

Top Management and Performance Challenges Facing the Department of Commerce

FINAL REPORT NO. OIG-20-001

OCTOBER 16, 2019



U.S. Department of Commerce
Office of Inspector General
Office of Audit and Evaluation



October 16, 2019

INFORMATION MEMORANDUM FOR SECRETARY ROSS

FROM:

Peggy E. Gustafson
Inspector General

A handwritten signature in blue ink, appearing to read "Peggy E. Gustafson".

SUBJECT:

*Top Management and Performance Challenges Facing the
Department of Commerce in Fiscal Year 2020*
Final Report No. OIG-20-001

The Office of Inspector General is required by statute¹ to report annually the most serious management and performance challenges facing the Department of Commerce. Attached is our final report on the Department's top management and performance challenges for fiscal year 2020.

For each challenge identified within this memorandum, please find brief descriptions of the issues discussed in greater detail in the report:

Challenge 1: Conducting an Accurate 2020 Census Enumeration While Realizing Expected Efficiency and Estimated Cost-Effectiveness

- Successfully implementing and integrating all operations and information technology (IT) systems, as well as completing performance and scalability testing in time for the 2020 Census
- Ensuring data quality
- Motivating hard-to-count populations to respond to the decennial census
- Effectively monitoring contracts to validate performance, control cost, and achieve 2020 Census goals

¹ 31 U.S.C. § 3516(d).

Challenge 2: Ensuring the Success of Current and Future Satellite Programs

- Responding to acquisition and development challenges of next-in-series satellites
- Quantifying cost efficiencies of the proposed Polar Weather Satellites program
- Mitigating frequency interference risks to environmental satellite missions
- Making progress toward an optimal next-generation satellite system architecture
- Determining the Department's role in space traffic management

Challenge 3: Deploying a Nationwide Public Safety Broadband Network (NPSBN)

- Obtaining and maintaining public safety participation
- Ensuring the successful performance of the contract awarded to AT&T
- Effectively and efficiently reinvesting capital to upgrade and modernize the NPSBN

Challenge 4: Managing an Increasing Demand for Intellectual Property Rights

- Ensuring a thorough, timely, and fair patent examination and review process
- Strengthening the integrity of the trademark register
- Improving the management of IT systems and operations

Challenge 5: Continuing to Improve the Department's Cybersecurity Posture

- Securing cloud IT infrastructure to ensure a successful decennial census
- Implementing compensating security controls to protect the Department's legacy systems
- Improving incident handling capability at the Enterprise Security Operations Center
- Working closely with bureaus to implement the Department's continuous monitoring capability

Challenge 6: Refining Processes and Enhancing Capacity for Trade Enforcement Efforts

- Refining existing processes for adjudicating Section 232 exclusion requests to ensure requests for existing and future products are processed objectively and timely
- Ensuring processes and staff capacity to address new covered transactions subject to foreign investment reviews

Challenge 7: Effectively Managing the Significant Increase in Disaster Relief Funding to EDA

- Balancing the threat of agency elimination with the execution of increased disaster relief fund responsibilities
- Acquiring and maintaining sufficient staff with appropriate proficiency

Challenge 8: Preparing the Acquisition Workforce to Administer and Monitor Departmental Resources

- Developing and maintaining a competent acquisition workforce to support the Department's mission
- Improving effectiveness in the planning and governing of the National Oceanic and Atmospheric Administration's ship fleet recapitalization acquisitions
- Improving contract administration to ensure proper contract closure
- Improving control of contract and grant file management
- Training contracting officer's representatives and other contract administrators in accordance with regulatory requirements and contract terms

We remain committed to keeping the Department's decision-makers informed of problems identified through our audits and investigations so that timely corrective actions can be taken. The final version of the report will be included in the Department's *Annual Financial Report*, as required by law.²

² *Ibid.*

We appreciate the cooperation received from the Department, and we look forward to working with you and the Secretarial Officers in the coming months. If you have any questions concerning this report, please contact me at (202) 482-4661.

cc: Karen Dunn Kelley, Deputy Secretary of Commerce
Michael J. Walsh, Jr., Chief of Staff
André Mendes, Acting Chief Information Officer
Thomas Gilman, Chief Financial Officer and Assistant Secretary for
Administration
Operating Unit Heads
Operating Unit Audit Liaisons

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Cover: Herbert C. Hoover Building main entrance at 14th Street Northwest in Washington, DC. Completed in 1932, the building is named after the former Secretary of Commerce and 31st President of the United States.

Challenge I: Conducting an Accurate 2020 Census Enumeration While Realizing Expected Efficiency and Estimated Cost-Effectiveness

After almost a decade of planning and testing, the U.S. Census Bureau (the Bureau) will launch the most automated decennial census in history. Early this decade, the Bureau committed to making fundamental changes to the decennial census design in order to complete the 2020 Census at a lower cost than the 2010 Census¹ while maintaining data quality. The Bureau's strategy focused on implementing numerous technological and methodological innovations in four key areas: (1) reengineering address canvassing,² (2) optimizing self-response, (3) utilizing administrative records and third-party data,³ and (4) reengineering field operations with technology.

In the years leading up to the 2020 Census, the Bureau conducted a number of tests. One test specifically focused on address canvassing. Another, the final 2018 End-to-End Census (E2E) Test, sought to confirm the overall integrity of the operational design—which included introducing enterprise systems that were not used in earlier tests, expanding systems already in use, and enhancing systems using cloud technologies. The tests demonstrated, for example, the viability of collecting enumeration information via the internet and using technology to assign and monitor field data collection activities. However, the tests did not always achieve all test goals and revealed challenges that the Bureau must overcome to accomplish a cost-effective, complete count.

The Office of Inspector General's (OIG's) fiscal year (FY) 2020 top management and performance challenges include these priority areas related to the 2020 Census:

- Successfully implementing and integrating all operations and information technology (IT) systems, as well as completing performance and scalability testing in time for the 2020 Census
- Ensuring data quality
- Motivating hard-to-count populations to respond to the decennial census
- Effectively monitoring contracts to validate performance, control cost, and achieve 2020 Census goals

Successfully implementing and integrating all operations and IT systems, as well as completing performance and scalability testing in time for the 2020 Census

The Bureau must be prepared to address unforeseen operational and IT problems, with a limited amount of time to develop mitigation and contingency plans. The first 2020 Census field

¹ Per housing unit and adjusted for inflation.

² The *address canvassing* operation serves two purposes: to (1) deliver a complete and accurate address list and spatial database for enumeration and (2) determine the type and address characteristics for each living quarter.

³ *Administrative record data* refers to information from federal and state governments. The goal of the administrative records and third-party data operation is to use information people have already provided to governmental and nongovernmental entities to improve the efficiency and effectiveness of the 2020 Census—and, in particular, to reduce expensive in-person follow-up activities. *Third-party data* refers to information from commercial sources.

activity—in-field address canvassing—began in August 2019. Internet self-response (ISR) will begin in March 2020, and nonresponse followup (NRFU) will begin in April 2020. The Bureau has demonstrated that most operations and IT systems will perform as designed within the limited confines of a test. However, some operations and systems, such as those that support quality assurance for self-response and NRFU, have not been field-tested, and those operating during the test were tested at low workload levels.

Given that the Bureau created an integrated and standardized system of systems that will share data collection and processing across multiple 2020 Census operations, all systems must be capable of meeting high workload demands, whether for payroll processing, ISR, or field data collection. Successfully completing load testing—which simulates performance at predicted volumes and verifies that a fully integrated system is able to process the volume—is critical to completing the decennial census on time and avoiding cost overruns. The Bureau is not scheduled to complete performance and scalability testing—which is required to ensure that systems will meet decennial census volume demands—until late December 2019.⁴

According to the Bureau, performance and scalability testing results will help (a) enable mission objectives by ensuring that systems process transactions within the requisite time frames; (b) demonstrate the maturity, scalability, and stability of systems to minimize rework and schedule delays due to system failures and performance issues; and (c) maximize user satisfaction through operational performance and quality of service delivered. However, as noted above, the timing of performance and scalability testing only provides the Bureau a minimum amount of time to resolve potential issues.

The Bureau has identified defects, as expected, with some key systems during the performance and scalability testing. The Bureau's challenge for completing this testing will be to resolve these defects between late December 2019 and Census Day in April 2020—in time to ensure that systems and operations will function as required.

Ensuring data quality

Although the Bureau has aimed its 2020 Census innovations at reducing cost and increasing efficiency, the Bureau must balance the need for cost reduction and efficiency with achieving an accurate count. The Bureau developed quality assurance systems and processes to ensure that response data received via ISR or NRFU are as accurate as possible. However, as previously mentioned, our ongoing audit work observed that ISR and NRFU quality assurance systems and processes remain untested. Consequently, the Bureau will be using systems and processes to ensure data quality that have not been field-tested and, therefore, may not yield the desired results.

Another issue the Bureau has encountered relates to its use of technology to assign work and monitor field data collection activities. Such technological innovations allow the Bureau to reduce staff and infrastructure. For instance, a key part of the effective and efficient

⁴ The Performance and Scalability Test is necessary to determine whether 2020 Census systems will function as designed during actual decennial operations that include increased demands.

management of 2020 Census fieldwork is the system alert component that informs supervisors about enumerator availability, progress, and quality concerns. However, we reported that the resolution of alerts indicating potential instances of low quality and fraud or abuse was sometimes untimely or nonexistent.⁵ Unless supervisors and managers resolve these alerts in a timely manner, they lose an opportunity to identify and correct potential issues, re-train staff, or recommend them for termination before they complete additional work. Given the importance of alerts for ensuring quality data, the Bureau must prioritize alert monitoring and resolution.

Finally, adequate training of 2020 Census employees remains a challenge to maintaining data quality. All temporary field employees are required to take the same online and classroom training to ensure accurate, consistent data collection. After completing the training, those employees take a final online assessment. If they do not pass, they must successfully undergo an observation with their supervisor. We reported in February 2019 that about 11 percent of these temporary field employees, known as listers, did not have a score recorded or failed the assessment with no record of an observation.⁶

Our ongoing audit work continues to identify training issues. During our audit of the 2018 E2E Test peak operations, we observed that an even greater percentage of enumerators continued working, even though they failed the final assessment and were not assessed by a supervisor. In addition, our ongoing 2020 Census address canvassing evaluation will determine whether in-field address canvassing activities, including training preparations, were efficiently and effectively executed.

Motivating hard-to-count populations to respond to the decennial census

A number of factors challenge the Bureau as it attempts to fulfill its stated goal to count everyone only once and in the right place. For example, populations have become more mobile, and living arrangements have become more informal and complex. In addition, a growing number of households and individuals may experience language barriers to enumeration. These factors—coupled with concerns about information security and privacy, as well as declining response rates—confront the Bureau with a significant challenge to conducting a complete and accurate count. As for prior decennial censuses, the Bureau has developed an integrated communications strategy to face these issues through advertising and partner outreach efforts.

