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INFORMATION TECHNOLOGY

Improved Implementation of Reform Law Is Critical to Better Manage Acquisitions and Operations

Statement of David A. Powner, Director Information Technology Management Issues

Accessible Version

GAO-17-263T

December 6, 2016

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GAO Highlights

Highlights of GAO-17-263T, a testimony before the Subcommittees on Government Operations and Information Technology, Committee on Oversight and Government Reform, House of Representatives

Why GAO Did This Study

The federal government is likely to invest more than $89 billion on IT in fiscal year 2017. Historically, these investments have frequently failed, incurred cost overruns and schedule slippages, or contributed little to mission-related outcomes. Accordingly, in December 2014, IT reform legislation was enacted, aimed at improving agencies' acquisitions of IT. Further, in February 2015, GAO added improving the management of IT acquisitions and operations to its high-risk list. Between fiscal years 2010 and 2015, GAO made about 800 recommendations related to this high-risk area to OMB and agencies.

This statement summarizes agencies' progress in improving the management of IT acquisitions and operations. To do so, we reviewed and summarized GAO's prior and recently published work on (1) data center consolidation, (2) risk levels of major investments as reported on OMB's IT Dashboard, and (3) implementation of incremental development practices.

What GAO Recommends

GAO has previously made numerous recommendations to OMB and federal agencies to improve the oversight and execution of the data center consolidation initiative, the accuracy and reliability of the IT Dashboard, and incremental development policies. Most agencies agreed with GAO's recommendations or had no comments. GAO will continue to monitor agencies' implementation of these recommendations.

View GAO-17-263T. For more information, contact David A. Powner at (202) 512-9286 or pownerd@gao.gov.

What GAO Found

The Office of Management and Budget (OMB) and federal agencies have taken steps to improve federal information technology (IT) through a series of initiatives and, as of October 2016, had fully implemented about 46 percent of the approximately 800 related recommendations made by GAO (a 23 percent increase compared to the percentage reported in 2015). However, additional actions are needed.

- **Consolidating data centers.** In an effort to reduce the growing number of data centers, OMB launched a consolidation initiative in 2010. GAO reported in March 2016 that agencies had closed 3,125 of the 10,584 total data centers and achieved $2.8 billion in cost savings and avoidances through fiscal year 2015. Agencies are planning a total of about $8.2 billion in savings and avoidances through fiscal year 2019. GAO recommended that the agencies take actions to meet their cost savings targets and improve optimization progress related to their data center consolidation and optimization efforts. Most agencies agreed with the recommendations or had no comment.
- **Enhancing transparency.** OMB's IT Dashboard provides detailed information on major investments at federal agencies, including ratings from Chief Information Officers (CIO) that should reflect the level of risk facing an investment. GAO reported in June 2016 that agencies had not fully considered risks when rating their major investments on the IT Dashboard. In particular, of the 95 investments reviewed, GAO's assessments of risks matched the CIO ratings 22 times, showed more risk 60 times, and showed less risk 13 times. Several issues contributed to these differences, such as CIO ratings not being updated frequently. GAO recommended that agencies improve the quality and frequency of their ratings. Most agencies generally agreed with or did not comment on the recommendations.
- **Implementing incremental development.** A key reform initiated by OMB has emphasized the need for federal agencies to deliver investments in smaller parts, or increments, in order to reduce risk and deliver capabilities more quickly. Since 2012, OMB has required investments to deliver functionality every 6 months. In August 2016, GAO reported that 22 agencies had reported that 64 percent of 469 active software development projects planned to deliver usable functionality every 6 months for fiscal year 2016. Further, for 7 selected agencies, GAO identified significant differences in the percentages of software projects reported to GAO as delivering functionality every 6 months, compared to what was reported on the IT Dashboard. This was due to, among other things, inconsistencies in agencies' reporting on non-software development projects, and the timing of reporting data. GAO made 12 recommendations to 7 agencies and OMB to improve the reporting of incremental data on the IT Dashboard and the policies for CIO certification of adequate incremental development. Most agencies agreed or did not comment on our recommendations, and OMB did not agree or disagree.

Letter

Chairmen Meadows and Hurd, Ranking Members Connolly and Kelly, and Members of the Subcommittees:

I am pleased to be here today to discuss our recent work related to the December 2014 information technology (IT) reform law (commonly referred to as the Federal Information Technology Acquisition Reform Act or FITARA).[1] As you know, the effective and efficient acquisition and management of IT investments has been a long-standing challenge in the federal government. In particular, the federal government has spent billions of dollars on failed and poorly performing IT investments, which often suffered from ineffective management. Moreover, spending on IT operations has been inefficient. In light of these ongoing challenges, in February 2015, we added improving the management of IT acquisitions and operations to our list of high-risk areas for the federal government.[2]

My statement today discusses agencies' progress in improving the management of IT acquisitions and operations. To do so, we reviewed and summarized our prior and recently published work on (1) data center consolidation, (2) risk levels of major investments as reported on the Office of Management and Budget's (OMB) IT Dashboard, and (3) implementation of incremental development practices. A more detailed discussion of the objectives, scope, and methodology for this work is included in each of the reports that are cited throughout this statement.[3]

We conducted the work on which this statement is based in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained

[1]Federal Information Technology Acquisition Reform provisions of the Carl Levin and Howard P. 'Buck' McKeon National Defense Authorization Act for Fiscal Year 2015, Pub. L. No. 113-291, div. A, title VIII, subtitle D, 128 Stat. 3292, 3438-3450 (Dec. 19, 2014).

