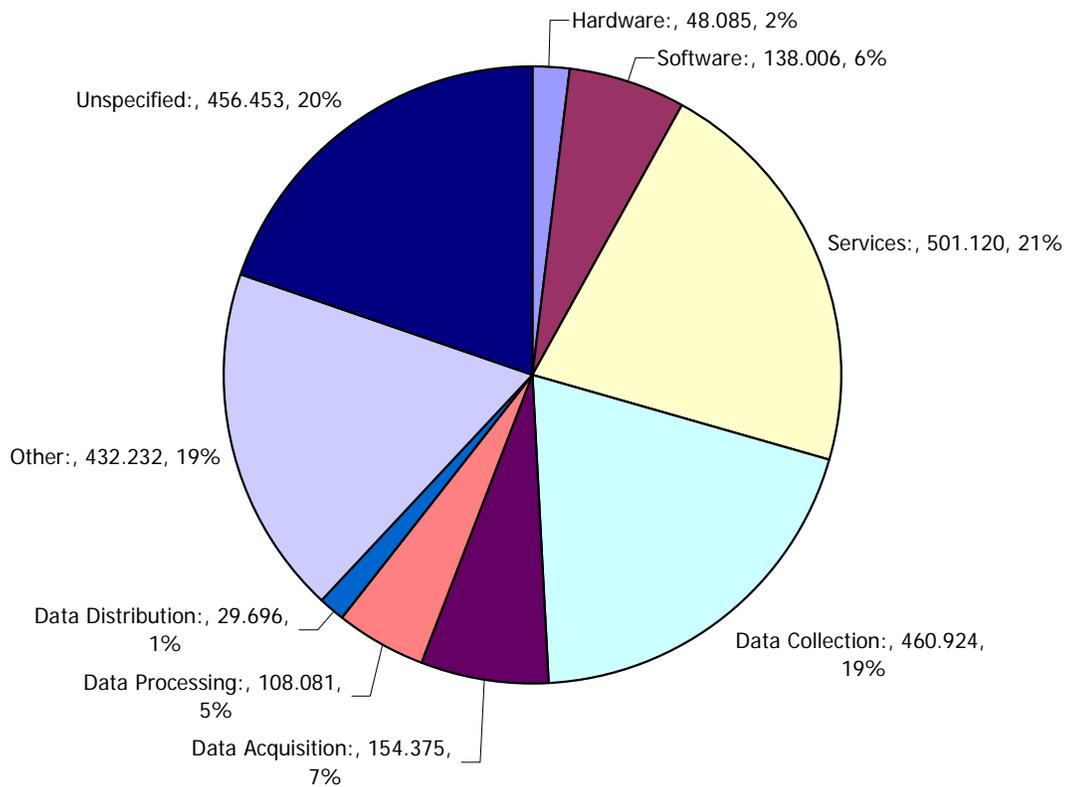


Chart 2 2005-2007 INVESTMENTS BY TYPE

Other optimization opportunities may develop as the portfolio capabilities are better understood through information technology lifecycle analysis. Business requirements planning activities would benefit from a better understanding of LoB requirements beginning with the data oriented investment types, through services, and finally to hardware and software activities.

4.3 Geospatial Investment Themes

Total investment spending by data theme is portrayed in Chart 3. Well coordinated investments in nationally significant framework data layers are a key component of driving performance accountability and compliance mechanisms for the Geospatial LoB. Unspecified investments represent the largest percentage (49%) reported. These investments should be further analyzed to determine which National Spatial Data Infrastructure (NSDI) layer they support, and to understand the degree to which the capability requirements they represent may be satisfied through intergovernmental collaboration. Other NSDI data layers may have more mission specific use requirements and are not currently considered collaboration opportunity areas.

2005 - 2007 Investments By Theme

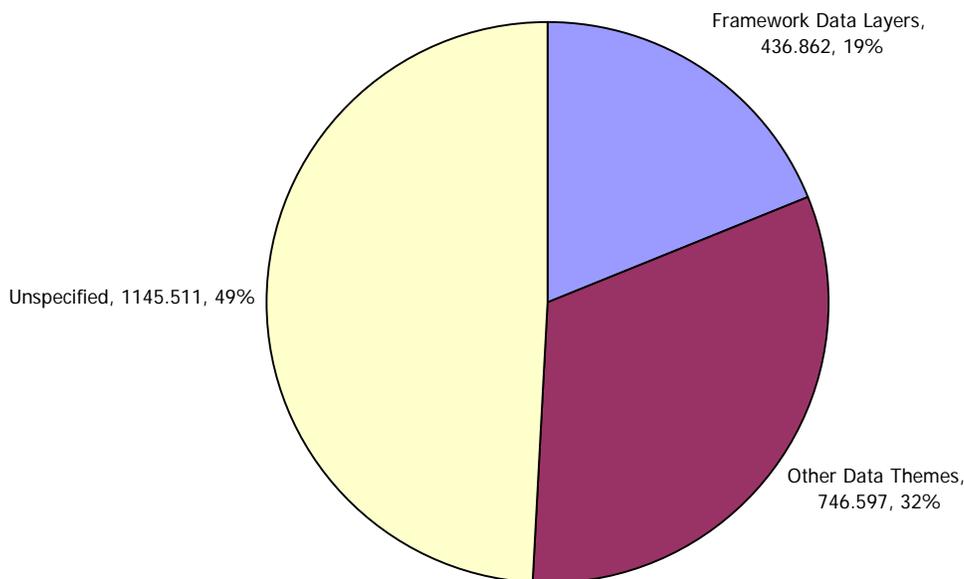


Chart 3 2005-2007 INVESTMENTS BY THEME

4.4 Geospatial Investment Capabilities

The top ten geospatial capabilities – or Geospatial Profile service components – measured by investment spending are portrayed in Chart 4. These capabilities appear to be similar in description, and further analysis may yield cost savings or performance improvement opportunities. It is important to note that inconsistent capability/service component reporting can significantly degrade the business requirements planning process. While 54 different capability/service components were provided in the OMB data call template, 94

different capability/service components were mapped. The likely result of this fact is that like capability/service requirements are being described in different ways. Thirty nine percent (39%) of the reported investments did not specify a capability/service component. These and outlier investment mappings should be further analyzed and categorized.

