Top Management and Performance Challenges Facing the Department of Commerce in Fiscal Year 2021

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OCTOBER 15, 2020

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

UNITED STATES DEPARTMENT OF COMMERCE
Office of Inspector General
Washington, D.C. 20230

October 15, 2020

INFORMATION MEMORANDUM FOR SECRETARY ROSS

FROM: Peggy E. Gustafson
Inspector General

SUBJECT: *Top Management and Performance Challenges Facing the Department of Commerce in Fiscal Year 2021*
Final Report No. OIG-21-003

The Office of Inspector General (OIG) is required by statute[1] to report annually the most serious management and performance challenges facing the U.S. Department of Commerce (the Department). Attached is our final report on the Department's top management and performance challenges for fiscal year 2021.

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

Challenge 1: Establishing a Solid Foundation for 2030 Decennial Research and Testing and Ensuring That the Census Bureau Adequately Vets Candidates for Employment

- Ensuring an accurate count
- Ensuring that lessons learned from the 2020 Census are an essential part of success in 2030
- Assessing 2020 Census successes and areas needing improvement
- Developing a testing schedule that ensures completion of tests as planned and anticipates funding needs
- Ensuring only candidates suitable for federal government employment are hired

[1] 31 U.S.C. § 3516(d).

Challenge 2: Addressing Risks and Progressing Toward a New Architecture for Satellite Systems

- Meeting launch readiness challenges of next-in-series polar and geostationary satellites
- Making progress toward a next-generation satellite system architecture
- Managing spectrum risks to observations, operations, and communications
- Establishing the Department's role in space traffic management

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

- Ensuring the successful performance of the contract
- Reinvesting capital effectively and efficiently to upgrade and modernize the NPSBN
- Maintaining effective engagement with public safety community

Challenge 4: Strengthening Confidence in Intellectual Property (IP) Rights

- Managing IP rights in a changing environment
- Managing impacts related to the coronavirus disease (COVID-19)
- Ensuring new technology delivers quality IP
- Improving management of information technology (IT) operations

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

- Implementing strong security measures to safeguard decennial census data
- Sustaining modernization priority of the Department's legacy systems to strengthen IT security posture
- Securing the First Responder Network Authority to protect public safety
- Consistently implementing the Department's enterprise IT security policies and procedures

Challenge 6: Refining Processes for Trade Remedies Against Imports That Threaten to Impair National Security

- Evaluating and improving processes for adjudicating Section 232 exclusion requests

Challenge 7: Improving Management and Oversight of Contracts and Grants

- Ensuring effective oversight and monitoring of the Department's management of emergency and disaster relief funds
- Managing contract and program performance
- Developing and retaining a competent acquisition workforce to support the Department's mission

In the midst of the COVID-19 pandemic, the Department faces an additional set of oversight challenges to ensuring that Coronavirus Aid, Relief, and Economic Security Act (CARES Act)[2] funds are timely and appropriately spent. On June 18, 2020, we issued a management alert[3] to the Deputy Secretary of Commerce, detailing the most significant challenges to the Economic Development Administration (EDA) and the National Oceanic and Atmospheric Administration (NOAA) Fisheries about their ongoing disaster relief efforts—as well as Department-wide acquisition and grants workforce, award monitoring, and file management challenges. Finally, we noted the Department's challenge of mitigating the risk of fraud, waste, and abuse created by the significant influx of funds to be distributed quickly. A great sense of urgency has arisen in response to the COVID-19 outbreak. However, as past OIG work responding to stimulus and recovery programs has done, we advise that—in the rush to disseminate stimulus funding—the Department provide the necessary, additional guidance to direct spending more effectively and to track and report more meaningful results.

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.[4]

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[2] The CARES Act (Pub. L. No. 116-136) was signed into law on March 27, 2020, to respond to the COVID-19 outbreak and its impact on the economy, public health, state and local governments, individuals, and businesses. This law contains several provisions related to the Department, including appropriations to EDA, NOAA, the National Institute of Standards and Technology, and the Minority Business Development Agency.

[3] U.S. Department of Commerce Office of Inspector General, June 18, 2020. *Management Alert: Top Oversight Challenges Facing the Department of Commerce to Ensuring That Pandemic Funds Are Timely and Appropriately Spent*, OIG-20-031-M. Washington, DC: DOC OIG.

[4] 31 U.S.C. § 3516(d).

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, Chief Information Officer
Thomas Gilman, Chief Financial Officer and Assistant Secretary for Administration
Operating Unit Heads
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Contents

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 1: Establishing a Solid Foundation for 2030 Decennial Research and Testing and Ensuring That the Census Bureau Adequately Vets Candidates for Employment

The decennial census provides important information that determines the allocation of $675 billion in federal funding and guides the apportionment of Congressional representation and the redrawing of Congressional districts, called redistricting. The 2020 Census is an immense undertaking that encompassed over a decade of planning and testing. To count the estimated 330 million people living in the United States and its five territories, the U.S. Census Bureau (the Bureau)

- collected addresses and geographic information to update the Bureau's master address file and digital maps,
- reengineered address canvassing,
- optimized self-response,
- used administrative records and third-party data, and
- reengineered field operations with technology and the training and deployment of up to 500,000 temporary employees.

The Bureau initially estimated the cost of the 2020 Census would be $12.3 billion. However, during fiscal year (FY) 2019, a new lifecycle cost estimate was completed and the total estimated costs were increased to $15.6 billion.

The decennial census lifecycle is a 12-year period, and overlaps with the prior census. For example, the 2020 decennial census lifecycle started in FY 2012 and will continue until FY 2023. The 2010 lifecycle was FY 2002–2013. Before the 2030 decennial census lifecycle begins in FY 2022, Bureau programs will be simultaneously wrapping up and assessing 2020 Census operations. This period is of critical importance in laying the groundwork for improving innovations implemented for the 2020 Census count. Areas of risk that we've reported on and that will be important to resolve include hiring sufficient staff and the processing of background investigations—activities that have implications for both the entire Bureau and its contractors.

The Office of Inspector General's (OIG's) FY 2021 top management and performance challenges include these priority areas related to the decennial census:

- Ensuring an accurate count
- Ensuring that lessons learned from the 2020 Census are an essential part of success in 2030
- Assessing 2020 Census successes and areas needing improvement
- Developing a testing schedule that ensures completion of tests as planned and anticipates funding needs
- Ensuring only candidates suitable for federal government employment are hired

Ensuring an accurate count

Because of the coronavirus disease 2019 (COVID-19) pandemic, completion of the 2020 Census count has faced unforeseen obstacles, most notably a delay in operations that required Bureau management to stop operations in March 2020 and then restart operations in May 2020.[1] Under the delayed timeline, all data collection operations, including nonresponse followup and internet self-response, were to be completed by October 31, 2020. However, after revising operation plans to adjust to the October 31 deadline, the Bureau announced on August 3 that data collection operations would end on September 30 (i.e., 4 weeks earlier than expected). Subsequent court rulings have resulted in date changes for the end of data collection. The Bureau announced on October 13, 2020, that data collection would conclude on October 15, 2020.

Ensuring that lessons learned from the 2020 Census are an essential part of success in 2030

The Bureau must apply lessons learned from 2020 operations to further refine and develop an innovative, flexible, cost-effective, and transparent approach to the 2030 Census. Continued development of alternative approaches to the labor-intensive end-of-decade address list update and nonresponse followup operations—both of which are major cost drivers—must be explored and tested early in the decade to prevent schedule delays or cost increases, and to enhance accuracy.

(For further discussion of the Bureau's challenge to convert 2020 Census lessons learned—regarding information technology (IT) security—into 2030 Census success, see challenge 5 of this *Top Management and Performance Challenges* report for a discussion of "Implementing strong security measures to safeguard decennial census data.")

Assessing 2020 Census successes and areas needing improvement

The Bureau must build upon successes and identify areas for improvement in order to refine innovations implemented during the 2020 Census. Despite delays caused by the COVID-19 pandemic, 2020 Census operations are concluding and program staff will start the process of evaluating operations and identifying areas for improvement. The 2020 Census Program for Evaluations and Experiments (2020 CPEX) will measure the effectiveness of innovations employed in the following four areas: (1) address canvassing;[2] (2) self-response; (3) the use of administrative records and third-party data;[3] and (4) the use of technology for field operations.

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[1] Operations that restarted in May 2020 included (1) Update Leave-Stateside; (2) Update Leave-Puerto Rico; and (3) Update Enumerate.

[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,

The goal of the 2020 CPEX is to evaluate 2020 Census operations and to help guide early planning for the 2030 Census.

An evaluation conducted by our office in 2012 of the 2010 CPEX identified delays in completing these assessments.[4] At that time, Bureau officials stated the delays occurred because of new processes, untimely funding, and project team challenges. We found that attrition, staff reassignments, and competition for resources may have also impacted the project schedules.

As a result of the pandemic, the 2020 Census data collection operations have been delayed by 2 months and the timeframe for delivery of the apportionment counts and redistricting data may be reduced. These delays would compress the timeline for evaluating 2020 Census operations. Because the Bureau implemented significant changes to the design of the 2020 Census, completing the CPEX reports in a timely manner will be imperative to improving the 2030 design and ensuring that any operational deficiencies or shortcomings are corrected for the next decennial census.

Developing a testing schedule that ensures completion of tests as planned and anticipates funding needs

Developing a reliable schedule and funding estimate for researching and testing innovations during early 2030 Census planning will be critical to ensuring improvements to 2020 Census operations will be tested. Prior reviews of 2020 Census planning efforts identified issues with the Bureau adequately preparing to conduct tests.[5] In addition, we found that during the 2018 End-to-End Census Test, the Bureau did not fully test some data quality systems and processes. As a result, the first time the quality control system and processes were deployed was during the 2020 Census.[6] Also, the U.S. Government Accountability Office (GAO) found that during the 2018 End-to-End Census Test the Bureau had not finalized procedures for data collection during the late phases of the nonresponse follow-up operation until after work had already started.[7] GAO concluded "[a]s a result, enumerators and their supervisors did not have standardized procedures during the test, which made it difficult to evaluate the effectiveness of the test procedures."

Bureau management has cited funding constraints as the cause for changes to planned testing activities. In order to fully execute a 2030 research and testing strategy, the Bureau will need to develop a schedule that anticipates the time and resources needed to complete the work.

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in particular, to reduce expensive in-person follow-up activities. Third-party data refers to information from commercial sources.

[4] U.S. Department of Commerce Office of Inspector General, April 5, 2012. *2020 Census Planning: Delays with 2010 Census Research Studies May Adversely Impact the 2020 Decennial Census*, OIG-12-023-I. Washington, DC: DOC OIG.

[5] DOC OIG, January 30, 2020. *2020 Census: Some Decennial Census Data Quality Assurance Methods Were Not Tested or Did Not Work as Intended During the 2018 End-to-End Census Test,* OIG-20-016-A. Washington, DC: DOC OIG.

[6] *Ibid.*

[7] U.S. Government Accountability Office, December 10, 2018. *2020 Census: Additional Steps Needed to Finalize Readiness for Peak Field Operations*, GAO-19-140. Washington, DC: GAO.

