



June 2016

IT DASHBOARD

**Agencies Need to
Fully Consider Risks
When Rating Their
Major Investments**

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Agencies Need to Fully Consider Risks When Rating Their Major Investments

Why GAO Did This Study

Although the government spends more than \$80 billion in information technology (IT) annually, many of the investments have failed or have been troubled. In December 2014, provisions commonly referred to as the Federal Information Technology Acquisition Reform Act (FITARA) were enacted. Among other things, FITARA states that OMB shall make available to the public a list of each major IT investment including data on cost, schedule, and performance. OMB does so via the Federal IT Dashboard—its public website that reports on major IT investments, including ratings from CIOs which should reflect the level of risk facing an investment.

GAO's objectives were to (1) describe agencies' processes for determining CIO risk ratings for major federal IT investments primarily in development and (2) assess the risk of federal IT investments and analyze any differences with the investments' CIO risk ratings. To do so, GAO selected major IT investments with at least 80 percent of their fiscal year 2015 budget allocated to development (resulting in 95 investments across 15 agencies) and compared CIO rating processes to OMB guidance. GAO also analyzed data on those investments to create its own risk assessments.

What GAO Recommends

GAO is making 25 recommendations to 15 agencies to improve the quality and frequency of CIO ratings. Twelve agencies generally agreed with or did not comment on the recommendations and three agencies disagreed, stating their CIO ratings were adequate. GAO continues to believe these recommendations are valid.

View [GAO-16-494](#). For more information, contact David A. Powner at (202) 512-9286 or pownerd@gao.gov.

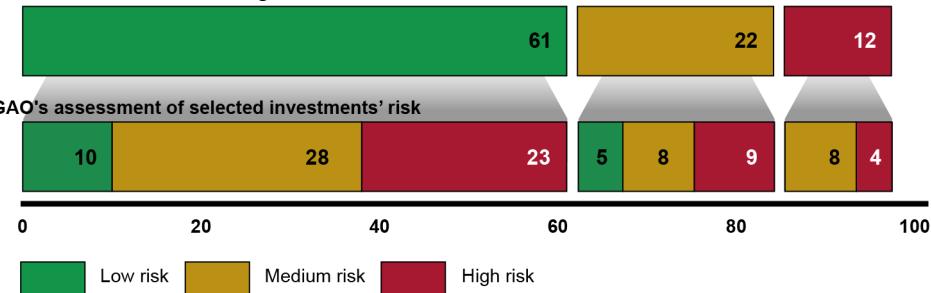
What GAO Found

Agencies determined investments' Chief Information Officer (CIO) ratings using a variety of processes, which included the Office of Management and Budget's (OMB) six suggested factors (including risk management, requirements management, and historical performance). Specifically, all 17 selected agencies incorporated at least two of OMB's factors into their risk rating processes and 9 used all of the factors. However, agencies' interpretations of these factors varied. For example, most agencies considered active risks, such as funding cuts or staffing changes, when rating investments, but others only evaluated compliance with the agency's risk management processes. Further, 13 agencies required monthly updates to CIO ratings as does OMB (as of June 2015), 1 agency scheduled its reviews based on risk, and 3 agencies required updates less often than on a monthly basis.

GAO's assessments generally showed more risk than the associated CIO ratings. In particular, of the 95 investments assessed, GAO's assessments matched the CIO ratings 22 times, showed more risk 60 times, and showed less risk 13 times (see graphic).

Comparison of Selected Investments' Chief Information Officer Ratings to GAO Assessments

Chief Information Officer ratings for selected investments



Source: GAO's assessment of data from the Office of Management and Budget's Information Technology Dashboard. | GAO-16-494

Aside from the inherent judgmental nature of risk ratings, three issues contributed to these differences:

- Forty of the 95 CIO ratings were not updated during the month GAO reviewed, which led to more differences between GAO's 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 span longer than 1 month. Longer processes mean that CIO ratings are based upon 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 not incorporate active risks increase the chance that ratings overstate the likelihood of investment success.

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Abbreviations

Agriculture	Department of Agriculture
CIO	Chief Information Officer
Commerce	Department of Commerce
Defense	Department of Defense
DHS	Department of Homeland Security
Education	Department of Education
Energy	Department of Energy
EPA	Environmental Protection Agency
GSA	General Services Administration
HHS	Department of Health and Human Services
Interior	Department of the Interior
IT	information technology
Labor	Department of Labor
OMB	Office of Management and Budget
OPM	Office of Personnel Management
SSA	Social Security Administration
State	Department of State
Transportation	Department of Transportation
Treasury	Department of the Treasury
VA	Department of Veterans Affairs

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U.S. GOVERNMENT ACCOUNTABILITY OFFICE

441 G St. N.W.
Washington, DC 20548

June 2, 2016

The Honorable Ron Johnson
Chairman
Committee on Homeland Security and Governmental Affairs
United States Senate

The Honorable Jason Chaffetz
Chairman
Committee on Oversight and Government Reform
House of Representatives

Although there have been numerous initiatives undertaken to better manage the more than \$80 billion that is annually invested in information technology (IT), federal IT investments have too frequently failed or incurred cost overruns and schedule slippages while contributing little to mission-related outcomes. As such, we have recently placed improving the management of IT acquisitions and operations on our high risk list.¹ This high-risk area highlights several critical IT initiatives in need of additional progress, including the IT Dashboard, and also identified actions needed to make progress.

Recognizing the severity of issues related to government-wide management of IT, in December 2014, the Carl Levin and Howard P. "Buck" McKeon National Defense Authorization Act for Fiscal Year 2015 enacted provisions commonly referred to as the Federal Information Technology Acquisition Reform Act (FITARA).² Among other things, FITARA states that the Office of Management and Budget (OMB) shall make available to the public a list of each major IT investment including data on cost, schedule, and performance.³ Accordingly, it is vital that OMB provide timely and accurate data on the Federal IT Dashboard—its

¹GAO, *High Risk Series: An Update*, GAO-15-290 (Washington, D.C.: Feb. 11, 2015).

²Carl Levin and Howard P. "Buck" McKeon National Defense Authorization Act for Fiscal Year 2015, Pub. L. No. 113-291, division A, title VIII, subtitle D, 128 Stat. 3292, 3438-3450 (Dec. 19, 2014).

³40 U.S.C. § 11302(c)(3)(A).

public website that reports performance and supporting data for major IT investments.⁴

Launched in June 2009, the Dashboard is intended to provide transparency for these investments in order to facilitate public monitoring of government operations and accountability for investment performance by the federal Chief Information Officers (CIO) who oversee them. 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 December 2014, FITARA codified the requirement for CIOs to categorize their major IT investment risks in accordance with OMB guidance.⁵

This report responds to your request to review the CIO ratings on the Dashboard. Specifically, our objectives were to (1) describe agencies' processes for determining the CIO risk ratings for major IT investments and (2) assess the risk of federal IT investments and analyze any differences with the investments' CIO risk ratings.

To select the agencies and investments, we reviewed data reported to OMB as part of the federal budget process to identify major investments which planned to spend at least 80 percent of their fiscal year 2015 funding on development, modernization, and enhancement activities. This produced a list of 17 agencies and 107 selected investments.⁶

To address our first objective, we met with the selected agencies to discuss their CIO rating processes. We collected process documentation, which we used to compare agencies' processes to OMB's guidance and determine how the specifics of agencies' processes varied.

⁴Major IT investment means a system or an acquisition requiring special management attention because it has significant importance to the mission or function of the government; significant program or policy implications; high executive visibility; high development, operating, or maintenance costs; an unusual funding mechanism; or is defined as major by the agency's capital planning and investment control process.

⁵40 U.S.C. § 11302(c)(3)(C).

⁶The selected agencies were: the Departments of Agriculture, Commerce, Defense, Homeland Security, Education, Energy, Health and Human Services, the Interior, Labor, State, Transportation, the Treasury, and Veterans Affairs, as well as the Environmental Protection Agency, the General Services Administration, the Social Security Administration, and the Office of Personnel Management.

To address our second objective, we reviewed the 107 investments, but excluded 12 that were inactive, not in development, lacked a key risk document, or were managed as part of a larger development program. This resulted in 95 investments at 15 agencies.⁷ We made the decision to review the ratings from April 2015, the month that our audit work began, in order to minimize any influence that our ongoing work could have on the agencies' processes and resulting ratings. We then interviewed appropriate agency officials and collected March 2015 risk documentation (the data we would expect to be reflected in the April ratings), as well as associated performance data, review board briefings, and relevant reports (e.g., GAO and Inspector General reports). In cases where agencies were unable to provide March documentation, we used documents from the closest available date. We did not consider risks that were introduced after March in these documents. We combined and scored this information based upon industry and government best practices to create our assessments of investments' risk. We then compared these assessments to agencies' April 2015 CIO risk ratings. Details of our objectives, scope, and methodology are contained in appendix I.

We conducted this performance audit from April 2015 through June 2016 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 provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

OMB plays a key role in overseeing how federal agencies manage their IT investments by working with them to better plan, justify, and determine how to manage them. To provide visibility into the performance of such investments, OMB deployed the IT Dashboard in 2009, which displays federal agencies' cost, schedule, and performance data for over 770 major federal IT investments at 26 federal agencies, accounting for \$42 billion of those agencies' planned \$82 billion in IT spending for fiscal year

⁷Two agencies, the Department of Labor and the Office of Personnel Management, were removed from our list as all of their investments were deselected.

2017.⁸ According to OMB, these data are intended to provide a near-real-time perspective on the performance of these investments, as well as a historical perspective. The Dashboard's data span the period from its June 2009 inception to the present, and are based, in part, on agency assessments of individual investment performance and each agency's budget request to OMB.⁹ Further, the public display of these data is intended to allow OMB; other oversight bodies, including Congress; and the general public to hold government agencies accountable for progress and results.

OMB's Dashboard Is Intended to Provide Visibility into the Performance of Federal IT Investments

The Dashboard visually presents performance ratings for agencies and for individual investments using metrics that OMB has defined—cost, schedule, and CIO evaluation.

- **Cost and schedule ratings.** The Dashboard calculates these ratings by determining cost and schedule variances based on agency-submitted data, such as planned versus actual costs or planned versus actual completion dates. The Dashboard then assigns rating colors (red, yellow, green) based on the magnitude of the variances. Specifically, a variance greater than 30 percent is red, a variance between 10 percent and 30 percent is yellow, and a variance less than 10 percent is green.
- **CIO ratings.** Unlike the cost and schedule ratings, the Dashboard's "Investment Evaluation by Agency CIO" (also called the CIO rating) is determined by the agency CIO. According to OMB's instructions, each agency CIO is to assess his or her IT investments against a set of pre-established evaluation factors and then assign a rating of 1 (high

⁸The 26 federal agencies are the Departments of Agriculture, Commerce, Defense, Education, Energy, Health and Human Services, Homeland Security, Housing and Urban Development, Justice, the Interior, Labor, State, Transportation, the Treasury, Veterans Affairs; the Environmental Protection Agency; the General Services Administration; the National Aeronautics and Space Administration; National Archives and Records Administration; National Science Foundation; Nuclear Regulatory Commission; Office of Personnel Management; Small Business Administration; Social Security Administration; U.S. Agency for International Development; and the U.S. Army Corps of Engineers.

⁹Each agency's budget request includes an IT Portfolio report and business cases for each major IT investment. The IT portfolio report lists all of an agency's IT projects and associated costs. Business cases are prepared for every major IT investment, are used to justify resource requests, and are intended to enable an agency to demonstrate to its own management, as well as to OMB, that a major project is well-planned.

risk) to 5 (low risk) based on the CIO's best judgment of the level of risk facing the investment. OMB suggests six evaluation factors, as shown in table 1.

Table 1: Investment Evaluation Factors Identified by the Office of Management and Budget for Assigning Chief Information Officer Ratings

Evaluation factor	Supporting examples
Risk management	Risk management strategy exists Risks are well understood by senior leadership Risk log is current and complete Risks are clearly prioritized Mitigation plans are in place to address risks
Requirements management	Investment objectives are clear and scope is controlled Requirements are complete, clear, and validated Appropriate stakeholders are involved in requirements definition
Contractor oversight	Acquisition strategy is defined and managed via an Integrated Program Team Agency receives key reports, such as earned value reports, current status, and risk logs Agency is providing appropriate management of contractors such that the government is monitoring, controlling, and mitigating the impact of any adverse contract performance
Historical performance	No significant deviations from planned cost and schedule Lessons learned and best practices are incorporated and adopted
Human capital	Qualified management and execution team for the IT investment and/or contracts supporting the investment Low turnover rate
Other	Other factors that the Chief Information Officer deems important to forecasting future success

Source: OMB's IT Dashboard. | GAO-16-494

OMB recommends that CIOs consult with appropriate stakeholders in making their evaluations, including Chief Acquisition Officers, program managers, and other interested parties. According to an OMB staff member, agency CIOs are responsible for determining appropriate thresholds for the risk levels and for applying them to investments when assigning CIO ratings. OMB requires agencies to update these ratings as soon as new information becomes available which will affect an investment's assessment and, since June 2015, has required that this be at least once each calendar month. After agencies assign a level of risk to each investment, the Dashboard assigns colors to CIO ratings according to a five-point scale: high risk and moderately high risk are red, medium risk is yellow, and moderately low risk and low risk are green.

Recent Legislation Reinforced the Importance of the Dashboard	<p>Recognizing the importance of government-wide management of IT, in December 2014, Congress enacted IT acquisition reform legislation, FITARA. The law was designed to improve agencies' acquisition of IT and enable Congress to monitor agencies' progress and hold them accountable for reducing duplication and achieving cost savings. FITARA contains specific requirements related to seven areas, including one titled "Enhanced Transparency and Improved Risk Management in Information Technology Investments." Among other things, that area requires OMB and agencies to make publicly available detailed information on federal IT investments, and agency CIOs to categorize their IT investments by risk. This requirement is addressed by OMB's IT Dashboard.</p>
GAO Has Previously Reported on the Dashboard	<p>Over the past 5 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 reliability of data.¹⁰ Further, we have reported on the Dashboard's CIO ratings:</p> <ul style="list-style-type: none"> • In October 2012, we reported that CIOs at six agencies rated a majority of investments listed on the IT Dashboard as low or moderately low risk from June 2009—when the Dashboard was implemented—through March 2012 and two agencies, the Department of Defense (Defense) and the National Science Foundation, rated no investments as high or moderately high risk during this time period (categorized as "red" by the Dashboard).¹¹ Additionally, agencies generally followed OMB's instructions for assigning CIO ratings, although Defense's ratings were unique in

¹⁰GAO, *Information Technology: OMB's Dashboard Has Increased Transparency and Oversight, but Improvements Needed*, GAO-10-701 (Washington, D.C.: July 16, 2010); *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); *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 Dashboard: Opportunities Exist to Improve Transparency and Oversight of Investment Risk at Select Agencies*, GAO-13-98 (Washington, D.C.: Oct. 16, 2012); and *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).