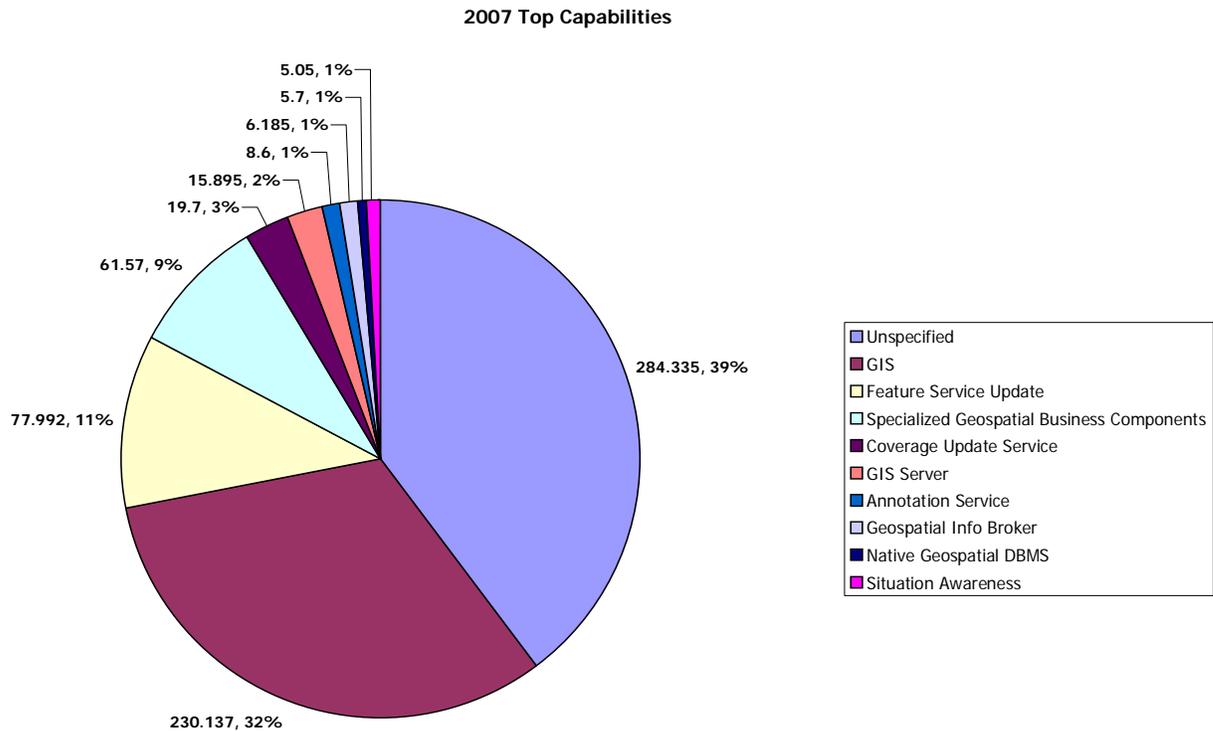


Chart 4 FY2007 TOP CAPABILITIES

4.5 Nationally Significant (“Framework”) Data Investment Profile

OMB Circular A-16² states, “Themes providing the core, most commonly used set of base data are known as framework data, ...” As the Federal lead for a framework data layer, an agency is required to nationally coordinate and provide overall data stewardship of the geospatial data theme. This section will analyze the seven framework themes, and its top investor(s) to determine whether the amount of spending by the lead agency is relative to the communication and management of the data. As 49% of the data received in the data call was unidentified by data theme, further classification by the agencies if the unidentified geospatial investments would be a beneficial next step in the analysis process.

² OMB Circular A-16, Coordination of Geographic Information and Related Spatial Data Activities, §2.b.1 defines framework data, “Themes providing the core, most commonly used set of base data are known as framework data, specifically geodetic control, orthoimagery, elevation and bathymetry, transportation, hydrography, cadastral, and governmental units.”

4.5.1 Geodetic Control

As the lead agency for geodetic control, the Department of Commerce (DOC) accounts for \$10.10M of the \$10.185M spent on this data theme. As illustrated in Chart 5, the only other agency to report geodetic control investments is the Environmental Protection Agency (EPA), spending approximately \$45,000 over the three year period.

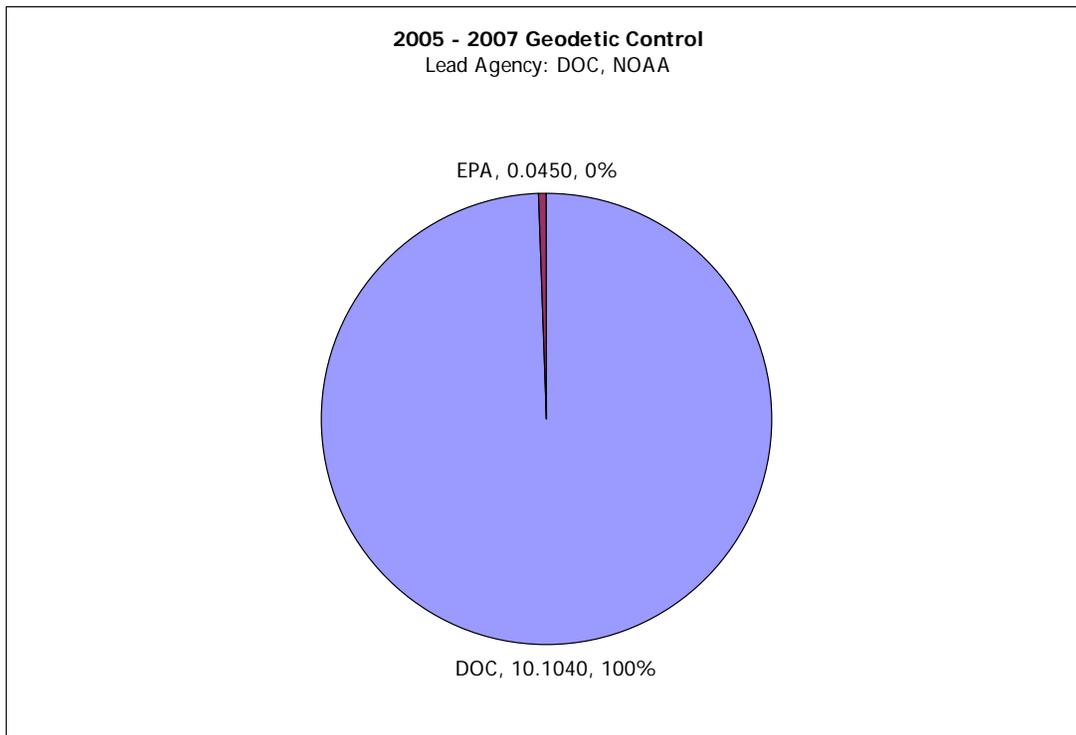


Chart 5 2005-2007 GEODETTIC CONTROL

4.5.2 Digital Orthoimagery

Digital Orthoimagery is lead by the Department of Interior (DOI) at the national level; however, Chart 6 depicts the United States Department of Agriculture (USDA) as the primary investor in this data theme. USDA has a FY 2005 – FY 2007 Development/Modernization/Enhance (DME) investment totaling \$68.12M for the National Agriculture Imagery Program Acquisition. If this investment is removed, USDA still reports more investment spending in digital orthoimagery than DOI spending \$31.27M as the lead agency.