Ensuring only candidates suitable for federal government employment are hired

To carry out the 2020 Census, the Bureau estimated hiring up to 500,000 temporary, part-time census takers in addition to filling positions to carry out ongoing surveys. All staff that were hired required a background investigation—either by the Bureau's Census Investigative Services (CIS) alone or by both CIS and the U.S. Office of Personnel Management (OPM)—to ensure candidates are suitable for government employment and do not put Bureau facilities, IT systems, or personal information at risk.

CIS plays a key role in the hiring process at the Bureau. CIS staff is responsible for conducting pre-employment adjudication and post-employment adjudication (if required) for all Bureau employees and contractors. The information CIS staff reviews is sensitive, and a failure to conduct a review and adjudicate investigations per Bureau and OPM requirements could result in the hiring of candidates that are not suitable for federal employment.

However, prior reviews of CIS by our office have identified significant problems with the office. In response to a Congressional request,[8] we recently observed that CIS staff did not conduct a background investigation in accordance with requirements and, as a result, the Bureau hired a registered sex offender to work at one of its area Census offices. After working for the Bureau for several months, the employee was arrested again and their employment was terminated in March 2019. Additional concerns were raised when it was determined that CIS, at the direction of Bureau management, was not conducting post-employment adjudication of investigations, which resulted in additional employees with derogatory background information continuing to work for the Bureau.[9] Our review revealed the Bureau had not adjudicated more than 10,000 background investigations, some of which dated back to 2014. More than a dozen individuals with derogatory information in their background investigation had access to Bureau facilities and information systems for 4 or more years; some of these individuals have positions the Bureau has deemed "high-risk" or "critical," including some working in IT.

Due to the lack of oversight of its background check program, the Bureau cannot reliably attest to the suitability of its decennial workforce—increasing the risk of exposing the public, the Bureau's systems and facilities, and its employees to individuals who have not been properly vetted. CIS' backlog of unadjudicated investigations is a result, in part, of not having sufficient CIS staff to meet the workload demands for investigations. The Bureau must anticipate the need for background investigations, for decennial staff and contractors, ongoing survey staff, and other Bureau operations, in order to adequately staff CIS and provide oversight of this critical operation.

[8] DOC OIG, December 10, 2019. *IG Letter to NC Delegation re: the Census Bureau's Background Check and Hiring Process*, OIG-20-012-M. Washington, DC: DOC OIG.

[9] DOC OIG, April 30, 2020. *Management Alert: The Census Bureau Has Not Adjudicated Hundreds of Individuals Identified as Highest-Risk in OPM Background Investigations*, OIG-20-023-M. Washington, DC: DOC OIG.

Progress made/challenges remaining since the FY 2020 TMC

The Bureau made some progress on our FY 2020 top management and performance challenges,[10] as noted below. However, despite these improvements, the Bureau continues to face challenges in some of these critical areas.

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 was able to complete performance and scalability testing prior to the start of 2020 peak operations—although the Bureau did make a decision to use its internally developed internet self-response system rather than the system provided by the contractor. At the end of June 2020, Bureau management stated the 2020 Census did not experience any significant system failures and all systems appear to have functioned as designed.

Ensuring data quality

Subsequent to the completion of decennial data collection operations, the Bureau will begin the process of assessing the quality of household responses. Bureau experts will run and review output from programs to un-duplicate responses, determine final housing unit status, populate any missing housing unit data on household size, and finalize the universe to be included in the apportionment count file. These activities are to occur after the conclusion of data collection.

In addition, processing of redistricting data will occur after the delivery of the apportionment data. Bureau management had sought statutory relief from the April 1, 2021, redistricting deadline to provide redistricting data to the states no later than July 31, 2021; however, Congress has not extended the deadline as of the date of this publication. Bureau experts will run and review programs to populate any missing demographic data for each household, run differential privacy programs to ensure confidentiality, and run tabulation programs for each state delivery.

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

In January 2020, the Bureau launched a $500 million public education and outreach campaign aimed at making U.S. residents aware of the 2020 Census and asking them to respond online, by phone, or through the mail. In order to reach hard-to-count communities, the Bureau is partnering with local governments, businesses, and community organizations for targeted outreach efforts, in an effort to maximize response rates.

[10] DOC OIG, October 16, 2020. *Top Management and Performance Challenges Facing the Department of Commerce*, OIG-20-001. Washington, DC: DOC OIG, 1–5.

Challenge 2: Addressing Risks and Progressing Toward a New Architecture for Satellite Systems

The National Oceanic and Atmospheric Administration's (NOAA's) environmental satellite systems provide essential data and imagery that help forecasters understand, track, and forecast weather and other environmental phenomena.

NOAA's Geostationary Operational Environmental Satellites (GOES) monitor cloud motion and storm properties in the Western hemisphere and provide updates as often as every 30 seconds. The data directly enhances short-term forecasts and informs real-time decisions. NOAA's polar-orbiting satellites—such as the Joint Polar Satellite System (JPSS)—are closer to Earth and provide high-resolution temperature and moisture profiles of the atmosphere that greatly improve the output of numerical weather prediction models. In addition, NOAA relies on satellites for measurements of sea-surface height, space weather phenomena, and atmospheric effects on Global Positioning System (GPS) signals that complement polar satellite observations.

OIG's FY 2021 top management and performance challenges include these priority areas related to NOAA satellite systems:

- Meeting launch readiness challenges of next-in-series polar and geostationary satellites
- Making progress toward a next-generation satellite system architecture
- Managing spectrum risks to observations, operations, and communications
- Establishing the Department's role in space traffic management (STM)

Meeting launch readiness challenges of next-in-series polar and geostationary satellites

Completing integration and testing of the JPSS-2 satellite and overcoming challenges posed by COVID-19

Functionality and development issues with the JPSS-2 spacecraft's payload interface electronics—which are critical for control of the instruments and data processing—have challenged the JPSS program and its spacecraft contractor.[11] In March 2020, we reported that the spacecraft completion schedule had slipped a total of 14 months.[12] Instrument level testing is complete for JPSS-2, and now all instruments are awaiting integration with the spacecraft. Once integrated, the spacecraft and instruments will undergo environmental testing, which can reveal performance issues and additional challenges, in FY 2021. In addition, COVID-19 impacts have added risks to the JPSS-2 mission and the program plans to delay its launch readiness from March 2022 to no earlier than September 2022.

[11] DOC OIG, March 24, 2020. *The Joint Polar Satellite System: Program Can Increase the Likelihood of Mission Success by Further Applying NASA Processes to Its Spacecraft Development Efforts*, OIG-20-021-A. Washington, DC: DOC OIG.
[12] *Ibid*, 3.

According to NOAA Polar Satellite Programs Continuity of Weather Observation charts, Suomi National Polar-orbiting Partnership (Suomi NPP) and NOAA-20 will be the remaining operational polar satellites by the end of 2021, meeting the polar satellite policy to have two on-orbit satellites (one primary satellite providing the mission data and one backup satellite). Given that Suomi NPP has now operated for nearly 9 years—i.e., 4 years beyond its mission design life[13]—it is vital that NOAA manage the technical and schedule risks for the JPSS-2 launch to avoid potential further delays that threaten the continuity of weather observations.

Mitigating integration and testing risks with redesigned and new instruments on GOES-T along with COVID-19 have potential impacts to mission schedules

Due to performance problems on GOES-16 and -17, the GOES-R Series program redesigned a thermal subsystem for the Advance Baseline Imager (ABI) and chose a new design for magnetometers on the GOES-T and GOES-U satellites.[14] In FY 2021, the program will need to complete comprehensive, satellite-level testing for the GOES-T mission. The program also plans to make adjustments to the satellite's propulsion system to prevent performance degradations that occurred on the GOES-16 satellite.

In addition, the program has to overcome risks to its schedule and activities because of actual and potential impacts due to COVID-19 work limitations, including some aspects of replacement of its ground system servers until after the GOES-T launch and adding contingency remote access capabilities to support satellite launch and operations.

Addressing workforce shortages

In FY 2020, NOAA's National Environmental Satellite, Data, and Information Service (NESDIS) projected a shortfall of 21 percent in filling essential positions to maintain satellite and information systems development, operations, and flight systems on its major programs. NESDIS has met its mission need by giving existing employees additional roles and responsibilities and by contracting out specific tasks where possible, which carries risks and inefficiencies to the programs and may not be sustainable over a long period of time. The existing workforce's extra workload and selective outsourcing may lead to inefficiencies, missed training opportunities, burnout, and excessive turnover.

Making progress toward a next-generation satellite system architecture

NOAA's current generation of satellites—GOES-R Series and JPSS—sets new standards for environmental space-based observation. However, the current satellite architecture is a complex arrangement of systems with long development timelines and significant budget

[13] Reliability analysis-based extended weather observation life estimate (60 percent confidence) for satellites on orbit for a minimum of 1 year. The most recent analysis was conducted in July 2018.

[14] *See* 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.

requirements. NOAA must modernize by transitioning from its legacy architecture without violating policies related to data continuity and assurance.

Thus far, NOAA has taken initial steps to develop concepts and strategy. NOAA's FY 2021 budget submission requests $49.3 million to continue progress toward a new architecture,[15] aligned with aspects of our previous reporting on the agency's technology planning and enterprise architecture.[16] NESDIS has set goals for a larger variety of data sources, including commercial, and more organizational agility to better leverage and explore technological innovations. In FY 2020, it awarded contracts for industry studies to develop new mission and instrument concepts, with 32 separate awards expected to present options for new business models that can guide plans for establishing the next generation of satellite observation platforms. The next phase will require careful assessment of options to inform budgets, generate requirements, and maintain overall decisions that are consistent with the 2018 NOAA Satellite Observing System Architecture study results.[17]

NOAA also published a strategy to guide adoption of cloud computing services, describing an end-state architecture vision to modernize its IT environment. In the near term, NESDIS expects to prepare a framework for operationalizing satellite ground services in the cloud environment.[18] The transition will present opportunities, but also risks related to data breaches, access control, and application security that NOAA will have to balance with system performance. Modernization and new partnerships have been a focus of agency planning. However, implementing a next-generation satellite architecture, while migrating to a new cloud computing environment that can meet future needs, will require a carefully planned transition that manages unintended consequences for budgets and operations.

Managing spectrum risks to observations, operations, and communications

NOAA assets utilize or rely on portions of the electromagnetic spectrum to obtain and transmit critical environmental observations.[19] New and proposed spectrum allocations present

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[15] DOC National Oceanic and Atmospheric Administration. *Budget Estimates Fiscal Year 2021*. Washington, DC: DOC NOAA, exhibit 10, NESDIS-28.

[16] *See* (1) 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;
(2) DOC OIG, April 26, 2016. *The Joint Polar Satellite System: Further Planning and Executive Decisions Are Needed to Establish a Long-term, Robust Program*, OIG-16-026-I. Washington, DC: DOC OIG; and
(3) DOC OIG, June 11, 2015. *Cost Estimates, Long-Term Savings, Milestones, and Enterprise Architecture Policy Are Needed for Common Satellite Program*, OIG-15-032-I. Washington, DC: DOC OIG.