[2]GAO, *High-Risk Series: An Update*, GAO-15-290 (Washington, D.C.: Feb. 11, 2015). GAO maintains a high-risk program to focus attention on government operations that it identifies as high risk due to their greater vulnerabilities to fraud, waste, abuse, and mismanagement or the need for transformation to address economy, efficiency, or effectiveness challenges.

[3]See the related GAO products page at the end of this statement for a list of the reports on which this testimony is based.

provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

The federal government is likely to invest more than $89 billion on IT in fiscal year 2017. However, as we have previously reported, investments in federal IT too often result in failed projects that incur cost overruns and schedule slippages, while contributing little to the desired mission-related outcomes. For example:

- The Department of Veterans Affairs' Scheduling Replacement Project was terminated in September 2009 after spending an estimated $127 million over 9 years.[4]
- The tri-agency[5] National Polar-orbiting Operational Environmental Satellite System was stopped in February 2010 by the White House's Office of Science and Technology Policy after the program spent 16 years and almost $5 billion.[6]
- The Department of Homeland Security's Secure Border Initiative Network program was ended in January 2011, after the department obligated more than $1 billion to the program, because it did not meet cost-effectiveness and viability standards.[7]

[4]GAO, *Information Technology: Management Improvements Are Essential to VA's Second Effort to Replace Its Outpatient Scheduling System,* GAO-10-579 (Washington, D.C.: May 27, 2010).

[5]The weather satellite program was managed by the National Oceanic and Atmospheric Administration, the Department of Defense, and the National Aeronautics and Space Administration.

[6]See, for example, GAO, *Polar-Orbiting Environmental Satellites: With Costs Increasing and Data Continuity at Risk, Improvements Needed in Tri-agency Decision Making*, GAO-09-564 (Washington, D.C.: June 17, 2009) and *Environmental Satellites: Polar-Orbiting Satellite Acquisition Faces Delays; Decisions Needed on Whether and How to Ensure Climate Data Continuity*, GAO-08-518 (Washington, D.C.: May 16, 2008).

[7]See, for example, GAO, *Secure Border Initiative: DHS Needs to Strengthen Management and Oversight of Its Prime Contractor,* GAO-11-6 (Washington, D.C.: Oct. 18, 2010); *Secure Border Initiative: DHS Needs to Reconsider Its Proposed Investment in Key Technology Program*, GAO-10-340 (Washington, D.C.: May 5, 2010); and *Secure Border Initiative: DHS Needs to Address Testing and Performance Limitations That Place Key Technology Program at Risk*, GAO-10-158 (Washington, D.C.: Jan. 29, 2010).

- The Office of Personnel Management's Retirement Systems Modernization program was canceled in February 2011, after spending approximately $231 million on the agency's third attempt to automate the processing of federal employee retirement claims.[8]
- The Department of Veterans Affairs' Financial and Logistics Integrated Technology Enterprise program was intended to be delivered by 2014 at a total estimated cost of $609 million, but was terminated in October 2011 due to challenges in managing the program.[9]
- The Department of Defense's Expeditionary Combat Support System was canceled in December 2012 after spending more than a billion dollars and failing to deploy within 5 years of initially obligating funds.[10]

These and other failed IT projects often suffered from a lack of disciplined and effective management, such as project planning, requirements definition, and program oversight and governance. In many instances, agencies had not consistently applied best practices that are critical to successfully acquiring IT investments.

Federal IT projects have also failed due to a lack of oversight and governance. Executive-level governance and oversight across the government has often been ineffective, specifically from chief information officers (CIO). For example, we have reported that not all CIOs had the

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[8]See, for example, GAO, *Office of Personnel Management: Retirement Modernization Planning and Management Shortcomings Need to Be Addressed,* GAO-09-529 (Washington, D.C.: Apr. 21, 2009) and *Office of Personnel Management: Improvements Needed to Ensure Successful Retirement Systems Modernization*, GAO-08-345 (Washington, D.C.: Jan. 31, 2008).

[9]GAO, *Information Technology: Actions Needed to Fully Establish Program Management Capability for VA's Financial and Logistics Initiative*, GAO-10-40 (Washington, D.C.: Oct. 26, 2009).

[10]GAO, *DOD Financial Management: Implementation Weaknesses in Army and Air Force Business Systems Could Jeopardize DOD's Auditability Goals,* GAO-12-134 (Washington, D.C.: Feb. 28, 2012) and *DOD Business Transformation: Improved Management Oversight of Business System Modernization Efforts Needed,* GAO-11-53 (Washington, D.C.: Oct. 7, 2010).

authority to review and approve the entire agency IT portfolio and that CIOs' authority was limited.[11]

FITARA Can Improve Agencies' Management of IT

Recognizing the severity of issues related to government-wide management of IT, FITARA was enacted in December 2014. The law was intended to improve agencies' acquisitions of IT and enable Congress to monitor agencies' progress and hold them accountable for reducing duplication and achieving cost savings. FITARA includes specific requirements related to seven areas.

- **Federal data center consolidation initiative (FDCCI)**. Agencies are required to provide OMB with a data center inventory, a strategy for consolidating and optimizing the data centers (to include planned cost savings), and quarterly updates on progress made. The law also requires OMB to develop a goal for how much is to be saved through this initiative, and provide annual reports on cost savings achieved.
- **Enhanced transparency and improved risk management**. OMB and agencies are to make detailed information on federal IT investments publicly available, and agency CIOs are to categorize their IT investments by level of risk. Additionally, in the case of major IT investments rated as high risk for 4 consecutive quarters, the law requires that the agency CIO and the investment's program manager conduct a review aimed at identifying and addressing the causes of the risk.
- **Agency CIO authority enhancements**.[12] Agency CIOs are required to (1) approve the IT budget requests of their respective agencies, (2) certify that OMB's incremental development guidance is being adequately implemented for IT investments, (3) review and approve contracts for IT, and (4) approve the appointment of other agency employees with the title of CIO.