¹¹GAO-13-98.

reflecting additional considerations, such as the likelihood of OMB review. Most of the selected agencies reported various benefits associated with producing and reporting CIO ratings, such as increased quality of their performance data and greater transparency and visibility of investments. We recommended that OMB analyze and report on agencies' CIO ratings over time, and that Defense ensure that its CIO ratings reflect available investment performance assessments and its risk management guidance. Both agencies concurred with our recommendations. Subsequently, OMB reported on CIO rating trends. Further, Defense now identifies red investments on the Dashboard.

- More recently in December 2013, we reported that, as of August 2013, the CIOs at eight selected agencies had rated 198 of their 244 major IT investments listed on the Dashboard as low risk or moderately low risk, 41 as medium risk, and 5 as high risk or moderately high risk.¹² However, the total number of investments reported by these agencies had varied over time, which impacted the number of investments receiving CIO ratings. For example, the Department of Energy (Energy) reclassified several of its supercomputer investments from IT to facilities, and the Department of Commerce (Commerce) decided to reclassify its satellite ground system investments. Both decisions resulted in the removal of the investments from the Dashboard, even though the investments were clearly IT. We recommended that these agencies appropriately categorize all investments, but they disagreed with our recommendation.

In that same report, we reviewed 80 investments and found that 53 of the CIO ratings were consistent with the investment risk, 20 were partially consistent, and 7 were inconsistent. While two agencies' CIO ratings were entirely consistent, other agencies' ratings were inconsistent for a variety of reasons, including delays in updating the Dashboard and how investment performance was tracked. For example, the Social Security Administration (SSA) resets investment cost and schedule performance baselines annually, an approach that increases the risk of undetected cost or schedule variances that will impact investment success. As such, we recommended that SSA

¹²[GAO-14-64](#).

revise its investment management approach. The agency agreed with our recommendation and discussed planned actions to address it.

Additionally, we reported that OMB does not update the public version of the Dashboard as the President's annual budget request is being created. Consequently, the public version of the Dashboard was not updated for 15 of the past 24 months. We recommended that OMB make Dashboard information available independent of the budget process. OMB recently updated the Dashboard with a number of changes, and intends for the Dashboard to be able to show updates throughout the year.

Agencies Use a Variety of Processes to Determine Investments' CIO Ratings

Agencies determine investments' CIO ratings using a variety of processes, which include OMB's suggested factors. However, their interpretation of these factors varies significantly. In addition, the majority of agencies base their ratings on qualitative assessments, but several base theirs on formulas. Further, 13 agencies' process guidance calls for at least monthly updates to CIO ratings, 1 agency (the Department of Homeland Security (DHS)) schedules its reviews based on risk, and 3 agencies require less frequent updates.

Agencies Use Many of OMB's Suggested Factors to Determine CIO Ratings

As described earlier, OMB requires that each agency CIO rate the risk of his or her IT investments. OMB gives the CIOs the flexibility to use their judgment and suggests six evaluation factors.

As noted above, we reviewed data reported to OMB as part of the federal budget process to identify major investments which planned to spend at least 80 percent of their fiscal year 2015 funding on development, modernization, and enhancement activities. This selection produced a list of 17 agencies and 107 investments. Each of the 17 agencies has incorporated at least 2 of OMB's suggested factors into their CIO's risk rating processes and 9 use all of the factors. OMB requires that agencies provide CIO evaluations for all major IT investments which reflect the CIO's best judgment of the current level of risk for the investment in terms of its ability to accomplish its goals. According to OMB's guidance, the evaluation can be informed by the following factors, including, but not limited to: risk management, requirements management, contractor

oversight, historical performance, human capital, and other factors that the CIO deems important to forecasting future success.¹³

Table 2 summarizes the extent to which the 17 selected agencies incorporate OMB's suggested evaluation factors into their CIO's risk rating processes. Appendix II provides more information on the selected agencies' CIO rating processes.

Table 2: Use of the Office of Management and Budget's Suggested Factors by Selected Agencies' Chief Information Officer Rating Processes

Agency	Risk	Requirements	Contractor oversight	Historical performance	Human capital	Other
Department of Agriculture	X		X	X	X	
Department of Commerce	X			X		X
Department of Defense	X	X	X	X	X	X
Department of Education	X	X	X	X	X	X
Department of Energy	X	X	X	X	X	X
Department of Health and Human Services				X		X
Department of Homeland Security	X	X	X	X	X	X
Department of the Interior	X	X	X	X	X	X
Department of Labor	X		X	X	X	X
Department of State	X	X	X	X		X
Department of Transportation ^a	X		X	X	X	X
Department of the Treasury	X			X		X
Department of Veterans Affairs	X	X	X	X	X	X
Environmental Protection Agency	X	X	X	X	X	X
General Services Administration	X	X	X	X		
Office of Personnel Management	X	X	X	X	X	X
Social Security Administration	X	X	X	X	X	X

Source: GAO analysis of agencies' process documentation and interviews with relevant officials. | GAO-16-494

^aThe Department of Transportation's process includes a monthly update where OMB's CIO rating criteria is leveraged, in addition to the factors noted above.

While the factors suggested by OMB were considered in the agencies' CIO rating processes, their interpretation of these factors varied. In

¹³OMB, *Fiscal Year 2017 IT Budget - Capital Planning Guidance* (Washington, D.C.: Revised June 22, 2015).

particular, most agencies considered active risks when rating investments, but others only evaluated compliance with risk processes. For example:

- Defense, the Department of the Treasury (Treasury), and the General Services Administration (GSA) consider individual active risks, rather than investments' compliance with risk guidance. For example, Defense considered the risk caused by budget cuts and their potential impact through the following fiscal year when rating its Base Information Transport Infrastructure Wired investment. In addition, GSA, when rating its Integrated Award Environment investment, considered the risk involved with transitioning from an existing contract to one that could provide better expertise and greater oversight.
- The Departments of Agriculture (Agriculture), Education (Education), Energy, the Interior (Interior), State (State), and Veterans Affairs (VA), and the Office of Personnel Management (OPM) review compliance with risk management practices, but do not assess active risks. For example, compliance may include whether mitigation plans exist, risk logs are current, and risks are clearly prioritized.

The rest of the agencies that include the risk factor—Commerce, DHS, the Department of Labor (Labor), the Department of Transportation (Transportation), as well as the Environmental Protection Agency (EPA) and SSA—considered both process compliance and reviews of active risks. For example, Commerce reviews at least the top three active risks for investments, verifies that these risks are specific to the investment, appropriately managed and mitigated, and that the risk register is updated regularly. DHS also considers active investment risks, ensures that they are current, and that risk mitigation plans are in place.

Furthermore, the selected agencies considered different types of historical data when rating their IT investments. While all of the agencies considered performance measures and cost and schedule variances, five considered changes to the investment's baseline; eight considered the accomplishment of milestones; and three considered relevant news, GAO, or Inspector General reports. While the details of these approaches vary, they align with OMB's suggested factors.

Most Agencies Used Qualitative Rather than Quantitative Methodologies	<p>Of the 17 selected agencies, 6 used formulas to create CIO ratings. Specifically, Agriculture, the Department of Health and Human Services (HHS), DHS, Education, Treasury, and VA determined their ratings by quantifying and combining inputs such as cost and schedule variances, risk exposure values, and compliance with agency processes. Metrics for compliance with agency processes included those related to program and project management, project execution, the quality of investment documentation, and whether the investment is regularly updating risk management plans and logs.</p>
Most Selected Agencies Require Monthly CIO Rating Updates	<p>The remaining 11 agencies based their CIO ratings on qualitative assessments of performance metrics, risks, investment documentation, and informal investment knowledge. In particular, they assign ratings based on metrics such as investment performance, discussions with management staff, and the quality of investment documentation.</p> <p>Thirteen agencies' process guidance calls for at least monthly updates to CIO ratings, one agency (DHS) schedules its reviews based on risk, and three agencies require less frequent updates. Although a monthly review and update process was not previously required by OMB, the fiscal year 2017 Capital Planning Guidance issued in June 2015 requires agencies to update their CIO ratings at least once per month. Table 3 summarizes the frequency of CIO rating updates called for by the selected agencies' processes.</p>

Table 3: Frequency of Dashboard Updates, as Called For by Selected Agencies' Processes, as of January 2016

Agency	Monthly	Bi-monthly	Quarterly	Semi-annually
Department of Agriculture	X			
Department of Commerce	X			
Department of Defense				X
Department of Education		X		
Department of Energy	X			
Department of Health and Human Services	X			
Department of Homeland Security ^a	X		X	X
Department of the Interior	X			
Department of Labor	X			
Department of State	X			
Department of Transportation	X			
Department of the Treasury	X			
Department of Veterans Affairs	X			
Environmental Protection Agency	X			
General Services Administration	X			
Office of Personnel Management	X			
Social Security Administration			X	

Source: GAO analysis of agencies' process documentation and interviews with relevant officials. | GAO-16-494

^aThe Department of Homeland Security staggers its updates based on the risk of its investments.

The three selected agencies that do not comply with OMB's current requirement for monthly rating updates are Defense, Education, and SSA. In particular:

- Defense updates CIO ratings semi-annually.
- Education updates CIO ratings based on bi-monthly reviews of investments.
- SSA conducts monthly investment reviews, but updates CIO ratings on a quarterly basis.

Additionally, DHS staggers its updates based on investment risk, with high risk (red) investments reviewed monthly, moderate (yellow) investments reviewed quarterly, and low (green) investments reviewed semi-annually. These four agencies' practices are inconsistent with OMB's guidance and can limit the transparency and oversight of the government's IT investments.

However, staff from OMB told us that the Capital Planning Guidance for fiscal year 2018 would not contain the monthly reporting requirement and would instead encourage agencies to keep their CIO ratings accurate and current, rather than mandate reporting frequency. Moving forward, it will be important for any such revised guidance to encourage the frequent and appropriate updating of agencies' CIO ratings while also remaining compliant with relevant provisions of FITARA. These provisions require that agencies report at least semi-annually to OMB on each major IT investment and include data on cost, schedule, and performance. These provisions also require joint OMB and agency reviews of any investment that has been evaluated as high risk for four consecutive quarters.

Our Assessments Reflected More Risk than Most Selected Investments' CIO Ratings

As discussed earlier, to assess the risk of individual assessments, we reviewed the 107 investments that we originally selected, but excluded 12 that were inactive, not in development, lacked a key risk document, or were managed as part of a larger development program. This resulted in 95 investments at 15 agencies.¹⁴ Our assessments of these investments generally showed more risk than the associated CIO ratings. In particular, of the 95 investments we reviewed, our assessments matched the CIO ratings 22 times, showed more risk 60 times, and showed less risk 13 times. We identified three factors which contributed to these differences: (1) 40 of the 95 CIO ratings were not updated in April 2015, (2) three agencies' rating processes span longer than 1 month, and (3) seven agencies' rating processes did not focus on active risks (as previously discussed).

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."¹⁵ Such assessments of risk inherently involve a great deal of human judgment. Consequently, risk assessments should be expected to vary both across and within organizations. For example, Defense's CIO ratings process documentation states that, since its major investments are "inherently high risk," its ratings are "assessments of relative risk implemented within this risk baseline." That is, when measuring risk,

¹⁴Excluding these 12 investments removed two agencies, Labor and OPM, from the list of selected agencies.

¹⁵*IT Dashboard Frequently Asked Questions* (<https://itdashboard.gov/drupal/content/frequently-asked-questions>).

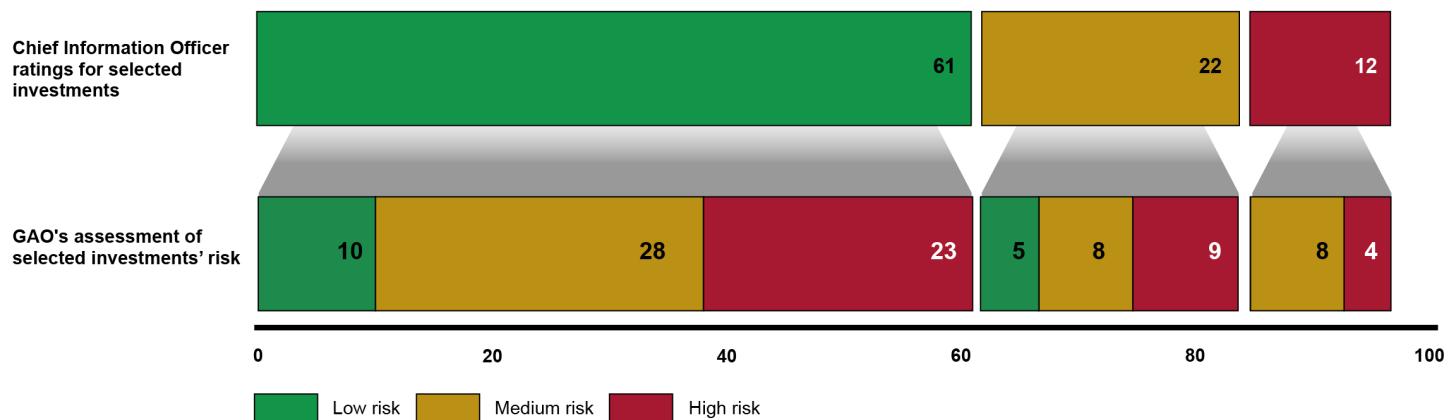
Defense is more tolerant and uses a different scale than other agencies. Similarly, risk assessments can vary within agencies. For example, officials at several agencies expressed concerns that the assignment of risk scores (probability and impact) were not consistent across investments. Officials at DHS also noted that program managers may score risks higher to flag an issue for management attention. Further, in many cases, agency CIOs could have more information than we examined in our assessments.

We attempted to minimize the subjectivity in our risk assessments by using the agencies' own lists of risks, known as risk registers, as the basis of our assessments (see appendix I for additional details on our methodology). We also augmented our ratings with agencies' cost and schedule data, briefings to review boards, and relevant reports. Our calculations are only intended to provide a standardized view of risk across all the departments and investments we reviewed and this methodology is not intended to serve as a prescriptive approach to the agencies' evaluation of investment risk.

Our Assessments Showed More Risk than Almost Two Thirds of Selected Investments' CIO Ratings

While the variety of methodologies and inputs meant that some differences were inevitable, almost two thirds of our assessments showed more risk than the associated CIO ratings for our 95 selected investments. Figure 1 summarizes how our assessments compared to the select investments' CIO ratings.