[17] DOC NOAA, June 21, 2018. *Overview of the NOAA Satellite Observing Systems Architecture (NSOSA)*, 2018-06-NSOSA. Washington, DC: DOC NOAA.

[18] A model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction. *See* DOC National Institute of Standards and Technology, September 2011. *The NIST Definition of Cloud Computing*, NIST SP 800-145. Gaithersburg, MD: DOC NIST.

[19] NOAA assets include satellites, ships, aircraft, weather stations, radars, and buoys.

scenarios where NOAA's environmental observations, communications, and operations are affected by frequency interference.

In 2019, the Federal Communications Commission (FCC) auctioned licenses for commercial use of frequencies adjacent to a key band used for passive remote sensing by polar weather satellites (PWS). At the time, NOAA had determined that potential interference from this frequency use could degrade its forecast skill[20] by up to 30 percent. In November 2019, an international regulatory body (2019 World Radiocommunication Conference (WRC)) set more restrictive limits for out-of-band emissions for use of this spectrum than what the FCC licenses allow. Subsequently, NOAA ascertained that spectrum use at the lower limits proposed internationally will still interfere with satellite observations, resulting in a degradation of a range of forecasts. Further, as of June 2020, the FCC had not yet revised these limits for its previously auctioned licenses to conform with the international regulations. Work is ongoing between the FCC and National Telecommunications and Information Administration (NTIA) to incorporate all WRC regulatory decisions into U.S. regulations. Until the international regulations are implemented in the United States, there is a risk that polar satellite observations over the United States will be degraded beyond that of international areas.

In 2020, the FCC granted authorization to a private company for commercial operation in a frequency band adjacent to GPS and is seeking to auction additional frequencies adjacent to GOES Re-Broadcast (GRB) at the request of the same private company. NOAA relies on GPS for many activities, including command and control of its satellites, thus creating a risk to its operations. Additionally, NOAA weather forecast models use radio occultation data collected by satellites that observe GPS signals. Both the U.S. Department of Transportation and the U.S. Department of Defense testified before Congress that this new commercial operation would interrupt GPS. Likewise, commercial providers of radio occultation data have stated that interference to GPS signals from this new commercial operation will affect the quality of their data, which could have ramifications for the accuracy of forecast models.

NOAA generates GRB at its primary and backup facilities and uses the frequency band in between frequencies auctioned in 2015 and frequencies sought for another auction to relay full resolution, calibrated, near-real-time GRB data to its Satellite Operations Facility and other federal and nonfederal users of geostationary satellite data. NOAA has documented examples of interference with GRB communications from authorized fixed and mobile operations—at its ground station in Wallops, Virginia—that would result from this new use of the frequency band.

Given these current known frequency interferences and other proposed uses of spectrum that pose interference risks, under consideration domestically and on the agenda for the 2023 WRC, NOAA's challenge is to develop proactive, strategic plans to ensure the success of its missions. To meet this challenge, NOAA needs a sufficient number of staff with spectrum expertise to assess options and fully inform decision-making on spectrum-related issues.

[20] In forecasting, the term "skill" is used to denote accuracy of the forecast compared to observed conditions.

Establishing the Department's role in STM

The Department did not receive Congressional authorization or funding in FY 2020 to implement its role—as recommended in Space Policy Directive-3[21]—to be the civilian agency primarily responsible for providing a collision avoidance support service in order to enhance space technologies and space-based capabilities. At the direction of the U.S. Senate, the Department contracted with the National Academy of Public Administration (NAPA) to (among other things) assess the feasibility of a transfer of STM functions, to include which department or agency is best suited for STM responsibility.

On August 19, 2020, NAPA released its final report, where it determined that the Department's Office of Space Commerce (OSC, currently within NOAA) is best suited to conduct the commercial and civil STM mission. NAPA further recommended that OSC be elevated to the Office of the Secretary and requested that Congress enact without further delay authorizing legislation to reinforce OSC's existing authorities.[22]

In its FY 2021 budget submission, the Department requested a new appropriation of $10.9 million and 13 positions, and a transfer of $4.1 million and 11 positions from NOAA's OSC and Commercial Remote Sensing Regulatory Affairs. Some of the funding would be used to develop a civil STM capability.[23] In the meantime, the Department is challenged to meet the guidance and direction outlined in Space Policy Directive-3 to provide a collision avoidance support service. The Department has focused its initiative to create a civil space situational awareness (SSA) and STM capability in the following four areas:[24]

- Working with Vandenberg Air Force Base to transfer capabilities related to SSA/STM
- Engaging industry
- Creating an open architecture data repository
- Utilizing international best practices and standards

As we have reported, STM has been an issue for NOAA's own space operations, given that there is no regulatory authority specifically to manage assignment of physical orbital locations and that other satellites have been found to occupy existing and projected NOAA orbital locations. In response to one of our recommendations,[25] NOAA offices, including NESDIS and OSC, are coordinating a response to deficiencies in the orbital insertion regulatory process.

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[21] White House, June 18, 2018. *Presidential Memoranda: Space Policy Directive-3, National Space Traffic Management Policy*, SPD-3. Washington, DC: White House.

[22] National Academy of Public Administration, August 19, 2020. *United States Department of Commerce: Space Traffic Management*, Academy Project Number: 102252. Washington, DC: NAPA, 4, 101, and 103.

[23] DOC. *U.S. Department of Commerce Departmental Management FY 2021 Congressional Submission*. Washington, DC: DOC, exhibit 3, DM-3 and exhibit 13, DM-26.

[24] DOC, February 2020. *U.S. Department of Commerce FY 2021 Annual Performance Plan and FY 2019 Annual Performance Report*. Washington, DC: DOC, 25.

[25] OIG-19-022-A, recommendation 8, 12.

Progress made/challenges remaining since the FY 2020 TMC

Our FY 2020 *Top Management and Performance Challenges* report discussed aspects of these same challenges, as well as a need to quantify cost efficiencies of the PWS program, which consolidated the JPSS and Polar Follow-On (PFO) programs. In FY 2020, NOAA made progress in the following areas:

- The GOES-R Series program took steps to correct performance issues with instruments (i.e., ABI and magnetometers), including redesigning ABI's thermal subsystem and re-integrating ABI with the GOES-T satellite. The JPSS program and its spacecraft contractor continued to struggle with development of the payload interface electronics, but neared completion as the end of the fiscal year approached.
- Congress approved the combining of JPSS and PFO into the PWS program in the FY 2020 appropriations legislation, capping the cost of the JPSS portion of the program and making note of pending decisions for PFO costs. The Department's Office of Acquisition Management completed an independent cost estimate of PFO, which NOAA reconciled with its own data, resulting in a $735 million reduction to the life-cycle cost baseline. In June 2020, the Deputy Secretary of Commerce formally approved a revised cost baseline for PFO of $6.8 billion.
- NOAA assessed operational impacts of out-of-band emission limits for the 24.25–86 GHz frequency use set at the WRC that was held in November 2019.
- NOAA began awarding contracts for next-generation mission and instrument concept studies, with study evaluations to follow into FY 2021. New architecture funding and capability development must be synchronized with transition from legacy missions. NOAA published its cloud computing strategy, but NESDIS will have to continue to align its current operations and future architecture needs within the NOAA cloud migration vision.
- NOAA's OSC began working with international partners for data sharing, engaging with industry to assess capabilities, and furthering the development of an open architecture data repository by acquiring space environment data for SSA and STM.

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

The Middle Class Tax Relief and Job Creation Act of 2012 established the First Responder Network Authority (FirstNet Authority) as an independent authority within NTIA to ensure the building, deployment, and operation of an NPSBN dedicated to first responders. On March 28, 2017, FirstNet Authority entered into a 25-year contract with AT&T (NPSBN contractor) for the construction and operation of the NPSBN. FirstNet Authority's arrangement with the NPSBN contractor involves (a) an initial obligation of up to $6.5 billion in funds to the NPSBN contractor to deploy the network, (b) the NPSBN contractor's use of dedicated broadband spectrum, and (c) payments from the NPSBN contractor to FirstNet Authority over the life of the contract. Fees received from the NPSBN contractor are to be used to support FirstNet Authority operations and for the construction, maintenance, operations, and improvements to the network. The Middle Class Tax Relief and Job Creation Act of 2012 does not require public safety entities to purchase NPSBN services.

Although FirstNet Authority has made progress in implementing the Middle Class Tax Relief and Job Creation Act of 2012's requirements since its 2012 enactment, it continues to face challenges as it oversees the NPSBN contractor's deployment and operation of the NPSBN.[26] OIG's FY 2021 top management and performance challenges include these priority areas related to FirstNet Authority:

- Ensuring the successful performance of the contract
- Reinvesting capital effectively and efficiently to upgrade and modernize the NPSBN
- Maintaining effective engagement with public safety community

The Middle Class Tax Relief and Job Creation Act of 2012 requires GAO to make a recommendation regarding the continuance of FirstNet Authority in 2022. FirstNet Authority's progress on these challenge areas will likely be considerations in such a recommendation.

Ensuring the successful performance of the contract

FirstNet Authority faces an ongoing challenge to ensure the successful performance of the contract. The indefinite-delivery, indefinite-quantity contract has a 25-year period of performance and is complex in nature as it includes payments to and from the NPSBN contractor. Payments to the NPSBN contractor are for deploying, operating, and maintaining the NPSBN in all 56 states and territories, while payments from the NPSBN contractor are for FirstNet Authority to cover operating costs and reinvestments in the NPSBN. FirstNet Authority must ensure that procurement rules and regulations are followed, and provide proper oversight to verify that the NPSBN contractor meets contract requirements.

The contract allows FirstNet Authority to issue task orders to meet its and NPSBN needs, as well as formalize NPSBN contractor responsibilities. To date, FirstNet Authority has issued

[26] OIG-20-001, 11.

seven task orders (see right for brief summary of task orders), including two issued on June 17, 2020 (task orders 6 and 7).

Both GAO and our office have raised concerns with FirstNet Authority's administration of the contract. For example, in July 2019, we issued a report on our assessment of FirstNet Authority's administration of Task Order 3 and determined that—while FirstNet Authority has monitoring processes in place to ensure the contractor's performance—FirstNet Authority made a payment without the NPSBN contractor meeting all of the required milestones.[27] Although this specific issue was addressed in a contract modification, the risk remains that FirstNet Authority could miss other milestones during the remainder of the contract due to the contract's complexity. In January 2020, GAO reported that FirstNet Authority lacked a reliable master schedule to review. GAO stated, "[The NPSBN contractor] is required to provide a current master schedule to FirstNet [Authority] monthly, but the schedule only partially or minimally meets the characteristics of a reliable schedule per GAO best practices." The report stated, "Having a more detailed schedule to review could improve FirstNet [Authority's] insight into [the NPSBN contractor's] deployment and strengthen FirstNet [Authority's] use of the schedule as a management tool." [28] FirstNet Authority told us, "Following the GAO recommendation, the FirstNet Authority submitted an [a]ction [p]lan to GAO that outlines the development and deployment of a FirstNet Authority NPSBN integrated master schedule. The FirstNet Authority is currently working on implementing the integrated master schedule and expects it to be fully operational by the end of the calendar year."