Last decade, we conducted a review of the relationship between 2010 Census Partnership program staff promoting the 2010 Census and the Local Census Office (LCO)⁷ managers hired to implement field operations. Our review found that LCO managers and Partnership staff

⁵ U.S. Department of Commerce Office of Inspector General, February 6, 2019. *2020 Census: Issues Observed During the 2018 End-to-End Census Test's Address Canvassing Operation Indicate Risk to Address List Quality*, OIG-19-008-A. Washington, DC: DOC OIG; see also DOC OIG, May 11, 2017. *2020 Census: The Address Canvassing Test Revealed Cost and Schedule Risks and May Not Inform Future Planning as Intended*, OIG-17-024-A. Washington, DC: DOC OIG.

⁶ OIG-19-008-A, 7–8.

⁷ For the 2020 Census, the Bureau has recast LCOs as “Area Census Offices.”

experienced systemic communication and coordination problems.⁸ As a result of these and other challenges, the review found that improving the relationship between Partnership Specialists and the LCO staff would result in a more efficient and, perhaps, more accurate decennial census. At the conclusion of this review, we recommended that the Bureau refine the recruitment and hiring process and training of Partnership Assistants.

However, there is a risk that these same challenges will persist in 2020. The shift from 494 LCOs to 248 Area Census Offices, as well as reengineered field operations, will likely result in less face-to-face communication. This decade, Partnership Specialists will need to rely on using electronic tools and other resources, like social media, to communicate more efficiently and effectively. Finally, the recent controversy and publicity surrounding the Administration's proposal to add a citizenship question to the 2020 Census may make some segments of the population even more difficult to count. The 2020 Census Partnership program must address some of the same challenges that were present last decade—as well as overcome new challenges—to achieve response rate goals.

Effectively monitoring contracts to validate performance, control cost, and achieve 2020 Census goals

The Bureau relies largely on contractors to design and support its new decennial census innovations, such as ISR, automating field operations, and providing telephone assistance to respondents. Together, the four largest contracts total \$2.53 billion:

- the Census Questionnaire Assistance contract, which provides call-center capability for self-response, general assistance, and Interactive Voice Response (\$791 million);
- the Technical Integrator contract, which ensures that all systems are integrated and scaled to meet the Bureau's needs (\$886 million);
- the Integrated Communications contract, a component of the Integrated Partnership and Communications operation that encourages people to self-respond to the 2020 Census (\$518 million); and
- the Decennial Device as a Service contract, which provides mobile devices for field data collection (\$341 million).

This decade, we have identified issues surrounding the Bureau's ability to manage its contracts effectively. We have reported that the Bureau's contract officials do not always properly maintain contract files or conduct required monitoring activities to assure acceptable contractor performance and control cost.⁹ In addition, as we have observed in our ongoing audit of the Census Questionnaire Assistance operation during the 2018 E2E Test, the Bureau

⁸ DOC OIG, April 8, 2011. *2010 Census: Cooperation Between Partnership Staff and Local Census Office Managers Challenged by Communication and Coordination Problems*, OIG-11-023-I. Washington, DC: DOC OIG, 3–6.

⁹ DOC OIG, September 25, 2017. *Awarding of U.S. Census Bureau Noncompetitive Contracts Did Not Consistently Follow Federal Acquisition Regulations and Commerce Acquisition Policies*, OIG-17-031-A. Washington, DC: DOC OIG; see also DOC OIG, February 27, 2018. *2020 Census: The Bureau's Background Check Office Is Not Fully Prepared for the 2020 Census*, OIG-18-015-A. Washington, DC: DOC OIG.

has not always adequately defined award fee ratings in a manner that properly incentivizes contractor performance.

To control cost, the Bureau must effectively monitor its contracts and validate contractor performance to ensure that it does not pay contractors for inferior performance. We are currently conducting an audit of the \$518 million Integrated Communications contract that will examine these issues.

In large part, the success of the next decennial census will depend on the effectiveness and efficiency of the Bureau's current support contracts. Therefore, the Bureau must adequately monitor and validate contractor performance in order to control cost and achieve its goals for the 2020 Census.

Progress made/challenges remaining since the FY 2019 TMC

Minimizing the challenges associated with incomplete testing of 2020 Census systems and innovations

The Bureau completed its 2018 E2E Test, but the test was limited in scope because peak operations were only conducted in one of the three planned geographic locations. Additionally, certain activities and systems were not fully tested and a few systems could not be tested at all and therefore remain untested.

Mitigating the risks of unplanned changes

Last year we reported that, on March 26, 2018, the Secretary of Commerce issued a memorandum announcing that a citizenship question will be reinstated to the 2020 Census questionnaire to help enforce the Voting Rights Act. On June 27, 2019, the Supreme Court rejected the stated reason for adding the question. Another unforeseen event that we reported involved the 2020 Census printing contract awarded in October 2017 by the U.S. Government Publishing Office. In February 2018, the contractor filed for bankruptcy, requiring the Bureau to settle with the contractor, issue a new solicitation, and award the replacement printing and mailing contract. Both the citizenship and printing contract issues were resolved, and the Bureau is printing 2020 Census materials.

Preventing further reductions to the cost avoidance budget, reducing cost overruns, and eliminating unaccounted-for costs

On June 10, 2019, the Bureau released an executive summary of the 2020 Census Life-Cycle Cost Estimate (LCCE). The current estimate of \$15.6 billion is unchanged from the total LCCE cost reported in the December 2017. According to the Bureau, updates include realigning cost data to more accurately reflect how activities are managed and planned, updating the estimate to reflect actual costs through FY 2018, integrating FY 2018 E2E Test results, and incorporating final definitive scope details for major contracts and field operations.

Challenge 2: Ensuring the Success of Current and Future Satellite Programs

The National Oceanic and Atmospheric Administration's (NOAA's) satellites in geostationary and polar orbits provide data and imagery essential to NOAA's capability to understand, predict, and track weather and other environmental phenomena.

NOAA's Geostationary Operational Environmental Satellites (GOES) maintain a constant watch over the Western hemisphere for tracking and forecasting severe storms. Joint Polar Satellite System (JPSS) and other polar satellites circle above Earth from pole to pole, observing the entire globe approximately twice a day to provide important input for numerical weather prediction systems' 3–7 day forecasts.

In addition to keeping these programs on track to meet cost and schedule baselines, and finding management efficiencies, NOAA faces emerging challenges related to the increasing use of spectrum¹⁰ and the need to implement its next-generation satellite system architecture. Further, a presidential directive¹¹ related to space traffic management presents a challenge for Department leadership.

OIG's FY 2020 top management and performance challenges include these priority areas related to NOAA's satellite programs and the Department's role in space traffic management:

- Responding to acquisition and development challenges of next-in-series satellites
- Quantifying cost efficiencies of the proposed Polar Weather Satellites (PWS) program
- Mitigating frequency interference risks to environmental satellite missions
- Making progress toward an optimal next-generation satellite system architecture
- Determining the Department's role in space traffic management

Responding to acquisition and development challenges of next-in-series satellites

Completing JPSS-2 spacecraft and instruments for satellite-level integration and testing

The JPSS program continues to face challenges in completing the JPSS-2 spacecraft's payload interface electronics, which are critical for control of the instruments and data processing, and have delayed the spacecraft's completion. The new spacecraft's contractor, Northrop Grumman Innovation Systems (NGIS), must resolve functionality and development issues with the payload interface electronics. These issues affect integration and test, flight software, flight component simulators, and, ultimately readiness for launch. NGIS has had to replan its efforts to complete the payload interface electronics and made changes to its

¹⁰ *Spectrum* is a tool used to represent the physical phenomena of electromagnetic waves. These waves move through space at different radio frequencies, with all possible frequencies collectively called the *electromagnetic spectrum*.

¹¹ The White House Presidential Memorandum, June 18, 2018. *National Space Traffic Management Policy*, Space Policy Directive-3 (SPD-3). Washington, DC: White House.

management staff. Additionally, the program was addressing other risks that could affect satellite integration and test.

There have also been supply chain technical issues—as well as schedule delays beyond what the program expected—that have affected JPSS-2 instrument development efforts. A pause in manufacturing between Suomi National Polar-orbiting Partnership (Suomi NPP) and JPSS-1 instruments, a shrinking supplier base, consolidation of the supply chain, and parts obsolescence have challenged the JPSS-2 schedule.¹² In particular, the program has had to overcome technical issues with two of JPSS-2's key instruments—the Advanced Technology Microwave Sounder (ATMS) and Cross-track Infrared Sounder (CrIS). NOAA faces the potential for more technical issues to arise with these instruments, as most of the instrument-level testing for ATMS and CrIS—which often reveals performance problems—will occur in FY 2020.

Replacing the GOES-T Advanced Baseline Imager (ABI) thermal subsystem and correcting technical issues with Geostationary Lightning Mapper (GLM) components

In April 2018, the GOES-17 ABI malfunctioned, resulting in a partial loss of imagery. The instrument's thermal subsystem—which helps regulate heat transfer from items such as sensors and electronics—does not transfer heat away from the instrument sufficiently. This malfunction, and related ABI performance anomalies on GOES-16, led the program to change the design of the thermal subsystem on the not-yet-launched ABIs for GOES-T and -U. This required the program to remove ABI from the GOES-T satellite and ship it back to the vendor to complete modifications and retest the instrument. Once these modifications are complete, the vendor will then ship the ABI back to be reintegrated and retested with the spacecraft. All of these activities carry cost, schedule, and technical risks.

The GLM instrument on GOES-T has also experienced failures with some of its components. As was done for ABI, the program removed GLM from the spacecraft for rework in October 2018—and expects to complete the rework and reintegrate the instrument with the GOES-T spacecraft in the spring of 2020.

In May 2019, NOAA delayed its launch commitment date for GOES-T from December 2020 to September 2022. The program is projecting completion of the ABI modification and reintegration with the GOES-T spacecraft in spring of 2020, followed by satellite-level environmental testing. With system integration and test remaining, NOAA and the program will have to address any problems that occur to prevent them from causing additional schedule delays.¹³

¹² DOC OIG, July 9, 2018. *Polar Follow-On: NOAA Must Maintain Cost Efficiencies and Refine Launch Strategy for JPSS-3 and JPSS-4 Missions*, OIG-18-021-A. Washington, DC: DOC OIG, 5.

¹³ *System integration and testing* is the process of assembling and functionally testing individual instruments and spacecraft subsystems into a total, operating space segment system.

