Improvements Needed to Promote DHS Progress toward Accomplishing Enterprise-wide Data Goals

Homeland Security

DHS OIG HIGHLIGHTS

Improvements Needed to Promote DHS Progress toward Accomplishing Enterprise-wide Data Goals

August 14, 2017

Why We Did This Audit

In August 2016, the Department of Homeland Security (DHS) issued the *Enterprise Data Strategy* as a guide for managing its data as an asset. We performed this audit to determine the status of DHS' implementation of the data strategy and whether it is effectively coordinating component data investments to support mission accomplishment.

What We Recommend

We made two recommendations to DHS on the improvements needed to promote data strategy implementation and better coordinate component data investments.

For Further Information:
Contact our Office of Public Affairs at (202) 254-4100, or email us at DHS-OIG.OfficePublicAffairs@oig.dhs.gov

What We Found

As of April 2017, DHS had begun implementing only 4 of 23 strategic objectives of its *Enterprise Data Strategy*. It had not taken steps to finalize activities, assign responsibilities, define outcomes, and establish timelines for addressing the remaining 19 objectives. DHS delayed finalizing its plans for implementing many of the strategic objectives in the data strategy until late fiscal year 2017 to avoid duplication with planning for related information sharing efforts. Finalizing the implementation plans will be essential for DHS to progress in executing its strategy for ensuring standardization, interoperability, accessibility, and inventory of its data assets department-wide.

Further, the Department faces challenges implementing the data strategy due to its broad scope and the complex coordination it entails. The Department has instituted a number of initiatives and working groups that have been effective in coordinating and monitoring data investments across components to help them achieve their respective missions. However, component officials identified a number of areas where the Department could provide additional assistance, such as furthering data integration, and providing common tools to support DHS-wide data analysis and management. Providing the additional assistance needed to coordinate component data investments may spur Department progress toward meeting its enterprise-wide data goals.

DHS Management Response

In its written comments in response to a draft of this report, DHS concurred with both of our recommendations and discussed corrective actions underway to address them.
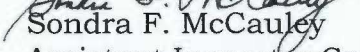
August 14, 2017

MEMORANDUM FOR: David A. Grannis
                            Principal Deputy Under Secretary
                            Office of Intelligence and Analysis

                            Stephen Rice
                            Acting Chief Information Officer
                            Management Directorate

FROM: Sondra F. McCauley
                            Assistant Inspector General
                            Information Technology Audits

SUBJECT: *Improvements Needed to Promote DHS Progress toward Accomplishing Enterprise-wide Data Goals*

For your action is our final report, *Improvements Needed to Promote DHS Progress toward Accomplishing Enterprise-wide Data Goals.* We incorporated the formal comments provided by your office.

The report contains 2 recommendations aimed at improving the Department's implementation of its *Enterprise Data Strategy* and coordination of Component data efforts. Your offices concurred with both recommendations. Based on information provided in your response to the draft report, we consider both recommendations open and resolved. Once your offices have fully implemented the recommendations, please submit a formal closeout letter to us within 30 days so that we may close the recommendations. The memorandum should be accompanied by evidence of completion of agreed-upon corrective actions

Please send your closure request to OIGITAuditsFollowup@oig.dhs.gov.

Consistent with our responsibility under the *Inspector General Act*, we will provide copies of our report to congressional committees with oversight and appropriation responsibility over the Department of Homeland Security. We will post the report on our website for public dissemination.

Please call me with any questions, or your staff may contact Tuyet-Quan Thai, Director of Data Analytics and Support, at (425) 582-7861.

Background

Office of Management and Budget (OMB) Memorandum M-13-13, *Open Data Policy – Managing Information as an Asset*, dated May 2013, requires executive departments and agencies to manage information as an asset through its lifecycle to increase operational efficiencies, reduce costs, improve services, support mission needs, and safeguard personal information. The memorandum contains specific requirements for data standardization, stewardship, interoperability, accessibility, and inventory.