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.

Task Order 6—expand deployable capacity by enhancing the existing deployable capabilities and services.

Task Order 7—begin investing in an infrastructure migration that allows for operation of both LTE and 5G network technologies simultaneously.

In addition, FirstNet Authority 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 (COs), contracting officer's representatives, project managers, and subject matter experts. With the retirement of a senior CO, FirstNet Authority backfilled the position and will hire additional COs. With the additional staff, FirstNet Authority plans to have a total of three COs who work on the NPSBN contract. Although these additional new hires should help FirstNet Authority's effort toward adequate staffing, FirstNet Authority must still be cognizant of the time required to hire new personnel and train them on the complex NPSBN contract.

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

[28] GAO, January 27, 2020. *Public-Safety Broadband Network: Network Deployment Is Progressing, but FirstNet Could Strengthen Its Oversight*, GAO-20-346. Washington, DC: GAO.

In an August 2019 management alert,[29] we identified 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 Authority responded that it understands the seriousness of these issues and has consequently taken action to mitigate them. Our follow-up with FirstNet Authority on these issues found that, although FirstNet Authority has taken steps to address the control environment, issues similar to those reported in our management alert have continued. In particular, FirstNet Authority staff tried to address contractor performance outside of FirstNet Authority's processes and could be viewed as exerting inappropriate pressure over a contractor when additional services were requested outside of the established contract.

Ensuring proper procurement activity, such as necessitating training and addressing procurement-related concerns, remains a top priority. In this regard, FirstNet Authority management has applied strategies to ensure proper procurement activity, such as communicating with staff and contractors about proper interactions, requiring mandatory procurement training, and implementing procurement processes. However, to prevent staff from noncompliance with federal procurement rules that could increase costs to the government and affect the reputation of the Department, these efforts must continue.

Reinvesting capital effectively and efficiently to upgrade and modernize the NPSBN

The NPSBN contract includes contractor payments to FirstNet Authority for use of the dedicated spectrum. In accordance with the contract, the NPSBN contractor makes annual fixed payments[30] to FirstNet Authority, which will total $18 billion over 25 years. FirstNet Authority received two payments in 2018 totaling $240 million, one payment in September 2019 of $120 million, and one payment in September 2020 of $120 million, for a total of $480 million received. FirstNet Authority's collection of these fees is subject to approval by NTIA. According to the Middle Class Tax Relief and Job Creation Act of 2012, NTIA is required to review and approve lease fees prior to FirstNet Authority's collection.[31] These fees are vital to FirstNet Authority's sustainability and reinvestment into the NPSBN.

In January 2020, we issued a report on FirstNet Authority's processes for setting, collecting, and managing fees, and NTIA's process for reviewing and approving proposed fees.[32] We found the joint NTIA and FirstNet Authority procedures[33] were incomplete because they did not include how NTIA would review and reconcile submitted documentation; nor did they include how to transfer unapproved funds out of the suspense account upon subsequent approval. We

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

[30] Although the payments amounts are fixed, the amounts vary annually based on the NPSBN contract.

[31] *Middle Class Tax Relief and Job Creation Act of 2012*, Pub. L. No. 112-96, § 6208(c).

[32] DOC OIG, January 30, 2020. *NTIA and FirstNet Should Improve Controls to Strengthen the Fee Collection Process*, OIG-20-015-A. Washington, DC: DOC OIG.

[33] *Ibid*, 3. FirstNet Authority collected fees in FY 2018 prior to NTIA's approval. Both parties subsequently developed joint procedures to avoid a repeat of this issue.

recommended that NTIA develop comprehensive procedures for reviewing and reconciling data, and coordinate with FirstNet Authority to develop procedures for transferring funds out of the suspense account.[34] We did not review FirstNet Authority reinvestments into the NPSBN because FirstNet Authority had not yet made any at the time of our audit.

FirstNet Authority issued a Roadmap[35] in August 2019 to guide investments, and plans to update the document by the end of October 2020. The Roadmap describes public safety needs and FirstNet Authority's priority areas for the next 5 years. FirstNet Authority 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. In addition, FirstNet Authority will need to follow procurement laws and regulations while contracting for future upgrades to the NPSBN. On June 17, 2020, FirstNet Authority issued two NPSBN contract task orders (task orders 6 and 7 as previously noted) pertaining to investments in the NPSBN.

Maintaining effective engagement with public safety community

Working with its contractor and other supporting agencies, FirstNet Authority must effectively engage with the public safety community to understand user needs, determine how new technology can best serve those needs, and enhance and upgrade the network accordingly. To ensure public safety interests are represented in the NPSBN buildout and subsequent system upgrades, FirstNet Authority implemented the Public Safety Advocacy (PSA) team with subject matter experts dispersed in four regions.

In a January 2020 report,[36] GAO reported that numerous public safety officials interviewed were dissatisfied with the level or quality of information received from FirstNet Authority, noting that FirstNet Authority had communicated little to no information on the NPSBN contractor's progress or FirstNet Authority's oversight. Further, even public safety officials pleased with their experiences reported that having more information was important to them. FirstNet Authority responded to the report by stating that the PSA team was created to promote engagement and transparency with the public safety community. FirstNet Authority stated, "PSA is currently working with the FirstNet Authority's Network Management and Operations and Communications Divisions to develop additional information that can be shared with public safety stakeholders regarding contract oversight and status on state commitments."

FirstNet Authority cites the number of engagements with public safety, connections to the network, and public safety subscribers as indicators of performance. Specifically, in September 2020 FirstNet Authority reported that between October 2019 and the end of July 2020, it held

[34] *Ibid*, 4. We also found that FirstNet Authority did not have approved interagency agreements for NIST financial services for significant periods in FYs 2018 and 2019. We recommended that FirstNet Authority coordinate with NIST and other appropriate parties to develop controls to ensure FirstNet Authority and NIST comply with the Department's *Agreements Handbook*.

[35] FirstNet. *About the Roadmap: First Responder Network Authority*, [online]. https://www.firstnet.gov/network/roadmap (accessed August 12, 2020).

[36] GAO-20-346.

978 engagements and reached 21,000 individuals. At its August 2020 board meeting, FirstNet Authority also reported 1.5 million device connections and 13,000 public agency subscribers—an increase from what we reported in our FY 2020 top management challenges report (750,000 device connections and 9,000 public safety subscribers).[37]

Although FirstNet Authority has noted increased subscribers and reported numerous outreach engagements, recent events will affect public safety needs and FirstNet Authority's ability to assess those needs. Responding to the COVID-19 pandemic, first responders and other public safety entities—often in remote areas—were called into service and have been in demand, demonstrating the importance of strong, resilient, and secure first responder communications. FirstNet reported that, while stay-at-home orders and reduced travel in response to COVID-19 altered the means (that is, precluded in-person conferences) by which FirstNet Authority could engage with shareholders, PSA delivered nearly 450 virtual engagements from mid-March through July 2020.

In April 2020, FirstNet Authority management told us that, although the NPSBN contractor was ahead of schedule in its implementation of the network, both natural and man-made issues can lead to schedule delays. We believe FirstNet will benefit from improvements in transparency and feedback from stakeholders.

FirstNet Authority needs to ensure its public safety engagement continues to evolve in order to reflect a change in environment. Effective PSA engagement will be essential to gauge user satisfaction and make appropriate reinvestment decisions to upgrade the NPSBN. In the future, we plan to assess the adequacy of FirstNet Authority's engagement with public safety entities to ensure the NPSBN meets public safety user needs.

Progress made/challenges remaining since the FY 2020 TMC

At its August 2020 board meeting, FirstNet Authority reported that (1) the NPSBN was being used by 13,000 public safety agencies, via 1.5 million device connections; (2) the NPSBN maintained an inventory of 72 dedicated deployable network assets; (3) more than 100 unique applications had been approved for listing in the application catalog; and (4) the NPSBN contractor made significant progress in the deployment of Band 14 coverage.[38]

In September 2020, FirstNet Authority reported to our office that between October 2019 and the end of July 2020, FirstNet Authority continued extensive engagement with public safety agencies and users across the country through 978 engagements reaching 21,000 stakeholders.

[37] OIG-20-001, 12.

[38] Band 14 refers to frequencies (758.00 to 768.00 MHz and 788.00 to 798.00 MHz) used to ensure "the development, deployment, and operation of the NPSBN." The FCC issued a single, nationwide license to FirstNet Authority to utilize these ranges of frequencies. 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, 2.

Further, FirstNet Authority reported to us that the NPSBN contractor met both the 60 percent rural and 60 percent non-rural coverage milestones.

FirstNet Authority has been responsive to concerns raised in our January 2020 audit report.[39] Specifically, FirstNet Authority provided an action plan responsive to our recommendations on fee processes and memorandums of agreement.

FirstNet Authority has also been responsive to the challenges described in the FY 2020 *Top Management and Performance Challenges* report; however, challenges continue due to the extended contract period and the addition of new task orders.

[39] OIG-20-015-A.

Challenge 4: Strengthening Confidence in Intellectual Property Rights

The role of the United States Patent and Trademark Office (USPTO) in protecting America's intellectual property (IP) remains critical to American competitiveness and economic success around the world. While USPTO works to maintain and advance a reliable, predictable, and high-quality IP system, it must foster public confidence in order to promote innovation and economic growth.

OIG's FY 2021 top management and performance challenges include these priority areas related to USPTO:

- Managing IP rights in a changing environment
- Managing impacts related to COVID-19
- Ensuring new technology delivers quality IP
- Improving management of IT operations

Managing IP rights in a changing environment

USPTO faces numerous challenges to navigate a changing environment in which both its business needs and the IP environment constantly evolve. While the Patent Trial and Appeal Board (PTAB)[40] has seen an overall decrease in the pendency of decided appeals, from an average of 14.8 months in the second quarter of FY 2019 to 14.0 months in the third quarter of FY 2020, we are concerned that the newly instituted Fast-Track Appeals Pilot Program—which allows appellants to pay for expedited review of their ex parte appeal within 6 months—may place additional pressure on PTAB operations and the processing time for nonexpedited appeals.

PTAB's operational challenges are compounded by significant changes to the legal landscape. In October 2019, the U.S. Court of Appeals for the Federal Circuit held that the way in which PTAB Administrative Patent Judges (APJs) were appointed was unconstitutional. Specifically, it found that APJs were principal officers of the United States, and because they were not appointed by the President and confirmed by the Senate, their appointments were unconstitutional.[41] To remedy the violation, the U.S. Court of Appeals for the Federal Circuit severed the application of the Patent Act's removal protections to APJs, thus making APJs inferior officers who can be constitutionally appointed by the Secretary of Commerce in consultation with the director of USPTO.[42]

[40] PTAB is a business unit within USPTO that decides appeals from the decisions of patent examiners and adjudicates the patentability of issued patents challenged by third parties in post-grant proceedings.