Quantifying cost efficiencies of the proposed PWS program

Congress did not approve NOAA's FY 2019 request to consolidate JPSS and Polar Follow-On (PFO) into the PWS program. NOAA has again proposed the consolidation in its FY 2020 budget submission. Similar to its FY 2019 request, NOAA's justification for FY 2020 reasoned that the consolidation will eliminate duplicative management costs and "create synergies" among JPSS-2, -3, and -4 satellite builds that mitigate impacts of catastrophic events (e.g., on-orbit failures) or supply chain disruptions, resulting in lowered costs and avoidance of schedule delays.¹⁴

However, as in FY 2019, NOAA reported the combined life-cycle cost for the proposed PWS program (\$18.9 billion) as simply the sum of previously established life-cycle cost baselines of the two separate funding programs (\$11.3 billion for JPSS; \$7.6 billion for PFO).¹⁵ Quantifying cost efficiencies of combining the programs continues to be a challenge, given that NOAA has long managed both funding programs under a single programmatic entity. NOAA indicated that it will approve a revised LCCE for the PFO missions (JPSS-3 and -4) at Key Decision Point-C (KDP-C), currently scheduled in the first quarter of FY 2020.¹⁶

Mitigating frequency interference risks to environmental satellite missions

NOAA relies on the use of a wide range of radio frequency spectrum to obtain and transmit critical observations from its environmental satellites. This year, the Federal Communications Commission (FCC) auctioned off licenses for commercial use of frequencies that are adjacent to a key frequency band observed by polar weather satellites and therefore may interfere with those observations. NOAA's Assistant Secretary of Commerce for Environmental Observation and Prediction, performing the duties of Under Secretary of Commerce for Oceans and Atmosphere, testified before Congress that this interference, should it occur, "would degrade the forecast skill by up to 30 percent [and] would result in the reduction of hurricane track forecast lead time by roughly 2 to 3 days."¹⁷

The extent to which there may be interference depends primarily on what limits the United States and international bodies set for out-of-band emissions from the auctioned spectrum. NOAA and the National Aeronautics and Space Administration (NASA) have conducted studies to inform an acceptable level that would prevent interference with observations of microwave radiation that feed into weather models. However, the outcome of the matter is unresolved

¹⁴ National Oceanic and Atmospheric Administration. *Budget Estimates Fiscal Year 2020, Congressional Submission*. Washington, DC: NOAA, NESDIS-9 and NESDIS-67.

¹⁵ *Ibid*, NESDIS-18.

¹⁶ At KDP-C, a project's planning, technical, cost, and schedule baselines are complete and consistent, and cost and schedule are adequate for mission success with acceptable risk.

¹⁷ On May 16, 2019, as a witness for the topic of "The Future of Forecasting: Building A Stronger U.S. Weather Enterprise", Assistant Secretary of Commerce for Environmental Observation and Prediction, performing the duties of Under Secretary of Commerce for Oceans and Atmosphere, National Oceanic and Atmospheric Administration, Neil Jacobs, testified before the House Committee on Science, Space and Technology.

internationally. Further, NOAA has not yet fully determined what impacts may occur to the accuracy of its forecast models.

The FCC plans to auction spectrum adjacent to GOES Rebroadcast¹⁸ for wireless operations. Numerous organizations have filed objections, including the American Geophysical Union, the American Meteorological Society, and the National Weather Association, raising concerns of “the likelihood of interference with the reception of weather satellite imagery and relayed environmental data.”¹⁹ With the potential impact to the measurements and transmission of information, NOAA needs strategic plans to mitigate the risk of frequency interference to its operations.

Making progress toward an optimal next-generation satellite system architecture

NOAA’s FY 2020 budget submission proposes initial steps to implement its next-generation satellite architecture, “through greater use of new technologies, smaller satellites, and partnerships to meet its mission requirements.”²⁰ The budget requests more than \$2 million for shared endeavors with NASA, other agencies, and commercial entities; \$10 million to investigate new approaches to providing observations from geostationary orbit; and \$5 million for operational purchases of commercial data from the private sector.

NOAA anticipates that developing new space systems requires at least 10–15 years to complete. The challenge for NOAA is to complete replacements for the existing polar and geostationary programs prior to violating its policies related to continuity and observations assurance. The GOES-16 and GOES-17 satellites will be past their design lives by 2028, which could leave fewer than three geostationary satellites on-orbit before replacements could be available. NOAA plans to define observation and performance requirements for the next generation of geostationary instruments in FY 2020—and begin instrument technology development in FY 2021. In addition, NOAA plans to begin studies for the next-generation spacecraft and ground system in FY 2022.

Determining the Department’s role in space traffic management

Although there currently exists a formal regulatory process to manage the use of radio frequencies in space, the process does not formally resolve potential collisions of satellites planned to operate in the same or similar orbits.²¹ In June 2018, the President issued *SPD-3, National Space Traffic Management Policy*, which included guidance that the Department of Commerce should be the focal point for a collision avoidance support service, to ensure safe

¹⁸ Geostationary Operational Environmental Satellite Rebroadcast is a direct-to-user communications link from the GOES-R Satellites delivering near real-time data and processed information from multiple sensors.

¹⁹ Letter from the American Geophysical Union, American Meteorological Society, and the National Weather Association to Marlene Dortch, Secretary, Federal Communications Commission, RE: WT Docket No. 19-116 (June 20, 2019).

²⁰ NOAA Budget Estimates Fiscal Year 2020, Congressional Submission, NOAA-20.

²¹ DOC OIG, August 12, 2019. *Geostationary Operational Environmental Satellite–R Series: Program Success Requires Added Attention to Oversight, Risk Management, Requirements, and the Life-Cycle Cost Estimate*, OIG-19-022-A. Washington, DC: DOC OIG, 19.

coordination of space traffic as future operating environments become increasingly congested.²² However, the Department has not yet received Congressional authorization or funding to implement its role as defined in the directive.

NOAA has moved GOES-East and -West satellites to prevent collisions with other satellites.²³ In February 2019, Suomi NPP's orientation was slightly altered as the result of probable impact from micrometeorites or orbital debris. While NOAA has regulatory functions for licensing of private remote sensing systems,²⁴ and its Office of Space Commerce coordinates Departmental space-related issues,²⁵ the Department does not have Congressional approval to conduct space traffic management. Congressional testimony from NASA—as well as the Departments of Defense, Transportation, and Commerce—highlighted shortcomings of space traffic management currently and expressed support for consolidating the function within the Department of Commerce.²⁶

Progress made/challenges remaining since the FY 2019 TMC

Our FY 2019 top management and performance challenges report stressed the need for NOAA to maximize efficiencies in its satellite programs. In FY 2019,

- Congress did not approve NOAA's request to merge the JPSS and PFO programs, leaving cost efficiencies still to be determined.
- NOAA completed its constellation availability analysis to inform planned launch dates for JPSS satellites. With respect to managing risks in next-in-series satellites, the JPSS program had to delay environmental testing of two of its key instruments, and NOAA took positive steps to manage the JPSS ground system contract that transitioned from NASA.
- NOAA took steps to minimize the impact of ABI performance issues on GOES-17 and the GOES-R program redesigned an ABI subsystem for use on GOES-T and -U. However, the need to redesign and problems with another instrument caused schedule delays that led NOAA to postpone the launch of GOES-T nearly 2 years.
- Finally, NOAA prepared plans for implementing a next-generation satellite system architecture.

²² SPD-3, section 5(b).

²³ OIG-19-022-A, finding III, I I.

²⁴ 15 CFR Part 960.

²⁵ 51 U.S.C. § 50702, Establishment.

²⁶ U.S. Senate Subcommittee on Aviation and Space, Hearing on "The Emerging Space Environment: Operational, Technical, and Policy Challenges," May 14, 2019 [online]. <https://www.commerce.senate.gov/public/index.cfm/hearings?ID=AF855367-516B-4DA9-AF3F-9E8AE392A777> (accessed October 7, 2019).

Challenge 3: Deploying a Nationwide Public Safety Broadband Network (NPSBN)

The Middle Class Tax Relief and Job Creation Act of 2012 (the Act) established the First Responder Network Authority (FirstNet) as an independent authority within NTIA to ensure the building, deployment, and operation of a NPSBN dedicated to first responders. On March 28, 2017, FirstNet entered into a 25-year contract with AT&T for the construction and operation of the NPSBN. FirstNet's partnership with AT&T involves (a) an initial obligation of up to \$6.5 billion in funds to the private company to deploy the network, (b) AT&T's use of dedicated broadband spectrum, and (c) payments from AT&T to FirstNet over the life of the contract. FirstNet is to use these proceeds to support its operations and to fund future upgrades to the network.

Although FirstNet has made progress in implementing the Act's requirements since its 2012 enactment, FirstNet continues to face challenges as it oversees AT&T's deployment and operation of the NPSBN. OIG's FY 2020 top management and performance challenges include these priority areas related to FirstNet:

- Obtaining and maintaining public safety participation
- Ensuring the successful performance of the contract awarded to AT&T
- Effectively and efficiently reinvesting capital to upgrade and modernize the NPSBN

The Act requires the U.S. Government Accountability Office to make a recommendation regarding the continuance of FirstNet in 2022. FirstNet's progress on these challenge areas will likely be considerations in such a recommendation.

Obtaining and maintaining public safety participation

As stated in last year's top management and performance challenges report, FirstNet and AT&T face competition to serve the public safety community.²⁷ As public safety entities are not required to purchase FirstNet services, the NPSBN's success relies upon AT&T acquiring and retaining public safety customers in a competitive environment. Additionally, FirstNet, working with AT&T and other supporting agencies, must effectively engage with the public safety community to understand user needs, determine how new technology can best serve those needs, and subsequently enhance and upgrade the network accordingly. FirstNet must also show that the NPSBN meets user requirements for security and reliability to gain the confidence of the public safety community.

To ensure that AT&T maintains an incentive to obtain and maintain public safety subscribers throughout the life of the contract, the NPSBN contract established user adoption targets that must be achieved to trigger specific milestone buildout payments from FirstNet to AT&T. Additionally, following completion of the NPSBN's initial deployment, AT&T is subject to an annual disincentive mechanism that would be triggered if public safety adoption drops below

²⁷ DOC OIG, November 14, 2018. *Top Management and Performance Challenges Facing the Department of Commerce*, OIG-19-004. Washington, DC: DOC OIG.

contracted levels. Overall, there are currently more than 750,000 device connections from approximately 9,000 public safety agencies subscribing to and using the FirstNet network.

As AT&T faces competition, it is imperative that technologies and applications of the NPSBN continue to evolve to meet the communication needs of the public safety community. FirstNet and the National Institute of Standards and Technology (NIST) signed an interagency agreement for NIST's Public Safety Communication Research Division (PSCR) to conduct research required by the Act. As we reported in our September 2018 audit report on NIST grants and cooperative agreements, that agency was provided up to \$300 million from the Public Safety Trust Fund²⁸ to conduct research and assist with the development of standards, technologies, and applications to advance wireless public safety communications in support of FirstNet's NPSBN.²⁹ PSCR plans to spend \$132.4 million in grants and cooperative agreements through FY 2022 to fund research intended to help modernize public safety communications and operations for the NPSBN. As of the third quarter of FY 2019, PSCR had awarded approximately 45 percent (\$59.7 million) of those funds. In our September 2018 report, we found that NIST had internal control weaknesses regarding the monitoring of grant and cooperative agreement performance;³⁰ however, NIST promptly addressed our concerns. Nonetheless, FirstNet still faces the challenge of translating NIST's research into technologies and applications that adapt to public safety users' needs.