Figure 1: Comparison of Selected Investments' April 2015 Chief Information Officer Ratings to GAO Assessments



Source: GAO's assessment of data from the Office of Management and Budget's Information Technology Dashboard. | GAO-16-494

Of the 95 investments we reviewed, our assessments showed less risk 13 times, matched the CIO ratings 22 times, and showed more risk 60 times. Additionally, our assessments showed more risk for at least 1 investment at 13 of the 15 agencies we assessed.¹⁶ Table 4 summarizes these comparisons by agency, and appendix III lists the April 2015 CIO ratings and our assessments for each of the selected investments.

Table 4: Comparison of GAO's Assessments to April 2015 Chief Information Officer Ratings for the Selected Investments

Agency	Selected investments	GAO's assessment reflected less risk	GAO's assessment matched	GAO's assessment reflected more risk
Department of Agriculture	1	0	0	1
Department of Commerce	9	1	3	5
Department of Defense	25	2	4	19
Department of Education	5	2	0	3
Department of Energy	2	1	0	1
Department of Health and Human Services	9	3	1	5
Department of Homeland Security	7	2	2	3
Department of the Interior	1	0	1	0
Department of State	4	0	1	3
Department of Transportation	15	0	4	11
Department of the Treasury	3	0	0	3
Department of Veterans Affairs	1	0	0	1
Environmental Protection Agency	1	0	0	1
General Services Administration	3	1	2	0
Social Security Administration	9	1	4	4
Total	95	13	22	60

Source: GAO's assessment of IT Dashboard and agencies' data. | GAO-16-494

Overall, our assessments reflected more risk than 63 percent of the associated CIO ratings, and 13 of the 15 agencies reported less risk for at least 1 investment. Of the 13, 11 reported less risk for at least half of the selected investments and the remaining 2 reported less risk for just under half of those agencies' selected investments. For example, we identified more risk at 3 of DHS's 7 investments and 4 of SSA's 9 investments.

¹⁶While Labor and OPM were selected for review, we did not assess any of their investments. See appendix I for additional details on our selection methodology.

Our Assessments Reflected Less Risk than the Agencies' CIO Ratings for 13 Investments

Our assessments showed less risk than the CIO ratings for 13 of the 95 selected investments (14 percent). Specifically, we assessed 5 green that the agencies rated yellow and 8 yellow that the agencies rated red; there were no instances where we assessed an investment green that the agencies rated red. These investments belonged to 8 of the 15 selected agencies: HHS (3 investments), Defense (2 investments), DHS (2 investments), Education (2 investments), Commerce (1 investment), Energy (1 investment), GSA (1 investment), and SSA (1 investment). Table 5 lists those investments, the April 2015 CIO rating, and our associated assessment.

Table 5: Selected Investments for Which GAO's Assessment Reflected Less Risk than the April 2015 Chief Information Officer (CIO) Ratings

Agency	Investment title	April 2015 CIO rating	GAO assessment
Department of Commerce	Integrated Dissemination Program	Yellow	Green
Department of Defense	Airborne and Maritime / Fixed Station Joint Tactical Radio System	Red	Yellow
	Warfighter Information Network-Tactical Increment 3	Red	Yellow
Department of Education	Data Challenges and Appeals Solution	Red	Yellow
	Institute of Education Sciences Knowledge Utilization	Yellow	Green
Department of Energy	Identity, Credential, and Access Management	Yellow	Green
Department of Health and Human Services	International Classification of Diseases, 10th Revision Initiative	Red	Yellow
	Medicaid and Children's Health Insurance Program Business Information and Solutions	Red	Yellow
	Medicare-Medicaid Financial Alignment	Red	Yellow
Department of Homeland Security	Continuous Diagnostics and Mitigation	Yellow	Green
	TECS Modernization	Red	Yellow
General Services Administration	Integrated Award Environment	Yellow	Green
Social Security Administration	Disability Case Processing System	Red	Yellow

Source: GAO analysis of IT Dashboard and agencies' data. | GAO-16-494

The reasons why our assessments showed less risk varied among these investments. For instance:

- Commerce rated its Integrated Dissemination Program as yellow, but we assessed it as green. A department official explained that the rating was because (1) the investment had not been transparent in its activities making it difficult to determine whether a milestone was achieved or services were provided and (2) the investment had only identified generic, non-specific risks. Further, the official noted that the

department had even debated rating this investment red. We assessed this investment as green because of the low overall level of risk and low cost and schedule variances.

- DHS rated its Continuous Diagnostics and Mitigation investment as yellow, but we assessed it as green. DHS officials stated that the investment was rated yellow because (1) it was considered complex and higher risk due to the involvement of several civilian government agencies, (2) cost and schedule variances exceeded OMB's thresholds, and (3) concerns about the schedule and availability of resources. In contrast, we assessed it as green because it did not have any risks with both high impact and high probability scores and more than half of the risks scored low in overall risk exposure.
- HHS rated its Medicaid and Children's Health Insurance Program Business Information and Solutions investment as red, but we assessed it as yellow. HHS officials rated this investment red because the investment team did not submit required data and a rebaseline caused a large cost variance. Even though the investment's overall risk score was low, we assessed the investment as yellow based upon documented cost and schedule variances and program issues identified in review board briefings.
- GSA rated its Integrated Award Environment as yellow, but we assessed it as green. GSA officials stated that the investment was rated yellow as a precaution: the investment was undergoing a contract transition and the CIO knew that problems could develop. GSA officials stated that another contributing factor was the investment's late contract award, which had residual impact on investment performance. We assessed this investment green because of its overall low risk score.

As noted earlier, CIO ratings are intended to reflect the CIO's assessment of the risk and may be based on additional programmatic information not included in our assessment methodology, which focused primarily on investments' risk registers. As such, the inherently judgmental nature of the CIOs' assessments may reflect broader considerations that, in their organization's view, better represent the overall risk of an investment.

Our Assessments Matched the Agencies' CIO Ratings for 22 Investments

For 22 of the 95 selected investments (23 percent), our assessments matched the CIO rating. Specifically, we matched 10 green ratings, 8 yellow ratings, and 4 red ratings. Table 6 lists those investments, the April 2015 CIO rating, and our associated assessment.

Table 6: Selected Investments for Which GAO's Assessment Reflected the Same Risk as the April 2015 Chief Information Officer (CIO) Ratings

Agency	Investment title	April 2015 CIO rating	GAO assessment
Department of Commerce	Patent End-to-End 2	Yellow	Yellow
	Patents End-to-End: Software Engineering	Yellow	Yellow
	2020 Decennial Census Research and Testing, Operational Development, and Systems Testing, Fiscal Year 2015 – Fiscal Year 2018	Yellow	Yellow
Department of Defense	Joint Tactical Radio System Handheld, Manpack, and Small Form Fit Radios	Red	Red
	Next Generation Operational Control System	Red	Red
	Tactical Airspace Integration System	Green	Green
	Warfighter Information Network-Tactical Increment 2	Red	Red
Department of Health and Human Services	Accountable Care Organizations	Yellow	Yellow
Department of Homeland Security	Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance	Green	Green
	National Flood Insurance Program IT Phoenix	Red	Red
Department of the Interior	Integrated Reporting of Wildland-Fire Information	Yellow	Yellow
Department of State	Global e-Travel Program	Green	Green
Department of Transportation	Aeronautical Information Management Program Segment 2	Green	Green
	Common Support Services Weather	Green	Green
	Runway Status Lights	Green	Green
	System Approach for Safety Oversight	Green	Green
General Services Administration	Office of Enterprise Infrastructure	Green	Green
	Order Management Service	Yellow	Yellow
Social Security Administration	Customer Engagement Tools	Yellow	Yellow
	Earnings Redesign	Green	Green
	Infrastructure - Modernization	Yellow	Yellow
	National Support Center	Green	Green

Source: GAO analysis of IT Dashboard and agencies' data. | GAO-16-494

In particular, there were 4 investments at Defense, 4 at SSA, 4 at Transportation, 3 at Commerce, 2 at GSA, 2 at DHS, 1 at HHS, 1 at Interior, and 1 at State that had CIO ratings that matched our assessments. These investments were a mix of red, yellow, and green ratings. However, the reasoning behind the CIO ratings and our individual assessments differed. For example, Interior rated its Integrated Reporting of Wildland-Fire Information investment as yellow because the investment's required documentation did not meet agency standards.

Specifically, the investment's most recent artifact review before the April 2015 CIO rating period showed that the investment lacked required documentation, including a risk management plan. However, we assessed the investment as yellow because the IT Dashboard showed significant cost and schedule variances at the time of our review.

Our Assessments Reflected More Risk than the Agencies' CIO Ratings for 60 Investments

For 60 of the 95 selected investments (63 percent), our assessments reflected more risk than agencies' CIO ratings. Specifically, we assessed 9 red that the agencies rated yellow, 28 yellow that the agencies rated green, and 23 red that the agencies rated green. Further, these investments were at 13 of the 15 agencies we assessed. Table 7 lists those investments, the April 2015 CIO rating, and our associated assessment.

Table 7: Selected Investments for Which GAO's Assessment Reflected More Risk than the April 2015 Chief Information Officer (CIO) Ratings

Agency	Investment title	April 2015 CIO rating	GAO assessment
Department of Agriculture	Optimized Computing Environment	Green	Red
Department of Commerce	Census Enterprise Data Collection and Processing	Yellow	Red
	Fee Processing Next Generation	Green	Yellow
	Patent Trial and Appeal Board End to End	Green	Yellow
	Trademark Next Generation External	Green	Yellow
	Trademark Next Generation 2	Green	Yellow
Department of Defense	Air Force Nuclear Command and Control Communications—Minimum Essential Emergency Communications Network Modernization	Green	Red
	Air and Space Operations Center-Weapon System Increment 10.2	Green	Yellow
	Air Force Integrated Personnel and Pay System	Green	Red
	Area Common User System Modernization	Green	Red
	Aviation Tactical Communication Systems	Green	Red
	Base Information Transport Infrastructure Wired	Green	Yellow
	Consolidated Afloat Network Enterprise Services	Green	Red
	Defense Enterprise Accounting and Management System-Increment 1	Green	Red
	Department of Defense Healthcare Management System Modernization	Green	Red
	Distributed Common Ground System-Army Increment 1	Green	Yellow
	High Performance Computing Modernization Program	Green	Red
	Installation Information Infrastructure Modernization Program	Green	Red
	Integrated Personnel and Pay System-Army Increment 2	Green	Red
	Joint Battle Command-Platform	Green	Red
	Joint Precision Approach And Landing System ^a	Green	Red

Agency	Investment title	April 2015 CIO rating	GAO assessment
	Joint Space Operations Center Mission System Increment 2	Green	Red
	Mid-tier Networking Vehicular Radio	Green	Yellow
	Signal Modernization Program	Green	Red
	Tactical Mission Command	Yellow	Red
Department of Education	Contracts and Purchasing Support System	Green	Yellow
	Educational Assessment	Green	Yellow
	Enterprise Trusted Internet Connection	Green	Yellow
Department of Energy	Office of Energy Efficiency and Renewable Energy Revised Enterprise Integration	Green	Yellow
Department of Health and Human Services	Federally Facilitated Marketplace	Green	Yellow
	Master Data Management	Yellow	Red
	Physician Feedback Program	Green	Yellow
	Federal Health Architecture	Green	Yellow
	Office of Medicare Hearings and Appeals Electronic Case Adjudication Processing Environment	Yellow	Red
Department of Homeland Security	Next Generation Networks Priority Services	Green	Red
	Remote Video Surveillance Systems	Yellow	Red
	United States Citizenship and Immigration Services – Transformation	Yellow	Red
Department of State	Architecture Services	Green	Yellow
	Budget System Modernization	Green	Yellow
	Electronic Medical Record	Yellow	Red
Department of Transportation	Automatic Dependent Surveillance-Broadcast	Green	Red
	Data Communications NextGen Support (DataComm)	Green	Yellow
	En Route Automation Modernization System Enhancements and Tech Refresh	Green	Yellow
	NextGen Research and Development Portfolio	Green	Yellow
	NextGen National Airspace System Voice System	Green	Red
	NextGen Weather Processor	Green	Yellow
	System Wide Information Management	Green	Yellow
	Terminal Flight Data Manager	Green	Yellow
	Unified Registration System	Yellow	Red
	Wide Area Augmentation System	Green	Yellow
Department of the Treasury	Next Generation Air/Ground Communications (NEXCOM) Segment 2	Green	Yellow
	Customer Account Data Engine 2	Green	Yellow
	Foreign Account Tax Compliance Act	Green	Yellow
Department of Veterans Affairs	Post Payment System	Green	Red
	Interagency 21st Century One Vet	Green	Red

Agency	Investment title	April 2015 CIO rating	GAO assessment
Environmental Protection Agency	eManifest	Yellow	Red
Social Security Administration	Electronic Services	Green	Red
	Intelligent Disability	Green	Yellow
	SMART Claim	Green	Red
	Supplemental Security Income Modernization	Green	Red

Source: GAO analysis of IT Dashboard and agencies' data. | GAO-16-494

^aAccording to Department of Defense officials, the Joint Precision Approach And Landing System is no longer a major IT investment.

The agencies' explanations as to why our assessments showed more risk varied in these 60 cases. For example,

- Agriculture rated its Optimized Computing Environment investment as green, but we assessed it as red. While Agriculture officials noted that this investment's funding from partner agencies was uncertain, the investment received a green CIO rating because the funding uncertainties were a recurring concern that had been previously managed without issue. Conversely, we assessed the investment as red because 21 of the 44 risks in the investment's risk register had high overall risk scores.
- DHS rated its Next Generation Networks Priority Services investment as green, but we assessed it as red. DHS officials stated that they rated this investment green because the investment was progressing well and because it had successfully mitigated its high impact/high probability risks. However, our assessment was partly based on two risks with both high probability and high impact scores that the investment team categorized as potentially causing investment failure. These risk scores and descriptions indicated that the program believed that it was likely that these risks would be realized and cause critical, perhaps investment-threatening problems. DHS officials questioned the probability and impact scores and explained that investment teams may inflate such scores to flag potential issues for management.
- SSA rated its Supplemental Security Income Modernization investment as green, but we assessed it as red. SSA officials stated that their review did not see significant reason to lower the rating, even though part of the investment was working through significant technical challenges. We assessed the investment red because half

of its risks had high risk scores. Included in the most critical risks were those pertaining to requirements changes, system complexity, and staffing losses. When asked about these risks, SSA officials explained that, generally, they were common risks faced by every investment. Consequently, they expressed doubt that these risks necessitated such high risk scores.