Within the Department, Directive 262-05, *Information Sharing and Safeguarding*, September 2014, requires Department of Homeland Security components to share information as one Department, and requires components, to the greatest extent possible, to standardize the technology used in systems to categorize, access, exchange, and manage information in automated systems to support the Department's missions. Established in 2011, the Information Sharing and Safeguarding Governance Board (ISSGB) serves as the steering committee and decision-making body for DHS collaboration on information sharing and safeguarding issues. The ISSGB will coordinate with, but not preempt the authority of, the Homeland Security Intelligence Council or authorities of any DHS component or office under statute or Executive Order. The ISSGB, to the extent required, will issue management directives that clarify and streamline implementation and execution of the information sharing and safeguarding mission. The ISSGB charter operationalizes DHS Directive 262-05 by authorizing the ISSGB to oversee the Department's data sharing efforts. The Under Secretary for Intelligence and Analysis heads the ISSGB while representatives of all major DHS components serve as voting members.

In September 2015, DHS issued a one-page overview of its proposed data strategy, outlining objectives that address many of the elements of the OMB Memorandum. In August 2016, the Undersecretary for Intelligence and Analysis (I&A) formally signed DHS' *Enterprise Data Strategy*. The ISSGB is responsible for development, coordination, governance, and implementation of the *Enterprise Data Strategy*. The purpose of the *Enterprise Data Strategy* is to "present a clearly defined, actionable roadmap and strategic approach to drive departmental resources toward innovative and effective data management, sharing, safeguarding, and integration in order to fully leverage the Department's data assets towards mission operations, strategic planning, resource management, and analytics." To accomplish this vision, the *Enterprise Data Strategy* outlines the following five major goals for managing and using data.

1. Improve data quality through collective governance
2. Organize data for effective mission use
3. Ensure data is interoperable and that data rules are understood

4. Ensure secure data platforms that meet mission demands
5. Attract and develop a skilled data workforce

The five goals are further divided into 23 strategic objectives that range from streamlining and documenting data access processes, to implementing an enterprise data dictionary, to establishing a professional multi-disciplinary data workforce.

In 2012, the Government Accountability Office (GAO) reported that establishment of the ISSGB had enhanced collaboration among DHS components. However, the report noted that a strategy for information sharing and related implementation plans would be important to managing efforts in that area.[1] GAO made five recommendations to the Secretary of DHS to improve data sharing and management. As of May 2017, all five recommendations were closed.

The Joint Explanatory Statement of the *Consolidated Appropriations Act, 2016* (Public Law 114–113) mandated that by September 2016, the DHS Office of the Inspector General review the Department's data strategy and inventory component data investments to ensure the investments are coordinated and effective. In August 2016, we provided a preliminary response to Congress that DHS had not yet signed or implemented its data strategy, and agreed to follow up at a later date. The objective of this audit was to determine the status of DHS' implementation of its data strategy and whether it is effectively coordinating component data investments to support mission accomplishment.

Results of Audit

As of April 2017, DHS was in the process of implementing only 4 of 23 strategic objectives of its *Enterprise Data Strategy*. It had not taken steps to finalize activities, assign responsibilities, define outcomes, and establish timelines for addressing the remaining 19 objectives. DHS delayed finalizing its plans for implementing many of the strategic objectives in the data strategy until late fiscal year 2017 to avoid duplication with planning for related information sharing efforts. Finalizing the implementation plans will be essential for the Department to progress in executing its strategy for ensuring standardization, interoperability, accessibility, and inventory of its data assets department-wide.

Further, the Department faced challenges implementing the data strategy due to its broad scope and the complex coordination it entailed. The Department established working groups that were effective in coordinating and monitoring data investments and initiatives across components to help them achieve their respective missions. Component officials identified a number of areas where

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[1] *Information Sharing: DHS Has Demonstrated Leadership and Progress, but Additional Actions Could Help Sustain and Strengthen Efforts*, (GAO-12-809, September 18, 2012).

the Department could provide additional assistance, such as furthering data integration, and providing common tools to support DHS-wide data analysis and management. Providing the additional assistance needed to coordinate component data investments may spur Department progress toward meeting its enterprise-wide data goals.