Ensuring the successful performance of the contract awarded to AT&T

FirstNet must ensure that AT&T meets the requirements in the contract to build, deploy, operate, and maintain the NPSBN—and that procurement rules and regulations are followed. Ensuring successful performance of the contract will be a challenge because of the complex nature of the contract. The 25-year, indefinite-delivery, indefinite-quantity contract includes payments to AT&T for the deployment, operation, and maintenance of the NPSBN in all 56 states and territories. In turn, AT&T pays FirstNet annual payments to lease spectrum through the life of the 25-year contract and cover FirstNet's operating costs.

²⁸ In the Act, Congress directed proceeds from specific spectrum auctions to be deposited in the Public Safety Trust Fund to fund public safety initiatives and deficit reduction. See Pub. L. 112-96 §§ 6401 & 6413, 47 U.S.C. §§ 1451 & 1457. Although the Act was passed in 2012, NIST did not receive funds until November 2015, after the FCC executed the spectrum auctions and transferred funds into the Public Safety Trust Fund.

²⁹ DOC OIG, September 10, 2018. *NIST Should Improve Controls for Monitoring R&D Grants and Cooperative Agreements*, OIG-18-025-A. Washington DC: DOC OIG.

³⁰ *Ibid*, 3.

The contract allows FirstNet to issue task orders to meet FirstNet and NPSBN needs, as well as formalize AT&T responsibilities. To date, FirstNet has issued five task orders (see right). We assessed FirstNet's administration of Task Order 3 and determined that—while FirstNet has monitoring processes in place to ensure the contractor's performance—FirstNet made a payment without the contractor meeting all of the required milestones.³¹ Because of the complexity of the contract, the risk remains that FirstNet will miss other milestones during the remainder of the contract. In addition, FirstNet will need to ensure that it has enough qualified staff in place to monitor work progress across all open task orders, including, but not limited to, contracting officers, contracting officer's representatives (CORs), project managers, and subject matter experts.

Task Order 1—develop and maintain a website with portal for state stakeholders.

Task Order 2—complete and deliver state and territory Radio Access Network (RAN) plans.

Task Order 3—deploy, operate, and maintain the nationwide core.

Task Order 4—build, operate, maintain, and improve the FirstNet-deployed RANs, per specified schedule.

Task Order 5—install, configure, and maintain a circuit within FirstNet's Boulder-based laboratory.

Ensuring proper procurement activity may be challenging for FirstNet, as some of its senior leaders with private sector experience may be unfamiliar with federal procurement rules. The government has less flexibility than the private sector on how to spend money. For instance, private sector contracts can originate from personal connections; however, the government must follow a strict process when awarding a contract. Staff that lack experience with government contracting may be more likely to break federal procurement rules. As a result, the cost to the government could increase and the reputation of the Department could be affected.

Inappropriate management procurement activity came to our attention during an audit. In response, we issued a memorandum³² to alert FirstNet management to our concerns regarding senior management making unauthorized contract commitments, adding contract requirements, and improperly attempting to control contractor hiring decisions and manage contract employee actions. FirstNet responded that it takes these issues seriously and has consequently taken action to mitigate the issues that we reported. However, we assert that FirstNet must take additional steps to address the control environment that permitted these systemic problems, or else those problems will likely continue.³³

Effectively and efficiently reinvesting capital to upgrade and modernize the NPSBN

The NPSBN contract includes AT&T payments to FirstNet for use of the dedicated spectrum. In accordance with the contract, AT&T will make annual fixed payments to FirstNet, totaling \$18 billion over 25 years. FirstNet received two payments in 2018 totaling \$240 million, with the next payment of \$120 million due in September 2019. FirstNet's collection of these fees is

³¹ DOC OIG, July 22, 2019. *FirstNet Has Opportunities to Address Control Weaknesses*, OIG-19-019-A. Washington, DC: DOC OIG, 3.

³² DOC OIG, August 1, 2019. *Management Alert: FirstNet Management Altered Contract Requirements Without Authorization*, OIG-19-020-M. Washington, DC: DOC OIG.

³³ *Ibid.*, 2.

subject to approval by NTIA. According to the Act, NTIA is required to review and approve spectrum lease fees prior to FirstNet's collection.³⁴ These fees are vital to FirstNet's sustainability and reinvestment into the NPSBN.

FirstNet developed a Roadmap, which describes public safety needs and FirstNet's priority areas for the next 5 years. FirstNet must ensure that it uses the proceeds received to implement cost-effective upgrades to the NPSBN consistent with the capabilities that first responders seek, while also providing reliable service to the public safety community. FirstNet will need to follow procurement laws and regulations while contracting for future upgrades to the NPSBN. On September 18, 2019, the FirstNet Board approved two reinvestment recommendations as part of these future upgrades to the NPSBN: Coverage Enhancement Investment and Network Enhancement Investment.

Progress made/challenges remaining since the FY 2019 TMC

In its FY 2018 *Annual Report to Congress*,³⁵ FirstNet noted, among other things, that (a) the core network for interfacing with first responders attained over 7,000 public safety agency subscriptions, with 570,000 device connections on the network; (b) the NPSBN achieved an inventory of 72 mobile satellite cells³⁶ that were delivered on schedule; and (c) the NPSBN made significant progress on rural milestone deployment.

FirstNet also reports progress made in relocating Band 14 public safety users to clear the dedicated spectrum for the NPSBN deployment. In 2016, FirstNet awarded 10 grants to relocate operations from Band 14 spectrum to other frequencies. As part of our oversight of FirstNet, we issued our March 2018 report *Strengthening Grant Processes Will Improve the Management of the Band 14 Incumbent Spectrum Relocation Grant Program*.³⁷ We found FirstNet's grant management processes to be reasonable, but identified two areas where FirstNet can address control weaknesses. FirstNet and NIST addressed our recommendations; by August 2018, all grantees had completed Band 14 relocations.

³⁴ *Middle Class Tax Relief and Job Creation Act of 2012*, Pub. L. No. 112-96, § 6208.

³⁵ First Responder Network Authority, April 2019. *FY 2018 Annual Report to Congress*. Reston, VA: FirstNet [online]. https://www.firstnet.gov/sites/default/files/FirstNet_Annual_Report_To_Congress_FY2018.pdf (accessed October 7, 2019).

³⁶ Mobile satellite cells include cells on light trucks, cells on wheels, and other mobile units that can be deployed to emergency locations to allow public safety user access to the NPSBN during emergencies.

³⁷ DOC OIG, March 21, 2018. *Strengthening Grant Processes Will Improve the Management of the Band 14 Incumbent Spectrum Relocation Grant Program*, OIG-18-016-A. Washington, DC: DOC OIG.

Challenge 4: Managing an Increasing Demand for Intellectual Property Rights

The mission of the U.S. Patent and Trademark Office (USPTO) is to foster innovation and economic growth by providing high-quality, timely examination of patent and trademark applications, as well as guiding domestic and international intellectual property (IP) policy.³⁸ While the USPTO works to protect brands and inventions by granting IP rights, it faces an ongoing challenge to reinforce the predictability, reliability, and quality of these rights.

OIG's FY 2020 top management and performance challenges include these priority areas related to USPTO:

- Ensuring a thorough, timely, and fair patent examination and review process
- Strengthening the integrity of the trademark register
- Improving the management of IT systems and operations

Ensuring a thorough, timely, and fair patent examination and review process

With patent examination, USPTO faces challenges in balancing the need for a thorough search of prior art³⁹ against the need to meet pendency goals and statutory deadlines. The number of pieces of prior art available to search is nearly 160 million, which makes thorough examination challenging. At the same time, progress in reducing one measure of average patent application pendency—first office action—has slowed, and the measure exceeds USPTO's target. First office action pendency, which measures the time that USPTO takes to issue its first official document on a patent application, averaged more than 16 months for almost half of FY 2019,⁴⁰ compared with USPTO's 2019 goal of 14.5 months.⁴¹

USPTO also continues to face challenges regarding the Patent Trial and Appeal Board (PTAB), a business unit within USPTO that, among other things, renders decisions on patentability issues for previously issued patents.⁴² With certain limited exceptions, PTAB must issue a final decision on trials it conducts within a year of granting the petition for trial. A recent Supreme Court ruling⁴³ has limited USPTO's discretion to narrow the scope of these trials by requiring PTAB to consider and rule on all challenged claims, instead of a subset, during an *inter partes*

³⁸ U.S. Department of Commerce U.S. Patent and Trademark Office [online]. <https://www.commerce.gov/bureaus-and-offices/uspto> (accessed October 7, 2019).

³⁹ USPTO's patent examiners determine whether patent applications meet the patentability requirements by reviewing other information relevant to the claimed invention, known as *prior art*.

⁴⁰ See "August 2019 Patents Data, at a Glance," USPTO Patents Dashboard [online]. <https://www.uspto.gov/dashboards/patents/main.dashxml> (accessed October 7, 2019).

⁴¹ USPTO. *FY 2018 Performance and Accountability Report*, 57. [online] <https://www.uspto.gov/sites/default/files/documents/USPTOFY18PAR.pdf> (accessed October 7, 2019).

⁴² See 35 U.S.C. § 6.

⁴³ *SAS Institute Inc. v. Iancu*, 138 S.Ct. 1348 (2018).

review.⁴⁴ By clarifying PTAB's workload, the ruling tests PTAB's ability to issue timely decisions while ensuring that meritorious petitions are given a trial. Moreover, patent invalidation rates at PTAB trials have continued to remain high, with nearly 80 percent of recent final written decisions holding some or all of the contested claims as unpatentable. A high invalidation rate creates uncertainty for stakeholders about whether their previously issued patents would hold up if contested in a PTAB trial. As PTAB revises its guidance and precedents on instituting petitions and other matters, USPTO will face various challenges to ensure that PTAB operations are efficient and fair, including managing resources to ensure deadlines are met and guidance and precedent are applied consistently.

Strengthening the integrity of the trademark register

USPTO faces challenges in maintaining the integrity of the trademark registration process. The agency has noted a rise in behaviors that undermine the accuracy and reliability of trademark registers. First, it has seen a surge in trademark applications, some with inaccurate or possibly fraudulent claims of trademark use. Fraudulent trademark registrations undermine the value of trademarks and hurt businesses, which must spend resources defending their trademarks and protecting their images. The average cost of a trademark opposition ranges from \$95,000 to \$500,000⁴⁵—and could take well over a year to resolve, which may be prohibitive to small businesses.

The surge in inaccurate or fraudulent trademark applications has also coincided with a marked increase in foreign trademark filings. Filings from China have increased exponentially since 2014, jumping from approximately 5,161 applications in FY 2014 to approximately 54,064 in FY 2018. In fact, China now leads all foreign countries in the number of trademark applications filed at USPTO, with 11 percent of total application filings. This is five times higher than the number of applications from Canada, the second highest foreign filer. China also leads in the number of trademark applications filed without an attorney at 80 percent—nearly 30 percentage points higher than the next highest country.