- Treasury rated its Post Payment System investment as green, but we assessed it as red. Treasury officials stated that this investment was rated green because it was well-run and had previously kept its risks from becoming realized issues. Conversely, we rated this investment as red because 20 out of its 26 risks had high overall risk scores, including 2 that indicated a high probability of schedule delays. Treasury officials stated that they were monitoring the risks that we identified.

As noted earlier, the judgmental nature of a CIO's assessment may reflect a broader organizational view of investment risk beyond the contents of the investment's risk register. However, unlike the CIO ratings that reflected more risk than our assessments, many of these CIO ratings minimized the potential severity and impact of high risk scores. Our past work has shown that such an approach to risk management can often lead to cost and schedule overruns or failed projects.¹⁷

Three Issues Contributed to Discrepancies between Agencies' CIO Ratings and Our Assessments

In addition to the previously discussed issue of rating subjectivity, we identified three factors which contributed to differences between our assessments and CIO ratings at 10 of the 15 selected agencies. In particular,

- ratings were not updated in April 2015,
- rating processes spanned longer than 1 month, and
- rating processes did not focus on active risks.

Rather than pertaining to the CIOs' personal evaluations of risk, these additional issues relate to the 10 agencies' update practices or rating processes. Because these issues are with underlying practices and processes, they have the potential to impact all investment ratings—

¹⁷GAO, *GAO Cost Estimating and Assessment Guide: Best Practices for Developing and Managing Capital Program Costs*, GAO-09-3SP (Washington, D.C.: Mar. 2, 2009).

whether or not we reviewed them as part of our assessment. Specifically, we found that 40 of the 95 CIO ratings were not updated in April 2015, 3 agencies' rating processes span longer than 1 month, and 7 agencies' rating processes did not focus on active risks (see table 8). Following the table is a further description of these issues.

Table 8: Causes of Differences between the Selected Investments' Chief Information Officer (CIO) Rating and Our Assessment

Agency	CIO ratings not updated in April 2015	Rating process spans longer than 1 month	Risk process did not focus on active risks
Department of Agriculture	X		X
Department of Commerce	X		
Department of Defense	X		
Department of Education	X	X	X
Department of Energy			X
Department of Health and Human Services	X		X
Department of Homeland Security	X		
Department of the Interior			X
Department of State		X	X
Department of the Treasury		X	
Department of Veterans Affairs			X
Environmental Protection Agency	X		

Source: GAO analysis of IT Dashboard data, agency documentation, and interviews with agency officials. | GAO-16-494

Agencies Did Not Update CIO Ratings for 40 Investments in April 2015

Of the 95 investments we selected, we found that agencies had not updated CIO ratings for 40 in April 2015 (see table 9).

Table 9: Number of Investments That Did Not Update Chief Information Officer (CIO) Ratings in April 2015

Agency	Selected investments	CIO ratings not updated in April 2015
Department of Agriculture	1	1
Department of Commerce	9	1
Department of Defense	25	25
Department of Education	5	4
Department of Health and Human Services	9	2
Department of Homeland Security	7	6
Environmental Protection Agency	1	1

Source: GAO analysis of IT Dashboard data. | GAO-16-494

Further, we found that our assessments were more likely to match those investments updated in April because these recently updated ratings reflected the then-current investment information that we also used in our assessments. In particular, 17 of the 22 investments where our assessment matched the CIOs' ratings were updated in April 2015, whereas we matched only 5 of the 40 without April 2015 updates. Of the 40 ratings that were not updated, 15 were at 6 agencies, which provided the following explanations for the lack of April updates:

- Agriculture officials stated that they were in the midst of switching systems used to update ratings to the Dashboard, so they were unable to update ratings that month.
- Commerce officials stated that they did not receive quality data from the investment until the following month and thus did not have a valid basis for changing the rating or CIO comments.
- DHS officials stated that they did not update 2 of the selected investments' ratings because they were undergoing TechStat reviews.¹⁸ Additionally, 2 investments' CIO ratings were not updated in April even though they initially received April reviews. According to officials, 1 investment's review occurred too late in the month and the other investment's update was delayed. They also stated that they were revising their process so that rating updates would occur during

¹⁸TechStat reviews are face-to-face meetings to terminate, halt, or turnaround IT investments that are failing or are not producing results.

such reviews. Additionally, DHS's risk-based review cycle meant that two investments were not due to be rated in April. In particular, those investments were rated yellow less than 3 months prior and DHS reviews yellow-rated investments on a quarterly basis.¹⁹

- An Education official explained that the agency only updates its ratings if an investment's status has changed enough to warrant an update.
- EPA officials told us that its selected investment was not updated in April 2015 because the investment was in a state of flux during that time and a review would not have been useful.
- HHS officials stated that a combination of system and human errors kept 2 investment updates from posting.

The remaining 25 investments which did not have an April 2015 update were at Defense, which updates its ratings on a semi-annual basis (see earlier discussion of CIO rating update frequency). If we had used Defense's subsequent update from June 2015, the number of instances in which the CIO ratings matched our assessments would have increased from 4 to 10.

The preceding examples underscore the importance of OMB's June 2015 policy change, requiring that agencies provide monthly rating updates. Such updates will help to ensure that the information on the Dashboard is timely and accurately reflects recent changes. Without such updates, the CIO ratings on the Dashboard may not reflect the current level of investment risk.

Three Selected Agencies' Rating Processes Took Longer than 1 Month

The duration of agencies' CIO rating processes also impacted the comparison between the CIO ratings and our assessment. Since we used March 2015 risk registers as the basis for our assessment, process times longer than a month mean that the data we used for our assessment would not have been included in agencies' April 2015 CIO ratings. Fourteen of the 17 selected agencies indicated that it takes 1 month or less to process investment data and update the IT Dashboard. However,

¹⁹As discussed earlier, DHS staggers its updates based on investment risk, with high risk (red) investments reviewed monthly, moderate (yellow) investments reviewed quarterly, and low (green) investments reviewed semi-annually.

processes at 3 agencies—Education, State, and Treasury—can be longer than 1 month. For example, Treasury officials stated that late invoices from contractors can delay their processes past the 1 month time frame. State officials explained that their conversion of certain cost and schedule data into the format required by the Dashboard can take between 1 and 2 months to complete. Longer processes mean that CIO ratings are based upon older data and may not reflect the current level of investment risk. Further, these longer processes may prevent the agencies from meeting OMB's requirement to update ratings monthly.

Seven Selected Agencies Did Not Factor Active Risks into Ratings

When developing CIO ratings, seven agencies did not consider active risks, as discussed earlier. Six of those agencies (Agriculture, Education, Energy, Interior, State, and VA) instead chose to focus on investments' risk management processes, such as whether a process was in place or whether a risk log was current. Such approaches did not consider individual risks, such as funding cuts or staffing changes, which detail the probability and impact of pending threats to success. Instead, VA's CIO rating process considers several specific risk management criteria: whether an investment (1) has a risk management strategy, (2) keeps the risk register current and complete, (3) clearly prioritizes risks, and (4) puts mitigation plans in place to address risks.

Considering process compliance, rather than active risks, contributed to our assessments only matching 2 of the CIO ratings for the 14 selected investments at these six agencies. The remaining agency, HHS, did not factor risk into its CIO ratings (as discussed earlier). This contributed to our assessments matching only 1 of the 9 selected HHS investments.²⁰ In all cases, CIO ratings that do not incorporate active risks increase the chance that ratings do not reflect the true likelihood of investment success.

Conclusions

Since its inception in 2009, the IT Dashboard has increased the transparency of the government's multi-billion dollar spending on major IT investments. The Dashboard's CIO ratings, in particular, have improved visibility into the risks facing these critically important efforts. To that end, agency CIOs have developed a variety of processes to assess and report

²⁰In technical comments on a draft of this report, HHS informed us that it initiated a new CIO rating methodology in January 2016 that factors risk into its assessments.

the risk of their investments. Although the effectiveness of the Dashboard depends on the quality of the CIOs' ratings, selected agencies' rating methods do not provide an accurate assessment of investment risk and thus reduce the value of this important tool for transparency and oversight. Further, multiple agencies' infrequent submissions raise concerns that those updates are not reflecting timely and accurate risk information, contrary to OMB's current policy requiring monthly updates. Such practices limit the transparency and oversight of the government's billions of dollars in IT investments.

Beyond the transparency they provide, CIO ratings present an opportunity to improve CIOs' understanding of their IT portfolio and identify those investments in need of additional oversight. While these ratings are by definition inherently judgmental, our assessments of the selected investments generally showed more risk than almost 65 percent of the associated CIO ratings. Consequently, the associated risk rating processes used by the agencies generally are understating the level of risk, raising the likelihood that critical federal investments in IT are not receiving the appropriate levels of oversight. Finally, agencies that do not factor active risks into their CIO ratings trigger additional questions about the degree to which information reported on the Dashboard provides full and accurate information about an investment's risk. While agencies' consideration of active risk is not explicitly called for by OMB's guidance, this represents a gap in the agencies' processes that is understating the amount of risk reflected in the Dashboard's CIO ratings.

Recommendations for Executive Action

To better ensure that the Dashboard ratings more accurately reflect risk, we recommend that:

- the Secretaries of the Departments of Agriculture, Education, Energy, Health and Human Services, the Interior, State, and Veterans Affairs; and the Director of the Office of Personnel Management direct their CIOs to factor active risks into their IT Dashboard CIO ratings;
- the Secretaries of the Departments of Defense, Education, and Homeland Security; and the Commissioner of the Social Security Administration direct their CIOs to update their CIO ratings at least as frequently as required in OMB's guidance; and
- the Secretaries of the Departments of Agriculture, Commerce, Defense, Education, Energy, Health and Human Services, Homeland Security, State, Transportation, the Treasury, Veterans Affairs; the Administrator of the Environmental Protection Agency; and the Commissioner of the Social Security Administration direct their CIOs

to ensure that their CIO ratings reflect the level of risk facing an investment relative to that investment's ability to accomplish its goals.

Agency Comments and Our Evaluation

We received comments on a draft of this report from OMB, the 15 agencies to which we made recommendations, and the remaining 2 to which we did not make recommendations. Specifically, 9 agencies agreed with our recommendations, 2 (Education and SSA) agreed with one or more while partially agreeing with another, 1 (DHS) agreed with one and disagreed with another, 1 (Defense) partially agreed with one and disagreed with another, 1 (EPA) disagreed, 1 (OMB) did not agree or disagree, and 1 (Treasury) did not comment on our recommendation. The 2 agencies without recommendations (Labor and GSA) stated that they had no comments. Multiple agencies also provided technical comments, which we have incorporated as appropriate. The following is a detailed discussion of each agency's comments.

- In comments provided via e-mail on April 25, 2016, an OMB official from the Office of General Counsel did not agree or disagree with our recommendations. OMB also provided technical comments, which we have incorporated as appropriate.

Our draft report to OMB for comment included a recommendation that Defense, Education, DHS, and SSA update their agencies' CIO ratings on a monthly basis, as required by OMB's fiscal year 2017 IT Budget Capital Planning Guidance. Subsequently, OMB informed us that the fiscal year 2018 Capital Planning Guidance will be revised to only require that agencies update the Dashboard as soon as new information becomes available or when CIO reviews are performed. Taking into account OMB's planned course of action, we have modified our recommendation to those four agencies to reflect that they should, at a minimum, comply with OMB's required reporting frequency.

- In comments provided via e-mail on May 16, 2016, a Senior Advisor for Oversight and Compliance from Agriculture's Office of the CIO stated that the department concurred with our recommendation. Agriculture also provided technical comments, which we incorporated as appropriate.
- In written comments, Commerce concurred with our recommendation and committed to ensuring that the department's CIO ratings will reflect the level of risk facing an investment relative to that investment's ability to accomplish its goals. Commerce's written comments are provided in appendix IV.

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- In written comments, Defense partially concurred with our recommendation to reflect the level of risk facing an investment relative to that investment's ability to accomplish its goals. While Defense agreed with the need of CIO ratings to reflect risk, the department stated that its current CIO rating process already incorporates this factor. While we also agree that risk plays a role in Defense's documented CIO ratings process, our findings indicate that the CIO ratings for the selected investments may have underreported investment risk. Specifically, our assessments for 19 of the selected 25 Defense investments (or 76 percent) show more risk than the CIO ratings on the Dashboard in April 2015. We therefore believe that our recommendation is appropriate.

In addition, the department did not concur with our recommendation to update its CIO ratings on a monthly basis. Specifically, the department states that its semi-annual reporting is consistent with FITARA requirements and is documented in the department's OMB-approved FITARA implementation plan. As noted earlier, we recognize OMB's plans to remove the monthly reporting requirement for CIO ratings and have modified this recommendation to reflect that planned change. We acknowledge that when this new policy is finalized, Defense's semi-annual reporting may be in compliance with the new requirement. Until such time, agencies are still required by existing policy to report monthly and consequently, we believe that our recommendation is appropriate. Defense's written comments are provided in appendix V.

- In written comments, Education concurred with our recommendations to factor active risks into its CIO ratings and to have CIO ratings reflect the level of risk facing an investment relative to that investments' ability to accomplish its goals, and described plans to implement those recommendations. Specifically, the department will include consideration of active risks when formulating its CIO ratings and its investment review board chair will provide specific guidance that the CIO should ensure the ratings reflect the level of risk facing an investment.

The department partially concurred with our recommendation to update CIO ratings monthly, stating that OMB's fiscal year 2017 IT budget guidance addresses the required frequency of updates in several places, and the section specific to CIO evaluations only requires agencies to update their ratings as soon as new information becomes available. While we agree that OMB's fiscal year 2017 guidance does address Dashboard reporting frequency in several

places, the requirement for monthly updates is nonetheless explicitly stated and was confirmed by OMB staff. However, as noted earlier, we recognize OMB's plans to remove the monthly reporting requirement for CIO ratings and have modified this recommendation to reflect that planned change. We acknowledge that when this new policy is finalized, Education's reporting may be in compliance with the new requirement. Until such time, agencies are still required by existing policy to report monthly and consequently, we believe that our recommendation is appropriate. Education's written comments are provided in appendix VI.

- In written comments, Energy concurred with our recommendations and noted that the Office of the CIO would work collaboratively with IT executives to address the recommendations. Energy also provided technical comments, which we have incorporated as appropriate. Energy's written comments are provided in appendix VII.
- In written comments, HHS concurred with our recommendations, but noted that the recommendations were based on a now-outdated department methodology and that a new methodology, which went into effect in January 2016, addresses our recommendations. HHS also provided technical comments, which we have incorporated as appropriate. HHS's written comments are provided in appendix VIII.
- In written comments, DHS concurred with our recommendation to reflect the level of risk facing an investment relative to that investment's ability to accomplish its goals.