DHS Has Made Limited Progress in Implementing Its Data Strategy

DHS has a long way to go toward implementing its data strategy. As of April 2017, DHS had begun implementing only 4 of 23 strategic objectives of its *Enterprise Data Strategy*. To avoid duplication with related planning efforts, DHS officials indicated they had not taken steps to finalize its implementation plans for addressing the remaining 19 objectives. Finalizing the implementation plans will be critical for DHS to progress in executing its strategy for ensuring standardization, interoperability, accessibility, and inventory of its data assets department-wide.

<u>Activities Underway to Address 4 of 23 Data Strategy Objectives</u>

DHS has yet to take the steps necessary to implement most of its *Enterprise Data Strategy* objectives. As previously stated, the ISSGB is responsible for development, coordination, governance, and implementation of the *Enterprise Data Strategy*. After the data strategy was signed in August 2016, the ISSGB assigned many of its implementation activities to the Enterprise Data Management Office (EDMO) within the DHS Office of the Chief Information Officer (OCIO). The ISSGB holds quarterly meetings to monitor data sharing efforts and track progress in information integration and sharing efforts within the department.

As of April 2017, EDMO officials reported that DHS had begun addressing only 4 of the 23 strategic objectives of the Enterprise Data Strategy. Table 1 lists the current status of the *Enterprise Data Strategy*'s objectives. As shown in the table, the four objectives underway included prescribing a data management process, using standardized master reference data, inventorying datasets and data systems, and identifying authoritative data sources. These four strategic objectives fall under the first two overarching goals of the data strategy.

Table 1: Milestones to Address DHS *Enterprise Data Strategy* Objectives, as of April 2017

Goal 1: Improve data quality through collective governance				
Strategic Objective		Office Assigned	Milestone (Timeline)	
1.1	Establish a prescribed data management process.	OCIO/ EDMO/ Master Reference Data Working Group (MRDWG)	o	Promote broader adoption and implementation of the Data Stewardship Framework (ongoing)
1.2	Improve data governance.	Not Assigned	Not Defined	
1.3	Streamline data access.	Not Assigned	Not Defined	
1.4	Improvement data system procurement.	Not Assigned	Not Defined	
1.5	Use standardized master reference data.	OCIO/ EDMO/ MRDWG	o	Establish master reference data lists for high impact DHS reference data (Q3 FY 2017)
			o	Complete a Data Governance Tool Pilot (Q3 FY 2017)
			o	Stand up Data Governance Tool for high impact DHS reference data (Q4 FY 2017)
Goal 2: Organize data for effective mission use				
Strategic Objective		Office Assigned	Milestone (Timeline)	
2.1	Inventory datasets and data systems in DHS.	OCIO/ EDMO/ DMWG	o	Maintain and grow the inventory of data assets (ongoing)
2.2	Publish department-wide data standards.	Not Assigned	Not Defined	
2.3	Identify authoritative data sources.	OCIO/ EDMO/ DMWG	o	Identify Authoritative and/or Trusted Data as part of the department's Enterprise Data Inventory (ongoing)
2.4	Implement an enterprise-wide data dictionary.	Not Assigned	Not Defined	
2.5	Conduct regular data quality audits.	Not Assigned	Not Defined	
2.6	Develop data and enterprise access services.	Not Assigned	Not Defined	
Goal 3: Ensure data is interoperable and that data rules are understood				
Strategic Objective		Office Assigned	Milestone (Timeline)	
3.1	Develop an interoperable data exchange across the Homeland Security Enterprise.	Not Assigned	Not Defined	
3.2	Maintain guidance for data exchange, access and interoperability.	Not Assigned	Not Defined	
3.3	Provide data management and analytical tools for mission users.	Not Assigned	Not Defined	
3.4	Establish enterprise-level data services.	Not Assigned	Not Defined	
3.5	Establish common data tagging standards.	Not Assigned	Not Defined	
Goal 4: Ensure secure data platforms that meet mission demands				
Strategic Objective		Office Assigned	Milestone (Timeline)	
4.1	Increase information sharing and data sharing technology.	Not Assigned	Not Defined	
4.2	Deploy enterprise services for cross-mission use of DHS data.	Not Assigned	Not Defined	
4.3	Improve understanding of current data technology, and identify tools for data dissemination.	Not Assigned	Not Defined	
Goal 5: Attract and develop a skilled data workforce				
Strategic Objective		Office Assigned	Milestone (Timeline)	
5.1	Establish a multi-disciplinary data workforce.	Not Assigned	Not Defined	
5.2	Implement data analytics and data management training programs.	Not Assigned	Not Defined	
5.3	Ensure privacy, *Freedom of Information Act,* records management, and legal e-discovery training.	Not Assigned	Not Defined	
5.4	Hire and retain specialized data analyst, statisticians, and database managers.	Not Assigned	Not Defined	