[11] GAO, *Federal Chief Information Officers: Opportunities Exist to Improve Role in Information Technology Management*, GAO-11-634 (Washington, D.C.: Sept. 15, 2011).

[12] The provisions apply to the agencies covered by the Chief Financial Officers Act of 1990, 31 U.S.C. § 901(b), except that the Department of Defense is largely exempted from this and other requirements.

- **Portfolio review**. Agencies are to annually review IT investment portfolios in order to, among other things, increase efficiency and effectiveness and identify potential waste and duplication. In establishing the process associated with such portfolio reviews, the law requires OMB to develop standardized performance metrics, to include cost savings, and to submit quarterly reports to Congress on cost savings.
- **Expansion of training and use of IT acquisition cadres**. Agencies are to update their acquisition human capital plans to address supporting the timely and effective acquisition of IT. In doing so, the law calls for agencies to consider, among other things, establishing IT acquisition cadres or developing agreements with other agencies that have such cadres.
- **Government-wide software purchasing program**. The General Services Administration is to develop a strategic sourcing initiative to enhance government-wide acquisition and management of software. In doing so, the law requires that, to the maximum extent practicable, the General Services Administration should allow for the purchase of a software license agreement that is available for use by all executive branch agencies as a single user.
- **Maximizing the benefit of the federal strategic sourcing initiative.** Federal agencies are required to compare their purchases of services and supplies to what is offered under the federal strategic sourcing initiative. OMB is also required to issue related regulations.

In June 2015, OMB released guidance describing how agencies are to implement FITARA.[13] OMB's guidance is intended to, among other things:

- assist agencies in aligning their IT resources with statutory requirements;
- establish government-wide IT management controls that will meet the law's requirements, while providing agencies with flexibility to adapt to unique agency processes and requirements;
- clarify the CIO's role and strengthen the relationship between agency CIOs and bureau CIOs; and

[13]OMB, *Management and Oversight of Federal Information Technology*, Memorandum M-15-14 (Washington, D.C.: June 10, 2015).

- strengthen CIO accountability for IT cost, schedule, performance, and security.

The guidance identified several actions that agencies were to take to establish a basic set of roles and responsibilities (referred to as the common baseline) for CIOs and other senior agency officials, which are needed to implement the authorities described in the law. For example, agencies were required to conduct a self-assessment and submit a plan describing the changes they intended to make to ensure that common baseline responsibilities are implemented. Agencies were to submit their plans to OMB's Office of E-Government and Information Technology by August 15, 2015, and make portions of the plans publicly available on agency websites no later than 30 days after OMB approval. As of November 2016, all agencies had made their plans publicly available.

In addition, in August 2016, OMB released guidance intended to, among other things, define a framework for achieving the data center consolidation and optimization requirements of FITARA.[14] The guidance includes requirements for agencies to:

- maintain complete inventories of all data center facilities owned, operated, or maintained by or on behalf of the agency;
- develop cost savings targets due to consolidation and optimization for fiscal years 2016 through 2018 and report any actual realized cost savings; and
- measure progress toward meeting optimization metrics on a quarterly basis.

The guidance also directs agencies to develop a data center consolidation and optimization strategic plan that defines the agency's data center strategy for fiscal years 2016, 2017, and 2018. This strategy is to include, among other things, a statement from the agency CIO stating whether the agency has complied with all data center reporting requirements in FITARA. Further, the guidance indicates that OMB is to maintain a public dashboard that will display consolidation-related costs savings and optimization performance information for the agencies.

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[14]OMB, *Data Center Optimization Initiative (DCOI),* Memorandum M-16-19 (Washington D.C.: Aug. 1, 2016).

IT Acquisitions and Operations Identified by GAO as a High-Risk Area

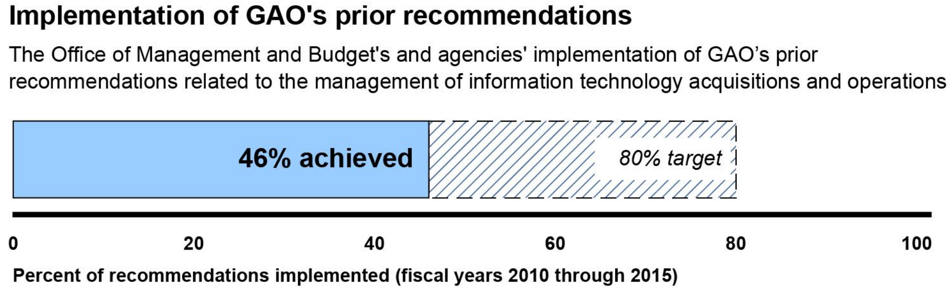
In February 2015, we introduced a new government-wide high-risk area, *Improving the Management of IT Acquisitions and Operations*.[15] This area highlights several critical IT initiatives in need of additional congressional oversight, including (1) reviews of troubled projects; (2) efforts to increase the use of incremental development; (3) efforts to provide transparency relative to the cost, schedule, and risk levels for major IT investments; (4) reviews of agencies' operational investments; (5) data center consolidation; and (6) efforts to streamline agencies' portfolios of IT investments. We noted that implementation of these initiatives has been inconsistent and more work remains to demonstrate progress in achieving IT acquisitions and operations outcomes.