The department did not concur with our recommendation to update its CIO ratings on a monthly basis, specifically noting that its risk-based process complies with OMB's Fiscal Year 2017 Capital Planning Guidance with regards to the frequency of its updates to the IT Dashboard, and that investments receive health assessments on a risk-based basis, either monthly, quarterly, or semi-annually. However, we disagree with the assertion that this update frequency aligns with current OMB guidance, which explicitly requires that the Dashboard be updated at least monthly. However, as noted earlier, we recognize OMB's plans to remove the monthly reporting requirement for CIO ratings and have modified this recommendation to reflect that planned change. We acknowledge that when this new policy is finalized, DHS's reporting may be in compliance with the new requirement. Until such time, agencies are still required by existing policy to report monthly and consequently, we believe that our recommendation is appropriate. DHS also provided technical

comments, which we have incorporated as appropriate. DHS's written comments are provided in appendix IX.

- In written comments, Interior concurred with our recommendation and noted it is currently enhancing the department's CIO ratings process to maximize standardization across investment CIO ratings and to strengthen the assessment of active risks. Interior's written comments are provided in appendix X.
- In written comments, State agreed with our recommendations, noting that the department currently analyzes active risks and reviews those risks on a monthly basis. However, our review found that while State's CIO ratings process included compliance with risk management issues (e.g., ensuring that the risk register is being updated and that mitigation strategies are properly planned), the department did not review active risks by evaluating the probability and impact of individual investment risks and applying that knowledge to the CIO ratings. By considering active risks, State can increase the chance that the ratings will better reflect the true likelihood of investment success. State's written comments are presented in appendix XI.
- In comments provided via e-mail on April 27, 2016, Transportation's Director of Audit Relations and Program Improvement in the Office of the Secretary stated that the department concurred with our recommendation.
- In comments provided via e-mail on May 10, 2016, a GAO liaison from Treasury's Office of the CIO did not comment on our recommendation. Treasury also provided technical comments, which we have incorporated as appropriate.
- In written comments, VA concurred with our recommendations and described actions the department is taking to address both of them. For our recommendation to factor active risks into its IT Dashboard CIO ratings, VA indicated that it would amend its current monthly process to include a requirement for investment managers to review at least the top three active operational risks. Additionally, for our recommendation to ensure that CIO ratings reflect the level of risk facing an investment relative to that investment's ability to accomplish its goals, VA plans, among other things, to amend its current monthly process to include a requirement for investment managers to assess operational risks that detail the probability and impact of pending threats to success. VA's written comments are presented in appendix XII.

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- In written comments, EPA did not agree with our recommendation. While agreeing that CIO ratings should reflect the level of risk facing an investment relative to that investment's ability to accomplish its goals, the agency asserted that its current process already allows for this through the criteria used to determine an investment's CIO rating. EPA specifically cited an EPA investment that was rated yellow, but we assessed as red. Further, EPA indicated that this disagreement does not mean that EPA's process does not consider risks. We agree that the difference between EPA's CIO rating and our assessment does not necessarily mean that EPA does not factor risk or the investment's ability to accomplish its goals. However, it does indicate that the level of risk may be underreported. Consequently, we believe that our recommendation is appropriate. EPA also provided technical comments, which we have incorporated as appropriate. EPA's written comments are provided in appendix XIII.
 - In written comments, OPM concurred with our recommendation and stated the agency will begin factoring active risks into CIO ratings. OPM's written comments are provided in appendix XIV.
 - In written comments, SSA agreed with our recommendation to update its CIO ratings on a monthly basis. However, as noted earlier, we recognize OMB's plans to remove the monthly reporting requirement for CIO ratings and have modified this recommendation to reflect that planned change.

SSA partially agreed with our recommendation to reflect the level of risk facing an investment relative to that investment's ability to accomplish its goals. Noting that the agency head and the CIO should work together to appropriately consider investment risk, the agency disagreed with the implication that these individuals were not doing so. Additionally, SSA stated that it was too early in the implementation of FITARA to conclude that following OMB's related guidance would result in agencies misestimating risk and that our report should not imply that SSA's risk assessments do not fulfill the legislative intent of FITARA. While we recognize the collaborative efforts of SSA's executives, our assessments nevertheless showed more risk for four out of nine selected SSA investments. Further, three of the four were rated green by SSA but assessed as red by us, indicating the possibility that these CIO ratings did not fully reflect the risk being faced by these investments. Additionally, our report does not conclude that OMB's guidance leads to agencies misestimating risk, but rather that agencies' processes are understating risk. As such, we believe

that our recommendation is warranted. SSA's written comments are provided in appendix XV.

Comments from the agencies to which we did not make recommendations are discussed in more detail here.

- In comments provided via e-mail on April 18, 2016, a representative from Labor's Office of the Assistant Secretary for Administration and Management stated that the department had no comments on the report.
- In comments provided via e-mail on April 15, 2016, a representative from GSA's GAO/IG Audit Response Division stated that the agency had no comments on the report.

We are sending copies of this report to interested congressional committees; the Secretaries of Agriculture, Commerce, Defense, Homeland Security, Education, Energy, Health and Human Services, the Interior, Labor, State, Transportation, the Treasury, and Veterans Affairs; the Administrator of the Environmental Protection Agency; the Administrator of the General Services Administration; the Director of the Office of Personnel Management; the Commissioner of the Social Security Administration; the Director of the Office of Management and Budget; and other interested parties. This report will also be available at no charge on our website at <http://www.gao.gov>.

If you or your staff have any questions on matters discussed in this report, please contact me at (202) 512-9286 or pownerd@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made major contributions to this report are listed in appendix XVI.



David A. Powner
Director, Information Technology
Management Issues

Appendix I: Objectives, Scope, and Methodology

Our objectives were to (1) describe agencies' processes for determining the Chief Information Officer (CIO) risk ratings for major information technology (IT) investments and (2) assess the risk of federal IT investments and analyze any differences with the investments' CIO risk ratings.

To select the agencies and investments, we reviewed data reported to OMB as part of the federal budget process to identify major investments that planned to spend at least 80 percent of their fiscal year 2015 funding on development, modernization, and enhancement activities.¹ This produced a list 17 agencies and 107 selected investments. These agencies were: the Departments of Agriculture (Agriculture), Commerce (Commerce), Defense (Defense), Homeland Security (DHS), Education (Education), Energy (Energy), Health and Human Services (HHS), the Interior (Interior), Labor (Labor), State (State), Transportation (Transportation), the Treasury (Treasury), and Veterans Affairs (VA), as well as the Environmental Protection Agency (EPA), the General Services Administration (GSA), the Social Security Administration (SSA), and the Office of Personnel Management (OPM). Appendix III contains a complete listing of the selected agencies and investments.

To address our first objective, we met with the 17 selected agencies to discuss their CIO rating processes and collected relevant documentation, such as capital planning and investment control guides, program health assessment guidance, and rating processes. We then compared the agencies' processes to the Office of Management and Budget's (OMB) suggested evaluation factors for creating CIO ratings.² These evaluation factors are: (1) risk management, (2) requirements management, (3) contractor oversight, (4) historical performance, (5) human capital, and (6) other (i.e., the other factors that the CIO deems important to forecasting

¹These data are comprised of submissions from the following 26 federal agencies: the Departments of Agriculture, Commerce, Defense, Education, Energy, Health and Human Services, Homeland Security, Housing and Urban Development, Justice, the Interior, Labor, State, Transportation, the Treasury, and Veterans Affairs; the Environmental Protection Agency; the General Services Administration; the National Aeronautics and Space Administration; National Archives and Records Administration; National Science Foundation; Nuclear Regulatory Commission; Office of Personnel Management; Small Business Administration; Social Security Administration; U.S. Agency for International Development; and the U.S. Army Corps of Engineers.

²OMB, *Fiscal Year 2017 IT Budget - Capital Planning Guidance* (Washington, D.C.: Revised June 22, 2015).

future success). We also analyzed the agencies' documents and interviewed officials to determine how the agencies' use of OMB's factors varied.

To address our second objective, we reviewed the 107 investments, but excluded 12 after agencies told us that: 2 were inactive in our period of review, 5 were not primarily in development, 4 were too new to have a risk register (a key document for our assessments), and 1 was managed as part of a larger development program and did not have its own risk register. These exclusions eliminated the 2 selected investments from Labor and the 1 from OPM. This resulted in 95 investments at 15 agencies.

We made the decision to review the ratings from April 2015, the month that our audit work began, in order to minimize any influence that our ongoing work could have on the agencies' processes and resulting ratings. We first downloaded the April ratings, interviewed appropriate officials at the 15 selected agencies, and collected March 2015 risk documentation (the data we would expect to be reflected in the April ratings), performance data, review board briefings, and relevant reports (e.g., GAO and Inspector General reports). In cases where agencies were unable to provide March documentation, we used documents from the closest available date. We did not consider risks that were introduced after March in these documents. We used this information to assess each selected investment's overall investment risk and compared the result to the April 2015 CIO ratings.

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."³ To create our assessments of risk, we combined each investment's detailed risk lists, known as risk registers, with several additional metrics. Specifically, we combined the probability and impact of every active risk in the risk registers of each of the selected investments to determine what is known as the exposure of each risk.⁴ These

³*IT Dashboard Frequently Asked Questions* (<https://itdashboard.gov/drupal/content/frequently-asked-questions>).

⁴According to the Software Engineering Institute, risk can be calculated as a combination of probability (or likelihood) and impact (or consequences). The institute gives credit for the formula to Barry W. Boehm. We used that formula to calculate risk exposure scores: risk exposure = likelihood of occurrence (probability) * loss due to undesirable outcome (impact).

exposure scores ranged from “very low” to “very high” and were based upon industry and government best practices. Table 10 shows how probability and impact values derived from these sources were combined to determine risk exposure.

Table 10: Example of Risk Exposure Scores Resulting from Agency-Assigned Probability and Impact Values

		Impact				
		Very low	Low	Moderate	High	Very high
Probability	Very low	Very low	Very low	Low	Moderate	Moderate
	Low	Very low	Low	Low	Moderate	Moderate
	Moderate	Low	Low	Moderate	High	High
	High	Moderate	Moderate	High	High	Very high
	Very high	Moderate	Moderate	High	Very high	Very high

Source: GAO analysis of industry and government best practices. | GAO-16-494

We then weighted each risk exposure, placing significantly increased emphasis on higher risks so that they were not canceled out by lower risks. Table 11 lists the weights we assigned to the exposures.

Table 11: Risk Exposures and Associated Weights

Risk exposure level	Weight
Very low	4
Low	1
Moderate	3
High	9
Very high	27

Source: GAO. | GAO-16-494

We then averaged these weights and translated the result into green, yellow, and red grades according to the following scale.

Table 12: Range of Weighted Averages and Corresponding Color

Weighted average range	Color
Less than 3	Green
Greater than or equal to 3 and less than 9	Yellow
Greater than or equal to 9	Red

Source: GAO. | GAO-16-494

For example, we would assess the following risk register as yellow.

Table 13: Example of Probability, Impact, Exposures, and Grading, based on the Evaluation of Risks for a Generic Investment

Individual risk	Probability	Impact	Risk exposure	Weight
Risk A	Low	Low	Very low	0
Risk B	Low	Low	Very low	0
Risk C	Low	Low	Very low	0
Risk D	Low	Low	Very low	0
Risk E	Low	Low	Very low	0
Risk F	Low	Moderate	Low	1
Risk G	Low	High	Moderate	3
Risk H	Moderate	Moderate	Moderate	3
Risk I	Moderate	High	High	9
Risk J	Very high	High	Very high	27
Average				4.3

Source: GAO | GAO-16-494

We then lowered the assessments based on consideration of the following elements: (1) cost and schedule data from the IT Dashboard, (2) relevant review board briefings, and (3) relevant reports (e.g., GAO and Inspector General reports). Specifically, we first reviewed each investment's project-level cost and schedule data from the Dashboard as of April 2015 and if more than half of its projects' variances were colored red by the Dashboard,⁵ we lowered our assessment one level (i.e., from green to yellow or from yellow to red). As a result of this review, we identified a total of 19 investments; however, 11 of those could not be lowered further as we had already assessed them as red. The grades for the remaining 8 investments were lowered one level. In particular, 6 grades were lowered from yellow to red and 2 were lowered from green to yellow.

Then, we examined review board briefings covering March 2015, as well as relevant GAO and Inspector General reports, and lowered our assessment if we deemed the identified issues represented serious risks

⁵The Dashboard colors represent the following variances: greater than or equal to 30 percent is "red," between 10 and 30 percent is "yellow," and less than 10 percent is "green."

to the investment and remained relevant in April 2015. Using this approach, we considered lowering 12 of our assessments due to such information; however, 11 of the 12 assessments were already either red or were already lowered due to cost and schedule issues. Consequently, the only investment for which we lowered our assessment was Defense's Warfighter Information Network-Tactical Increment 2, which was reduced from yellow to red. A briefing for that investment showed that the program's cost variance triggered what is known as a Nunn-McCurdy breach,⁶ that the program was being restructured, that its scope was being reduced, and we had recently reported that the program struggled to demonstrate required performance and reliability during operational testing.⁷

We then compared our assessment to the CIO ratings on the Dashboard, discussed our findings with agency officials, and corroborated the Dashboard's data with agency officials. Our calculations are only intended to provide a standardized view of risk across all the departments and investments we reviewed, and this methodology is not intended to serve as a prescriptive approach to the agencies' evaluation of investment risk.

We conducted this performance audit from April 2015 to June 2016 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 provides a reasonable basis for our findings and conclusions based on our audit objectives.

⁶Among other things, 10 U.S.C. § 2433, the so-called Nunn-McCurdy Act, requires Defense to report to Congress on, and possibly terminate, major defense programs with cost variances that exceed current or original baseline estimates by certain percentages.

⁷GAO, *Defense Acquisitions: Assessments of Selected Weapon Programs*, GAO-15-342SP (Washington, D.C.: Mar. 12, 2015).

Appendix II: Selected Agencies' CIO Rating Processes

Table 14 describes the processes that the selected agencies reported as using to create the Chief Information Officer (CIO) ratings for their investments.