Source: DHS Enterprise Data Strategy and DHS Information Sharing and Safeguarding Strategy Implementation Plan FY 2017 Update.

EDMO officials attributed the progress made on the four strategic objectives to activities they had undertaken before the *Enterprise Data Strategy* was formalized in August 2016. Although no more or less important than the remaining 19, the 4 strategic objectives represented activities that were already ongoing and could be leveraged to help execute the data strategy. Some of the activities dated as far back as 2008. These activities included EDMO developing a data inventory and beginning to identify master reference data at DHS as part of its broader responsibilities.

Implementation Plans Not Developed to Address the Remaining 19 Strategic Objectives

As Table 1 shows, as of April 2017 the ISSGB had not assigned responsibilities or established timelines for accomplishing the remaining 19 of the 23 strategic objectives. The ISSGB and the OCIO were developing a matrix of specific actions required to address the 19 objectives, such as training and development of standard operating procedures for common data issues. Nevertheless, the matrix still needed to be finalized and approved by the ISSGB.

According to ISSGB and OCIO officials, to avoid duplication with related planning to develop a new *Information Sharing and Safeguarding Strategy,* they expected to publish implementation plans for the 19 data strategy objectives in late FY 2017. Finalizing the implementation plans will be critical for DHS to further progress in executing its strategy for ensuring standardization, interoperability, accessibility, and inventory of its data assets department-wide.

DHS Faces Coordination Challenges in Implementing Its Data Strategy

Extensive coordination will be critical to implement the complex goals and objectives of the *Enterprise Data Strategy* department-wide. The Department has instituted a number of initiatives and working groups that have been effective in coordinating component data investments and helping them achieve their respective missions. However, component officials have identified additional areas where effort is needed to coordinate component activities across the Department and spur progress toward meeting shared data management goals.

Coordination Challenges

The broad, complex goals and objectives of the *Enterprise Data Strategy* are multi-year efforts that require concerted participation across DHS. For example, goal 3 of the data strategy requires DHS to establish enterprise-wide data services for interoperability and create a data exchange across the Homeland Security Enterprise. Goal 4 of the data strategy requires the Department to increase its information sharing through the use of enterprise-

wide services that allow data to be shared among the Department's missions. Additionally, goal 5 of the data strategy addresses the Department's need for a data workforce and calls for the Department to hire, train, and retain new data workers. The ISSGB will have to coordinate across DHS and its components to fulfill these extremely broad goals.

As previously stated, much of the progress made in 4 of the 23 objectives of the *Enterprise Data Strategy* has been achieved through the initiative of just two DHS organizations: I&A, which heads the ISSGB, and OCIO, which established EDMO. Based on its charter, the ISSGB relies on voluntary participation from the individual DHS components and program offices. As such, the ISSGB will face coordination challenges as it undertakes new and additional efforts to implement all *Enterprise Data Strategy* objectives across DHS components. Ensuring component involvement will require tremendous ISSGB effort to secure buy-in, form partnerships, coordinate activities, and provide oversight to ensure continued data management progress DHS-wide.

Effective Activities to Coordinate Component Data Investments

Despite its charter limitations, the ISSGB has taken several effective steps to coordinate component data investments. One component official observed that the ISSGB had streamlined the process for quicker review and approval of information sharing agreements between DHS components and external agencies. For example, the ISSGB facilitated review and approval of a sharing agreement between a DHS component and the Federal Bureau of Investigation that reduced the processing time from 3 months to less than 1 month. Similarly, the official stated that internal agreements between DHS components were also cleared quickly due to ISSGB oversight and efforts to streamline data-sharing approval processes.