Further, in our February 2015 high-risk report, we identified actions that OMB and the agencies need to take to make progress in this area. These include implementing FITARA, as well as implementing at least 80 percent of our recommendations related to the management of IT acquisitions and operations within 4 years. As noted in that report, we made multiple recommendations to improve agencies' management of IT acquisitions and operations, many of which are discussed later in this statement. Specifically, between fiscal years 2010 and 2015, we made 803 recommendations to OMB and federal agencies to address shortcomings in IT acquisitions and operations, including many to improve the implementation of the recent initiatives and other government-wide, cross-cutting efforts.

As of October 2016, OMB and the agencies had fully implemented about 46 percent of these recommendations. This is a 23 percent increase compared to the percentage we reported as being fully implemented in 2015. Figure 1 summarizes the progress that OMB and the agencies have made in addressing our recommendations, as compared to the 80 percent target.

[15] GAO-15-290.

Figure 1: Summary of the Office of Management and Budget's and Agencies' Progress in Addressing GAO's Recommendations



Source: Office of Management and Budget and agency data. | GAO-17-263T

In addition, in fiscal year 2016, we made 202 new recommendations, thus further reinforcing the need for OMB and agencies to address the shortcomings in IT acquisitions and operations.

Full Implementation of FITARA Needed to Improve IT Management

Agencies have taken steps to improve the management of IT acquisitions and operations by implementing key FITARA initiatives. However, agencies would be better positioned to fully implement the law, and thus realize additional management improvements, if they addressed the numerous recommendations we have made aimed at improving data center consolidation, increasing transparency via OMB's IT Dashboard, and incremental development.

Agencies Have Made Progress in Consolidating Data Centers, but Need to Take Action to Achieve Planned Cost Savings

One of the key initiatives to implement FITARA is data center consolidation. OMB established FDCCI in February 2010 to improve the efficiency, performance, and environmental footprint of federal data center activities. In a series of reports over the past 5 years, we determined that while data center consolidation could potentially save the federal government billions of dollars, weaknesses existed in several areas, including agencies' data center consolidation plans and OMB's tracking and reporting on cost savings.[16] In total, we have made 111 recommendations to OMB and agencies to improve the execution and oversight of the initiative. Most agencies agreed with our recommendations or had no comments.

In March 2016, we reported[17] that the 24 agencies[18] participating in FDCCI collectively had made progress on their data center closure efforts. Specifically, as of November 2015, these agencies had identified a total of 10,584 data centers, of which they reported closing 3,125 through fiscal year 2015. Notably, the Departments of Agriculture, Defense, the Interior, and the Treasury accounted for 84 percent of these total closures. Further, the agencies have reported that they are planning to close additional data centers by the end of fiscal year 2019.

In addition, we noted that 19 of the 24 agencies had reported achieving an estimated $2.8 billion in cost savings and avoidances from their data center consolidation and optimization efforts from fiscal years 2011 through 2015. The Departments of Commerce, Defense, Homeland Security, and the Treasury accounted for about $2.4 billion (or about 86 percent) of the total. Further, 21 agencies collectively reported planning an additional $5.4 billion in cost savings and avoidances, for a total of

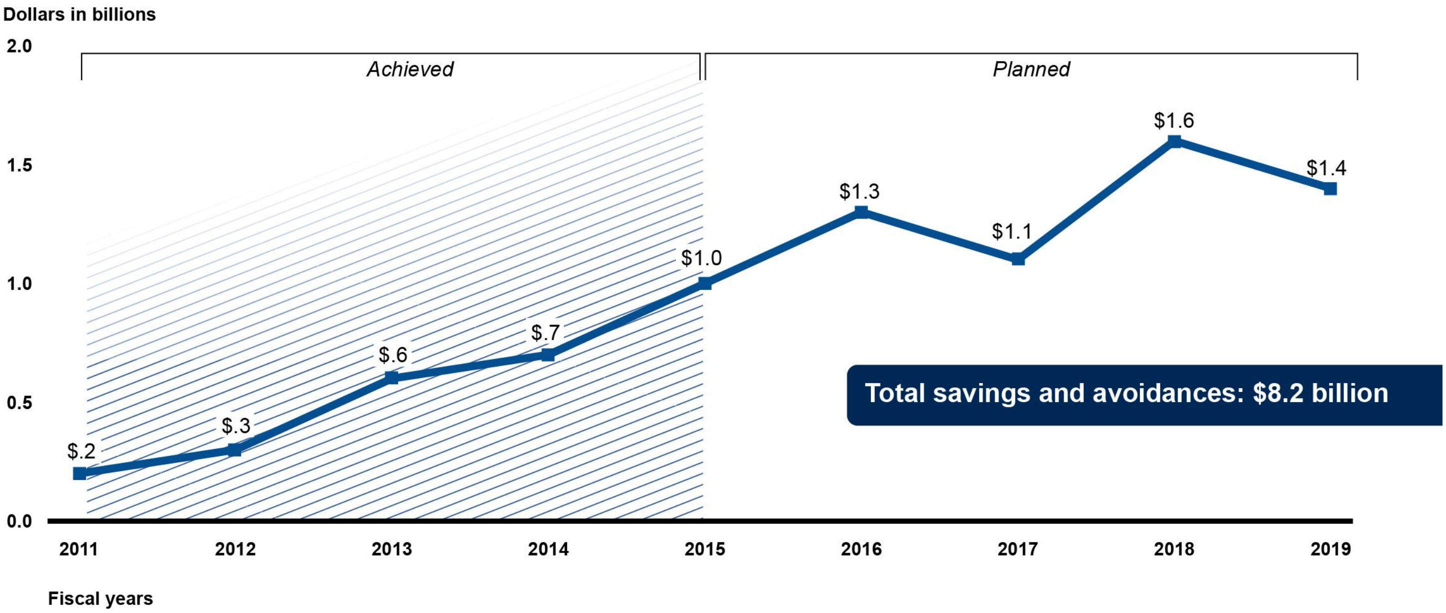
[16]GAO, *Data Center Consolidation: Reporting Can Be Improved to Reflect Substantial Planned Savings,* GAO-14-713 (Washington, D.C.: Sept. 25, 2014); *Data Center Consolidation: Strengthened Oversight Needed to Achieve Cost Savings Goal,* GAO-13-378 (Washington, D.C.: Apr. 23, 2013); *Data Center Consolidation: Agencies Making Progress on Efforts, but Inventories and Plans Need to Be Completed,* GAO-12-742 (Washington, D.C.: July 19, 2012); and *Data Center Consolidation: Agencies Need to Complete Inventories and Plans to Achieve Expected Savings,* GAO-11-565 (Washington, D.C.: July 19, 2011).