Table 14: Details of the Chief Information Officer (CIO) Rating Processes Reported by Selected Agencies

Agency	Responsibility for drafting the CIO rating	Factors used to create the CIO rating	How factors are used to determine the CIO rating
Department of Agriculture (Agriculture)	Capital Planning and Investment Control team, Office of the CIO, Associate CIO	<p>According to Agriculture's <i>Major and Non-Major IT Investment Scoring Criteria</i> document, the following factors are used to create the CIO rating for each investment on a monthly basis:</p> <ul style="list-style-type: none">• investment overview, which evaluates the completeness of the business case and supporting documentation;• contract or acquisition strategy, such as, contracts are awarded competitively, contracts are predominantly performance-based, and contracts that require earned value management have the appropriate clause;• performance metrics are within pre-defined thresholds;• risk management attributes, such as, the risk management plan is updated in the last year; the risk register identifies all risks identified elsewhere in the investment's business case submission and is updated in the last month, risk mitigation strategies are in place and adequate, risk assessments are performed and documented at least quarterly;• program and project management, and project execution (skills or certifications of program or project management) in contract and acquisition strategy, performance, and risk management; and• all required documents have been updated, and approved with version control, at the appropriate intervals.	Each weighted factor is assigned a score from 1 to 5. The scores are then averaged to determine an overall score.
Department of Commerce (Commerce)	Capital Planning and Investment Control team, Office of the CIO	<p>Commerce officials stated that the following factors are used to create the CIO rating for each investment:</p> <ul style="list-style-type: none">• transparency of the investment's management;• monthly cost and schedule variances including earned value data, when available;• risk data is updated each month and risk registers are requested periodically;• performance data;• reports that identify expected and actual monthly accomplishments, significant issues, and top risks;• re-baseline requests, which must also include a master integrated schedule; and• security.	A qualitative review of the factors and the quality of the information provided.

Appendix II: Selected Agencies' CIO Rating Processes

Agency	Responsibility for drafting the CIO rating	Factors used to create the CIO rating	How factors are used to determine the CIO rating
Department of Defense (Defense)	Office of the CIO	<p>According to Defense's <i>CIO Ratings Process for the Federal IT Dashboard</i>, on a semi-annual basis, each investment's CIO rating is based upon recommended ratings from component CIOs as well as the following factors:</p> <ul style="list-style-type: none"> • risk; • cost, schedule, and performance; and • maturity. <p>Defense also considers external assessments and reports published by GAO and the Inspector General, as well as program assessments, and draft audit reports. Early achievement of milestones will prompt an out-of-cycle update to the Dashboard.</p>	A qualitative assessment of the factors.
Department of Education (Education)	Office of IT Program Services	<p>Education officials described the following bi-monthly review and factors used to create the CIO rating for each investment:</p> <ul style="list-style-type: none"> • number of active projects; • project and operational risks; • life cycle and performance metrics on a monthly, quarterly, semi-annual, and annual basis; • cost and schedule variances and actuals; • number of awarded contracts; • achievement of milestones; and • risk mitigation plans are in place. 	Each factor is scored from 1 to 5, weighted, and then averaged.
Department of Energy (Energy)	Office of the CIO Staff	<p>According to Energy's <i>OMB IT Dashboard Standard Operating Procedure</i>, the following factors are used to create the CIO rating for each investment on a monthly basis:</p> <ul style="list-style-type: none"> • cost and schedule variances; • control review (a quarterly assessment of project management qualifications, cost and schedule variances, performance goal variances, and earned value management); • risk management (an assessment of the current process for identifying, prioritizing, and managing risk on a regular and on-going basis); • requirements management (an assessment of the current process for developing and involving stakeholders in the requirements management process); • contractor oversight (an assessment of government oversight of contractor performance through regular status reports); and • baseline change (an assessment of the current re-baseline impact on projects and project activities). 	A qualitative assessment of the factors.

Appendix II: Selected Agencies' CIO Rating Processes

Agency	Responsibility for drafting the CIO rating	Factors used to create the CIO rating	How factors are used to determine the CIO rating
Department of Health and Human Services (HHS)	Office of the CIO	<p>According to HHS's <i>Portfolio Management Tool User's Guide</i>, dated January 2016, the following factors, as well as project managers' suggestions, are used to create the CIO rating for each investment on a monthly basis:</p> <ul style="list-style-type: none"> • environmental and compliance risk, including visibility, budget variance, dependency, operational performance, policy and governance compliance, and reporting requirements; and • health risk, including risk management, life cycle requirements management, contract management, cost and schedule performance, and human capital. <p>Prior to the release of the 2016 guide, HHS officials stated that the following factors were used to create the CIO rating for each investment:</p> <ul style="list-style-type: none"> • earned value management, • implementation of enterprise performance life cycle, • preparation of operational analysis, and • operational performance metrics. 	Each of the factors is scored and the results are averaged.
Department of Homeland Security (DHS)	Program Compliance Division	<p>According to DHS's <i>Program Health Assessment Scoring Guideline</i>, CIO investment ratings are based upon program health assessments which gauge how well a program is performing. Investment reviews are staggered based on risk, with high risk (red) investments reviewed monthly, moderate (yellow) investments reviewed quarterly, and low (green) investments reviewed semi-annually. Combined with qualitative investment knowledge, the assessment factors are scored and weighted as follows:</p> <ul style="list-style-type: none"> • risk management (17 percent - reviews of risk and mitigation plans and execution); • human capital resources (22 percent - an assessment of the adequacy of staffing resources including credentials, key staff positions, staffing levels, and oversight); • cost and schedule performance against targets (22 percent); • contract oversight (9 percent - consistency with department practices, including an approved acquisition plan, performance-based contracts, use of schedule and cost metrics, where applicable, and consistent oversight); and • requirements management (30 percent - consistency of requirements planning, development, and management with applicable directives). 	The factors are scored, weighted, and summed.

Appendix II: Selected Agencies' CIO Rating Processes

Agency	Responsibility for drafting the CIO rating	Factors used to create the CIO rating	How factors are used to determine the CIO rating
Department of the Interior (Interior)	Strategy, Portfolio Planning and Integration	<p>According to Interior's investment management guidance, the following factors are used to create the CIO rating for each investment on a monthly basis:</p> <ul style="list-style-type: none"> • cost and schedule performance against targets (including earned value data, when available); • operational performance metrics; and • a validation of investment data to ensure documentation is current. <p>Interior officials stated that the CIO also considers the following factors:</p> <ul style="list-style-type: none"> • Federal Acquisition Certification for Program and Project Managers certification of major investment managers; • risk management; • investment artifact compliance; • requirements management (the status of required artifacts); • contractor oversight (the status of the acquisition plan); • informal conversations; • TechStat reviews; and • performance baseline change requests. 	A qualitative assessment of the factors.
Department of Labor (Labor)	IT Governance Team within the Office of the CIO	<p>Labor's <i>IT CPIC Guide: Managing IT Investments</i> states that the CIO's assessment reflects the overall performance of an investment and may be used to highlight an investment's risk, schedule delays, budget cuts, or changes in management teams. According to Labor officials on the IT governance team, the following factors are used to create the CIO rating for each investment on a monthly basis:</p> <ul style="list-style-type: none"> • cost and schedule data, including earned value; • metrics for performance goals, contracts status, risks, and periodic updates to budget authority dollar amounts; • managers' certifications and training; • achievement of project milestones; and • individual investment risks. 	A qualitative assessment of the factors.
Department of State (State)	e-Government Portfolio Management Office within the CIO organization	<p>According to officials from State's Office of the CIO, the following factors are used to create the CIO rating for each investment on a monthly basis:</p> <ul style="list-style-type: none"> • investment reviews that assess risk; • program and project performance, such as cost, schedule, scope, risks, and performance metrics; • reviews of investment artifacts, such as the project charter, acquisition plan, alternative analysis, user requirements documentation, system requirements documentation, and project management plan; and • risk management, such as corrective action plans. 	A qualitative assessment of the factors.

Appendix II: Selected Agencies' CIO Rating Processes

Agency	Responsibility for drafting the CIO rating	Factors used to create the CIO rating	How factors are used to determine the CIO rating
Department of Transportation (Transportation)	Office of IT Policy and Oversight	<p>According to Transportation's <i>Interim Investment Management Process Guidance</i>, CIO ratings are based on proposed ratings from components, which are reviewed and revised as necessary by the Office of the CIO. The department's Dashboard standard operating procedure states that the office's review generally focuses on rebaseline events, significant variance indicators, and how well prior concerns have been addressed. Officials also consider the following factors used to create the CIO rating for each investment on a monthly basis:</p> <ul style="list-style-type: none"> • cost, schedule, and risk management are reviewed by analysts against cost, schedule, and risk management baselines and re-plans; and • risk management is reviewed in terms of the quality and completeness of the risk management plan, risk register, program management plan, work breakdown structure, schedule, and budget. 	A qualitative assessment of the factors.
Department of the Treasury (Treasury)	Bureau CIOs, Office of the CIO	<p>According to Treasury's CIO rating scoring factors, there are four equally weighted factors which are used to create the CIO rating for each investment on a monthly basis:</p> <ul style="list-style-type: none"> • cost and schedule baseline management (whether variances are within established thresholds); • project risk management (an assessment of the probability and impact of the investment risk); • maturity (performance measures such as reporting accuracy and the inclusion of quantifiable baselines, targets, and actual results); and • discretion of the CIO. <p>In addition to the factors above, Treasury's Capital Planning and Investment Control guide describes a process whereby components can provide draft CIO comments. CIO officials also stated that they consider the maturity of the organization and its ability to perform based on the quality, accuracy, and consistency of their reporting.</p>	The factors are scored, weighted, and summed.

Appendix II: Selected Agencies' CIO Rating Processes

Agency	Responsibility for drafting the CIO rating	Factors used to create the CIO rating	How factors are used to determine the CIO rating
Department of Veterans Affairs (VA)	Program Planning and Oversight Management Representatives within the Office of the CIO	<p>According to VA officials, the following factors are used to create the CIO rating for each investment on a monthly basis:</p> <ul style="list-style-type: none"> • risk management (a strategy exists, the risks are clearly prioritized, the log is current and complete, and mitigation plans are in place to address the risks); • requirements management (the investment objectives are clear and the scope is controlled, requirements are clear and validated, appropriate stakeholders are involved in the requirements definition, and the investment charter is in place, current, and signed); • contractor oversight (the agency is providing appropriate management of contractors such that the government is monitoring, controlling, and mitigating the impact of any adverse contract performance); • historical performance (cost and schedule metrics are within established thresholds); and • human capital (qualified management team is within the vacancy rate thresholds). 	The factors are scored, averaged, and combined with a qualitative assessment of the investment.
Environmental Protection Agency (EPA)	Senior Information Officers and Information Management Officers within the Office of the CIO	<p>According to EPA officials, the following factors are used to create the CIO rating for each investment on a monthly basis:</p> <ul style="list-style-type: none"> • risk management (completeness and timeliness of plan of action and milestones, risk management plan, authorization to operate); • requirements management; • contractor oversight; • historical performance (cost and schedule variances); • human capital; and • other factors that are important to forecasting future success. 	The factors are scored, which guides a qualitative assessment.
General Services Administration (GSA)	IT Portfolio Management Team within the Office of the CIO	<p>According to GSA's <i>IT Guide to Capital Planning and Investment Control</i>, the following factors are used to create the CIO rating for each investment on a monthly basis:</p> <ul style="list-style-type: none"> • earned value management, • performance measures, • contractor oversight / vendor management, and • risks. <p>Officials added that project managers are required to submit monthly investment reports which include the above data, as well as risk management plans, operational analyses, alternative analyses, a project charter, and the number of baseline change requests. According to officials, the agency plans to move to a process that includes a quantitative assessment of investment risk.</p>	A qualitative assessment of the factors.

Appendix II: Selected Agencies' CIO Rating Processes

Agency	Responsibility for drafting the CIO rating	Factors used to create the CIO rating	How factors are used to determine the CIO rating
Office of Personnel Management (OPM)	CIO	<p>According to OPM's rating process documentation, CIO ratings are based upon OMB's factors as well as the following factors that are used to create the CIO rating for each investment on a monthly basis:</p> <ul style="list-style-type: none"> • performance measurement, • security and privacy (e.g., whether the information system security plan is current and the Privacy Impact Assessment screening is approved by the CIO), • project management (e.g., management certifications and the use of earned value tools), • technology management (such as compliance with all enterprise architecture and technology standards and the lack of dated or aging technology), and • investment outlook (factors that would impact delivery of the investment within planned cost and schedule milestones). 	A qualitative assessment of the factors and lessons learned.
Social Security Administration (SSA)	Deputy Commissioner for Systems and CIO, Program Managers, and IT Finance Management and Support	<p>According to officials from SSA, the CIO rating for each investment is a quarterly assessment based on OMB's factors as well as their knowledge of the health or risk of each investment, evolving or emerging contextual issues, cost and schedule performance (based on earned value), and operational performance metrics.</p>	A qualitative assessment of the factors.

Source: GAO analysis of agencies' process documentation and interviews with relevant officials. | GAO-16-494

Appendix III: Agencies and Investments Selected for Review

Table 15 lists the selected agencies and investments, including those which we exempted (as discussed in appendix I and shaded in gray), as well as the associated Chief Information Officer (CIO) ratings and our assessments.