Further, in coordination with its I&A and OCIO partners, the ISSGB has overseen initiatives related to data integration and sharing to help components achieve their missions. DHS component officials cited two such data integration initiatives as examples that show great promise. First, officials discussed the DHS Data Framework, a project designed to provide DHS and approved external users with near real-time access to person-centric travel and immigration data for analytical purposes in classified and unclassified environments. The Data Framework has ingested information from nine data systems owned by U.S. Customs and Border Protection, U.S. Immigration and Customs Enforcement, the Transportation Security Administration, United States Coast Guard, and United States Citizenship and Immigration Services. Based on user feedback, DHS has focused on a data quality initiative to ensure the data can be used to support key operational decisions. By the end of FY 2017, DHS expects to ingest a total of 20 datasets into the Data Framework. As of July 2017, the framework interface was in use by U.S. Customs and Border Protection and I&A staff, with Transportation Security Administration users

expected to come online in the near term.. One component official stated that, once fully implemented, the Data Framework will provide an unprecedented level of high-value vetting information that will greatly enhance the component's efforts to safeguard the homeland and secure its borders. Second, component officials discussed the OCIO Management Cube overseen by the Data Management Working Group as another initiative with great promise. OCIO officials designed this reporting tool to integrate the Department's financial, acquisition, human capital, contracting, asset, and security data to support analysis and decision-making. The Management Cube was designed to allow analysts to explore trends and relationships across datasets in areas such as real estate planning, investment portfolio management, and workforce planning. OCIO officials anticipated that, along with other management initiatives, the Management Cube will help DHS optimize office space by comparing office space square footage to staffing levels, and tighten security by ensuring that employees who have physical access to mission-critical systems and equipment have the proper security clearances.

As deployment of the *Enterprise Data Strategy* progresses, the ISSGB can leverage still other initiatives by OCIO to coordinate data management activities enterprise-wide. Following are examples of effective OCIO working groups and initiatives that have helped components achieve their data management objectives.

- Master Reference Data Working Group (MRDWG) – Established by OCIO, this working group has held meetings since June 2016 to develop and implement a department-wide policy for ensuring the interoperability of master reference data, which are present in more than one DHS data asset or system. This working group can help implement *Enterprise Data Strategy* objective 1.5, use standardized master reference data, as shown in Table 1. Multiple component officials remarked positively regarding an MRDWG pilot of a data management tool designed to provide the MRDWG and DHS components a comprehensive solution for managing their respective data stewards and data governance approval processes. Component officials thought the tool could help them collaboratively manage their common reference data with other components, and make it easier to consistently report and aggregate data.

- Enterprise Architecture Information Repository (EAIR) - The OCIO created the EAIR in 2008 to maintain a list of datasets and data systems across the Department. The EAIR is a central repository of Enterprise Architecture assets used by the Department and its components. Each DHS component is responsible for maintaining an accurate, up-to-date description of its data assets within the EAIR, including security classification, privacy sensitivity, and handling restrictions for each system. As of May 2017, the EAIR had catalogued over 1,000 data assets throughout the Department. The EAIR also houses a categorized listing

of software products at DHS and its components. Multiple component officials commented that the EAIR was an effective tool that helped them build out their data assets, systems, and datasets. They also said the EAIR provided a resource for data discovery across DHS components. The EAIR could help implement *Enterprise Data Strategy* objective 2.1, to inventory datasets and data systems in DHS, as listed in Table 1.

- Data Management Working Group (DMWG): OCIO's EDMO established the DMWG in 2015 in response to DHS Directive 103-01, *Enterprise Data Management Policy*, dated August 2014, which sets standards for the Department to define, promote, and monitor data management practices across DHS. Chaired by the EDMO director, the DMWG is comprised of representatives and voting members from DHS components, and is authorized to develop and implement enterprise data management guidance, policies, and standards to support the governance of information assets and data management activities across the Department. The DMWG has the ability to enforce adoption and use of standards when required.