[41] *Arthrex, Inc. v. Smith & Nephew, Inc.,* 941 F.3d 1320, 1335 (Fed Cir. 2019).

[42] *Id.* at 1338.

If the Supreme Court of the United States upholds the U.S. Court of Appeals for the Federal Circuit's decision,[43] USPTO may need to manage decreased morale of current APJs as well as difficulties with APJ recruitment and retention in the future. Another area of concern includes long-term impacts of this ruling on PTAB—specifically, implications to APJ staffing and workload.

Managing impacts related to COVID-19

USPTO is navigating unprecedented challenges due to the COVID-19 pandemic and must balance providing relief to filers while preparing for an economic downturn. The pandemic has created financial difficulties for USPTO as it provides assistance to its stakeholders. As part of its response effort, USPTO waived several fees under its existing authority for some impacted customers. USPTO has also extended certain patent- and trademark-related filing and fee deadlines pursuant to authority granted under the Coronavirus Aid, Relief, and Economic Security Act (CARES Act).[44] Specifically, USPTO granted patent-related fee extensions to small and micro entities through the end of FY 2020, with other extensions of time and relief available to those who need it on a case-by-case basis.

While these actions provide needed assistance to stakeholders, reductions and delays in revenue due to these measures—compounded by reduced filings—may disrupt USPTO's operations long-term. USPTO projected that relief offered to filers will result in sustained revenue reductions, with exact losses difficult to predict given the uncertainty of the disruption. However, as of May 2020, USPTO estimated that the Trademark Office would incur a revenue reduction of up to $2.4 million per week. On the patent side, relief would result in a revenue reduction of up to $19.5 million per week. While USPTO later reported that actual deferred revenue from March 2020 to August 2020 totaled $6 million for patents, there is still uncertainty about the financial effect of potential declines in filings.

These projected declines in patent and trademark filings as a result of the economic downturn threaten USPTO's ability to maintain adequate funding levels in its operating reserve. A sustained economic downturn could force USPTO to draw down its patent operating reserve below its threshold minimum of $300 million. Additionally, in September 2020, USPTO projected that due to the pandemic, it would collect approximately $352 million in trademark revenue through FY 2020—a decline of 5 percent below its planned level of $369 million. As a result, USPTO has drawn from its $95 million trademark operating reserve, engaged in cost-cutting measures in IT spending, and delayed planned hiring. Because USPTO's fee reserves are dependent upon fee collection, the agency could rapidly deplete available reserve funds should economic conditions remain unchanged. As the pandemic and its effects on the global economy continue, USPTO will continue to face challenges to its ability to fund its operations while providing adequate levels of service to stakeholders.

[43] In June 2020, Arthrex, Inc. asked the Supreme Court of the United States to overturn the decision in a petition for a writ of certiorari. The Supreme Court granted the petition on October 13, 2020, and it will hear arguments in this case.

[44] Pub. L. No. 116-136, 134 Stat. 281, 517.

Ensuring new technology delivers quality IP

USPTO's experimentation with artificial intelligence (AI) technology presents a major challenge for the agency to reap new technology benefits and recoup its investment. USPTO is exploring the use of AI to improve the patent examination process, including prior art search expansion and refinement, assistance with patent classification tools, and locating similar images. However, an AI pilot program to assist with application examination and analysis had disappointing results, with examiners expressing dissatisfaction with the technological complexity and suboptimal performance of the tools. In light of these results and early AI experimentation, USPTO is taking on an investment risk and may spend up to $50 million on a recently awarded contract to improve IP registration using AI and machine learning technology. Additionally, USPTO may potentially face recurring expenses to update and improve AI tool reliability.

USPTO will also face challenges operationalizing AI technologies. As it incorporates AI into its examination process, USPTO must adjust to the nature of an AI system, which is trained as opposed to pre-programmed, so the outcome may not be entirely predictable. Thus, it will need to ensure that all AI-generated results can be deciphered and all decisions are explainable. USPTO may need to provide additional training to examiners on how to optimize their searches; examiners' search results will be only as good as an examiner query, which is subject to human error. Further, USPTO must ensure the reliability of data inputs, as the quality of of AI outputs requires quality in underlying data sets. AI has the potential to bring substantial benefits; however, USPTO will need to resolve challenges and leverage this technology to improve the examination and quality of patents.

Improving management of IT operations

The quality, efficiency, and productivity of today's patent and trademark operations largely depend on the performance of USPTO's IT systems. Aging infrastructure, tightly coupled systems, and unsupported software impact USPTO's ability to deliver mission-critical services. Since 2006, USPTO patent and trademark applications have increased by more than 50 percent—with approximately one million submissions annually. USPTO must stabilize and modernize its infrastructure and legacy systems while ensuring minimal disruption. Without critical updates to its IT infrastructure, USPTO risks another systems failure similar to the 9-day outage of the Patent Application Locating and Monitoring (PALM) system that occurred in August 2018.[45] Prior to the outage, the agency began efforts to stabilize and modernize several major IT systems while mitigating the overall impact on stakeholders. However, USPTO's IT modernization efforts to replace and retire at-risk mission-critical systems have not progressed as quickly as planned.

USPTO's multi-year effort to modernize its IT infrastructure includes stabilizing 26 critical systems identified as having a high risk of failure; this represents approximately one-third of 75 currently active legacy systems. USPTO stated it has rolled out 24 teams as of September 2020 to carry out its IT transformation efforts. However, USPTO faces challenges in implementing change, as the agency's IT acquisition practices are ineffective in shaping and defining future

[45] For further discussion of PALM, please see challenge 5 in this report under "Sustaining modernization priority of the Department's legacy systems to strengthen IT security posture."

phases and timelines. USPTO leadership and product teams must resolve a number of key challenges, such as ineffective IT planning, standardizing data inputs, ensuring interoperability and functionality with respect to the infrastructure, adapting a clear acquisition strategy, and adhering to established timelines to complete modernization efforts.

USPTO's ambitious IT transformation plan requires resource investment. The costs of implementing these initiatives against current resource availability will pose a challenge. As modernization efforts progress, USPTO's technical debt will increase. Currently, USPTO operates and supports more than 62 systems past the current support plan at a cost of approximately $38.9 million a year. It is critical for USPTO to execute a well-thought-out and systematic change management process to improve the management of its IT systems and operations while ensuring that internal and external customers receive exceptional business value from IT investments.

Progress made/challenges remaining since the FY 2020 TMC

USPTO made some progress on OIG's FY 2020 top management and performance challenges. However, despite these improvements, the agency continues to face challenges in these critical areas.

USPTO has met patent pendency goals

USPTO achieved its FY 2019 agency goal of less than 15 months for first action pendency in September 2019. However, first action pendency since then has again risen, reaching 15.9 months in June 2020. While this pendency level meets the current target, we note that USPTO set a less ambitious goal of 16.2 months for FY 2020.

USPTO has taken steps to address improper foreign trademark filings

Following rule changes and additional examination guidance, there was a decrease in the number of trademark applications from China—the source of a large number of problematic applications—as well as in the number of refusals issued by examiners for fake or altered specimens. Challenges remain as some applicants have attempted to circumvent the rule requiring foreign applicants to be represented by an attorney in the United States by listing fictitious attorneys or attorneys that do not in fact represent the applicant on the application.

USPTO has refocused efforts towards improving trademark IT systems

USPTO has made progress including applying system modifications to support regulatory changes, modernizing the Trademark Next Generation (TMNG)-Examination tool, and convening a team to resolve outstanding TMNG development issues. However, as a result of COVID-19 cost-saving measures in place as of June 2020, USPTO faces a challenge to continue its progress despite reducing its trademark IT spending by $33.7 million and delaying upgrades to its trademark IT legacy systems until FY 2021 at the earliest.

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

Ensuring the security of our interconnected global networks, and the devices and data connected to those networks, is often considered one of the defining IT challenges of our era. While the U.S. Department of Commerce (the Department) has been tasked with enhancing cybersecurity awareness and protections, protecting privacy, maintaining public safety, supporting economic and national security, and empowering Americans to better manage their safety online, it continues to face significant challenges to improving its own enterprise cybersecurity posture.

OIG's FY 2021 top management and performance challenges include these priority areas related to cybersecurity:

- Implementing strong security measures to safeguard decennial census data
- Sustaining modernization priority of the Department's legacy systems to strengthen IT security posture
- Securing FirstNet to protect public safety
- Consistently implementing the Department's enterprise IT security policies and procedures

Implementing strong security measures to safeguard decennial census data

The Department must continue to devote significant attention to the Census Bureau and its IT security to ensure the confidentiality and integrity of sensitive data collected during the 2020 Census. The far-reaching consequences of altered, lost, or stolen respondent data emphasize the necessity to safeguard the Bureau's IT systems. Last year, we reported that the Bureau's cloud-based IT systems supporting the 2020 Census contained fundamental security deficiencies that violated federal standards and Department policies. Many of these deficiencies indicated that the Bureau was behind schedule and rushed to deploy its cloud systems. However, all recommendations made in our audit report remain unimplemented.

Further, the Bureau has struggled to implement and assess the security controls needed to protect its systems effectively. Our ongoing audit has found that the Bureau had not implemented long-standing security requirements for federal information systems. Our assessments of Bureau systems identified significant security weaknesses and widespread, inadequate management of cybersecurity risk. These security deficiencies undermine the Bureau's ability to safeguard data collected during the decennial census.

In addition to ensuring the security of its systems and data, the Bureau should examine its current challenges and process lessons learned to enable a more secure data collection operation for the next census in 2030.

Sustaining modernization priority of the Department's legacy systems to strengthen IT security posture

The Department continues to face the challenges associated with maintaining its legacy systems and ensuring that it can handle the increasingly complex tasks required for its mission in the 21st century. The Department and its bureaus use legacy systems to support primary mission and business functions. In some instances, these systems date as far back as the 1970s. Continuous reliance on legacy systems presents major security concerns. For example, many legacy systems do not support fundamental security capabilities such as strong encryption or are no longer supported by vendors (that is, updates and patches are no longer created), significantly increasing their vulnerability.

Our audit[46] of USPTO's PALM system found that USPTO was left significantly limited in its ability to carry out its mission during the 9-day outage in August 2018 because it was not able to restore the system in a timely manner. PALM is a critical legacy system that tracks every step of the patent process. The cause of this outage and prolonged recovery was attributable, in part, to the limitations of the legacy systems that USPTO relies on to execute its mission. While USPTO is working on modernizing legacy systems, we are concerned that it took a major system outage and prolonged recovery for USPTO to start addressing this important issue.

Continuing focus by Department leadership is critical to addressing these broad and long-term risks associated with legacy systems to ensure they effectively deliver the services to the many stakeholders who depend on Department programs.

Securing FirstNet to protect public safety

FirstNet is a nationwide wireless broadband network for first responders being built and deployed through a first-of-its-kind arrangement between the federal government and AT&T. FirstNet will offer public safety workers a communications network built and customized to meet their needs across the United States and its territories.

FirstNet consists of two primary parts: the *core network* and the *radio network*. The core network provides infrastructure to interconnect the radio network. The radio network allows subscribers to connect their wireless devices to the network throughout the nation. While AT&T has primary responsibility to build, operate, and maintain the network, the radio network also incorporates smaller partner providers.