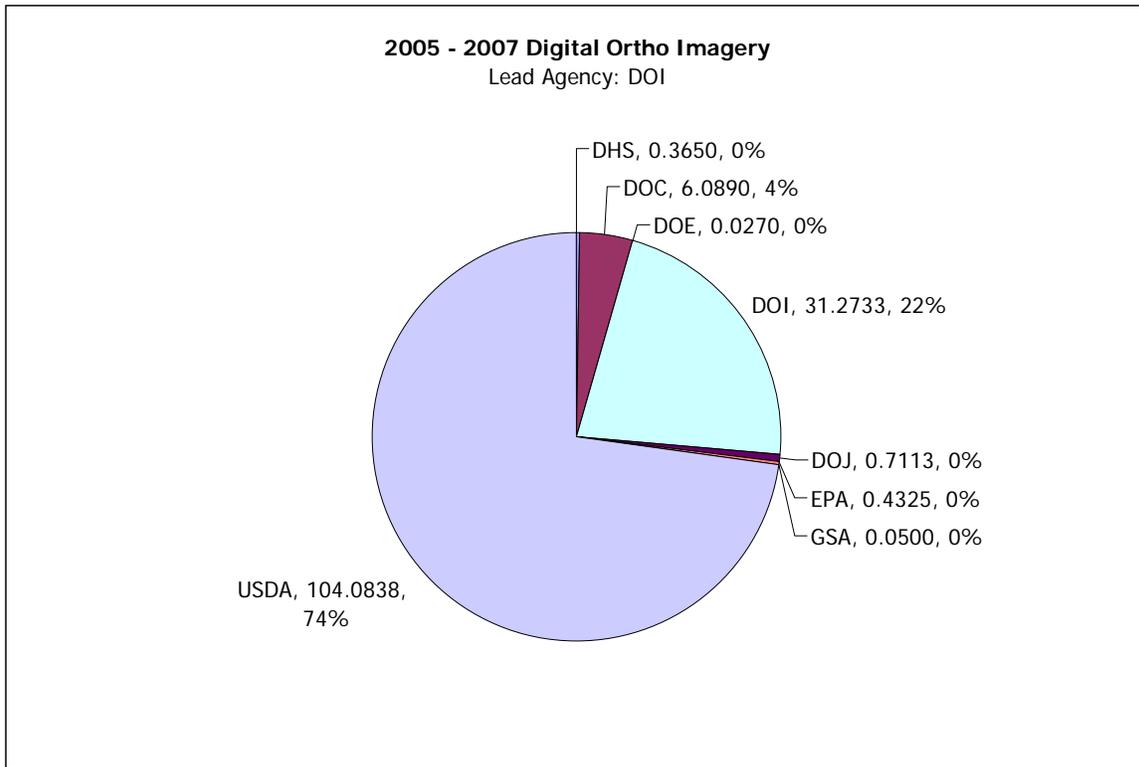


Chart 6 2005-2007 DIGITAL ORTHOIMAGERY INVESTMENT

4.5.3 Elevation

The elevation data theme – encompassing both bathymetric data and terrestrial – is co-managed by DOC, the United States Army Corps of Engineers (USACE) and DOI, respectively. As depicted on Chart 7, DOC is the primary spender in this framework set, encompassing approximately 90% of the investment spending. This is in part due to a large DME investment of the Office of Coast Survey Hydrographic Surveys performing their lead agency role in a DME effort to acquire and process bathymetric data, to include survey planning. This single line investment accounts for \$174.20M of the FY 2005 – FY 2007 period. It is interesting to note that USACE, as co-leader of the bathymetric elevation theme does not have any reported spending in that data theme. If the \$174.20M investment from DOC/NOAA/Office of Coast Survey Hydrographic Surveys is removed from the spending total, DOI managing the terrestrial subset would be the primary investor in the elevation data theme. This finding is consistent with the ratio of terrestrial investments to bathymetric investments in the elevation data theme.

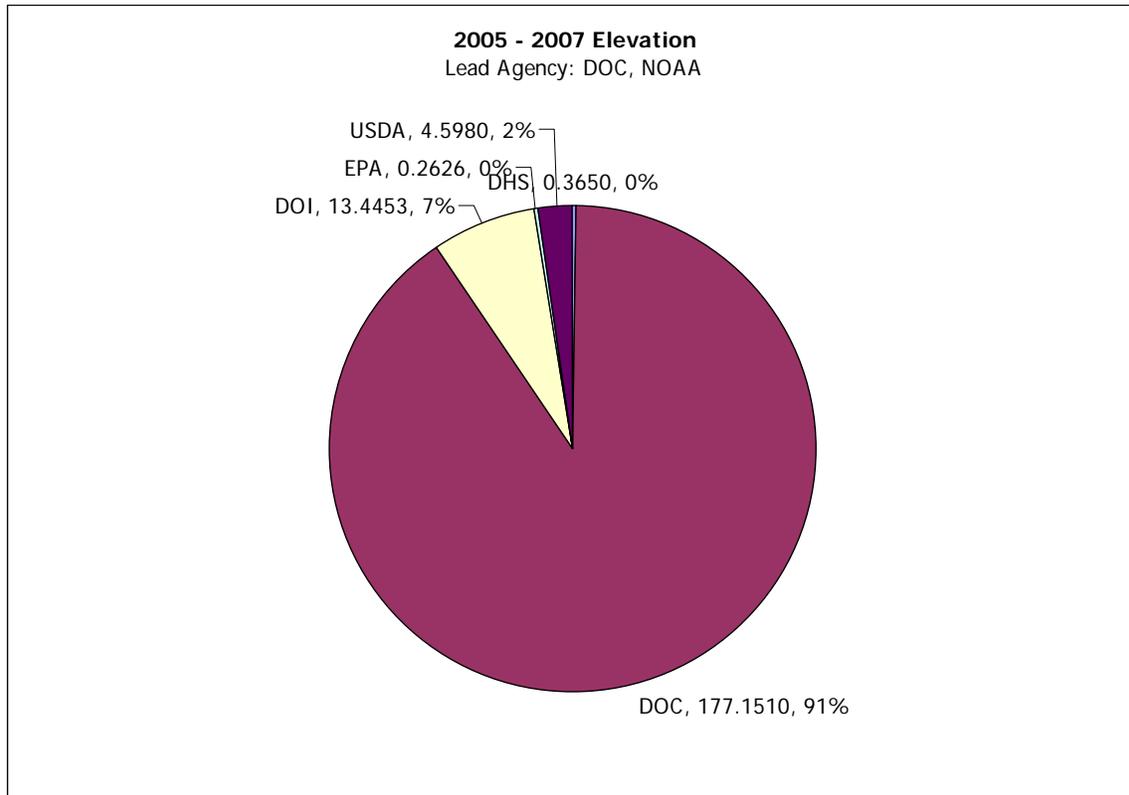


Chart 7 2005-2007 ELEVATION INVESTMENT

4.5.4 Transportation

The transportation framework data theme encompasses both the transportation data theme, managed by the Department of Transportation (DOT); and the transportation (marine) data theme managed by USACE. As Chart 8 illustrates there is an equal share of investment by the two lead agencies. The largest reported one time investment for the transportation sub-set is \$3.77M by the Department of Homeland Security (DHS) for the Transportation Security Administration's (TSA) Initial Operational Situational Awareness Capability Pilot Project. For the transportation (maritime) subset, USACE invested \$10.50M on a data collection activity for the Inland Electronic Navigation Chart (IENC) Program.