USPTO has implemented measures to combat inaccurate or improper foreign trademark filings. It published a rule requiring foreign domiciled trademark applicants and registrants to use an attorney licensed to practice law in the United States.⁴⁶ USPTO also issued supplemental guidance to examiners on identifying suspicious specimens. As USPTO implements these initiatives, it must balance the need for increased scrutiny with the need to complete a timely review of trademark applications as application volume increases. Although USPTO is currently

⁴⁴ *Inter partes* review allows private parties to challenge previously issued patent claims in an adversarial process before USPTO.

⁴⁵ Beebe, Barton, and Jeanne Fromer. "Statement of Professors Barton Beebe and Jeanne Fromer, New York University School of Law, Before the U.S. House of Representatives, Committee on the Judiciary Subcommittee on Courts, Intellectual Property, and the Internet," 19 [online]. <https://docs.house.gov/meetings/JU/JU03/20190718/109812/HHRG-116-JU03-Wstate-FromerJ-20190718.pdf> (accessed October 7, 2019).

⁴⁶ See Requirement of U.S. Licensed Attorney for Foreign Trademark Applicants and Registrants, 84 Fed. Reg. 31498 (July 2, 2019).

meeting its trademark application pendency goals, it projects that the annual number of trademark applications will increase by more than 100,000 by FY 2022.⁴⁷

Improving the management of IT systems and operations

Over the past 3 years, OIG has identified the modernization of USPTO's legacy IT systems as a top management and performance challenge. USPTO relies upon mission-critical IT systems in every aspect of its operation for examination, rights management, and revenue collection associated with patents and trademarks. USPTO continues to face challenges in this area.

For example, in August 2018 USPTO experienced a continuous 8-day outage of Patent Application Locating and Monitoring (PALM), a critical legacy IT database that supports multiple USPTO systems used for filing and prosecuting patent applications.⁴⁸ This outage, caused by an internal systems failure, resulted in hours of lost productivity for USPTO and forced applicants to rely on less efficient alternative filing methods. USPTO has since assessed its IT hardware and software systems—and transitioned part of its PALM application to a more stable platform. USPTO faces the ongoing challenge to stabilize and modernize all of its legacy systems to minimize the risk of similar issues experienced with PALM.

OIG continues to identify issues with USPTO's management of its IT modernization. In a recent audit,⁴⁹ OIG found that USPTO did not provide effective oversight of the Trademark Next Generation (TMNG) implementation, including inadequate oversight to correct or terminate underperforming TMNG investments. This ineffective oversight contributed to significant cost growth and schedule delays. In 2011, USPTO initially estimated that the TMNG investment would cost approximately \$30.3 million, with completion planned for 2014. However, as of the most recent formal update in August 2018, USPTO had spent \$178.8 million on TMNG, and the project remains incomplete.

Progress made/challenges remaining since the FY 2019 TMC

USPTO made some progress on the OIG's FY 2019 top management and performance challenges, as noted below. However, despite these improvements, the agency continues to face challenges in these critical areas.

- *USPTO has made progress in streamlining operations at PTAB.* USPTO implemented multiple changes to PTAB in FY 2019—including, but not limited to, the creation of the Precedential Opinions Panel (Panel) in late 2018. The Panel was developed to improve the efficiency and consistency of PTAB proceedings by assisting USPTO in identifying

⁴⁷ USPTO has estimated the following numbers of trademark applications received: FY 2017 (actual): 594,107; FY 2018 (actual): 638,847; FY 2019: 678,000; FY 2020: 703,000; FY 2021: 756,000; FY 2022: 811,000. See USPTO's FY 2019 and 2020 budget justifications, <https://www.uspto.gov/about-us/performance-and-planning/budget-and-financial-information> (accessed October 7, 2019).

⁴⁸ USPTO News & Updates, "PALM Outage Information for Patent Customers" [online]. <https://www.uspto.gov/about-us/news-updates/august-15-palm-outage-updates> (accessed October 7, 2019).

⁴⁹ DOC OIG, March 13, 2019. *USPTO Needs to Improve Management over the Implementation of the Trademark Next Generation System*, OIG-19-012-A. Washington, DC: DOC OIG.

decisions that should be designated precedential or informative.⁵⁰ USPTO has recently designated at least 19 decisions as precedential or informative, in part through the Panel. In addition, in March 2019 USPTO launched a pilot program for motions to amend patent claims during PTAB trials. This new process allows patentees to obtain preliminary guidance from PTAB on a motion to amend and file a revised motion in response to the guidance—or to a petitioner’s opposition filing.

- *USPTO has taken steps to improve the examination of patent applications.* In January 2019, the agency issued new guidance and procedures for examiners to use in evaluating patent subject matter eligibility. USPTO has also continued implementing the Access to Relevant Prior Art Initiative to automate early access to relevant prior art for patent examiner use in evaluating patent applications.
- *USPTO achieved full adoption of the Official Correspondence tool.* Recently, USPTO adopted this workflow authoring tool as a replacement for a patent legacy system. USPTO also began an initial analysis of artificial intelligence tools to assist patent examiners in reviewing applications.

⁵⁰ A *precedential* decision binds PTAB decisions in later cases involving similar facts or issues. An *informative* decision establishes standards that generally should be followed but are not binding. See PTAB Standard Operating Procedure 2 (Revision 10) [online] (first paragraph). <https://www.uspto.gov/sites/default/files/documents/SOP2%20R10%20FINAL.pdf> (accessed October 7, 2019).

Challenge 5: Continuing to Improve the Department's Cybersecurity Posture

As strengthening the cybersecurity posture of federal networks and critical IT infrastructure continues to draw the attention of the executive branch, the Department remains active in participating in a government-wide effort to provide a dynamic approach to fortifying the cybersecurity of government networks and systems. Although the Department has made progress in this area, it continues to face significant challenges to improving its enterprise cybersecurity posture. In addition, the Department continues to adopt cloud-technology services to support its business operations, including the 2020 Census. While cloud technologies can bring great benefits, their adoption unavoidably introduces new security challenges.

The Department must provide adequate security to support the 2020 Census, ensure adequate protection to its legacy systems, improve its incident handling capabilities, and fully implement the Department's continuous monitoring program.

OIG's FY 2020 top management and performance challenges include these priority areas related to IT security:

- Securing cloud IT infrastructure to ensure a successful decennial census
- Implementing compensating security controls to protect the Department's legacy systems
- Improving incident handling capabilities at the Enterprise Security Operations Center (ESOC)
- Working closely with bureaus to implement the Department's continuous monitoring capability

Securing cloud IT infrastructure to ensure a successful decennial census

The Department must devote significant attention to the Census Bureau and its cloud-based IT security to ensure a successful and secure 2020 Census. Every aspect of the 2020 Census related to respondent data collection and storage will rely upon commercial cloud services—and will therefore require unique security precautions. The far-reaching consequences of altered, lost, or stolen respondent data emphasize the necessity to safeguard the IT systems supporting the 2020 Census.

However, during a recent audit, we found that the Bureau's cloud-based IT systems supporting the 2020 Census contained fundamental security deficiencies that violated federal standards and Department policies.⁵¹ Many of these deficiencies indicated that the Bureau was behind schedule and rushed to deploy its cloud systems. Additionally, the Bureau had not fully implemented basic security practices to protect decennial census data hosted in the cloud. Currently, we are coordinating with the Census Bureau as it finalizes its corrective action plan

⁵¹ DOC OIG, June 19, 2019. *The Census Bureau Must Correct Fundamental Cloud Security Deficiencies in Order to Better Safeguard the 2020 Decennial Census*, OIG-19-015-A. Washington, DC: DOC OIG.

to address our audit report recommendations; if fully implemented, these corrective actions will help the Bureau manage its cloud environments in a more secure manner.

Implementing compensating security controls to protect the Department's legacy systems

The Department and its bureaus heavily rely on its information systems to support their missions. Some of these systems are legacy systems that were deployed 20 or more years ago and continue to perform important functions in the Department's business operations. For example, USPTO employs its legacy systems to deliver high-quality and timely examination of patent and trademark applications.

In a recent audit of USPTO, we found numerous security deficiencies, such as inadequate implementation of the required security controls related to password encryption, strong passwords, and multi-factor authentication.⁵² The primary reason for these deficiencies was the agency's technical inability to implement these security controls to ensure legacy systems' operation. In addition, a previous OIG audit⁵³ reported persistent vulnerabilities within USPTO's IT infrastructure resulting from unsupported software products on the legacy systems. USPTO delayed upgrading these products due to business needs requiring the legacy systems' continued operation, as well as the competing resources it had to commit to the legacy systems replacement. Currently, USPTO plans to replace its legacy systems by 2022. Until then, unimplemented controls will continue to present a significant security risk to the USPTO mission.

While USPTO needs to continue upgrading to next-generation systems, it is extremely important to protect existing legacy systems. The Department must ensure that USPTO adequately implements compensating security controls to protect its legacy systems when implementing required security measures is not feasible.

Improving incident handling capability at ESOC

In October 2018, an executive memorandum from the Office of Management and Budget (OMB) to the heads of executive departments and agencies⁵⁴ required the Department to consolidate its Security Operations Centers (SOCs) to improve incident detection and response capabilities. The Department has established ESOC as the Department's enterprise incident response team—and established requirements and guidelines for how Departmental bureaus are to report to and coordinate with ESOC and the Department of Homeland Security's United States Computer Emergency Readiness Team.

⁵² DOC OIG, June 13, 2019. *Inadequate Management of Active Directory Puts USPTO's Mission at Significant Cyber Risk*, OIG-19-014-A. Washington, DC: DOC OIG.

⁵³ DOC OIG, March 24, 2017. *Inadequate Security Practices, Including Impaired Security of Cloud Services, Undermine USPTO's IT Security Posture*, OIG-17-021-A. Washington, DC: DOC OIG.

⁵⁴ Office of Management and Budget, October 25, 2018. *Fiscal Year 2018-2019 Guidance on Federal Information Security and Privacy Management Requirements*, M-19-02. Washington, DC: OMB. <https://www.whitehouse.gov/wp-content/uploads/2018/10/M-19-02.pdf> (accessed October 7, 2019).

Based on the preliminary results of our ongoing FY 2019 audit of the Department's Enterprise Web Solutions,⁵⁵ we observed serious mistakes in the Department's handling of two incidents involving sensitive data. ESOC's response to these incidents included fundamental errors, which hindered the Department from potentially discovering key details of one of the incidents. The Department must improve its incident response capabilities, procedures, and communications to be better prepared to identify and respond to incidents affecting its bureaus.