[17]GAO, *Data Center Consolidation: Agencies Making Progress, but Planned Savings Goals Need to Be Established [Reissued on March 4, 2016],* GAO-16-323 (Washington, D.C.: Mar. 3, 2016).

[18]The 24 agencies that FITARA requires to participate in FDCCI are the Departments of Agriculture, Commerce, Defense, Education, Energy, Health and Human Services, Homeland Security, Housing and Urban Development, the Interior, Justice, Labor, State, Transportation, the Treasury, and Veterans Affairs; the Environmental Protection Agency; General Services Administration; National Aeronautics and Space Administration; National Science Foundation; Nuclear Regulatory Commission; Office of Personnel Management; Small Business Administration; Social Security Administration; and U.S. Agency for International Development.

approximately $8.2 billion, through fiscal year 2019.[19] Figure 2 summarizes agencies' reported achieved and planned cost savings and avoidances from fiscal years 2011 through 2019.

Figure 2: Agency-reported Data Center Consolidation Cost Savings and Avoidances (Fiscal Years 2011 – 2019), as of December 2015



Source: GAO analysis of agency data. | GAO-17-263T

Data table forFigure 2: Agency-reported Data Center Consolidation Cost Savings and Avoidances (Fiscal Years 2011 – 2019), as of December 2015 (billions of dollars)

Year	Savings
2011	0.2
2012	0.3
2013	0.6
2014	0.7
2015	1
2016	1.3

[19] We have ongoing work to further assess agencies' cost savings and avoidances from data center consolidation and optimization efforts.

Year	Savings
2017	1.1
2018	1.6
2019	1.4

To better ensure that federal data center consolidation and optimization efforts improve governmental efficiency and achieve cost savings, we recommended that 10 of the 24 agencies take actions to complete their planned data center cost savings and avoidance targets for fiscal years 2016 through 2018. We also recommended that 22 of the 24 agencies take actions to improve optimization progress, including addressing any identified challenges. Fourteen agencies agreed with our recommendations, 4 did not state whether they agreed or disagreed, and 6 stated that they had no comments.

Risks Need to Be Fully Considered When Agencies Rate Their Major Investments on OMB's IT Dashboard

To facilitate transparency across the government in acquiring and managing IT investments, OMB established a public website—the IT Dashboard—to provide detailed information on major investments at 26 agencies, including ratings of their performance against cost and schedule targets. Among other things, agencies are to submit ratings from their CIOs, which, according to OMB's instructions, should reflect the level of risk facing an investment relative to that investment's ability to accomplish its goals. In this regard, FITARA includes a requirement for CIO's to categorize their major IT investment risks in accordance with OMB guidance.[20]

Over the past 6 years, we have issued a series of reports about the IT Dashboard that noted both significant steps OMB has taken to enhance the oversight, transparency, and accountability of federal IT investments by creating its IT Dashboard, as well as issues with the accuracy and

[20] 40 U.S.C. § 11302(c)(3)(C).

reliability of data.[21] In total, we have made 47 recommendations to OMB and federal agencies to help improve the accuracy and reliability of the information on the IT Dashboard and to increase its availability. Most agencies agreed with our recommendations or had no comments.

Most recently, in June 2016, we determined that agencies had not fully considered risks when rating their major investments on the IT Dashboard. Specifically, our assessments of risk for 95 investments at 15 selected agencies[22] matched the CIO ratings posted on the Dashboard 22 times, showed more risk 60 times, and showed less risk 13 times. Figure 3 summarizes how our assessments compared to the selected investments' CIO ratings.