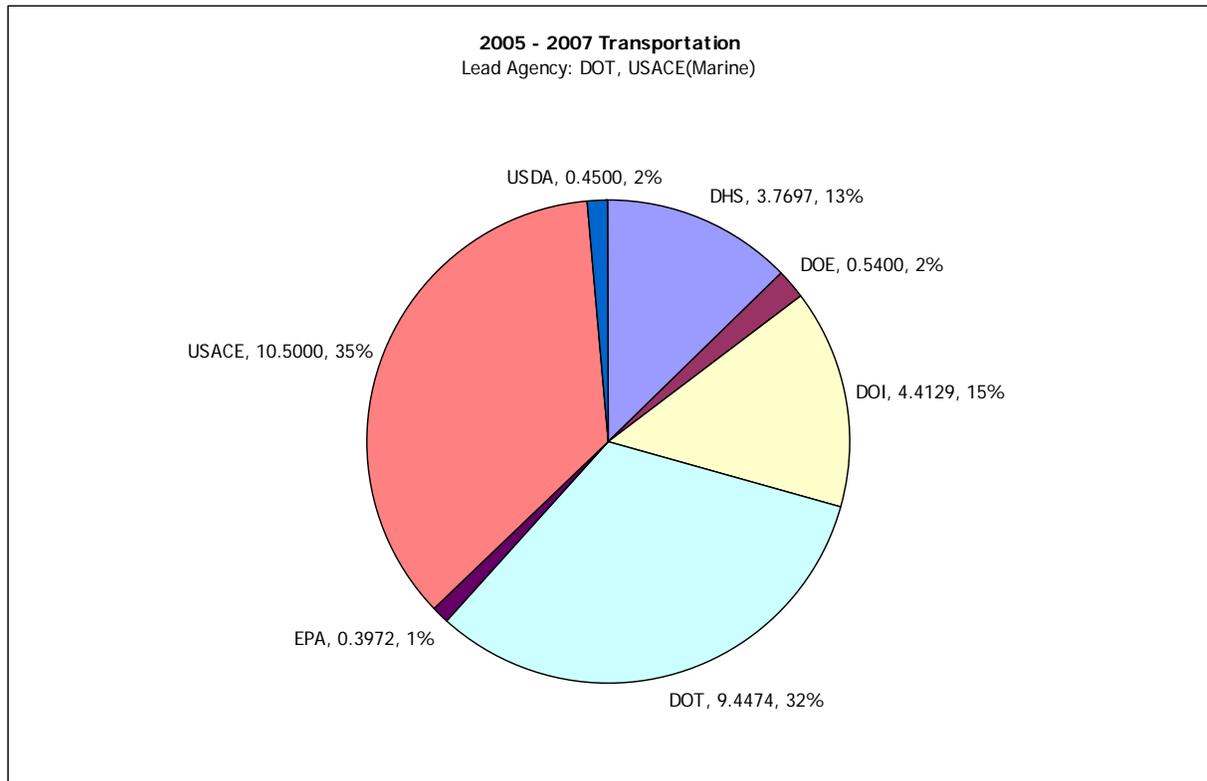


Chart 8 2005-2007 TRANSPORTATION INVESTMENT

Overall, the total investments by agencies in the transportation framework data set have been steady for the FY 2005 – FY 2007 period.

4.5.5 Hydrography

DOI is the lead agency for the hydrography data theme, and as such is the primary investor. For FY 2005 – FY 2007, the single largest investment in this data theme was a non-IT data collection investment of \$18.73 by DOI for Cooperative Water Program Sub-activity. As Chart 9 illustrates, DOI invests 81% of the total reported agency spending in hydrography. Even when excluding DOI's \$18.73 non-IT investment, the majority of hydrography's investments across all contributing agencies are non-IT.

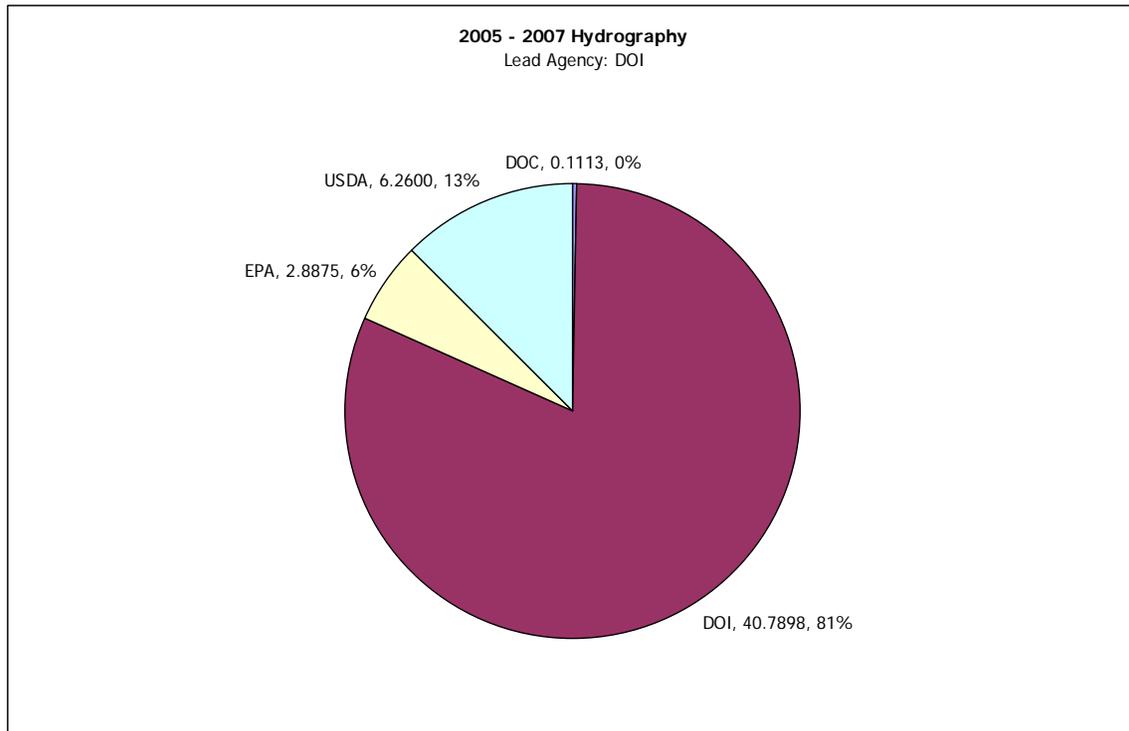


Chart 9 2005-2007 HYDROGRAPHY INVESTMENT

4.5.6 Cadastral

DOI is the lead agency for both cadastral and cadastral (offshore), which makes-up the cadastral framework data theme. Interestingly, the total reported investments in the cadastral framework data theme is \$4.99M. \$4.23M of that total investment was due to USDA's DME investment for FY 2005 – FY 2007 for the Grazing land Management Systems (GMS) Rainfall Index, which is a contracted insurance product development that utilizes DOC/NOAA rainfall data by index interval. Chart 10 illustrates the level of investment.

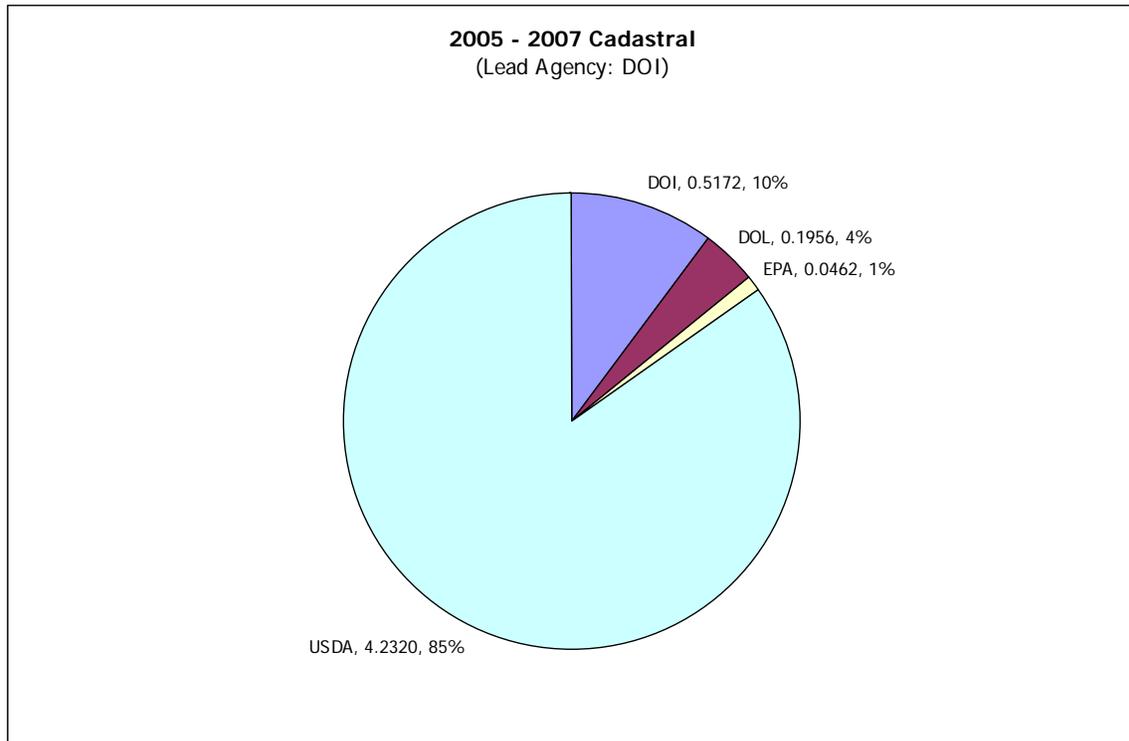


Chart 10 2005-2007 CADASTRAL INVESTMENT

This USDA DME investment – the largest in the Cadastral framework – uses indexed information from another federal agency. This illustrates the level of inter-agency dependency on geospatial data, and exemplifies a Geospatial LoB goal to create an enhanced governance body to support the optimization and standardization of common geospatial functions, services, and processes.