Working closely with bureaus to implement the Department's continuous monitoring capability

In 2013, OMB issued memorandum M-14-03 (rescinded and replaced in October 2018 by OMB M-19-02), which required all federal agencies to develop an Information Security Continuous Monitoring (ISCM) strategy and establish an ISCM program.⁵⁶ In response to the OMB requirements, the Department started implementing the Enterprise Continuous Monitoring and Operations (ECMO) project—an enterprise cybersecurity initiative and essential piece of the Department-wide ISCM program. The capability provided by ECMO includes hardware and software asset management, configuration settings, and known vulnerability detection.

In our FY 2019 top management and performance challenges report, we stated that the Department implemented the ECMO capability on its system components—but not on high-impact systems at NOAA and the Bureau of Industry and Security (BIS). Since then, NOAA has made substantial progress toward deploying ECMO capability on its high-impact systems. However, the crucial data collected by ECMO for these systems have not been automatically integrated with the Department ECMO capability. In addition—according to an official in the Department's Office of the Chief Information Officer (OCIO)—despite BIS implementing ECMO capability on its moderate- and low-impact systems, it decided not to participate in ECMO deployment on its high-impact system. Consequently, the Department still has no continuous monitoring visibility to its most critical systems, even after years of implementing the ECMO initiative.

OIG and stakeholders are concerned with the Department's level of commitment, as well as the bureaus' cooperation, regarding its implementation of Department-wide continuous monitoring capabilities. To provide real-time continuous monitoring capabilities to enhance its cybersecurity posture, the Department must work closely with its bureaus to ensure completion of ECMO deployment on its high-impact systems and integration of the ECMO capability as part of the Department-wide ISCM program.

⁵⁵ DOC OIG, December 19, 2018. *Audit of the Department's Implementation of Security Controls to Protect the Enterprise Web Solutions System*, announcement #2019-337. Washington, DC: DOC OIG.

⁵⁶ (1) OMB, November 18, 2013. "Enhancing the Security of Federal Information and Information Systems," M-14-03. Washington, DC: OMB (rescinded and replaced by M-19-02). <https://obamawhitehouse.archives.gov/sites/default/files/omb/memoranda/2014/m-14-03.pdf> (accessed October 7, 2019); (2) M-19-02.

Progress made/challenges remaining since the FY 2019 TMC

During FY 2019, the Department and its bureaus have continued implementing recommendations made in previous IT security audit reports, as well as made progress in deploying continuous monitoring capabilities on NOAA high-impact systems. Recently, the Department's OCIO informed us that NOAA is considering integrating its ECMO implementation with the Department solution—and that BIS is working on a plan in collaboration with the Department to integrate the ECMO capability on all BIS endpoints by December 30, 2019. We have not seen progress in other cybersecurity-related challenges from our FY 2019 top management and performance challenges report.

Challenge 6: Refining Processes and Enhancing Capacity for Trade Enforcement Efforts

Among the federal government's leading trade enforcement and promotion agencies, the Department faces the challenge of helping U.S. companies be more competitive abroad while protecting U.S. national security interests. The Department's trade enforcement and promotion responsibilities primarily reside with two bureaus: (1) the International Trade Administration (ITA), which enforces U.S. trade laws and agreements and assists U.S. exporters to sell their products overseas, and (2) BIS, which administers and enforces U.S. export control laws and regulations to support U.S. national security interests. With the Administration prioritizing trade enforcement activities to promote fair and secure trade, the Department must continue to rebalance its resources and capabilities to that end.

ITA's Industry and Analysis (I&A) business unit leads, with extensive BIS collaboration, the Department's engagement in interagency efforts to review business transactions involving foreign entities. BIS leads, with substantive ITA support, Section 232 investigations to determine whether tariffs on imports are warranted for national security reasons. Both bureaus must use their resources effectively and efficiently as they participate in government-wide efforts to ensure fair trade that protects national security.

OIG's FY 2020 top management and performance challenges include these priority areas related to trade enforcement:

- Refining existing processes for adjudicating Section 232 exclusion requests to ensure requests for existing and future products are processed objectively and timely
- Ensuring processes and staff capacity to address new covered transactions subject to foreign investment reviews

Refining existing processes for adjudicating Section 232 exclusion requests to ensure requests for existing and future products are processed objectively and timely

Section 232 of the Trade Expansion Act of 1962 provides the President with the authority to adjust imports that threaten to impair U.S. national security, based on a recommendation by the Secretary of Commerce (the Secretary).⁵⁷ The Secretary's recommendation, which follows a formal investigation, also provides the President with the suggested amount of the tariffs. In February 2018, the Secretary published the results of two investigations performed in 2017—one each for steel and aluminum imports. Led by BIS and assisted by ITA, these investigations were the first ones carried out since 2001.⁵⁸ As a result, in March 2018 the President imposed tariffs of 25 percent and 10 percent on steel and aluminum imports, respectively, for most countries.

In the March 2018 tariff proclamations, the President also authorized the Secretary to establish a process to exclude specific steel and aluminum articles from these tariffs upon the request of

⁵⁷ Trade Expansion Act of 1962, Pub. L. No. 87-794, § 232, 19 U.S.C. § 1862, as amended.

⁵⁸ DOC Bureau of Industry and Security. *Budget Justification, Fiscal Year 2019*. Washington, DC: DOC BIS, BIS-5.

directly affected U.S. parties based on national security grounds or lack of U.S. availability. As of September 22, 2019, the Department had received more than 128,000 of these exclusion requests and had made determinations on more than 75,000.

With the current Administration committed to using this authority to promote fair trade, both BIS and ITA face challenges ensuring that resources are available, and processes are in place, to facilitate these comprehensive, time-sensitive evaluations. This process is made more difficult for two reasons. First, the impending expiration of approved requests, which are generally valid for 1 year or until the entire amount of the excluded order has been imported, will likely lead to requests for renewals. Second, there will possibly be new products subject to exclusion requests—namely automobiles and their parts, as well as titanium sponges—if tariffs are levied on those imports. This may require additional personnel to process an increasing number of requests, as well as develop knowledge of these new products through trainings and other assistance.

Ensuring processes and staff capacity to address new covered transactions subject to foreign investment reviews

Another authority the current Administration is using more frequently than previous administrations is the review of business transactions involving foreign entities by the interagency Committee on Foreign Investment in the United States (CFIUS), of which the Secretary is a member.⁵⁹ CFIUS historically has reviewed covered transactions—in the form of company mergers and acquisitions that may result in foreign control of U.S. businesses—to assess their impact on U.S. national security. ITA I&A serves as the coordinating entity for the Department's review of CFIUS transactions; while I&A assesses the commercial and market conditions as they relate to national security on covered transactions, BIS analyzes the export control and defense industrial base implications of such transactions. The John S. McCain National Defense Authorization Act for Fiscal Year 2019 contained the Foreign Investment Risk Review Modernization Act of 2018 (FIRRMA), which expanded the categories of covered transactions from one type to five types of transactions.

Prior to the passage of FIRRMA, the only type of transaction that required CFIUS review involved a foreign person obtaining control of a U.S. business through a merger or acquisition. Starting on or before February 13, 2020, covered transactions involving foreign persons will be expanded to include real estate transactions in proximity to sensitive government facilities, transactions that would allow foreign persons access to material, non-public technical information, changes to a foreign investor's rights resulting in foreign control of a U.S. business or an "other investment" in certain U.S. businesses, and any transactions designed to circumvent CFIUS investment reviews.⁶⁰ Ensuring that ITA and BIS staff are capable of

⁵⁹ CFIUS is an interagency committee chaired by the Secretary of the Treasury and includes the heads of the Departments of Commerce, Defense, Energy, Homeland Security, Justice, State, and the Treasury; as well as the heads of the Offices of the U.S. Trade Representative and Science and Technology Policy. 50 U.S.C. § 4565(k); see also Executive Order 13456, *Further Amendment of Executive Order 11858 Concerning Foreign Investment in the United States*, January 23, 2008.

⁶⁰ On October 11, 2018, the Department of the Treasury issued regulations (effective November 10, 2018) that established a pilot program implementing FIRRMA's expanded jurisdiction related to certain investments involving

performing reviews of these new covered transactions may require additional training and capacity building. The Administration estimates nearly 1,000 CFIUS reviews per year once FIRRMA is fully implemented by mid-FY 2020. For its staff, BIS predicts that without additional resources, the number of reviews per analyst will nearly quadruple from 32 to 125.⁶¹

Progress made/challenges remaining since the FY 2019 TMC

In last year's top management and performance challenges report, we highlighted as a priority area "institutionalizing processes for Section 232 product exclusion request reviews." On November 5, 2018, we initiated an audit of the exclusion request process to determine whether (a) BIS and ITA adhered to the established processes and procedures and (b) decisions on requests were reached in a consistent and transparent manner. We issued an interim memorandum⁶² on July 1, 2019, that provided observations about the process through March 3, 2019—namely, that a backlog of requests had been created, exclusion requests with objections had a lower completion rate than those without, and requests with objections consistently missed processing deadlines while more than half of those without objections were processed on time. We plan to issue a final report on our complete audit findings in FY 2020.

foreign persons and critical technologies. BIS reports having detailed two employees to work with its CFIUS staff to handle the increased workload from the pilot program.

⁶¹ DOC BIS. *Budget Estimates, Fiscal Year 2020*. Washington, DC: DOC BIS, BIS-30.

⁶² DOC OIG, July 1, 2019. *One Year Later: A Look at the Timeliness and Completion Status of Section 232 Product Exclusion Requests*, OIG-19-017-M. Washington, DC: DOC OIG.

Challenge 7: Effectively Managing the Significant Increase in Disaster Relief Funding to EDA

The U.S. Economic Development Administration (EDA) faces the challenge of effectively managing the significant increase in disaster relief funds. In 2017, the United States experienced a historic year of weather-related disasters: 16 separate billion-dollar disaster events, including severe weather, hurricanes, flooding, and wildfires. In response, the President signed into law the Bipartisan Budget Act of 2018,⁶³ which designated \$600 million to EDA for disaster relief and recovery efforts related to hurricanes, wildfires, and other 2017 natural disasters. The Bipartisan Budget Act of 2018—which tripled EDA’s annual budget to nearly \$900 million for disaster relief efforts—places a significant demand on EDA’s existing grant oversight and administration processes, business practices, and financial management systems.

In June 2019, Congress approved another \$19.1 billion disaster aid package to provide EDA with an additional \$600 million for necessary expenses related to flood mitigation, disaster relief, long-term recovery, and restoration of infrastructure in areas that received major disaster designations under the Robert T. Stafford Disaster Relief and Emergency Assistance Act.⁶⁴ To effectively manage the disaster relief appropriations, EDA must balance the threat of agency elimination with the execution of increased disaster relief funding responsibilities, while maintaining sufficient staff and overseeing adequate use of disaster relief funding in U.S. states and territories.