  To carry out its responsibility, the DMWG conducts monthly meetings with DHS Management Directorate officials and component data stewards. DMWG meetings are aimed at improving data management processes at DHS. The DMWG also established multiple other data management user groups at the component level to provide governance, review, and approval of authoritative component data. These groups have helped address *Enterprise Data Strategy* objective 2.3, to identify authoritative data sources, as shown in Table 1.

Additional Areas for Coordination Improvement

Component officials stressed that ISSGB could do more in specific areas to expand coordination of data analysis, sharing, and management activities DHS-wide. For example, Goal 5 of the *Enterprise Data Strategy* calls for DHS to develop data analytics training and establish a data workforce department-wide. However, the ISSGB's planned implementation actions for Goal 5 involved only three offices—I&A, OCIO, and the National Protection and Programs Directorate. Other DHS components that require the data analytic training will need to get involved as well. To ensure successful implementation of the objectives, the ISSGB must expand its existing implementation plans to comprise not just the needs of these three components, but other components across the Department.

Significant ISSGB coordination efforts will also be necessary to implement objective 1.4 of the *Enterprise Data Strategy*, which calls for DHS to use strategic sourcing and other procurement vehicles to acquire mission-critical data systems. According to its matrix of planned implementation actions, the

ISSGB must coordinate extensively through the Office of the Chief Procurement Officer to carry out this objective department-wide. The ISSGB's coordination efforts in this regard recently began in April 2017 with a meeting with officials from the Office of the Chief Procurement Officer. At that meeting the groups agreed to coordinate with each other to accomplish the strategic objectives of the *Enterprise Data Strategy* once the implementation plans are finalized. Such coordination efforts will need to continue to successfully implement this strategic sourcing objective.

More broadly, the ISSGB needs to expand its efforts to coordinate data analysis, sharing, and management to address all of the goals and objectives of the *Enterprise Data Strategy*. For example, strategic objective 3.3 of the *Enterprise Data Strategy*, as shown in Table 1, calls for the Department to provide analytical tools to mission users. However, components identified gaps in the Department's progress for identifying and acquiring analytic tools for classified and unclassified data. An official from one component noted that DHS had not coordinated support for component efforts to analyze Open Source Intelligence and, as a result, some components were purchasing their own analytic tools for this purpose. Officials believed that a department-wide initiative to address these specialized data analytics needs, including potential use of enterprise-wide software licensing, could significantly benefit and improve cohesion across components DHS components.

Further, the ISSGB could help with data integration in support of specific DHS mission areas, which would assist in addressing Goal 3 of the *Enterprise Data Strategy*. For example, Section 1092 of the *National Defense Authorization Act for Fiscal Year 2017* requires DHS to make data related to immigration enforcement actions available to the public, law enforcement communities, and academic research communities. In line with this, DHS plans to create an interoperable exchange for immigration data across the Homeland Security Enterprise. In September 2016, DHS chartered the Immigration Data Integration Executive Steering Committee to oversee the integration of data from nine DHS components and other Federal agencies. At the time of our report, the steering committee was in the process of identifying the data stewards for the datasets that will be integrated. Multiple component survey respondents stated that continued effort to pursue this initiative is crucial for homeland security missions.

In general, multiple component officials stated that stronger executive support for enterprise data management was needed across the Department. One official noted that component heads must first recognize the value of data assets. Otherwise, any discussion with them regarding data analytics training and tools, strategic sourcing, and data sharing and integration may produce little value. It is vital that component heads all come to view data as an asset and maximize its use to accomplish their individual component missions. Moreover, it is essential that central coordination of component data activities

and investments be expanded to address the additional needs identified. Only then will DHS be able to ensure continued progress toward accomplishing its goals and objectives of data standardization, interoperability, accessibility, and inventory for shared benefit department-wide.

Recommendations

We recommend that the Under Secretary for Intelligence and Analysis:

Recommendation 1: Ensure the ISSGB completes development of its implementation plan for each of the 19 remaining strategic objectives of the *Enterprise Data Strategy,* including assigned offices and timelines, by the end of FY 2017 as projected.

We recommend that the DHS Chief Information Officer:

Recommendation 2: Work with components to identify and provide the common tools and related training needed for enterprise-wide data analysis and management.