Cybersecurity is of the utmost importance to FirstNet because public safety agencies are often a target. However, oversight of FirstNet continues to be a challenge for the Department. In a recent memorandum to FirstNet Authority management, we noted that FirstNet Authority's 2019 security scorecard had an increased number of ratings below "meets or exceeds compliance requirement." As a result, the FirstNet Authority established a more formal

[46] DOC OIG, June 16, 2020. *Deficiencies in USPTO's Backup and Restoration Process Could Delay Recovery of Critical Applications in the Event of a System Failure and Adversely Affect Its Mission*, OIG-20-030-A. Washington, DC: DOC OIG.

process with AT&T for security oversight via a contract modification in May 2020. The new process requires time for implementation, so our office could not determine if it will ease the challenges of FirstNet security oversight. The Department must provide adequate oversight to ensure the safety, security, and resiliency of the network through effective cybersecurity.

Consistently implementing the Department's enterprise IT security policies and procedures

Our office conducts an annual independent assessment of the Department's information security program. Since FY 2017, the assessment has used a maturity model to determine the program's effectiveness. OIGs across the federal government use the same model so that results are comparable.

During the last 2 years, our annual assessments have revealed that the Department had not consistently implemented its IT security policies and procedures. The Department's FY 2019 maturity was "Level 2: Defined" which was lower than the federal average of "Level 3: Consistently Implemented." Table 1 provides a description of the five potential maturity levels.

Table 1. Description of the Five Potential Maturity Levels

Maturity Level	Maturity Level Description
Level 1: Ad-hoc	Policies, procedures, and strategies are not formalized; activities are performed in an ad-hoc, reactive manner.
Level 2: Defined	Policies, procedures, and strategies are formalized and documented, but not consistently implemented.
Level 3: Consistently Implemented	Policies, procedures, and strategies are consistently implemented, but quantitative and qualitative effectiveness measures are lacking.
Level 4: Managed and Measurable	Quantitative and qualitative measures on the effectiveness of policies, procedures, and strategies are collected across the organization and used to assess them and make necessary changes.
Level 5: Optimized	Policies, procedures, and strategies are fully institutionalized, repeatable, self-generating, consistently implemented, and regularly updated based on a changing threat and technology landscape and business/mission needs.

Source: OIG FY 2020 Federal Information Security Modernization Act reporting metrics

While the Department continues to make improvements to security, the overall maturity of the program has not progressed since 2017. Until the Department and each of its bureaus consistently implement the defined IT security policies and procedures, the Department's information security program will not be fully effective. The effects can be seen throughout our recent audit reports. For example:

- Our audit *Failures in the Department's Security Program Resulted in Exposure of Sensitive Trade Information to Unvetted Foreign Nationals*[47] found that the Department failed to

[47] DOC OIG, February 11, 2020. *Failures in the Department's Security Program Resulted in Exposure of Sensitive Trade Information to Unvetted Foreign Nationals*, OIG-20-018-A. Washington, DC: DOC OIG.

account for sensitive data on its Enterprise Web Solutions system, which contributed to mishandling of a security incident.

- Our audit *The Census Bureau Must Correct Fundamental Cloud Security Deficiencies in Order to Better Safeguard the 2020 Decennial Census*[48] found that the Bureau did not effectively implement a process to manage security settings on a critical system, leading to an inability to account for access to the most important user account.
- Our audit *Inadequate Management of Active Directory Puts USPTO's Mission at Significant Cyber Risk*[49] found numerous security control implementation issues, leading to heightened risk to critical systems.

Progress made/challenges remaining since the FY 2020 TMC

During FY 2020, the Department and its bureaus made progress to strengthen their collective cybersecurity posture, including replacing legacy system hardware and expanding redundancy of critical data. In addition, the Department issued the *Information Technology Security Baseline Policy (ITSBP)* in June 2019. The *ITSBP* formally defined a comprehensive Department-wide IT security program that Department operating units were required to implement by December 2019. However, the Department continues to face challenges that we identified in our FY 2020 top management and performance challenges report. For example, the Department is still working with NOAA and the Bureau of Industry and Security (BIS) to implement the Department's enterprise continuous monitoring capability on its high-impact systems, and the Census Bureau has made little progress in implementing our recommendations for securing Bureau cloud IT infrastructures.

[48] 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.

[49] 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.

Challenge 6: Refining Processes for Trade Remedies Against Imports That Threaten to Impair National Security

As one of the federal government's leading trade enforcement and promotion agencies, the Department faces a challenge of helping U.S. companies be more competitive abroad while protecting U.S. national security interests. The Department's responsibilities in these areas primarily reside with two bureaus:

(1) the International Trade Administration (ITA), which enforces U.S. trade laws and agreements and assists U.S. exporters with selling 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 current Administration prioritizing activities to promote fair and secure trade, the Department must continue to adjust its resources and capabilities to that end.

OIG's FY 2021 top management and performance challenge in the area of international trade is to evaluate and improve processes for adjudicating Section 232 exclusion requests.

Evaluating and improving processes for adjudicating Section 232 exclusion requests

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 recommendations by the Secretary of Commerce following investigations on the national security impact.[50] In February 2018, the Secretary published the results of two investigations performed in 2017—one each for steel and aluminum imports—that resulted in the president imposing tariffs of 25 percent and 10 percent on steel and aluminum imports, respectively, for most countries the following month.

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 directly affected U.S. parties based on national security grounds or lack of U.S. availability. This process to exclude U.S. consumers of steel and aluminum products from paying these tariffs is led by BIS with assistance provided by ITA. As of August 31, 2020, BIS reported having received more than 236,000 requests for exclusions and rendered decisions on more than 167,000.[51]

The current Administration continues to exercise its authority under Section 232 as evidenced by ongoing investigations (as of September 21, 2020) on grain-oriented electrical steel, mobile cranes, and vanadium, a metal used in the production of metal alloys. Should these investigations result in the imposition of tariffs on such products, and if the resultant tariffs

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

[51] DOC Bureau of Industry and Security. *232 Submission Processing Statistics, August 31, 2020.* Washington, DC: DOC BIS. Of the more than 236,000 exclusion requests submitted, nearly 40,000 were either rejected by BIS or withdrawn by the requester – meaning no decisions were required or rendered for those requests.

include a product-specific exclusion provision, ITA and BIS would require additional personnel to process new exclusion requests. ITA and BIS would also need to address current exclusion requests on steel and aluminum (which stood at more than 29,000 as of August 31, 2020) to ensure they are processed timely so as not to adversely impact requesters with any delays. Also, depending on the criteria for granting exclusions, ITA would need to provide its personnel with an understanding of these new products through trainings and other assistance in order to process these new requests while BIS possibly makes changes to the current review process to ensure exclusion requests are processed in a more objective and transparent manner. On May 26, 2020, BIS issued a notice of inquiry in the *Federal Register* seeking public comment on ways to improve the Section 232 exclusion process.[52] If the inquiry subsequently results in the implementation of new rules after completing the federal rulemaking process, BIS should be able to adjudicate exclusion requests from tariffs on current and future products in a more objective and timely manner.

Progress made/challenges remaining since the FY 2020 TMC

In last year's top management and performance challenges report, we highlighted as a priority area "refining existing processes for adjudicating Section 232 exclusion requests to ensure requests for existing and future products are processed objectively and timely."[53] In FY 2020, we continued our 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 plan to issue a final report on our audit findings in late 2020.

On October 28, 2019, we issued a management alert to BIS regarding a lack of transparency that contributes to the appearance of improper influence in decision-making on Section 232 exclusion requests. Specifically, we noted that Department officials and interested parties discussed information about pending exclusion requests that was not included in the official record. In response to this alert, BIS management instituted a new policy governing communications with interested parties associated with Section 232 exclusion requests in an effort to enhance the transparency of its decisions.

[52] Notice of Inquiry Regarding the Exclusion Process for Section 232 Steel and Aluminum Import Tariffs and Quotas, 85 Fed. Reg. 31441 (May 26, 2020).

[53] OIG-20-001, 23.

Challenge 7: Improving Management and Oversight of Contracts and Grants

The Department continues to face challenges of ensuring prudent spending and safeguarding programs from waste and abuse. In FY 2019, the Department obligated approximately $5.6 billion for contractual goods and services related to national environmental satellite service, management of coastal and ocean resources, procurement, acquisition, and construction management, as well as $2.2 billion in grants and other financial assistance awards.

In response to the health and economic threats caused by the COVID-19 pandemic, Congress enacted the CARES Act.[54] The CARES Act was intended to provide stimulus funding to mitigate the economic distress of COVID-19 on people, companies, and communities across America's workforce. The CARES Act appropriated more than $1.9 billion for the Department to aid the multiple programs affected by the disease. Additionally, the CARES Act established the Pandemic Response Accountability Committee within the Council of the Inspectors General on Integrity and Efficiency to promote transparency and support and conduct oversight of the related funds that were provided.

Although Department and bureau operations have been altered with employees using maximum telework flexibilities during the COVID-19 pandemic, the Department still faces the ongoing challenge of ensuring that the government receives fair value for its procurements and acquires the products and services for which it contracted. Throughout this year, our office has provided recommendations on areas where Departmental agencies can better manage and oversee contract actions to improve their program performance to achieve funds put to better use, and help mitigate waste and abuse.

OIG's FY 2021 top management and performance challenges for the Department include these priority areas related to acquisitions:

- Ensuring effective oversight and monitoring of the Department's management of emergency and disaster relief funds
- Managing contract and program performance
- Developing and retaining a competent acquisition workforce to support the Department's mission

Ensuring effective oversight and monitoring of the Department's management of emergency and disaster relief funds

In addition to the traditional challenges the Department faces each year in managing grant funds, the Department has received additional grant funds from the Bipartisan Budget Act of 2018[55] (Bipartisan Act) and the Additional Supplemental Appropriations for Disaster Relief Act,

[54] Pub. L. No. 116-136 (Mar. 27, 2020).

[55] Pub. L. No. 115-123 (Feb. 9, 2018).

2019,[56] which collectively provided approximately $1.9 billion in disaster relief funds to the U.S. Economic Development Administration (EDA) and NOAA.[57] The CARES Act also provided more than $1.9 billion to support the Department's response to the COVID-19 pandemic to EDA, NOAA, the National Institute of Standards and Technology (NIST), and the Minority Business Development Administration. Therefore, to support the Department and its bureaus in meeting their mission while promoting effective stewardship of significant taxpayer dollars, we provided a report[58] and an alert memo[59] on key risk areas for the Department's consideration in bolstering its oversight of Bipartisan Act and CARES Act grantees and contractors.

EDA received the bulk of the disaster relief and CARES Act funds—$1.2 billion and $1.5 billion, respectively. The significant increase in funding and the need to ensure that these funds are distributed in a prompt, fair manner and for authorized purposes will place increased demands on EDA's workforce, oversight processes, business practices, and financial management systems. We have previously reported[60] that (1) EDA had not developed and implemented a comprehensive workforce plan to meet current and future staffing needs and (2) EDA's recruitment efforts were significantly behind established milestones set to ensure adequate staffing to handle the increased workload. EDA needs to ensure that it has the ability to provide oversight with limited time and staff.