4.5.7 Government Units

Managed by DOC, the governmental unit boundaries is the only of the seven framework data themes that does not include any reported spending by the lead agency. However, it is important to note OMB Circular A-16³ states that governmental unit boundaries “... describe, by a consistent set of rules and semantic definitions, the official boundary of federal, state, local, and tribal governments as reported/certified to the U.S. Census Bureau by responsible officials of each government for purposes of reporting the Nation's official statistics.” Yet, it is noteworthy that no system management or maintenance is reported by DOC as a means to collect, process, analyze or distribute this data.

³ OMB Circular A-16, Coordination of Geographic Information and Related Spatial Data Activities, Appendix E identifies the data themes.

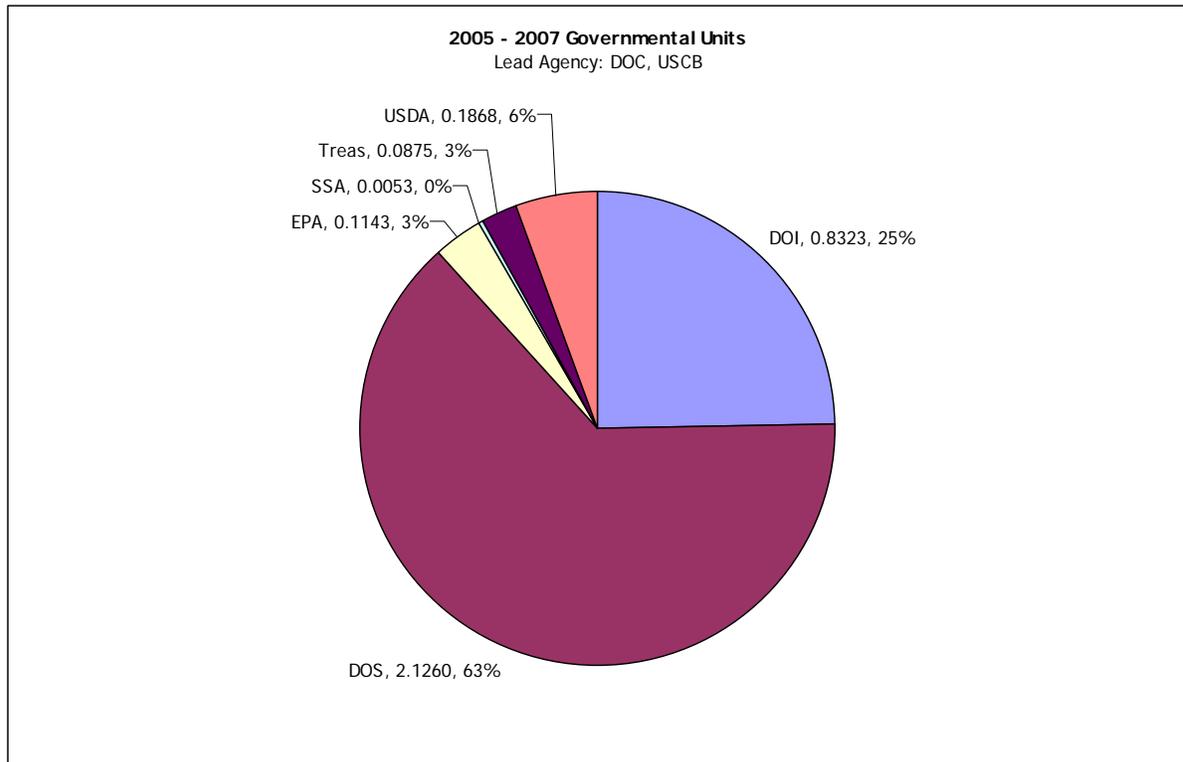


Chart 11 2005-2007 GOVERNMENTAL UNITS INVESTMENT

As Chart 11 illustrates, with a total reported spending of \$3.35M in governmental units, the Department of State (DOS) is the largest investor. This is due to their DME hardware, software and service investment of \$2.13M for the Humanitarian Information Unit (HIU). The HIU is an interagency center to identify, collect, analyze, and disseminate information on complex humanitarian emergencies, and to encourage best practices in humanitarian information management. DOS, acting as the geospatial information broker, provides another example of interagency coordination at the Federal level requiring geospatial investments.

5 2007 LIFECYCLE INVESTMENT CAPABILITIES

Lifecycle capabilities are defined as those investments that fall into one of three investment types: data (acquisition, collection, distribution, processing), hardware and software, and services. Of the top ten geospatial capabilities measured by investment spending as portrayed in chart 4 of section 4, numerous investments appear to be very similar, and may be the same capability but identified differently agency to agency. FY 2007 DME, Steady State (SS), and non-IT reported spending of the top capabilities in 2007 equates to \$715.17M.

A cursory examination of the investments shows that there is a pool of over \$335.909M for potential intergovernmental collaboration and cost savings based on similarity in agency description and identification. It is probable that this spending amount will increase as investments are more closely examined for resemblance.

6 2007 DME INVESTMENT SPENDING

Looking specifically at FY 2007 DME investments, agencies reported spending of \$334.74M in geospatial investments. These DME investments identify another pool for potential intergovernmental collaboration and cost savings. Specifically, GIS represents 60.27% of the DME spending in FY 2007, equating to \$68.50M.