Table 15: Agencies and Investments Selected for Review, Associated Chief Information Officer (CIO) Ratings, and Our Assessments

Agency	Investment title	April 2015 CIO rating	GAO assessment
Department of Agriculture	Optimized Computing Environment	Green	Red
Department of Commerce	Commerce Business Application Solutions	Yellow	
	Census Enterprise Data Collection and Processing	Yellow	Red
	Fee Processing Next Generation	Green	Yellow
	National Weather Service Integrated Dissemination Program	Yellow	Green
	Radio Spectrum Management - Federal Spectrum Management System	Red	
	Patent End-to-End 2	Yellow	Yellow
	Patent Trial and Appeal Board End to End	Green	Yellow
	Trademark Next Generation External	Green	Yellow
	2020 Decennial Census Research and Testing, Operational Development, and Systems Testing, Fiscal Year 2015 – Fiscal Year 2018	Yellow	Yellow
Department of Defense	Patents End-to-End: Software Engineering	Yellow	Yellow
	Trademark Next Generation 2	Green	Yellow
	Air Force Nuclear Command and Control Communications—Minimum Essential Emergency Communications Network Modernization	Green	Red
	Air and Space Operations Center-Weapon System Increment 10.2	Green	Yellow
	Air Force Integrated Personnel and Pay System	Green	Red
	Airborne and Maritime/Fixed Station Joint Tactical Radio System	Red	Yellow
	Area Common User System Modernization	Green	Red
	Aviation Tactical Communication Systems	Green	Red
	Base Information Transport Infrastructure Wired	Green	Yellow
	Consolidated Afloat Network Enterprise Services	Green	Red
	Defense Enterprise Accounting and Management System-Increment 1	Green	Red
	Department of Defense Healthcare Management System Modernization	Green	Red
	Distributed Common Ground System-Army Increment 1	Green	Yellow
	High Performance Computing Modernization Program	Green	Red
	Installation Information Infrastructure Modernization Program	Green	Red
	integrated Electronic Health Record Increment 1	Yellow	
	Integrated Personnel and Pay System-Army Increment 2	Green	Red

**Appendix III: Agencies and Investments
Selected for Review**

Agency	Investment title	April 2015 CIO rating	GAO assessment
Joint Chiefs of Staff	Joint Battle Command-Platform	Green	Red
	Joint Interoperability Test Command	Green	
	Joint Precision Approach And Landing System ^a	Green	Red
	Joint Space Operations Center Mission System Increment 1	Green	
	Joint Space Operations Center Mission System Increment 2	Green	Red
	Joint Tactical Radio System Handheld, Manpack, and Small Form Fit Radios	Red	Red
	Military Health System Information Technology Research Projects	Green	
	Mid-tier Networking Vehicular Radio	Green	Yellow
	Mission Planning Systems - Hardware Technical Refresh	Green	
	Next Generation Operational Control System	Red	Red
	Signal Modernization Program	Green	Red
	Tactical Airspace Integration System	Green	Green
	Tactical Mission Command	Yellow	Red
	Warfighter Information Network-Tactical Increment 2	Red	Red
	Warfighter Information Network-Tactical Increment 3	Red	Yellow
	Contracts and Purchasing Support System	Green	Yellow
	Data Challenges and Appeals Solution	Red	Yellow
	Educational Assessment	Green	Yellow
Department of Education	Enterprise Trusted Internet Connection	Green	Yellow
	Institute of Education Sciences Knowledge Utilization	Yellow	Green
	Office of Energy Efficiency and Renewable Energy Revised Enterprise Integration	Green	Yellow
	Identity, Credential, and Access Management	Yellow	Green
	Accountable Care Organizations	Yellow	Yellow
Department of Health and Human Services	Federally Facilitated Marketplace	Green	Yellow
	International Classification of Diseases, 10th Revision Initiative	Red	Yellow
	Medicaid and Children's Health Insurance Program Business Information and Solutions	Red	Yellow
	Master Data Management	Yellow	Red
	Medicare-Medicaid Financial Alignment	Red	Yellow
	Physician Feedback Program	Green	Yellow
	Federal Health Architecture	Green	Yellow
	Office of Medicare Hearings and Appeals Electronic Case Adjudication Processing Environment	Yellow	Red
	Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance	Green	Green
Department of Homeland Security	Continuous Diagnostics and Mitigation	Yellow	Green
	Next Generation Networks Priority Services	Green	Red

**Appendix III: Agencies and Investments
Selected for Review**

Agency	Investment title	April 2015 CIO rating	GAO assessment
Department of the Interior	National Flood Insurance Program IT Phoenix	Red	Red
	Remote Video Surveillance Systems	Yellow	Red
	TECS Modernization	Red	Yellow
	United States Citizenship and Immigration Services – Transformation	Yellow	Red
Department of the Interior	Integrated Reporting of Wildland-Fire Information	Yellow	Yellow
Department of Labor	Digital Government Integrated Platform	Green	
	Strategic Enforcement Achieves Compliance System and Prevailing Wage System	Yellow	
Department of State	Architecture Services	Green	Yellow
	Budget System Modernization	Green	Yellow
	Electronic Medical Record	Yellow	Red
	Global e-Travel Program	Green	Green
Department of Transportation	Automatic Dependent Surveillance-Broadcast	Green	Red
	Aeronautical Information Management Program Segment 2	Green	Green
	Common Support Services Weather	Green	Green
	Data Communications NextGen Support (DataComm)	Green	Yellow
	En Route Automation Modernization System Enhancements and Tech Refresh	Green	Yellow
	NextGen Research and Development Portfolio	Green	Yellow
	NextGen National Airspace System Voice System	Green	Red
	NextGen Weather Processor	Green	Yellow
	Runway Status Lights	Green	Green
	System Approach for Safety Oversight	Green	Green
	System Wide Information Management	Green	Yellow
	Terminal Flight Data Manager	Green	Yellow
	Unified Registration System	Yellow	Red
	Wide Area Augmentation System	Green	Yellow
	Next Generation Air/Ground Communications (NEXCOM) Segment 2	Green	Yellow
Department of the Treasury	Customer Account Data Engine 2	Green	Yellow
	Foreign Account Tax Compliance Act	Green	Yellow
	Post Payment System	Green	Red
	Enterprise Case Management	Green	
	Web Applications	Green	
Department of Veterans Affairs	Interagency 21st Century One Vet	Green	Red
Environmental Protection Agency	eManifest	Yellow	Red

**Appendix III: Agencies and Investments
Selected for Review**

Agency	Investment title	April 2015 CIO rating	GAO assessment
General Services Administration	Integrated Award Environment	Yellow	Green
	Office of Enterprise Infrastructure	Green	Green
	Order Management Service	Yellow	Yellow
Office of Personnel Management	Human Resources Line of Business		Green
Social Security Administration	Customer Engagement Tools	Yellow	Yellow
	Disability Case Processing System	Red	Yellow
	Earnings Redesign	Green	Green
	Electronic Services	Green	Red
	Infrastructure – Modernization	Yellow	Yellow
	Intelligent Disability	Green	Yellow
	National Support Center	Green	Green
	SMART Claim	Green	Red
	Supplemental Security Income Modernization	Green	Red

Source: GAO analysis of IT Dashboard and agencies' data. | GAO-16-494

^aAccording to Department of Defense officials, as of June 2015 the Joint Precision Approach And Landing System is no longer a major IT investment.

Appendix IV: Comments from the Department of Commerce



THE DEPUTY SECRETARY OF COMMERCE
Washington, D.C. 20530

May 4, 2016

Mr. David Powner
Director, Information Technology Management Issues
U.S. Government Accountability Office
441 G Street, NW
Washington, DC 20548

Dear Mr. Powner:

Thank you for the opportunity to review and comment on the Government Accountability Office's draft report titled *IT DASHBOARD: Agencies Need to Fully Consider Risks When Rating Their Major Investments* (GAO-16-494).

On behalf of the Department of Commerce, I have enclosed our comments on the draft report. We have concurred with the recommendation and will ensure that the Chief Information Officer ratings reflect the level of risk facing an investment relative to that investment's ability to accomplish its goals. We will do this following a process consistent with the one described in the report and will do this at least quarterly for each investment.

If you have any questions, please contact Steve Cooper, the Department's Chief Information Officer, at (202) 482-4797.

Sincerely,

Bruce H. Andrews

Enclosure

**Department of Commerce
Office of the Chief Information Officer
Office of the Secretary**

**Technical and Editorial Comments on the Draft GAO Report Titled *IT DASHBOARD:
Agencies Need to Fully Consider Risks When Rating Their Major Investments* (GAO-16-494)**

The Office of the Chief Information Officer (CIO) has reviewed the draft report, and our technical and editorial comments are below. Page numbers refer to page numbers in the report unless otherwise stated.

General Comments

The report is reasonable, and we concur with its findings and recommendations.

Recommended Changes for Factual/Technical Information

None.

Editorial Comments

The level of effort required to use the complete risk registers in a manner used by the Government Accountability Office (GAO) to compute the risk of an investment is beyond the capability of our office, so we will use a proxy measure based on the risk as identified in the Business Case (formerly known as the exhibit 300) which is a good indication of risk. We will measure this every three months and will report any discrepancy with our existing methodology. We expect that the Commerce measures will continue to show somewhat less risk on average than GAO found using their methods, since the CIO exercises judgment as to risk based on the mitigation used and the quality of the program office as demonstrated by their history of project management and skillset.

Appendix V: Comments from the Department of Defense

 CHIEF INFORMATION OFFICER	DEPARTMENT OF DEFENSE 6000 DEFENSE PENTAGON WASHINGTON, D.C. 20301-6000
Mr. David Powner Director, Information Technology U.S. Government Accountability Office 441 G Street, NW Washington, DC 20548	MAY 05 2016
Dear Mr. Powner:	
This is the Department of Defense (DoD) response to the GAO Draft Report GAO-16-494, "IT DASHBOARD: Agencies Need to Fully Consider Risks When Rating Their Major Investments," dated April 8, 2016 (GAO Code 100086). Attached is DoD's proposed response to the subject report. My point of contact is Mr. Al Johnson at 703-692-9240, roy.a.johnson22.civ@mail.mil .	
Sincerely,	
 David L. De Vries Principal Deputy	
Attachment: As stated	

**GAO DRAFT REPORT DATED APRIL 8, 2016
GAO-16-494 (GAO CODE 100086)**

**"IT DASHBOARD: AGENCIES NEED TO FULLY CONSIDER RISKS WHEN
RATING THEIR MAJOR INVESTMENTS"**

**DEPARTMENT OF DEFENSE RESPONSE
TO THE GAO RECOMMENDATIONS**

RECOMMENDATION 1: To better ensure that the Dashboard ratings more accurately reflect risk, GAO recommends that the Secretary of the Department of Defense direct the CIO to update the agency's CIO ratings on a monthly basis, as required in OMB's guidance.

DoD RESPONSE: DoD does not concur with this recommendation. Prior to issuance of OMB 15-14 and the FY17 Capital Planning Guidance, which GAO references as the requirement for monthly risk ratings, DoD provided semi-annually updates to the IT Dashboard. The Department's semi-annual reporting is consistent with FITARA requirements and is documented in the OMB-approved DoD FITARA Implementation Plan (October 2015). DoD will continue to update its IT Dashboard ratings semi-annually in accordance with this Plan and consistent with OMB approval.

RECOMMENDATION 2: To better ensure that the Dashboard ratings more accurately reflect risk, GAO recommends that the Secretary of the Department of Defense direct the CIO to ensure that the CIO ratings reflect the level of risk facing an investment relative to that investment's ability to accomplish its goals.

DoD RESPONSE: DoD partially concurs with the recommendation. DoD agrees with the need for risk ratings to reflect the risk relative to the investment's ability to accomplish its goals. That guidance is already included in the DoD existing IT Dashboard rating process guide (page 8), "Revised Department of Defense Chief Information Office Ratings Process for the Federal Information Technology Dashboard," dated March 25, 2014.

Appendix VI: Comments from the Department of Education



UNITED STATES DEPARTMENT OF EDUCATION

OFFICE OF THE CHIEF INFORMATION OFFICER

May 6, 2016

Mr. David Powner
Director
Information Technology
Management Issues
Government Accountability Office
441 G Street, NW
Washington, DC 20548

Dear Mr. Powner:

I am writing to respond to recommendations made in the Government Accountability Office (GAO) draft report, “IT Dashboard: Agencies Need to Fully Consider Risks When Rating Their Major Investments” (GAO-16-494). The report focused on the Chief Information Officers’ (CIO’s) ratings of information technology (IT) investments. The U.S. Department of Education (Department) appreciates the opportunity to respond to the GAO report and the need to provide visibility into the performance and health of IT investments.

The Department continues to strengthen its process for assessing the health of its IT investments. Below is our response to GAO’s specific recommendations to the Secretaries and Agency Heads of the 17 departments and agencies participating in the review:

Recommendation 1: *The Secretaries of the Departments of Agriculture, Education, Energy, Health and Human Services, State, the Interior and Veterans Affairs and the Director of the Office of Personnel Management direct their CIOs to factor active risks into their department’s IT Dashboard CIO ratings;*

Response: The Department concurs with this recommendation. The Department will expand the evaluation factors it uses to formulate the CIO Rating to include consideration of active risks as described by GAO.

Recommendation 2: *The Secretaries of the Departments of Defense, Education, and Homeland Security; and the Commissioner of SSA direct their CIOs to update their agencies’ CIO ratings on a monthly basis, as required in OMB’s guidance;*

Response: The Department partially concurs with the GAO recommendation. GAO correctly notes that the Department does not update the CIO rating on the dashboard each month without regard to a change in the CIO Rating. However, the Office of Management and Budget (OMB) guidance addresses dashboard update frequency in multiple places and the section that specifically addresses “CIO Evaluation” does not state that monthly updates are required. Specifically, the OMB FY 2017 IT Budget Guidance, Section 16 CIO Evaluation, pg. 25 states:

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www.ed.gov

Our mission is to ensure equal access to education and to promote educational excellence throughout the nation.

**Appendix VI: Comments from the Department
of Education**

The agency CIO should update the rating as soon as new information becomes available affecting the assessment of a given investment. The Office of the CIO reviews investments bi-monthly to consider revising the CIO rating unless new information becomes available. The Department has determined that it is not cost effective to conduct monthly CIO ratings in the absence of new information.

Recommendation 3: *The Secretaries of the Departments of Agriculture, Commerce, Defense, Education, Energy, Health and Human Services, Homeland Security, State, the Treasury, Transportation, Veterans Affairs; the Administrator of the Environmental Protection Agency; and the Commissioner of SSA direct their CIOs to ensure that their CIO ratings reflect the level of risk facing an investment relative to that investment's ability to accomplish its goals.*

Response: The Department concurs with this recommendation. The Department CIO currently ensures that the ratings reflect the CIO's best judgment of the level of risk facing the investment relative to the investment's ability to accomplish its goals. The Department's Investment Review Board Chair will provide specific guidance that the CIO should continue this practice.

Again, I appreciate the opportunity to respond to the GAO report. If you or your staff members have any questions regarding our response, please contact me at (202) 245-6908 or e-mail (ken.moore@ed.gov).

Sincerely,



Ken Moore
Acting Chief Information Officer

Appendix VII: Comments from the Department of Energy



Department of Energy
Washington, DC 20585

MAY 06 2016

Mr. David A. Powner
Director, Information Technology and Management Issues
U.S. Government Accountability Office
441 G Street, N.W.
Washington, D.C. 20548

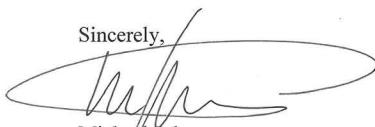
Dear Mr. Powner:

I am pleased to provide the Department of Energy's (DOE) response to the Government Accountability Office's (GAO) Draft report GAO-16-494, *IT Dashboard, Agencies Need to Fully Consider Risks When Rating Their Major Investments*. DOE concurs with GAO's recommendations relating to full consideration of all risks when rating Major information technology (IT) Investments.

DOE's Office of the Chief Information Officer (OCIO) will work collaboratively with the Program's IT executives to engage in a process to address the recommendations. Details concerning DOE's response are provided in Enclosure 1. Enclosure 2 contains technical comments that solicit clarification on a few points from Draft report GAO-16-494.