OIG’s FY 2020 top management and performance challenges include these priority areas related to disaster relief funds:

- Balancing the threat of agency elimination with the execution of increased disaster relief fund responsibilities
- Acquiring and maintaining sufficient staff with appropriate proficiency

Balancing the threat of agency elimination with the execution of increased disaster relief fund responsibilities

In the 2020 President’s budget, the Administration proposed eliminating EDA.⁶⁵ However, Congress instead approved supplemental disaster relief funds for EDA. These differing postures introduce several challenges—from hiring sufficient staff to long-term IT infrastructure planning. Although EDA’s initial plan (prior to receiving the \$600 million in disaster relief funds in 2018) was to reduce its staff, EDA now faces the challenge of preparing a modified contingency plan to prepare for the proposed agency elimination while concurrently awarding more disaster

⁶³ *Bipartisan Budget Act of 2018*, Pub. L. No. 115-123, 132 Stat. 64, 69.

⁶⁴ *Additional Supplemental Appropriations for Disaster Relief Act, 2019*, Pub. L. No. 116-20, H.R. 2157, at 5-6. The Act applies to major disaster designations “as a result of Hurricanes Florence, Michael, and Lane, Typhoons Yutu and Mangkhut, and of wildfires, volcanic eruptions, earthquakes, and other natural disasters occurring in calendar year 2018, and tornadoes and floods occurring in calendar year 2019.” *Id.*

⁶⁵ The White House, March 2019. *Fiscal Year 2020 Budget of the U.S. Government* [online]. <https://www.whitehouse.gov/wp-content/uploads/2019/03/budget-fy2020.pdf> (accessed October 7, 2019).

relief funds to recipients. Adding to this challenge, EDA received another \$600 million in disaster relief funds in 2019. We are currently conducting an audit to determine whether EDA's grants award process and oversight efforts are adequate.⁶⁶

Acquiring and maintaining sufficient staff with appropriate proficiency

One of our FY 2019 top management and performance challenges for EDA included acquiring and maintaining sufficient staff with appropriate proficiency.⁶⁷ Human capital challenges at all levels are responsible for many of the operational difficulties faced during disaster recovery efforts. With the significant increase in EDA's FY 2019 disaster relief spending and related activities comes a corresponding increase in the number of staff that may be necessary to support disaster relief financial assistance. Shortages of experienced staff with the right skills and abilities can contribute to delays in cost-effective disaster recovery. In addition, EDA will need to quickly organize existing staff and hire additional temporary staff to meet the objective of the Bipartisan Budget Act of 2018.⁶⁸

EDA's challenge in this area is not unique. In recent years, our annual reports identifying top management challenges noted that the Department continues to face issues regarding its workforce. For example, in the *Top Management and Performance Challenges Facing the Department of Commerce* report for FY 2018,⁶⁹ we stated that the Department continues to face workforce challenges such as (1) implementing processes to improve management of the Department's contracts, grants, and cooperative agreements, and (2) developing and maintaining a competent acquisition workforce to support the Department's mission.

In FY 2019, we stated again that the Department is still addressing Departmental management matters involving acquisitions, such as developing and maintaining sufficient staff.⁷⁰ The Department needs to ensure EDA has the ability to provide sufficient oversight with limited time and staff.⁷¹ This is especially critical for EDA, which is currently awarding and overseeing grants in the aftermath of several disasters. During our ongoing oversight of EDA's workforce planning—to determine whether EDA's workforce planning process for awarding and administering the disaster supplemental funds is adequate and effective⁷²—we observed that the agency has struggled with acquiring and maintaining sufficient staff; with an additional \$600 million in disaster relief funding and proposed bureau elimination, EDA will continue facing this challenge. Preliminary results from our ongoing audit indicate that the agency has not developed

⁶⁶ DOC OIG, October 26, 2018. *Audit of EDA's Disaster Relief Grants Award Administrative Process and Oversight Efforts*, audit announcement #2019-332. Washington, DC: DOC OIG.

⁶⁷ OIG-19-004, 27–28.

⁶⁸ *Ibid*, 27.

⁶⁹ DOC OIG, September 29, 2017. *Top Management and Performance Challenges Facing the Department of Commerce*, OIG-17-033. Washington, DC: DOC OIG, 26–28.

⁷⁰ OIG-19-004, 30.

⁷¹ *Ibid*, 28.

⁷² DOC OIG, June 21, 2018. *Audit of EDA's Disaster Relief Workforce Planning*, audit announcement #2018-327. Washington, DC: DOC OIG.

and implemented a comprehensive plan to meet the demands of an increased workload due to the significant increase in disaster relief funding.

Progress made/challenges remaining since the FY 2019 TMC

EDA has taken proactive steps to effectively manage the significant increase in disaster relief funds. The agency has established and initiated four Disaster Supplemental Implementation working groups responsible for promoting policies and procedures that address disaster assistance related priorities. In addition, EDA has

- begun developing and executing operational systems to support funds disbursement, management, oversight, and internal control, and
- awarded 91 grants totaling \$194 million of obligated disaster relief funds as of May 31, 2019.

Challenge 8: Preparing the Acquisition Workforce to Administer and Monitor Departmental Resources

A continuing challenge for the federal government generally, and the Department specifically, is spending taxpayer dollars wisely and protecting them from waste and abuse. In FY 2018, the Department obligated approximately \$3.8 billion for goods and services related to satellite acquisitions, support for IP operations, management of coastal and ocean resources, IT, and construction and facilities management. Accordingly, Department managers face the ongoing challenge of ensuring that the government receives fair value for its money. OIG audits have identified a number of areas where the Department can better manage and oversee contracts to improve program performance, achieve cost savings, and help prevent fraud, waste, and abuse.

OIG's FY 2020 top management and performance challenges for the Department include these priority areas related to acquisitions:

- Developing and maintaining a competent acquisition workforce to support the Department's mission
- Improving effectiveness in the planning and governing of NOAA's ship fleet recapitalization acquisitions
- Improving contract administration to ensure proper contract closure
- Improving control of contract and grant file management
- Training CORs and other contract administrators in accordance with regulatory requirements and contract terms

Developing and maintaining a competent acquisition workforce to support the Department's mission

The Department continues to face challenges in hiring and maintaining acquisition staff. The Department requires a robust and well-qualified acquisition workforce to award and administer increasingly complex acquisitions and successfully implement new major initiatives, such as mission-support services. The federal acquisition workforce requires the technical expertise and program management skills to manage a variety of highly specialized products and services, such as large complex IT systems and scientific and satellite equipment. In FY 2018, the Department saw a 4.3 percent decrease (from 325 to 311) in the number of acquisition professionals in the GS-1102 series. In addition, the attrition rate increased from 12.6 percent to 16 percent.

While the Department has continued its efforts to address this issue—we note the progress it has made since last year's top management and performance challenges report in its recruitment efforts and working with the Office of Personnel Management (OPM) to receive direct-hiring authority—the acquisition workforce must remain a high priority. During FY 2018, the Department enhanced its recruitment efforts related to (1) attending college and job fairs,

(2) using Pathways Programs,⁷³ and (3) using special hiring authorities. These efforts are aimed at attracting and retaining highly qualified acquisition professionals to meet hiring projections for a staff of 334 acquisitions professionals. Although its aggressive recruitment effort resulted in filling 42 positions, the Department still fell short of its goal of 334 total staff due to attrition and retirements. In addition, the Department continues to face the critical workforce challenges that OIG noted in its most recent top management and performance challenges report:⁷⁴

- difficulty in attracting and retaining experienced acquisition professionals to work in locations outside the Washington, DC, metropolitan area;
- timeliness of filling vacancies;
- scarcity of talent, related to a federal government pay and an incentives package that is not competitive with the private sector; and
- budget cuts, a legislative hiring cap, and limited career development and advancement opportunities.

Improving effectiveness in the planning and governing of NOAA's ship fleet recapitalization acquisitions

The Department's maritime fleet faces long-term challenges due to aging. NOAA's Office of Marine and Aviation Operations (OMAO) currently operates 16 ships to conduct hydrographic, oceanographic, atmospheric, and fisheries research. In order to manage its infrastructure and ensure a high state of readiness, OMAO must adequately identify and analyze gaps between its fleet capabilities and mission needs—as well as conduct ship- and shore-side fleet readiness activities in accordance with standards and best practices. Leadership's focus on cost, schedule, and performance baselines associated with NOAA OMAO's ship and aircraft procurements are critical to promote efficiency, effectiveness, reduce costs, and provide a significant return on investment for these major system acquisitions.

OMAO's fleet is expected to decrease from 16 to 8 active ships by FY 2028, as ships are withdrawn from service because they have surpassed their service life span. OMAO's ship recapitalization program includes funding for ship acquisition, instrumentation, and service life extensions.⁷⁵ In 2014, NOAA entered into an interagency agreement with the U.S. Navy to acquire new research vessels for NOAA, with an estimated value of \$1.5 billion and an agreement period through December 2028. From FY 2016 to FY 2019, OMAO received \$300 million for new ship construction. In addition, OMAO's 2020 budget submission requested funding of \$75 million in FY 2020 for its ongoing fleet recapitalization efforts to acquire Class A, B, and C vessels.

⁷³ An OPM initiative launched in 2010, Pathways Programs help the federal government recruit students and recent graduates to public service careers. See <https://www.opm.gov/about-us/careers-at-opm/students-recent-graduates/> [accessed October 7, 2019].

⁷⁴ OIG-19-004, 30.

⁷⁵ NOAA. *Budget Estimates Fiscal Year 2020, Congressional Submission*. Washington, DC: NOAA, NOAA-20.

The design and construction of two Class A ships is the first step in NOAA's long-term fleet recapitalization strategy.⁷⁶ Our recent audit work on NOAA OMAO's fleet examined the adequacy of the initial acquisition planning for these ships. Our audit observed (a) schedule slippages, which have delayed ship construction and increased costs; (b) ineffectively governed ship fleet acquisition planning; and (c) inadequate OMAO oversight of fleet recapitalization funds.

To minimize the risk of further delays, increased costs, and reduced mission capability, the Department needs to address the planning and governance of NOAA's ship fleet recapitalization effort.

Improving contract administration to ensure proper contract closure

The Department faces challenges closing out its physically complete contracts in a timely and proper manner. Timely and effective closeout practices ultimately protect the government's interests—and helps agencies efficiently manage residual contract funds.

Our audit work has identified significant weaknesses with the Department's closeout oversight and processes for physically complete contracts. In July 2019, we reported that USPTO contracting personnel did not close orders timely; failed to complete some key closeout steps; were inadequately trained, certified, and appointed; and maintained order files that were missing or lacked key documentation.⁷⁷ In our ongoing audit work of NIST, NOAA, and the Census Bureau, we have observed similar weaknesses. Stronger closeout oversight practices and processes for physically complete contracts would help the Department ensure that it receives the goods and services it pays for, promptly frees up excess funds for use on other projects, and safeguards against future claims and liabilities.