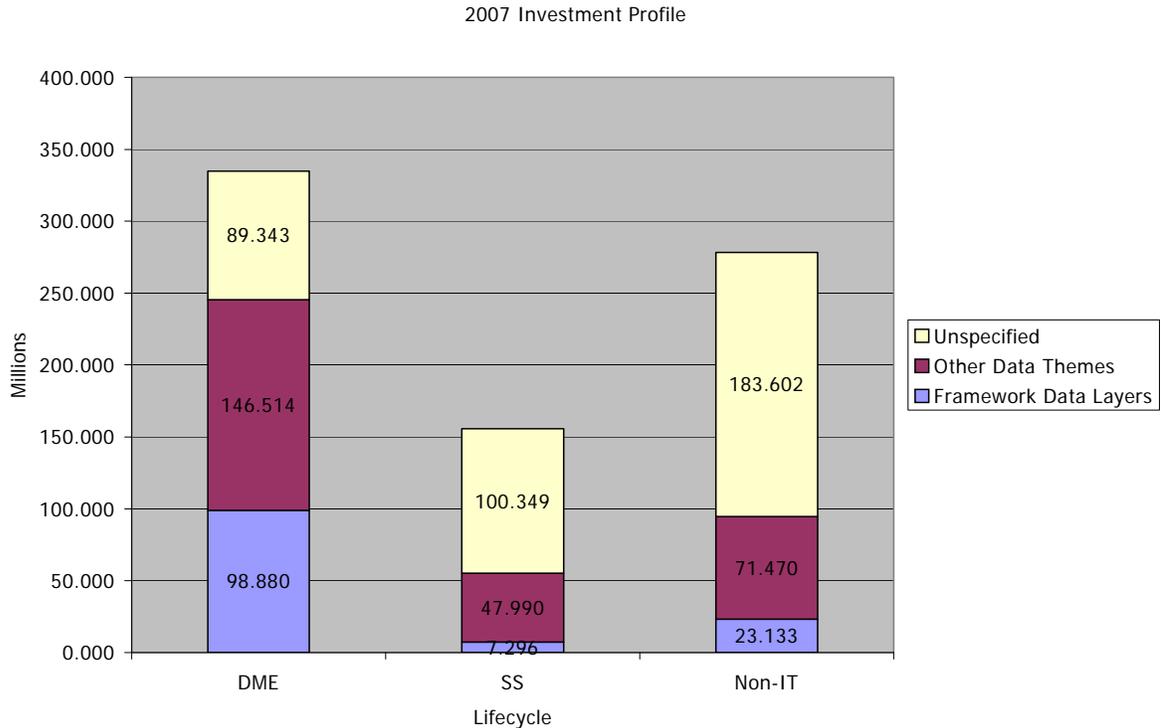


Chart 12 2007 INVESTMENT PROFILE BY THEME

As illustrated by chart 12, approximately 30% of these DME dollars being spent are specifically tied to the seven framework data themes. Again, GIS as the top identified capability of FY 2007 investments, represents approximately 69% of the DME framework data theme reported spending.

The next step in this analysis is to further identify related investments across agencies and compare them with the FY 2007 DME investments for more exact definition of what types of data, infrastructure or services can be purchased more strategically.

7 CONCLUSION

As stated in the introduction to the preliminary recommendations section, future geospatial data calls would benefit from standardized geospatial definitions and reporting strategies for investments. Implementing the Geospatial LoB common solutions would establish an enhanced governance and business requirements planning capability that could provide support and guidance towards intergovernmental collaboration for geospatial-related activities and investments across all sectors and levels of government. With further analysis, there appears to be potential to improve business performance and



realize cost savings through intergovernmental collaboration to fill common capability requirements.

Included in this deliverable is the Geospatial Data Call Analysis workbook, which will be the main source for this continued analysis of the OMB data call results.



APPENDIX A: GUIDELINES FOR AGENCIES TO REPORT GEOSPATIAL INVESTMENTS

Guidelines for Agencies to Report Geospatial Investments

Purpose:

The Geospatial Line of Business (Geo LoB) is developing a common solution to ensure effective and efficient development, provision, and interoperability of geospatial data and services and achieve the following goals:

- Productive intergovernmental collaboration for geospatial-related activities and investments across all sectors and levels of government
- Optimized and standardized common geospatial functions, services, and processes that are responsive to customers
- Cost efficient acquisition, processing, and access to geospatial data and information

In order to accomplish these goals, the Geo LoB task force must be aware of the investments individual agencies are making on geospatial-related activities and capabilities. Having this information will provide a fiscal-year view of the level of resources invested in geospatial-related activities across the federal government. As a result, the task force will be better able to identify areas of opportunity for improvement.

Requirement:

The Office of Management and Budget (OMB) directed agencies in FY 2007 budget guidance to identify and report to OMB their geospatial investments and activities as defined by OMB Circular A-16.⁴ Agencies must report this information using the template provided to OMB no later than June 15th, 2006. The component of the agency leading this activity should coordinate with the agency's budget office.

⁴ OMB Circular A-16, Coordination of Geographic Information and Related Spatial Data Activities, §6 identifies these investments and activities as, "All spatial data and geographic information systems activities - financed directly or indirectly, in whole or in part, by federal funds."

**Instructions:**

The following methodology should be used to complete the attached template:

1. Identify and provide a brief description for all of your agency's geospatial investments (Columns A and B):
 - Identify investments (major and non-major) from your agency's Exhibit 53 and provide the unique project identifier (UPI) used to report each investment (Column C).
 - Identify investments that may not be included on the Exhibit 53. For example, a program that creates geospatial data and prepares it to be posted for use. Investments that fall into this category do not need to provide a UPI.

2. Classify each identified investment as hardware, software, services (professional), data or other (Column D). For investments that may be a combination of one or more of these (software and data for example), list all that apply on separate lines.
 - If the investment is classified as hardware, software, services or other, use the drop down list in column E to select the geospatial service component(s).⁵
 - If the investment is classified as data collection, acquisition, processing (i.e. analysis or manipulation), or distribution, use the drop down list in column F to select the geospatial data theme(s).⁶ For the purpose of this activity, the category "data" is limited to geospatial data (e.g. elevation data and flood maps) and should not include business information collected for other purposes and later geo-referenced (e.g. census demographic or housing information, administrative records, surveys). Investment for geo-referencing such information or distributing it as geo-referenced information should be included under hardware, software, or services as appropriate.
 - Select a data theme for hardware, software, or services if applicable.

⁵ The geospatial service components were identified by the Federal Geographic Data Committee and documented in Appendix F of the Federal Enterprise Architecture Geospatial Profile version 1.1 The Federal Enterprise Architecture Geospatial Profile is available at www.egov.gov to assist agencies in identifying, implementing, and sharing geospatial capabilities in a coordinated and interoperable manner to meet the needs of Federal, State, and local governments, as well as other data sharing partners.

⁶ Data themes for the National Spatial Data Infrastructure are identified in OMB Circular A-16. The National Spatial Data Infrastructure is described in OMB Circular A-16 as the technology, policies, standards, human resources, and related activities necessary to acquire, process, distribute, use, maintain, and preserve spatial data.



3. For each identified investment, document the associated geospatial costs by Development/Modernization/Enhance (DME)⁷ and Steady State (SS).⁸ Cost should be reported in millions. For non-IT investments where costs are not available by DME or SS, please use the “Non-IT” column. Costs should be determined for:
- Previous year (FY 2005) (Columns G-I)
 - Current year (FY 2006) (Columns J-L)
 - Budget year (FY 2007) (Columns M-O)

If the geospatial investment is a component of a larger investment with a different primary function, only report the cost associated with the geospatial component. If the cost reported is a best estimate, provide a rationale for the estimate (Column P).

⁷ DME costs are defined in OMB Circular A-11, Exhibit 53 as, “the program costs for new investments, changes, or modifications to existing systems to improve capability or performance, changes mandated by the Congress or agency leadership, personnel costs for project (investment) management, and direct support.”

⁸ SS costs are defined in OMB Circular A-11, Exhibit 53 as, “maintenance and operation costs at current capability and performance level including costs for personnel, maintenance of existing information systems, corrective software maintenance, voice and data communications maintenance, and replacement of broken IT equipment.”



APPENDIX B: NATIONAL SPATIAL DATA THEMES (NSDI)

NSDI Data Themes, Definitions, and Lead Agencies

The lead federal agencies with responsibilities for NSDI spatial data themes are as follows:

Baseline (Maritime): Co-leaders: DOC, NOAA and DOI, Minerals Management Service (MMS)

Baseline represents the line from which maritime zones and limits are measured. Examples of these limits include the territorial sea, contiguous zone, and exclusive economic zone. The spatial extent of the baseline is defined as "ordinary low water," interpreted as mean lower low water, as depicted on National Ocean Service nautical charts and/or appropriate supplemental information.