DHS Comments and OIG Analysis

DHS Comments to Recommendation 1: The Department concurred with our recommendation and stated that it plans to complete the Fiscal Year (FYs) 2018-2022 Information Sharing and Safeguarding (IS&S) Strategy by September 30, 2017. The Enterprise Data Strategy strategic objectives will be incorporated into the broader objectives of the IS&S Strategy and corresponding Implementation Plan. The 2018 Implementation Plan for the IS&S Strategy will include milestones necessary for achieving the 19 remaining strategic objectives, and is expected to be completed by March 31, 2018.

OIG Analysis of DHS Comments: We consider DHS' proposed action to be responsive to the recommendation. The recommendation is considered resolved and will remain open until we receive and analyze the 2018 Implementation Plan for the IS&S Strategy. To close the recommendation, the Implementation Plan must include the milestones necessary for achieving the 19 remaining strategic objectives, and the offices responsible for overseeing milestone completion.

DHS Comments to Recommendation 2: The Department concurred with our recommendation and stated that the DHS Business Intelligence as a Service Team Lead is working with components to identify common analytic tools and establish Enterprise License Agreements for products such as Tableau and Informatica. Additionally, the OCIO is working with DHS components to develop use cases for common data governance tools available to the components, and will provide in-house training to support the use cases in the

future. OCIO plans to complete these data governance initiatives by December 31, 2017.

OIG Analysis of DHS Comments: We consider DHS' proposed action to be responsive to the recommendation. The recommendation is considered resolved and will remain open until we receive and analyze documentation that (1) the Department has entered into Enterprise License Agreements for Tableau and Informatica, or provides documentation showing why Enterprise License Agreements are not in the Department's best interest, and (2) the OCIO has developed component use cases for its data governance tools and is providing training on those tools to component users.

Objective, Scope, and Methodology

The Department of Homeland Security (DHS) Office of Inspector General (OIG) was established by the *Homeland Security Act of 2002* (Public Law 107−296) by amendment to the *Inspector General Act of 1978*. This is one of a series of reports prepared as part of our oversight responsibility to promote economy, efficiency, and effectiveness within the Department.

The objective of our audit was to review the Department's data strategy and inventory component investments in this area to ensure these investments are coordinated and effective. We interviewed DHS officials from the Enterprise Data Management Office and the Office of Intelligence and Analysis. We discussed with these officials the current status of DHS' *Enterprise Data Strategy* goals and objectives, current and future DHS data integration efforts, and the structure and function of DHS data working groups.

We obtained access to Sharepoint sites and reviewed working group charters, meeting materials, and attendance lists. We reviewed reference and technical materials related to data integration initiatives like the DHS Data Framework and Management Cube projects. We also obtained access to the EAIR to review documentation and perform searches of software lists at DHS and its components.

We distributed a data collection instrument to component officials who attended ISSGB and DMWG periodic meetings during calendar year 2016. This included officials from U.S. Customs and Border Protection, Domestic Nuclear Detection Office, U.S. Immigration and Customs Enforcement, National Protection and Programs Directorate, Transportation Security Administration, U.S. Coast Guard, and U.S. Citizenship and Immigration Services. In the data collection instrument, we asked component officials how DHS had helped coordinate component data use and investments; how DHS working groups had helped components achieve their missions; and whether, in their opinions, there were additional ways DHS could assist components in utilizing data to achieve their missions. We reviewed and followed up as necessary on the

survey responses received from component officials to obtain clarification and additional information.

We conducted this performance audit between June 2016 and April 2017 pursuant to the *Inspector General Act of 1978*, as amended, and according to generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based upon our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based upon our audit objectives.

The Office of Information Technology Audits major contributors to this report are Tuyet-Quan Thai, Director; Scott Wrightson, Audit Manager; and Jason Dominguez, Independent Referencer.