NOAA Fisheries received $350 million in disaster relief and $300 million in CARES Act funds for fishery disaster assistance. Our grant audit work on NOAA Fisheries' awardees has consistently found related issues for funds disbursed to address environmental concerns, including man-made disasters. Although the Department is taking steps to improve its administration and oversight of contracts and grants, the reported deficiencies in these areas present significant fraud and mismanagement risks. We have noted that Department components need to be more attentive in complying and ensuring compliance with the Federal Acquisition Regulation and grant policy. Prior audits conducted by our office have identified issues such as inadequate controls and an ineffective process for detecting and following up on

[56] Pub. L. No. 116-20 (Jun. 6, 2019).

[57] Both the Bipartisan Budget Act of 2018 and the Additional Supplemental Appropriations for Disaster Relief Act, 2019, were enacted to provide disaster relief funds in the wake of separate weather-related disaster events, including severe weather, hurricanes, flooding, and wildfires. These acts provided disaster relief funds to EDA for recipients' expenses related to flood mitigation, disaster relief, long-term recovery, and restoration of infrastructure, and to NOAA to mitigate the effects of commercial fishery failures and fishery resource disasters declared by the Secretary of Commerce in calendar year 2017, as well those declared by the Secretary to be a direct result of Hurricanes Harvey, Irma, Maria, Florence, and/or Michael as well as Typhoons Yutu and Mangkhut. *See* Pub. L. No. 115-123, 132 Stat. 69-71 (Feb. 9, 2018); Pub. L. No. 116-20, 133 Stat. 875-877 (Jun. 6, 2019).

[58] DOC OIG, June 4, 2018. *Bipartisan Budget Act of 2018: Oversight Challenges Facing the Economic Development Administration*, OIG-18-022. Washington, DC: DOC OIG.

[59] DOC OIG, June 18, 2020. *Management Alert: Top Oversight Challenges Facing the Department of Commerce to Ensuring That Pandemic Funds Are Timely and Appropriately Spent*, OIG-20-031-M. Washington, DC: DOC OIG.

[60] DOC OIG, January 27, 2020. *EDA Should Develop a Workforce Plan and Improve its Hiring Accountability to Successfully Award and Administer the Disaster Supplemental Funds Appropriated by the Bipartisan Budget Act of 2018,* OIG-20-014-A. Washington, DC: DOC OIG.

deficiencies; instances where claimed costs were either unallowable, not allocable, or unsupported; and inadequate award and oversight practices.

Because the emergency and disaster relief environment can create incentives and opportunities for grant recipients to deviate from standard practices meant to ensure effective control of U.S.-funded contracts, grants, and awards, we conducted outreach to NOAA and EDA prior to each bureau awarding funds under the CARES Act to remind them of their role in deterring, detecting, and disclosing wrongdoing and mismanagement. We also tailored our outreach material to include risks, red flags, and fraud schemes associated with CARES Act spending. Bureaus should tailor their efforts to adapt to the increased funding associated with emergency relief funds; target outreach efforts at deterring fraud schemes; ensure that state and local grantees understand how to detect, deter, and report suspicious activities or fraud to the appropriate authorities; and have sufficient staffing and system resources to manage the extraordinary increases in the number of grants and contracts.

As we emphasized in our prior work, emergency funding inherently poses a high risk for fraud and mismanagement, so the Department needs to maintain focus on these risk areas early on. By putting in place key internal controls, the Department can promote efficiencies; help ensure compliance; and better prevent fraud, waste, and abuse.

Managing contract and program performance

The Department continues to face challenges in properly overseeing program and contractor performance. Programs that rely heavily on vendor-provided services need to be managed and monitored to ensure that the programs are cost effective and operating efficiently. Oversight personnel must monitor and document contractor performance, confirm that work has been conducted in accordance with the terms of a contract, hold contractors accountable for nonperformance, and ensure that costs are effectively contained. Our prior work found several examples of deficiencies in the performance of these duties.[61] Moreover, we often find that these issues overlap with another Department challenge: workforce management. Insufficient, inexperienced, and untrained oversight personnel as well as complex programs and contracts that simply require more oversight are often at the root of contract oversight deficiencies.

Addressing human resources and program management support

Since 2015, Enterprise Services (ES) has operated as a shared services model for providing multi-function services across the Department's IT support, acquisition, human resources, and financial management functions. In August 2016, ES obligated $62 million for contracted services for human resources and program management support to include end-to-end

[61] *See* (1) DOC OIG, August 2, 2018. *The Joint Polar Satellite System: Program Must Use Realistic Schedules to Avoid Recurrence of Ground Project Delays and Additional Cost Increases,* OIG-18-024-A. Washington, DC: DOC OIG;
(2) 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; and
(3) OIG-19-019-A.

processing of new hiring actions and payroll and benefits processing for a majority of the Department. ES has experienced challenges overseeing these contracted activities.

Recently, we received hotline complaints filed by Department employees regarding untimely processing of pay, personnel action requests, and benefits. The delayed processing of employees' compensation stemmed from improperly trained vendor staff and ES' and the vendor's inability to adequately track human resources processes through their ticketing system. The Department needs to improve its process controls and effectively monitor contractor performance.

Addressing the NOAA aircraft and ship fleet recapitalization plans

NOAA's aircraft and ships play critical roles in collecting oceanographic, atmospheric, hydrographic, and fisheries data in support of NOAA's missions. For example, NOAA ships and aircraft provide emergency response capabilities by conducting navigation hazard surveys and obtaining aerial images of disaster-torn areas. These surveys and images provide critical information for first responders, disaster response, and residents, and are often the only source of such data.

Half of NOAA's 16 ships are more than 30 years old and will exceed their service lives by 2028. Likewise, at least four of NOAA's aircraft have been in service for more than 35 years. Unscheduled maintenance costs are increasing significantly as the reliability of these ships and aircraft declines with age. NOAA has begun efforts to replace 8 ships and 2 of its 9 aircraft. NOAA has an interagency agreement—valued at $1.5 billion—with the U.S. Navy to acquire up to 8 vessels and is currently in the design phase for 2 multi-purpose oceanographic vessels. In 2018, Congress appropriated funds for NOAA to procure 2 new aircraft systems: a Gulfstream 550 ($121 million) and a King Air 350 ($12 million).

The substantial cost and complexity of these assets provide significant opportunities for mismanagement and waste. Unnecessary costs in this area could result in avoidable diversions of funding from other Departmental programs or reductions in ship and aircraft capabilities. Our work in this area has found acquisition schedule delays in the construction of new NOAA ships as well as increased costs, ineffective governance in acquisition planning, and inadequate oversight of fleet recapitalization funds.[62] Our insight thus far into NOAA's aircraft recapitalization program indicates that significant acquisition and development challenges have led to additional contingency planning. NOAA needs to take or continue to take steps to improve the planning and oversight of its ship and aircraft recapitalization efforts to ensure they do not exceed the costs and schedules identified in its modernization plan.

Deploying the Business Applications Solutions (BAS) program

The Secretary of Commerce identified BAS as one of the Department's top priorities. The BAS program is a modernization initiative to deploy an integrated suite of financial and business management applications in support of the Department's mission. BAS will include dedicated

[62] DOC OIG, November 12, 2019. *NOAA's Office of Marine and Aviation Operations Needs to Improve the Planning and Governing of Its Ship Fleet Recapitalization Effort*, OIG-20-006-A. Washington, DC: DOC OIG.

applications for core financial management, acquisition management, property management, enterprise data warehouse and business intelligence reporting, data archiving solutions, and related administrative system interface services in a hosted environment.

On April 24, 2020, the Department awarded a $340 million contract to provide software solutions, project management, integration and long-term operations, maintenance, and hosting/support services.[63] The BAS program has a three-phase implementation approach, with the last phase expected to be implemented by October 2024. The program involves unique challenges consolidating functions currently supported by disparate legacy systems into a single system that will utilize commercial off-the-shelf software in a cloud environment. This software-as-a-service implementation will also require significant business process re-engineering and organizational change management efforts. Based on our prior work, the Department needs to closely monitor contract costs, schedule, and performance in order to mitigate the risks and challenges to the program's ability to successfully deliver the intended capabilities.

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

The Department's ability to hire and retain experienced acquisition staff is an ongoing challenge. The services provided require well-qualified acquisition personnel to award and administer progressively more complex acquisitions and successfully set a priority of workload distribution that aligns with the Department's strategic goals. 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 2019, the Department saw a 1.3 percent decrease (from 311 to 307) in the number of acquisition professionals in the GS-1102 series. In addition, the attrition rate increased by approximately 6 percent (from 50 to 53).

During FY 2019, the Department has continued to address this issue of managing and strengthening its acquisition workforce. Working with the Office of Human Resources Management, the Department has made progress in its recruitment efforts to maximize incentives and devise strategies to recruit and retain entry- and mid-level acquisition personnel. The Department enhanced its recruitment and retention efforts related to (1) building a pool of mid-level professionals, (2) attending college and job fairs, (3) using Pathways Programs, and (4) using special hiring authorities. These efforts have been aimed at attracting and retaining highly qualified employees to meet hiring projections for a staff of 337 acquisition professionals. Although its aggressive recruitment effort resulted in filling 51 positions, the Department still fell short of its goal of 337 total staff due to attrition and retirements. In addition, the Department continues to face the following critical workforce challenges that we have noted in prior performance challenges reports:

- difficulty in attracting and retaining experienced acquisition professionals to work in locations outside the Washington, DC, metropolitan area

[63] Value cited is the potential contract value if all options are exercised and work performed. The contract includes a base year plus 4 option years for completion of the system development, and an additional 16 years of options for operations/maintenance and hosting services.

- timeliness of filling vacancies
- shortage of talent due to federal government pay and an incentives package that is not competitive with the private sector
- other factors including budget cuts, a legislative hiring cap, lack of relocation funding incentives, and limited career development and advancement opportunities

Progress made/challenges remaining since the FY 2020 TMC

The Department and its bureaus have made some progress on our previously reported FY 2020 top management and performance challenges,[64] as noted below:

- The Department is still working toward developing and maintaining a competent workforce to support its mission. The Department has been focused on increasing its recruitment efforts for the GS-1102 job series and working with OPM to receive direct-hiring authority to fill these positions on a timelier basis.
- EDA stated in one of its action plans that it is working with a consultant on a process designed to help the agency recruit, hire, and retain the right staff to effectively and efficiently support recovery and resilience in American regions and communities.[65] EDA is also working with the Department to execute Congressional direction to address deficient staffing levels and slow hiring rates across the Department. Additionally, EDA will develop specific accountability metrics that measure the actual progress of job opportunity announcements throughout the hiring process.