Improving control of contract and grant file management

The Department continues to face challenges in improving controls over contract and grant file management. In recent audits,⁷⁸ we have identified significant vulnerabilities in the management of contract and grant file documentation that could expose the Department to substantial financial losses. We have repeatedly found that key documentation—such as vendor price

⁷⁶ NOAA, October 31, 2016. *The NOAA Fleet Plan: Building NOAA's 21st Century Fleet*. Silver Spring, MD: NOAA. Available at https://www.omaο.noaa.gov/sites/default/files/documents/The%20NOAA%20Fleet%20Plan_Final_31OCT.pdf [accessed October 7, 2019].

⁷⁷ DOC OIG, July 10, 2019. *USPTO Could Improve Oversight Practices to Close Out Contract Files by Complying with Acquisition Regulations and Policies*, OIG-19-018-A. Washington, DC: DOC OIG.

⁷⁸ See (1) DOC OIG, October 16, 2017. *Strengthening Grant Administration and Financial Controls Will Improve Management of the LA-RICS BTOP Grant*, OIG-18-002-A. Washington, DC: DOC OIG; (2) OIG-17-031-A; (3) DOC OIG, September 5, 2017. *MBDA Can Improve Processes to More Effectively Monitor Cooperative Agreements*, OIG-17-029-A. Washington, DC: DOC OIG; (4) DOC OIG, July 30, 2018. *Census Bureau Could Improve Monitoring of Blanket Purchase Agreements by Complying with Key Federal Acquisition Regulation and Commerce Requirements*, OIG-18-023-A. Washington, DC: DOC OIG; (5) DOC OIG, February 26, 2018. *NOAA Could Improve Monitoring of Blanket Purchase Agreements by Complying with Key Federal Acquisition Regulation and Administration Requirements*, OIG-18-014-A. Washington, DC: DOC OIG.

proposals and quotations, discount request documentation, market research and price determination documentation, site visit reports, and single audit reports—are missing from files. The need for well-maintained and complete contract and grant files is important—not only for day-to-day administration, but also for when the Department experiences turnover with its contracting and grant staff.

Complete contract and grant files help ensure proper transfer of responsibilities among staff and continuity of operations. The failure to maintain contract and grant files adequately creates significant financial risk and demonstrates a lack of internal control over the Department's contract and grant actions. In addition, it generates conditions conducive to fraud and it impairs the ability of the Department to take effective and timely action to protect its interests and, in turn, those of taxpayers. The Department must ensure that contract and grant files are sufficiently maintained in order to provide a complete history of the transactions and support informed decisions at each step in the acquisition process and provide information for reviews and investigations.

Training CORs and other contract administrators in accordance with regulatory requirements and contract terms

CORs—and other personnel performing contract administrative duties—play a critical role in ensuring that contractors meet the commitment to their contract obligations. The Federal Acquisition Regulation (FAR)⁷⁹ and the *Commerce Acquisition Manual (CAM)*⁸⁰ require CORs and individuals with functions and responsibilities of the COR, regardless of the individuals' title, to be certified, trained, and appointed in writing to perform assigned responsibilities and to act on behalf of the contracting officer. Our audits⁸¹ and ongoing work continue to find that CORs and other contract administrators do not sufficiently document their training and appointments. In our ongoing audit of the Department's Enterprise Web Solutions system, we have observed that these personnel are not familiar with all the terms of the contract; therefore, contractors are not always vetted at the appropriate security levels. The Department must ensure that personnel put in these roles are trained at the appropriate levels and familiar with the significance of their COR responsibilities.

Progress made/challenges remaining since the FY 2019 TMC

Our FY 2019 top management and performance challenges report stressed the need for the Department to address management matters involving acquisitions. In FY 2019, the Department has accomplished the following:

- The Department is still working toward developing and maintaining a competent workforce to support the Department's mission. The Department has been focused on

⁷⁹ FAR 1.602-2(d).

⁸⁰ CAM 1301.670, § 1.7 and § 2.3.

⁸¹ See (1) OIG-19-018-A; and (2) DOC OIG, December 3, 2014. *The U.S. Patent and Trademark Office's Awarding and Administering of Time-and-Materials and Labor-Hour Contracts Needs Improvement*, OIG-15-012-A. Washington, DC: DOC OIG.

increasing its recruitment efforts for the GS-1102 series and working with OPM to receive direct-hiring authority to fill these positions on a more timely basis.

- Enterprise Services' (ES) acquisition function has assumed ordering responsibilities for all strategic sourcing activities of each bureau. ES has awarded contracts to procure end-to-end processing of new hiring actions—including classification, recruiting, assessment, selection, and onboarding—and has recently assumed responsibility for payroll and benefits processing for a majority of the Department.
- NOAA's Acquisition and Grants Office (AGO) has created training for contracting staff regarding the processing of blanket purchase agreements (BPAs). AGO has also developed a standard contract file checklist to help ensure that staff completes BPA contract files more accurately.
- OMAO has awarded contracts for the ship fleet design phase and intends to select from among the proposed designs by June 2020.

Appendix A: Related OIG Publications

This list presents OIG's FY 2019 work related to top management and performance challenges facing the Department in FY 2020. These products can be viewed at www.oig.doc.gov. If the product contains information that cannot be released publicly, a redacted version or an abstract will be available on the website.

Challenge 1: Conducting an Accurate 2020 Census Enumeration While Realizing Expected Efficiency and Estimated Cost-Effectiveness

- *2020 Census: Issues Observed During the 2018 End-to-End Census Test's Address Canvassing Operation Indicate Risk to Address List Quality* (OIG-19-008-A; February 6, 2019)
- *The Census Bureau Must Correct Fundamental Cloud Security Deficiencies in Order to Better Safeguard the 2020 Decennial Census* (OIG-19-015-A; June 19, 2019)

Challenge 2: Ensuring the Success of Current and Future Satellite Programs

- *Geostationary Operational Environmental Satellite-R Series: Program Success Requires Added Attention to Oversight, Risk Management, Requirements, and the Life-Cycle Cost Estimate* (OIG-19-022-A; August 12, 2019)

Challenge 3: Deploying a Nationwide Public Safety Broadband Network (NPSBN)

- *FirstNet Has Opportunities to Address Control Weaknesses* (OIG-19-019-A; July 22, 2019)
- *Management Alert: FirstNet Management Altered Contract Requirements Without Authorization* (OIG-19-020-M; August 1, 2019)

Challenge 4: Managing an Increasing Demand for Intellectual Property Rights

- *USPTO Needs to Improve Management over the Implementation of the Trademark Next Generation System* (OIG-19-012-A; March 13, 2019)
- *Inadequate Management of Active Directory Puts USPTO's Mission at Significant Cyber Risk* (OIG-19-014-A; June 13, 2019)
- *USPTO Did Not Provide Adequate Oversight of Monetary Awards to Ensure Patent Examiners Receive Accurate Payments* (OIG-19-023-A; August 22, 2019)

Challenge 5: Continuing to Improve the Department's Cybersecurity Posture

- *The Census Bureau Must Improve Its Implementation of the Risk Management Framework* (OIG-19-002-A; October 30, 2018)
- *Inadequate Management of Active Directory Puts USPTO's Mission at Significant Cyber Risk* (OIG-19-014-A; June 13, 2019)

- *The Census Bureau Must Correct Fundamental Cloud Security Deficiencies in Order to Better Safeguard the 2020 Decennial Census* (OIG-19-015-A; June 19, 2019)
- *The Department Needs to Improve Its Capability to Effectively Share Cyber Threat Information* (OIG-19-026-A; September 30, 2019)

Challenge 6: Refining Processes and Enhancing Capacity for Trade Enforcement Efforts

- *One Year Later—A Look at the Timeliness and Completion Status of Section 232 Product Exclusion Requests* (OIG-19-017-M; July 1, 2019)

Challenge 7: Effectively Managing the Significant Increase in Disaster Relief Funding to EDA

Challenge 8: Preparing the Acquisition Workforce to Administer and Monitor Departmental Resources

- *Audit of NOAA Pacific Coastal Salmon Recovery Fund Grants to the Washington State Recreation and Conservation Office* (OIG-19-006-A; December 20, 2018)
- *2019 Annual Letter to OMB re: Government Charge Card Abuse Prevention Act of 2012* (OIG-19-011-M; March 4, 2019)
- *USPTO Needs to Improve Management over the Implementation of the Trademark Next Generation System* (OIG-19-012-A; March 13, 2019)
- *USPTO Could Improve Oversight Practices to Close Out Contract Files by Complying with Acquisition Regulations and Policies* (OIG-19-018-A; July 10, 2019)
- *Audit of NOAA Financial Assistance Awards to the Gulf States Marine Fisheries Commission* (OIG-19-021-A; August 12, 2019)
- *Management Alert: Inaccurate and Incomplete Fleet Inventory Data* (OIG-19-024-M; September 5, 2019)

Appendix B: Acronyms and Abbreviations

ABI	Advanced Baseline Imager
AGO	Acquisition and Grants Office
ATMS	Advanced Technology Microwave Sounder
BIS	Bureau of Industry and Security
BPA	blanket purchase agreement
Bureau	U.S. Census Bureau
CAM	<i>Commerce Acquisition Manual</i>
CFIUS	Committee on Foreign Investment in the United States
COR	contracting officer's representative
CrIS	Cross-track Infrared Sounder
E2E Test	2018 End-to-End Census Test
ECMO	Enterprise Continuous Monitoring Operations
EDA	Economic Development Administration
ES	Enterprise Services
ESOC	Enterprise Security Operations Center
FAR	Federal Acquisition Regulation
FCC	Federal Communications Commission
FIRRMA	Foreign Investment Risk Review Modernization Act of 2018
FirstNet	First Responder Network Authority
FY	fiscal year
GLM	Geostationary Lightning Mapper
GOES	Geostationary Operational Environmental Satellites
I&A	Industry and Analysis
IP	intellectual property
ISCM	Information Security Continuous Monitoring
ISR	internet self-response
IT	information technology
ITA	International Trade Administration
JPSS	Joint Polar Satellite System
KDP-C	Key Decision Point-C

LCCE	Life-Cycle Cost Estimate
LCO	Local Census Office
NASA	National Aeronautics and Space Administration
NGIS	Northrop Grumman Innovation Systems
NIST	National Institute of Standards and Technology
NOAA	National Oceanic and Atmospheric Administration
NPSBN	Nationwide Public Safety Broadband Network
NRFU	nonresponse followup
NTIA	National Telecommunications and Information Administration
OCIO	Office of the Chief Information Officer
OIG	Office of Inspector General
OMAO	Office of Marine and Aviation Operations
OMB	Office of Management and Budget
OPM	Office of Personnel Management
PALM	Patent Application Locating and Monitoring
Panel	Precedential Opinions Panel
PFO	Polar Follow-On
PSCR	Public Safety Communication Research Division
PTAB	Patent Trial and Appeal Board
PWS	Polar Weather Satellite
RAN	Radio Access Network
SOC	Security Operations Center
Suomi NPP	Suomi National Polar-orbiting Partnership
TMC	<i>Top Management and Performance Challenges</i>
TMNG	Trademark Next Generation
USPTO	U.S. Patent and Trademark Office

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