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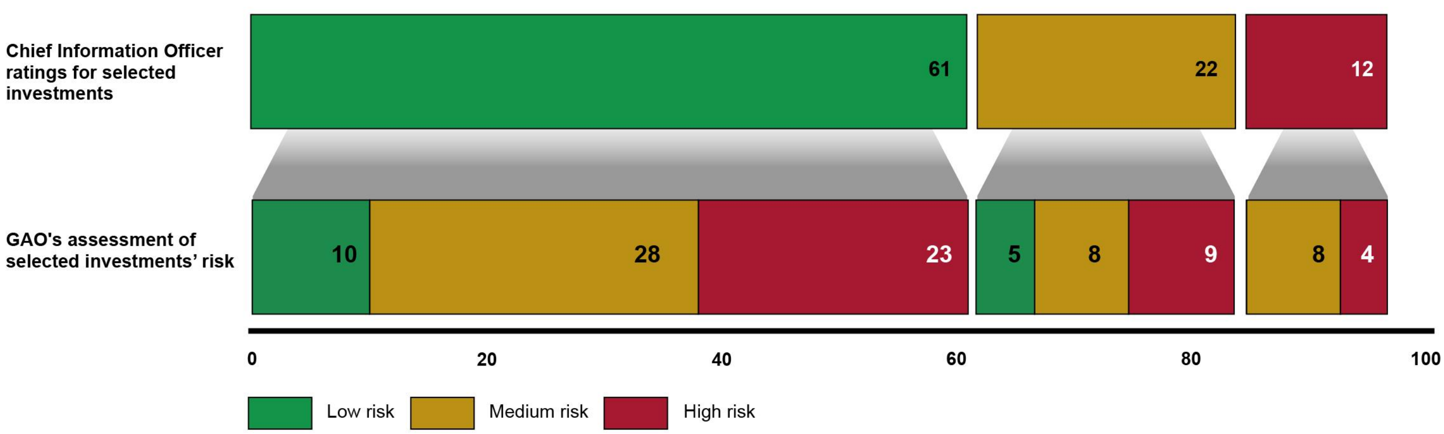
[21]*GAO, IT Dashboard: Agencies Need to Fully Consider Risks When Rating Their Major Investments,* GAO-16-494 (Washington, D.C.: June 2, 2016); *IT Dashboard: Agencies Are Managing Investment Risk, but Related Ratings Need to Be More Accurate and Available,* GAO-14-64 (Washington, D.C.: Dec. 12, 2013); *IT Dashboard: Opportunities Exist to Improve Transparency and Oversight of Investment Risk at Select Agencies*, GAO-13-98 (Washington, D.C.: Oct. 16, 2012); *IT Dashboard: Accuracy Has Improved, and Additional Efforts Are under Way to Better Inform Decision Making,* GAO-12-210 (Washington, D.C.: Nov. 7, 2011); *Information Technology: OMB Has Made Improvements to Its Dashboard, but Further Work Is Needed by Agencies and OMB to Ensure Data Accuracy*, GAO-11-262 (Washington, D.C.: Mar. 15, 2011); and *Information Technology: OMB's Dashboard Has Increased Transparency and Oversight, but Improvements Needed,* GAO-10-701 (Washington, D.C.: July 16, 2010).

[22]The 15 selected agencies were the Departments of Agriculture, Commerce, Defense, Education, Energy, Health and Human Services, Homeland Security, the Interior, State, Transportation, the Treasury, and Veterans Affairs; the Environmental Protection Agency; General Services Administration; and Social Security Administration.

Figure 3: Comparison of Selected Investments' April 2015 Chief Information Officer Ratings to GAO's Assessments



Source: GAO's assessment of data from the Office of Management and Budget's Information Technology Dashboard. | GAO-17-263T

Data for Figure 3: Comparison of Selected Investments' April 2015 Chief Information Officer Ratings to GAO's Assessments

- 61 CIO rated low risk. GAO rated 10 low risk, 28 medium risk, 23 high risk.
- 22 CIO rated medium risk. GAO rated 5 low risk, 8 medium risk, 9 high risk.
- 12 CIO rated high risk. GAO rated 8 medium risk, 4 high risk.

Aside from the inherently judgmental nature of risk ratings, we identified three factors which contributed to differences between our assessments and the CIO ratings:

- Forty of the 95 CIO ratings were not updated during the month we reviewed, which led to more differences between our assessments and the CIOs' ratings. This underscores the importance of frequent rating updates, which help to ensure that the information on the Dashboard is timely and accurately reflects recent changes to investment status.
- Three agencies' rating processes spanned longer than 1 month. Longer processes mean that CIO ratings are based on older data, and may not reflect the current level of investment risk.
- Seven agencies' rating processes did not focus on active risks. According to OMB's guidance, CIO ratings should reflect the CIO's assessment of the risk and the investment's ability to accomplish its

goals. CIO ratings that do no incorporate active risks increase the chance that ratings overstate the likelihood of investment success.

As a result, we concluded that the associated risk rating processes used by the agencies were generally understating the level of an investment's risk, raising the likelihood that critical federal investments in IT are not receiving the appropriate levels of oversight. To better ensure that the Dashboard ratings more accurately reflect risk, we recommended that the 15 agencies[23] take actions to improve the quality and frequency of their CIO ratings. Twelve agencies generally agreed with or did not comment on the recommendations and three agencies disagreed.

Agencies Need to Increase Their Use of Incremental Development Practices

OMB has emphasized the need to deliver investments in smaller parts, or increments, in order to reduce risk, deliver capabilities more quickly, and facilitate the adoption of emerging technologies. In 2010, it called for agencies' major investments to deliver functionality every 12 months and, since 2012, every 6 months. Subsequently, FITARA codified a requirement that agency CIOs certify that IT investments are adequately implementing OMB's incremental development guidance.[24]

In May 2014, we reported[25] that 66 of 89 selected investments at five major agencies[26] did not plan to deliver capabilities in 6-month cycles, and less than half of these investments planned to deliver functionality in 12-month cycles. We also reported that only one of the five agencies had complete incremental development policies. Accordingly, we recommended that OMB develop and issue clearer guidance on incremental development and that the selected agencies update and

[23]These 15 agencies are the Departments of Agriculture, Commerce, Defense, Education, Energy, Health and Human Services, Homeland Security, the Interior, State, Transportation, the Treasury, and Veterans Affairs; the Environmental Protection Agency, Office of Personnel Management; and Social Security Administration.