The agency, however, continues to face challenges in several areas that we had previously identified. In FY 2020, we reported the following:

- We found that schedule slippages have delayed ship construction and increased costs, NOAA's ship fleet acquisition planning was not effectively governed, and NOAA's Office of Marine and Aviation Operations (OMAO) did not provide adequate oversight of fleet recapitalization funds. According to Department officials, the Department, OMAO, and NOAA have taken active steps to resolve the issues noted and to hold both OMAO and the Department responsible for executing against OMAO's recapitalization requirements. These steps include developing the annual program cost, schedule, and performance baseline report tool for program management and accountability. NOAA's response in its action plan states that management plans will be developed for each class of vessel going forward as part of its overall acquisition management process to ensure appropriate program governance.[66] Also, OMAO has hired and has plans to hire additional personnel to ensure that compliance and oversight are enforced.
- We identified that NIST, NOAA, and Census Bureau contracts were not closed within required timeframes, contract files lacked evidence that closeout steps were completed,

[64] OIG-20-001, 29–33.

[65] The EDA action plan was provided to our office in response to the following report: OIG-20-014-A.

[66] The NOAA action plan was provided to our office in response to the following report: OIG-20-006-A.

and contract files were not properly retained. Additionally, NIST improperly paid a contractor and NIST's technical points of contact were not properly trained, certified, and appointed.[67] In FY 2019, we also reported that USPTO had similar contract issues.[68] Timeliness and accuracy in contract closeout continue to remain a challenge within the Department.

- We have continued to identify significant vulnerabilities in the management of contract and grant file documentation that could expose the Department to substantial financial losses.[69] The failure to adequately maintain contract and grant files creates significant financial risk and demonstrates a lack of internal control over the Department's contract and grant actions.
- Our audits and ongoing work continue to find that contracting officer's representatives and other contract administrators do not sufficiently document their training and appointments.[70]

[67] DOC OIG, June 2, 2020. *The Department Needs to Improve Oversight Practices to Close Out Contract Files by Complying with Federal Regulations and Departmental Requirements*, OIG-20-028-A. Washington, DC: DOC OIG.

[68] DOC OIG, July 10, 2019. *USPTO Could Improve Oversight Practices to Close Out Contract Files by Complying with Federal Regulations and Departmental Requirements,* OIG-19-018-A. Washington, DC: DOC OIG.

[69] See (1) OIG-20-028-A and (2) DOC OIG, August 12, 2019. *Audit of NOAA Financial Assistance Awards to the Gulf States Marine Fisheries Commission*, OIG-19-021-A. Washington, DC: DOC OIG.

[70] See (1) OIG-20-006-A and (2) OIG-20-028-A.

Appendix A: Related OIG Publications

This list presents OIG's FY 2020 work related to top management and performance challenges facing the Department in FY 2021. 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: Establishing a Solid Foundation for 2030 Decennial Research and Testing and Ensuring That the Census Bureau Adequately Vets Candidates for Employment

- *Management Alert: Critical 2020 Census Systems Failed to Meet Peak Recruiting Demands During Testing* (OIG-20-010-M; November 21, 2019)
- *IG Letter to NC Delegation re: the Census Bureau's Background Check and Hiring Process* (OGI-20-012-M; December 10, 2019)
- *2020 Census: Some Decennial Census Data Quality Assurance Methods Were Not Tested or Did Not Work as Intended During the 2018 End-to-End Census Test* (OIG-20-016-A; January 30, 2020)
- *2020 Census: The Census Bureau's Oversight of Contractor Performance During the 2018 End-to-End Test's Census Questionnaire Assistance Operation Was Deficient in Some Areas and Did Not Implement Some Lessons Learned for the Operation* (OIG-20-022-A; March 24, 2020)
- *Management Alert: The Census Bureau Has Not Adjudicated Hundreds of Individuals Identified as Highest-Risk in OPM Background Investigations* (OIG-20-023-M; April 30, 2020)
- *2020 Census: The Bureau Can Improve Oversight of Time-and-Materials Delivery Orders on the Integrated Communications Contract* (OIG-20-025-A; April 30, 2020)
- *Management Alert: The Census Bureau Cannot Account for the Return of All Devices Used During 2020 Decennial Census Field Operations* (OIG-20-040-M; August 13, 2020)
- *2020 Census Alert: The Census Bureau Faces Challenges in Accelerating Hiring and Minimizing Attrition Rates for Abbreviated 2020 Census Field Operations* (OIG-20-041-M; August 18, 2020)
- *2020 Census Alert: The Census Bureau May Not Accurately Count College and University Students Living Off-Campus During the 2020 Census* (OIG-20-044-M; August 27, 2020)
- *2020 Census Alert: The Census Bureau Faces Challenges in Ensuring Employee Health Safety During 2020 Census Field Operations* (OIG-20-046-M; September 8, 2020)
- *2020 Census Alert: Delays to Resolving Alerts Limit the Bureau's Ability to Maintain or Improve the Quality of 2020 Census Data* (OIG-20-048-M; September 17, 2020)
- *The Acceleration of the Census Schedule Increases the Risks to a Complete and Accurate 2020 Census* (OIG-20-050-M; September 18, 2020)

- *2020 Census Alert: The Census Bureau's Program to Provide Awards to Nonresponse Followup Enumerators and Field Supervisors May Require Additional Quality Assurance of Cases to Ensure Data Accuracy* (OIG-20-052-M; September 28, 2020)

Challenge 2: Addressing Risks and Progressing Toward a New Architecture for Satellite Systems

- *The Joint Polar Satellite System: Program Can Increase the Likelihood of Mission Success by Further Applying NASA Processes to Its Spacecraft Development Efforts* (OIG-20-021-A; March 24, 2020)
- *Evaluation of NOAA's September 6, 2019, Statement About Hurricane Dorian Forecasts* (OIG-20-032-I; June 26, 2020)
- *The Joint Polar Satellite System: Cost Growth and Schedule Delay of a Key Instrument Acquisition Highlight the Need for Closer Attention to Contractor Oversight* (OIG-20-047-A; September 10, 2020)

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

- *NTIA and FirstNet Should Improve Controls to Strengthen the Fee Collection Process* (OIG-20-015-A; January 30, 2020)

Challenge 4: Strengthening Confidence in Intellectual Property Rights

- *USPTO Needs to Improve Its Small Business Contracting Practices* (OIG-20-045-A; September 1, 2020)

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

- *Failures in the Department's Security Program Resulted in Exposure of Sensitive Trade Information to Unvetted Foreign Nationals* (OIG-20-018-A; February 11, 2020)
- *Deficiencies in USPTO's Backup and Restoration Process Could Delay Recovery of Critical Applications in the Event of a System Failure and Adversely Affect Its Mission* (OIG-20-030-A; June 16, 2020)

Challenge 6: Refining Processes for Trade Enforcement Efforts

- *Management Alert: Certain Communications by Department Officials Suggest Improper Influence in the Section 232 Exclusion Request Review Process* (OIG-20-003-M; October 28, 2019)
- *Management Alert: U.S. & Foreign Commercial Service Needs to Address Urgent Issues in the Officer Promotion Process* (OIG-20-005-M; November 7, 2019)
- *Lack of Defined Processes and Procedures Impede Efforts to Monitor End-Use Check Performance* (OIG-20-019-A; March 2, 2020)

- *IG Letter to Senators Moran and Shaheen re: ITA and Department Budgetary Formulation and Execution Processes* (OIG-20-027-M; May 27, 2020)

Challenge 7: Improving Management and Oversight of Contracts and Grants

- *Audit of the Department's Digital Accountability and Transparency Act of 2014 Submission for the First Quarter of Fiscal Year 2019* (OIG-20-004-A; October 29, 2019)
- *NOAA's Office of Marine and Aviation Operations Needs to Improve the Planning and Governing of Its Ship Fleet Recapitalization Effort* (OIG-20-006-A; November 12, 2019)
- *Supplemental Memorandum on Report No. OIG-19-021-A, Audit of NOAA Financial Assistance Awards to the Gulf States Marine Fisheries Commission* (OIG-20-007-A; November 12, 2019)
- *EDA Should Develop a Workforce Plan and Improve its Hiring Accountability to Successfully Award and Administer the Disaster Supplemental Funds Appropriated by the Bipartisan Budget Act of 2018* (OIG-20-014-A; January 27, 2020)
- *2020 Annual Letter to OMB re: Government Charge Card Abuse Prevention Act of 2012* (OIG-20-017-M; January 31, 2020)
- *Top Oversight Challenges Facing the Department of Commerce to Ensuring That Pandemic Funds Are Timely and Appropriately Spent* (OIG-20-026-M; May 11, 2020)
- *The Department Needs to Improve Oversight Practices to Close Out Contract Files by Complying with Federal Regulations and Departmental Requirements* (OIG-20-028-A; June 2, 2020)
- *Management Alert: Top Oversight Challenges Facing the Department of Commerce to Ensuring That Pandemic Funds Are Timely and Appropriately Spent* (OIG-20-031-M; June 18, 2020)
- *Fleet Program Is Not Managed in Accordance with Fleet Management Requirements* (OIG-20-037-A; July 20, 2020)
- *Management Alert: Enterprise Services Did Not Perform Adequate Contract Oversight to Prevent Delays and Errors in Processing of Employees' Pay, PARs, and Benefits* (OIG-20-051-M; September 24, 2020)

Appendix B: Acronyms and Abbreviations

ABI	Advance Baseline Imager
AI	artificial intelligence
APJ	Administrative Patent Judge
BAS	Business Applications Solutions
Bipartisan Act	Bipartisan Budget Act of 2018
BIS	Bureau of Industry and Security
Bureau	U.S. Census Bureau
CARES Act	Coronavirus Aid, Relief, and Economic Security Act
CIS	Census Investigative Services
CO	contracting officer
COVID-19	coronavirus disease 2019
CPEX	Census Program for Evaluations and Experiments
Department	U.S. Department of Commerce
EDA	U.S. Economic Development Administration
ES	Enterprise Services
FCC	Federal Communications Commission
FirstNet Authority	First Responder Network Authority
FY	fiscal year
GAO	U.S. Government Accountability Office
GOES	Geostationary Operational Environmental Satellites
GPS	Global Positioning System
GRB	GOES Re-Broadcast
IP	intellectual property
IT	information technology
ITA	International Trade Administration
ITSBP	*Information Technology Security Baseline Policy*
JPSS	Joint Polar Satellite System
NAPA	National Academy of Public Administration
NESDIS	National Environmental Satellite, Data, and Information Service
NIST	National Institute of Standards and Technology

NOAA	National Oceanic and Atmospheric Administration
NPSBN	Nationwide Public Safety Broadband Network
NTIA	National Telecommunications and Information Administration
OIG	Office of Inspector General
OMAO	Office of Marine and Aviation Operations
OPM	U.S. Office of Personnel Management
OSC	Office of Space Commerce
PALM	Patent Application Locating and Monitoring
PFO	Polar Follow-On
PSA	Public Safety Advocacy
PTAB	Patent Trial and Appeal Board
PWS	Polar Weather Satellites
SSA	space situational awareness
STM	space traffic management
Suomi NPP	Suomi National Polar-orbiting Partnership
TMNG	Trademark Next Generation
U.S.	United States
USPTO	United States Patent and Trademark Office
WRC	World Radiocommunication Conference

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