Appendix A
Management Comments to the Draft Report

Homeland Security

July 3, 2017

MEMORANDUM FOR: Sondra F. McCauley
                             Assistant Inspector General
                             Information Technology Audits

FROM: Jim H. Crumpacker, CIA, CFE
                             Director
                             Departmental GAO-OIG Liaison Office

SUBJECT: Management's Response to OIG Draft Report: "Improvements
                             Needed to Promote DHS Progress toward Accomplishing Enterprise-
                             wide Data Goals" (Project No. 16-068-ITA-MGMT)

Thank you for the opportunity to review and comment on this draft report. The U.S. Department of Homeland Security (DHS) appreciates the work of the Office of Inspector General (OIG) in planning and conducting its review and issuing this report.

The Department is pleased to note OIG's positive recognition of the Information Sharing and Safeguarding Governance Board's (ISSGB) ability to take several effective steps to coordinate component driven data investments. The ISSGB's oversight of initiatives related to data integration and sharing help components achieve their missions. Specifically, the DHS Data Framework and the Office of the Chief Information Officer (OCIO) Management Cube data integration initiatives show great promise by providing cross-Component, cross-line of business information sharing and reporting capability. This capability enabled the Department to integrate data from various systems. DHS remains committed to strengthening and expanding coordination efforts to achieve the implementation of full enterprise-wide data goals and objectives and will continue to work to leverage other initiatives to help components reach their data management objectives.

The draft report contained two recommendations with which the Department concurs. Please see the attached for our detailed response to each recommendation.

Again, thank you for the opportunity to review and comment on this draft report. Technical comments were previously provided under separate cover. Please feel free to contact me if you have any questions. We look forward to working with you again in the future.

Attachment

**Attachment: DHS Management Response to Recommendations
Contained in OIG Draft Report 16-068-ITA-MGMT**

The OIG recommended that the DHS Under Secretary for Intelligence and Analysis (I&A):

Recommendation 1: Ensure the [Information Sharing and Safeguarding Governance Board] ISSGB completes development of its implementation plan for each of the 19 remaining strategic objectives of the *Enterprise Data Strategy*, including assigned offices and timelines, by the end of FY 2017 as projected.

Response: Concur. The ISSGB, chaired by the Under Secretary for I&A, is currently drafting the Fiscal Year (FYs) 2018-2022 Information Sharing and Safeguarding (IS&S) Strategy with an expected completion date of September 30, 2017. The Enterprise Data Strategy strategic objectives will be incorporated into the broader objectives of the FYs 2018-2022 IS&S Strategy and corresponding Implementation Plan. The 2018 Implementation Plan for the IS&S Strategy is expected to be completed within 180 days of the Strategy being finalized and will include milestones necessary for achieving the 19 remaining strategic objectives. Progress against these milestones will be tracked and reported to the ISSGB quarterly in order to identify and mitigate potential risks to implementation. An Implementation Plan will be executed for each following fiscal year, and milestones relevant to accomplishing the 19 strategic objectives will be incorporated based on prior year's achievements against planned execution. Estimated Completion Date (ECD): March 31, 2018.

The OIG recommended that the DHS Chief Information Officer:

Recommendation 2: Work with Components to identify and provide the common tools and related training needed for enterprise-wide data analysis and management.

Response: Concur. The DHS OCIO Business Intelligence as a Service (BIaaS) Team Lead, currently works with components to identify common analytic tools. The implementation of these tools is left to occur at the Component level. For example, Oracle licenses are under an Enterprise License Agreements (ELA), which provides cost-effective and streamlined procurement for all Components. Through these licenses, Oracle provides brownbag training for Oracle products at no additional cost to the Department. The BIaaS Team is collaborating with the OCIO Information Technology Services Office Acquisition Support Division to establish additional ELAs for products such as Tableau and Informatica. In instances where training is not included by the vendor, such as Tableau, DHS Headquarters offices have teamed with each other or Component offices to contract the vendor for specific training support.

Additionally, OCIO has contracted with a company that specializes in data and governance to provide the Department with data governance tools. We are working with both Component and cross-Component communities, such as the immigration domain and Management lines-of-business, to develop use cases, which will enable improved governance and management of enterprise data. Initial training is provided at no cost by the vendor through their online portal. As the Department moves forward with implementing this tool and additional use cases, training plans will be established to provide in-house training that is specific to these cases. ECD: December 31, 2017.

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Appendix B
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