[24]40 U.S.C. § 11319(b)(1)(B)(ii).

[25]GAO, *Information Technology: Agencies Need to Establish and Implement Incremental Development Policies*, GAO-14-361 (Washington, D.C.: May 1, 2014).

[26]These five agencies are the Departments of Defense, Health and Human Services, Homeland Security, Transportation, and Veterans Affairs.

implement their associated policies. Four of the six agencies agreed with our recommendations or had no comments; the remaining two agencies partially agreed or disagreed with the recommendations.

More recently, in August 2016, we reported that agencies had not fully implemented incremental development practices for their software development projects. Specifically, we noted that, as of August 31, 2015, 22 federal agencies[27] had reported on the IT Dashboard that 300 of 469 active software development projects (approximately 64 percent) were planning to deliver usable functionality every 6 months for fiscal year 2016, as required by OMB guidance. Regarding the remaining 169 projects (or 36 percent) that were reported as not planning to deliver functionality every 6 months, agencies provided a variety of explanations for not achieving that goal. These included project complexity, the lack of an established project release schedule, or that the project was not a software development project. Table 1 lists the total number and percent of federal software development projects for which agencies reported plans to deliver functionality every 6 months for fiscal year 2016.

Table 1: Federal Agency Software Development Projects that Plan to Deliver Functionality Every 6 Months for Fiscal Year 2016, as Reported on the Information Technology (IT) Dashboard

Agency	Number of major IT investments	Number of projects associated with investments	Number of projects planning delivery of release every 6 months	Percent planning release every 6 months
Department of Veterans Affairs	10	95	95	100%
Department of Commerce	9	84	78	93%
Department of Health and Human Services	18	48	42	88%
Department of Education	12	14	11	79%
Department of the Treasury	12	28	18	64%

[27] These 22 agencies are the Departments of Agriculture, Commerce, Defense, Education, Energy, Health and Human Services, Homeland Security, Housing and Urban Development, the Interior, Justice, Labor, State, Transportation, the Treasury, and Veterans Affairs; the Environmental Protection Agency, General Services Administration, National Archives and Records Administration, Office of Personnel Management, Small Business Administration, Social Security Administration, and U.S. Agency for International Development.

Agency	Number of major IT investments	Number of projects associated with investments	Number of projects planning delivery of release every 6 months	Percent planning release every 6 months
Department of Homeland Security	13	23	13	57%
Social Security Administration	9	24	12	50%
Department of Transportation	20	60	5	8%
Department of Defense	36	51	4	8%
All other federal agencies[a]	30	42	22	52%
Total	**169**	**469**	**300**	**64%**

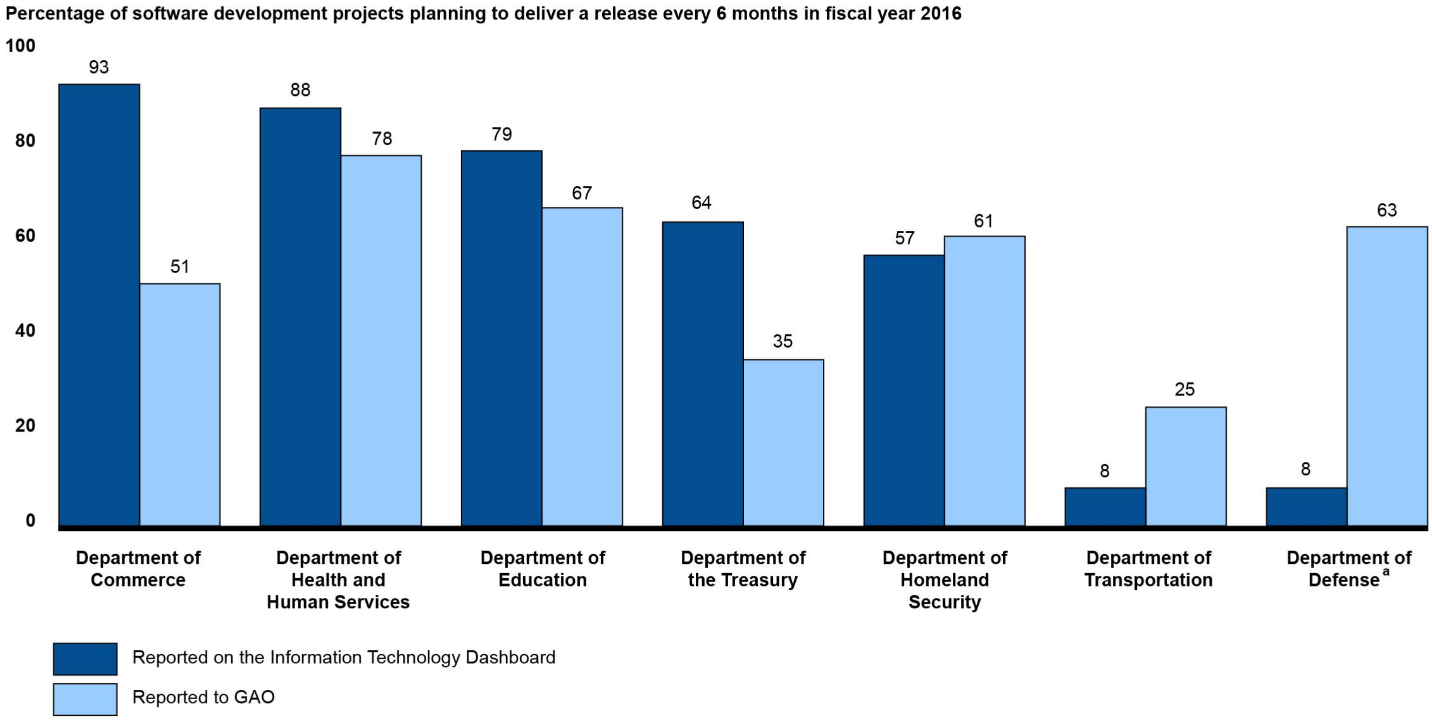
Source: GAO analysis of Federal IT Dashboard data as of August 31, 2015. I GAO-17-263T