Biological Resources: DOI, U.S. Geological Survey (USGS)

This dataset includes data pertaining to or descriptive of (nonhuman) biological resources and their distributions and habitats, including data at the suborganismal (genetics, physiology, anatomy, etc.), organismal (subspecies, species, systematics), and ecological (populations, communities, ecosystems, biomes, etc.) levels.

***Cadastral:** DOI, Bureau of Land Management (BLM)

Cadastral data describe the geographic extent of past, current, and future right, title, and interest in real property, and the framework to support the description of that geographic extent. The geographic extent includes survey and description frameworks such as the Public Land Survey System, as well as parcel-by-parcel surveys and descriptions.

***Cadastral (Offshore):** DOI, MMS

Offshore Cadastre is the land management system used on the Outer Continental Shelf. It extends from the baseline to the extent of United States jurisdiction. Existing coverage is currently limited to the conterminous United States and portions of Alaska. Maximum extent of United States jurisdiction is not yet mathematically calculated.

Climate: Co-leaders, Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) and DOC, NOAA

Climate data describe the spatial and temporal characteristics of the Earth's atmosphere/hydrosphere/land surface system. These data represent both model-generated and observed (either in situ or remotely sensed) environmental information, which can be summarized to describe surface, near surface and atmospheric conditions over a range of scales.

**Cultural and Demographic Statistics:** DOC, U.S. Census Bureau (USCB)

These geospatially referenced data describe the characteristics of people, the nature of the structures in which they live and work, the economic and other activities they pursue, the facilities they use to support their health, recreational and other needs, the environmental consequences of their presence, and the boundaries, names and numeric codes of geographic entities used to report the information collected.

Cultural Resources: DOI, National Park Service

The cultural resources theme includes historic places such as districts, sites, buildings, and structures of significance in history, architecture, engineering, or culture. Cultural resources also encompass prehistoric features as well as historic landscapes.

***Digital Ortho Imagery:** DOI, USGS

This dataset contains georeferenced images of the Earth's surface, collected by a sensor in which image object displacement has been removed for sensor distortions and orientation, and terrain relief. For very large surface areas, an Earth curvature correction may be applied. Digital orthoimages encode the optical electromagnetic spectrum as discrete values modeled in an array of georeferenced pixels. Digital orthoimages have the geometric characteristics of a map, and image qualities of a photograph.

Earth Cover: DOI, USGS

The Earth Cover theme uses a hierarchical classification system based on observable form and structure, as opposed to function or use. This system transitions from generalized to more specific and detailed class divisions, and provides a framework within which multiple land cover and land use classification systems can be cross-referenced. This system is applicable everywhere on the surface of the Earth. This theme differs from the Vegetation and Wetlands themes, which provide additional detail.

***Elevation Bathymetric:** Co-leaders: DOC, NOAA (U.S. waters outside channels) and US Army Corps of Engineers (USACE) (inland waterways)

The bathymetric data for Inland and Intercoastal waterways is highly accurate bathymetric sounding information collected to ensure that federal navigation channels are maintained to their authorized depths. Bathymetric survey activities support the Nation's critical nautical charting program. This data is also used to create Electronic Navigational Charts. The bathymetric sounding data supports the elevation layer of the geospatial data framework.

***Elevation Terrestrial:** DOI, USGS



This data contains georeferenced digital representations of terrestrial surfaces, natural or manmade, which describe vertical position above or below a datum surface. Data may be encapsulated in an evenly spaced grid (raster form) or randomly spaced (triangular irregular network, hypsography, single points). The elevation points can have varying horizontal and vertical resolution and accuracy.

Buildings and Facilities: General Services Administration

The facility theme includes federal sites or entities with a geospatial location deliberately established for designated activities; a facility database might describe a factory, military base, college, hospital, power plant, fishery, national park, office building, space command center, or prison. Facility data is submitted from several agencies, since there is no one party responsible for all the facilities in the Nation, and facilities encompass a broad spectrum of activities. The FGDC promotes standardizing on database structures and schemas to the extent practical.

Federal Land Ownership Status: DOI, BLM

Federal land ownership status includes the establishment and maintenance of a system for the storage and dissemination of information describing all title, estate or interest of the federal government in a parcel of real and mineral property. The ownership status system is the portrayal of title for all such federal estates or interests in land.

Flood Hazards: Federal Emergency Management Agency

National Flood Insurance Program has prepared flood hazard data for approximately 18,000 communities. The primary information prepared for these communities is for the 1 percent annual chance (100-year) flood, and includes documentation of the boundaries and elevations of that flood.

***Geodetic Control:** DOC, NOAA

Geodetic control provides a common reference system for establishing coordinates for all geographic data. All NSDI framework data and users' applications data require geodetic control to accurately register spatial data. The National Spatial Reference System is the fundamental geodetic control for the United States.

Geographic Names: DOI, USGS

This dataset contains data or information on geographic place names deemed official for federal use by the U.S. Board on Geographic Names as pursuant to Public Law 80-242. Geographic Names information includes both the official place name (current, historical, and aliases) and locative direct (i.e., geographic coordinates) and indirect (i.e., State and County where place is located) geospatial identifiers and categorized as populated places, schools, reservoirs, parks, streams, valleys, and ridges.

**Geologic:** DOI, USGS

The geologic spatial data theme includes all geologic mapping information and related geoscience spatial data (including associated geophysical, geochemical, geochronologic, and paleontologic data) that can contribute to the National Geologic Map Database as pursuant to Public Law 106-148.

***Governmental Units:** DOC, USCB

These data describe, by a consistent set of rules and semantic definitions, the official boundary of federal, state, local, and tribal governments as reported/certified to the U.S. Census Bureau by responsible officials of each government for purposes of reporting the Nation's official statistics.

Housing: Department of Housing and Urban Development (HUD)

HUD's database maintains geographic data on homeownership rates, including many attributes such as HUD revitalization zones, location of various forms of housing assistance, first-time homebuyers, underserved areas, and race. Data standards have not yet been formalized.

***Hydrography:** DOI, USGS

This data theme includes surface water features such as lakes, ponds, streams and rivers, canals, oceans, and coastlines. Each hydrography feature is assigned a permanent feature identification code (Environmental Protection Agency Reach Code) and may also be identified by a feature name. Spatial positions of features are encoded as centerlines and polygons. Also encoded is network connectivity and direction of flow.

International Boundaries: Department of State

International boundary data include both textual information to describe, and GIS digital cartographic data to depict, both land and maritime international boundaries, other lines of separation, limits, zones, enclaves/exclaves and special areas between States and dependencies.

**Law Enforcement Statistics:** Department of Justice

Law enforcement statistics describe the occurrence of events (including incidences, offenses and arrests) geospatially located, related to ordinance and statutory violations and the individuals involved in those occurrences. Also included are data related to deployment of law enforcement resources and performance measures.

Marine Boundaries: Co-leaders: DOC, NOAA and DOI, MMS

Marine boundaries depict offshore waters and seabeds over which the United States has sovereignty and jurisdiction.

Offshore Minerals: DOI, MMS

Offshore minerals include minerals occurring in submerged lands. Examples of marine minerals include oil, gas, sulfur, gold, sand and gravel, and manganese.