[a]Thirteen additional agencies each reported having at least one major IT investment and a total of 20 or fewer projects. For these agencies, we combined the total number of investment because calculating a percent of functionality delivered for each agency's small number of projects would not provide a reliable figure.

In reviewing seven selected agencies'[28] software development projects, we determined that 45 percent of the projects delivered functionality every 6 months for fiscal year 2015 and 55 percent planned to do so in fiscal year 2016. However, significant differences existed between the delivery rates that the agencies reported to us and what they reported on the IT Dashboard. For example, in four cases (Commerce, Education, HHS, and Treasury), the percentage of delivery reported to us was at least 10 percentage points lower than what was reported on the IT Dashboard. These differences were due to (1) our identification of fewer software development projects than agencies reported on the IT Dashboard and (2) the fact that information reported to us was generally more current than the information reported on the IT Dashboard. Figure 4 compares the software development projects' percentage of planned delivery every 6 months reported on the IT Dashboard and to us.

[28]These seven agencies are the Departments of Commerce, Defense, Education, Health and Human Services, Homeland Security, Transportation, and the Treasury. These agencies were chosen because they reported a minimum of 12 investments that were at least 50 percent or more in development on the IT Dashboard for fiscal year 2015.

Figure 4: Comparison of Software Development Projects' Percentage of Planned Delivery Every 6 Months Reported on Information Technology (IT) Dashboard and to GAO for Fiscal Year 2016



Source: GAO analysis of department data. | GAO-17-263T

Data Table for Figure 4: Comparison of Software Development Projects' Percentage of Planned Delivery Every 6 Months Reported on Information Technology (IT) Dashboard and to GAO for Fiscal Year 2016

Department	IT Dashboard	GAO
Commerce	93	51
HHS	88	78
Education	79	67
Treasury	64	35
DHS	57	61
DOT	8	25
DOD	8	63

[a]The Department of Defense did not provide the requested information in time to verify the information reported for a sample of projects.

We concluded that by not having on the IT Dashboard up-to-date information about whether the project is a software development project and the extent to which projects are delivering functionality, these seven agencies were at risk that OMB and key stakeholders may make decisions regarding the agencies' investments without the most current and accurate information.

Finally, while OMB has issued guidance requiring agency CIOs to certify that each major IT investment's plan for the current year adequately implements incremental development, only three agencies (the Departments of Commerce, Homeland Security, and Transportation) had defined processes and policies intended to ensure that the department CIO certifies that major IT investments are adequately implementing incremental development.[29] Officials from three other agencies (the Departments of Education, Health and Human Services, and the Treasury) reported that they were in the process of updating their existing incremental development policy to address certification, while the Department of Defense's policies that address incremental development did not include information on CIO certification. We concluded that until all of the agencies we reviewed define processes and policies for the certification of the adequate use of incremental development, they will not be able to fully ensure adequate implementation of, or benefit from, incremental development practices, as required by FITARA.

To improve the reporting of incremental data on the IT Dashboard and policies for CIO certification of adequate incremental development, we made 12 recommendations to seven agencies and OMB. Five agencies agreed with our recommendations. In addition, the Department of Defense partially agreed with one recommendation and disagreed with another, OMB did not agree or disagree, and the Department of the Treasury did not comment on the recommendations.

In summary, with the enactment of FITARA, the federal government has an opportunity to improve the transparency and management of IT acquisitions and operations, and to strengthen the authority of CIOs to provide needed direction and oversight. To their credit, agencies have taken steps to improve the management of IT acquisitions and operations by implementing key FITARA initiatives, including data center consolidation, efforts to increase transparency via OMB's IT Dashboard, and incremental development; and they have continued to address recommendations we have made over the past several years. However,

[29]Office of Management and Budget, *FY2017 IT Budget – Capital Planning Guidance.*

additional improvements are needed, and further efforts by OMB and federal agencies to implement our previous recommendations would better position them to fully implement FITARA. To help ensure that these efforts succeed, continued congressional oversight of OMB's and agencies' implementation of FITARA is essential. In addition, we will continue to monitor agencies implementation of our previous recommendations.

Chairmen Meadows and Hurd, Ranking Members Connolly and Kelly, and Members of the Subcommittees, this completes my prepared statement. I would be pleased to respond to any questions that you may have at this time.

GAO Contacts and Staff Acknowledgments

If you or your staffs have any questions about this testimony, please contact me at (202) 512-9286 or at pownerd@gao.gov. Individuals who made key contributions to this testimony are Kevin Walsh (Assistant Director), Chris Businsky, Rebecca Eyler, and Bradley Roach (Analyst in Charge).

Related GAO Products

Information Technology Reform: Agencies Need to Increase Their Use of Incremental Development Practices, GAO-16-469. Washington, D.C.: August 16, 2016.

IT Dashboard: Agencies Need to Fully Consider Risks When Rating Their Major Investments, GAO-16-494. Washington, D.C.: June 2, 2016.

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