Outer Continental Shelf Submerged Lands: DOI, MMS

This data includes lands covered by water at any stage of the tide, as distinguished from tidelands, which are attached to the mainland or an island and cover and uncover with the tide. Tidelands presuppose a high-water line as the upper boundary; whereas submerged lands do not.

Public Health: Department of Health and Human Services

Public health themes relate to the protection, improvement and promotion of the health and safety of all people. For example, public health databases include spatial data on mortality and natality events, infectious and notifiable diseases, incident cancer cases, behavioral risk factor and tuberculosis surveillance, hazardous substance releases and health effects, hospital statistics and other similar data.

Public Land Conveyance (patent) Records: DOI, BLM

Public land conveyance data are the records that describe all past, current, and future, right, title, and interest in real property. This is a system of storage, retrieval and dissemination of documents describing the right, title, and interest of a parcel.

Shoreline: DOC, NOAA

Shorelines represent the intersection of the land with the water surface. The shoreline shown on NOAA Charts represents the line of contact between the land and a selected water elevation. In areas affected by tidal fluctuations, this line of contact is the mean high water line.

**Soils:** USDA, NRCS

Soil data consist of georeferenced digital map data and associated tabular attribute data. The map data describe the spatial distribution of the various soils that cover the Earth's surface. The attribute data describe the proportionate extent of the various soils as well as the physical and chemical characteristics of those soils. The physical and chemical properties are based on observed and measured values, as well as model-generated values. Also included are model-generated assessments of the suitability or limitations of the soils to various land uses.

***Transportation:** Department of Transportation, Bureau of Transportation Statistics

Transportation data are used to model the geographic locations, interconnectedness, and characteristics of the transportation system within the United States. The transportation system includes both physical and non-physical components representing all modes of travel that allow the movement of goods and people between locations.

Transportation (Marine): USACE

The Navigation Channel Framework consists of highly accurate dimensions (geographic coordinates for channel sides, centerlines, wideners, turning basins, and River Mile Markers) for every federal navigation channel maintained by USACE. The Navigation Framework will provide the basis for the marine transportation theme of the geospatial data framework.

Vegetation: USDA, U.S. Forest Service

Vegetation data describe a collection of plants or plant communities with distinguishable characteristics that occupy an area of interest. Existing vegetation covers or is visible at or above the land or water surface and does not include abiotic factors that tend to describe potential vegetation.

Watershed Boundaries: Co-leaders: DOI, USGS and USDA, NRCS

This data theme encodes hydrologic, watershed boundaries into topographically defined sets of drainage areas, organized in a nested hierarchy by size, and based on a standard hydrologic unit coding system.

Wetlands: DOI, Fish and Wildlife Service

The wetlands data layer provides the classification, location, and extent of wetlands and deepwater habitats. There is no attempt to define the proprietary limits or jurisdictional wetland boundaries of any federal, state, or local agencies.



Lead Agency responsibilities and new data themes may be added or altered by recommendation of the FGDC and concurrence by the OMB.

* Indicates framework theme



APPENDIX C: AGENCY GEOSPATIAL INVESTMENTS AND ACTIVITIES

AGENCY GEOSPATIAL INVESTMENTS AND ACTIVITIES

Color Code: incomplete as of 6/29 - no follow-up as of 6/29

in Millions		PY (FY2005)				CY (FY2006)				BY (FY2007)				
Agency Name	Agency 3-year TOTAL	DME	SS	Non-IT	YEAR TOTAL	DME	SS	Non-IT	YEAR TOTAL	DME	SS	Non-IT	YEAR TOTAL	
Dept. of Commerce	DOC	427.446	123.282	10.624	2.828	136.734	130.456	9.759	3.730	143.944	131.759	11.760	3.250	146.768
Dept. of Defense	DOD	86.227	0.134	3.130	16.400	19.664	0.713	9.830	15.289	25.832	0.500	9.830	30.400	40.730
Dept. of Energy	DOE	52.113	1.054	2.276	13.914	17.244	1.105	2.339	13.835	17.279	1.348	2.434	13.807	17.589
Dept. of Education	DOEd	1.570	0.000	0.000	0.000	0.000	0.200	0.250	0.260	0.710	0.300	0.250	0.310	0.860
Dept. of Homeland Security	DHS	313.781	86.327	5.338	0.830	92.495	95.596	16.947	3.050	115.593	88.523	13.521	3.650	105.694
Dept. of Interior	DOI	751.392	54.435	60.213	167.769	282.417	33.739	54.619	181.127	269.486	29.777	53.310	116.403	199.489
Dept. of Justice	DOJ	25.766	0.740	2.741	0.041	3.521	8.577	4.940	0.150	13.667	0.048	8.413	0.118	8.578
Dept. of Labor	DOL	0.591	0.000	0.064	0.062	0.126	0.045	0.061	0.050	0.156	0.198	0.061	0.050	0.309
Dept. of State	DOS	3.327	0.954	0.281	0.000	1.235	1.066	0.130	0.000	1.196	0.766	0.130	0.000	0.896
Dept. of Transportation	DOT	66.524	6.191	9.023	0.287	15.500	13.866	8.332	4.711	26.909	15.901	7.872	0.343	24.116
Environmental Protection Agency	EPA	69.290	4.833	8.066	10.268	23.166	4.655	8.281	10.827	23.764	4.458	8.834	9.069	22.361
General Services Administration	GSA	0.590	0.082	0.054	0.000	0.135	0.224	0.096	0.000	0.320	0.069	0.065	0.000	0.134
Health and Human Services	HHS	21.606	1.585	3.644	0.800	6.030	1.955	3.475	1.008	6.437	2.944	4.987	1.208	9.139
Housing and Urban Development	HUD	3.385	0.000	1.020	0.150	1.170	0.000	1.195	0.000	1.195	0.000	1.020	0.000	1.020
NARA	NARA	1.691	0.676	0.000	0.000	0.676	0.682	0.000	0.000	0.682	0.333	0.000	0.000	0.333
NASA	NASA	2.605	0.000	0.490	0.230	0.720	0.280	0.490	0.327	1.097	0.280	0.490	0.018	0.788
National Science Foundation	NSF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Office of Personnel Management	OPM	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Small Business Administration	SBA	0.544	0.083	0.136	0.000	0.219	0.029	0.136	0.000	0.165	0.024	0.136	0.000	0.160
Smithsonian	SI	0.434	0.000	0.142	0.000	0.142	0.000	0.169	0.000	0.169	0.000	0.123	0.000	0.123
Social Security Administration	SSA	0.738	0.000	0.020	0.216	0.236	0.000	0.020	0.222	0.243	0.000	0.033	0.226	0.259
Treasury	Treasury	0.158	0.005	0.023	0.000	0.028	0.009	0.024	0.000	0.033	0.069	0.027	0.000	0.097
USACE	USACE	61.263	0.000	3.150	3.400	6.550	0.713	9.850	3.400	13.963	0.500	9.850	30.400	40.750
USAID	USAID	10.020	2.100	1.420	0.520	4.040	1.800	1.060	0.250	3.110	1.810	0.960	0.100	2.870
Dept. of Agriculture	USDA	427.142	43.521	15.834	77.123	136.479	56.273	21.645	67.463	145.381	55.130	21.532	68.619	145.281
Veterans Affairs	VA	0.689	0.000	0.020	0.112	0.132	0.000	0.030	0.261	0.291	0.000	0.030	0.235	0.265
SUB-TOTAL SPENDING			326.001	127.708	294.950		351.983	153.679	305.961		334.737	155.666	278.205	
TOTAL ANNUAL SPENDING			748.659				811.623				768.609			
TOTAL 3-YR SPENDING		2328.891												