You may direct your questions to Mr. Robin Crisp, Director, Office of Enterprise Portfolio Management, at (202) 586-3942 or via e-mail to robin.crisp@hq.doe.gov.

Sincerely,


Michael Johnson
Chief Information Officer

Enclosures



Enclosure 1

MANAGEMENT RESPONSE
Draft GAO Report, GAO-16-494
IT DASHBOARD:

Agencies Need to Fully Consider Risks When Rating Their Major Investments

Recommendation:

The Secretary of the Department of Energy should direct its CIO to factor active risks into the Department's IT Dashboard CIO ratings.

Management Response: DOE concurs with this recommendation. DOE's Office of the CIO will include evaluation and assessment of active risks (e.g., budget cuts, staffing changes, transition to new support contract) into DOE's Standard Operating Procedure (SOP). The CIO's Evaluation criteria will, accordingly, reflect better the true likelihood of investment success. DOE expects to complete the update of this SOP by 12/31/2016—*after review of updated final OMB FY 2018 IT Budget Capital Planning Guidance* (in which OMB is planning to include updated CIO Evaluation criteria).

Recommendation:

The Secretary of the Department of Energy should direct its CIO to ensure the Department's CIO ratings reflect the level of risk facing an investment relative to that investment's ability to accomplish its goals.

Management Response: DOE concurs with this recommendation. DOE's Office of the CIO (OCIO) will develop an active risk sub-criteria to supplement its SOP for CIO Evaluation. This active risk sub-criteria will comprise active risk probability and impact, resulting in an overall risk exposure rating that will allow the CIO to more accurately evaluate the investment's ability to achieve its goals. Because such assessments of risk inherently involve human judgment (i.e., qualitative judgment), consultation with the IT Project Manager when needed, will also be included in order to ensure that the investment is meeting its milestones, and to obtain any additional information that may better inform the overall level of risk of the investment. DOE expects to develop this active risk sub-criteria and include it in the update of the OCIO SOP by 12/31/2016—*after review of updated final OMB FY 2018 IT Budget Capital Planning Guidance* (in which OMB is planning to include updated CIO Evaluation criteria).

Appendix VIII: Comments from the Department of Health and Human Services



DEPARTMENT OF HEALTH & HUMAN SERVICES

OFFICE OF THE SECRETARY

Assistant Secretary for Legislation
Washington, DC 20201

MAY 05 2016

Mr. David Powner
Director, Information Technology
U.S. Government Accountability Office
441 G Street NW
Washington, DC 20548

Dear Mr. Powner:

Attached are comments on the U.S. Government Accountability Office's (GAO) report entitled, "IT Dashboard: Agencies Need to Fully Consider Risks When Rating Their Major Investments" (GAO-16-494).

The Department appreciates the opportunity to review this report prior to publication.

Sincerely,

for Jim R. Esquea
Assistant Secretary for Legislation

Attachment

**GENERAL COMMENTS OF THE DEPARTMENT OF HEALTH AND HUMAN
SERVICES (HHS) ON THE GOVERNMENT ACCOUNTABILITY OFFICE'S DRAFT
REPORT ENTITLED: IT DASHBOARD: AGENCIES NEED TO FULLY CONSIDER
RISKS WHEN RATING THEIR MAJOR INVESTMENTS GAO-16-494 (100086)**

The Department appreciates the opportunity to review and comment on this draft report.

GAO Recommendation:

The Government Accountability Office (GAO) recommends that the Secretary of Health and Human Services take the following actions:

1. Direct the Chief Information Officer (CIO) to factor active risks into the IT Dashboard CIO rating.
2. Direct CIO's to ensure that their CIO ratings reflect the level of risk facing an investments ability to accomplish its goals.

HHS Response:

HHS concurs with the GAO's recommendations although they are based on a CIO Evaluation methodology that measured policy compliance (operational analysis and system development life cycle requirements) and investment performance (earned value metrics and operational performance metrics). HHS OCIO recognized the absence of risk considerations in the existing methodology prior to the initiation of this engagement, and was actively developing an improved CIO Evaluation methodology. The new methodology measures active risks in eleven different areas: visibility, budget variance, dependencies, performance, policy and governance compliance, reporting requirements, risk management, system development life cycle requirements, contract risk, cost and schedule variance, and human capital. The eleven risk areas reflect both internal and external risks that affect an investment's ability to accomplish its goals. This new methodology went into effect in January 2016 and scores are updated monthly. The Federal IT Dashboard is now reporting CIO Evaluations based on the new methodology.

Appendix IX: Comments from the Department of Homeland Security

U.S. Department of Homeland Security
Washington, DC 20528



Homeland Security

May 12, 2016

David A. Powner
Director, Information Technology Management Issues
U.S. Government Accountability Office
441 G Street, NW
Washington, DC 20548

Re: Draft Report GAO-16-494, “IT DASHBOARD: Agencies Need to Fully Consider Risks When Rating Their Major Investments”

Dear Mr. Powner:

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

The Department is pleased to note GAO’s recognition that the DHS Chief Information Officer (CIO) has incorporated all six of the Office of Management and Budget’s (OMB) suggested factors in its information technology (IT) investments risk rating process to help better plan, justify, and determine how to manage them. DHS is committed to ensuring compliance with OMB and related IT investment guidance and making certain that the Department’s investments support its mission and business needs with the lowest possible life cycle cost and least risk.

The draft report contained two recommendations for DHS, one with which the Department concurs and the other with which it non-concurs. Specifically, GAO recommended that the Secretary of Homeland Security direct the CIO to:

Recommendation 1: Update CIO ratings on a monthly basis, as required in OMB’s guidance.

Response: Non-concur. DHS already complies with OMB FY 2017 Capital Planning Guidance, which requires monthly updates of the OMB IT Dashboard (ITDB) investment data for Project, Activities, Contracts, Performance Metrics, and Risks. Specifically, DHS posts updates monthly to the ITDB, however, not all investments have program health assessments performed each month. CIO Program Health Assessments (CIO Ratings) are conducted monthly, quarterly, or semi-annually using a risk-based

methodology with rating factors including, but not limited to, risk management, requirements management, contractor oversight, historical performance, and human capital.

GAO interprets OMB's guidance as requiring CIO Rating updates for every IT major investment on the ITDB on a monthly basis, which differs from DHS's interpretation. DHS is aware that OMB will soon be clarifying its guidance, perhaps as early as June 2016. Based on recent discussions with OMB staff, DHS expects the updated guidance to confirm the Department's compliance with OMB's intended requirements.

We request that GAO consider this recommendation as resolved and closed (implemented).

Recommendation 2: Ensure that CIO ratings reflect the level of risk facing an investment relative to that investment's ability to accomplish its goals.

Response: Concur. The primary purpose for conducting program assessments is to determine the level of risk. Program assessments are evaluated against the investment's ability to accomplish its goal. The DHS OCIO Enterprise Business Management Office is refining its methodology to move the assessment process in this direction. Investment evaluation factors identified by OMB for assigning CIO ratings are being implemented. Specifically, DHS will ensure that:

1. risks are clearly prioritized by developing a process that illustrates risk prioritization, and
2. mitigation plans are in place to address risks by developing a process to expand the current mitigation statements into actionable plans.

Estimated Completion Date: December 31, 2016.

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

Sincerely,



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

Appendix X: Comments from the Department of the Interior



United States Department of the Interior

OFFICE OF THE SECRETARY
Washington, DC 20240

MAY 09 2016

Mr. David A. Powner
Director, Information Technology Management Issues
U.S. Government Accountability Office
441 G Street, NW
Washington, DC 20548

Dear Mr. Powner:

Thank you for providing the Department of the Interior (Department) the opportunity to review and comment on the draft Government Accountability Office (GAO) Report entitled *IT DASHBOARD: Agencies Need to Fully Consider Risks When Rating Their Major Investments* (GAO-16-494). We appreciate GAO's review of select federal agencies' data on the Office of Management and Budget's (OMB) Information Technology (IT) Dashboard regarding major IT investments.

The GAO issued a recommendation directing the Chief Information Officer (CIO) to factor active risks into the department's IT Dashboard CIO ratings. The Department concurs with the recommendation and is currently enhancing the CIO ratings process in order to maximize standardization across investment CIO ratings, and strengthen its assessment of active risks.

If you have any questions, or need additional information, please contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Kristen J. Sarri".

Kristen J. Sarri
Principal Deputy Assistant Secretary
Policy, Management and Budget

Appendix XI: Comments from the Department of State



United States Department of State
Comptroller
Washington, DC 20520

Dr. Loren Yager
Managing Director
International Affairs and Trade
Government Accountability Office
441 G Street, N.W.
Washington, D.C. 20548-0001

MAY 10 2016

Dear Dr. Yager:

We appreciate the opportunity to review your draft report,
“IT DASHBOARD: Agencies Need to Fully Consider Risks When Rating Their Major Investments.” GAO Job Code 100086.

The enclosed Department of State comments are provided for incorporation with this letter as an appendix to the final report.

If you have any questions concerning this response, please contact Paula Lee, IT Specialist, Office of Business Management and Planning, Bureau of Information Resource Management at (202) 453-9756.

Sincerely,

Christopher H. Flaggs
Christopher H. Flaggs

Enclosure:

As stated

cc: GAO – David Powner
IRM – Steven Taylor
State/OIG - Norman Brown

Department of State Response to GAO Draft Report

**IT DASHBOARD: Agencies Need to Fully Consider Risks When Rating
Their Major Investments
(GAO-16-494, GAO Code 100086)**

Thank you for the opportunity to comment on your draft report “*IT Dashboard: Agencies Need to Fully Consider Risks When Rating Their Major Investments.*”

To better ensure that the Dashboard ratings more accurately reflect risk, GAO is making recommendations that the Secretary of State:

- Direct the CIO to factor active risks into the Department’s IT Dashboard CIO ratings.

Response:

The Department of State agrees with the recommendation. The Department currently analyzes active risks when considering CIO IT Dashboard ratings. Active risks are evaluated as part of monthly earned value management, risk and performance metric management reviews as part of the Department’s IT governance activities. Significant risk events are also factored into CIO rating considerations.

- Direct the CIO to ensure that the CIO ratings reflect the level of risk facing an investment relative to that investment’s ability to accomplish its goals.

Response:

The Department of State agrees with the recommendation. As noted, the Department actively reviews risks on a monthly basis to determine whether each investment’s level of risk is acceptable relative to its ability to accomplish its goals. The Department presents this analysis to senior leadership when considering CIO ratings.

Appendix XII: Comments from the Department of Veterans Affairs



DEPARTMENT OF VETERANS AFFAIRS
WASHINGTON DC 20420

May 11, 2016

Mr. David A. Powner
Director
Information Technology Management Issues
U.S. Government Accountability Office
441 G Street, NW
Washington, DC 20548

Dear Mr. Powner:

The Department of Veterans Affairs (VA) has reviewed the U.S. Government Accountability Office's (GAO) draft report, "**IT DASHBOARD: Agencies Need to Fully Consider Risks When Rating Their Major Investments**" (GAO-16-494). VA agrees with GAO's conclusions and concurs with GAO's recommendations to the Department.

The enclosure specifically addresses GAO's recommendations in the draft report and provides an action plan.

VA appreciates the opportunity to comment on your draft report.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert D. Snyder".

Robert D. Snyder
Chief of Staff

Enclosure

Enclosure

Department of Veterans Affairs (VA) Comments to
Government Accountability Office (GAO) Draft Report
***"IT DASHBOARD: Agencies Need to Fully Consider Risks
When Rating Their Major Investments"***
(GAO-16-494)

GAO Recommendation: To better ensure that the Dashboard ratings more accurately reflect risk, GAO recommends that the Secretary of Veterans Affairs direct the CIO to:

Recommendation 1: factor active risks into the department's IT Dashboard CIO ratings.

VA Comment: Concur. VA is in the process of establishing the Enterprise Program Management Office (EPMO), which will be responsible for all program/project management and is undergoing a major transformation of its product planning, development, and release processes to more effectively serve customers and Veterans. VA will address the need to factor active risks into the Department's information technology (IT) Dashboard Chief Information Officer (CIO) ratings and amend its current monthly process to include a requirement for Investment Managers to review at least the top three active operational risks, verify that they are specific to the investment, and confirm that they are being appropriately managed, mitigated, and monitored to ensure they remain current, and that risk mitigation plans are in place. VA will require Investment Managers to consider relevant information and recent developments into their review process. VA's initial estimate for a target completion date is first quarter 2017.

Recommendation 2: ensure that the CIO ratings reflect the level of risk facing an investment relative to that investment's ability to accomplish its goal.

VA Comment: Concur. VA is in the process of establishing the EPMO, which will be responsible for all program/project management and is undergoing a major transformation of its product planning, development, and release processes to more effectively serve customers and Veterans. VA will ensure CIO ratings reflect the level of risk facing investments relative to accomplishing its goals by amending its current monthly process to include a requirement for Investment Managers to assess operational risks such as funding or staffing changes which detail the probability and impact of pending threats to success. VA will review individual project performance for cost and schedule into the overall risk assessment for the investment. The Office of Information and Technology's separate Quality and Performance Office will work with the EPMO and our IT Account Managers to properly make investment decisions jointly with the business to accomplish investment goals. VA's initial estimate for a target completion date is first quarter 2017.

Appendix XIII: Comments from the Environmental Protection Agency



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MAY 06 2016

MEMORANDUM

SUBJECT: EPA's Response to GAO-16-494, "IT DASHBOARD: Agencies Need to Fully Consider Risks When Rating Their Major Investments (100086)"

FROM: Ann Dunkin,
Chief Information Officer 

TO: David Hinchman,
Assistant Director,
GAO, Information Technology Management Issues

The Office of Environmental Information reviewed the Draft Report, GAO-16-494, "IT DASHBOARD: Agencies Need to Fully Consider Risks When Rating Their Major Investments (100086)." The purpose of this memorandum is to provide EPA's response to the report.

In the Draft Report, GAO recommended:

Recommendation:

The Secretaries of the Departments of Agriculture, Commerce, Defense, Education, Energy, Health and Human Services, Homeland Security, State, the Treasury, Transportation, Veterans Affairs, the Administrator of the Environmental Protection Agency; and the Commissioner of the SSA direct their CIOs to ensure that their CIO ratings reflect the level of risk facing an investment relative to that investment's ability to accomplish its goals."

Response:

While the EPA agrees all agency CIOs should "ensure that their CIO ratings reflect the level of risk facing an investment relative to that investment's ability to accomplish its goals," the recommendation, in citing only specific agencies, seems to indicate EPA does not consider an investment's ability to accomplish its goals as part of its CIO rating. Appendix II of the draft report provides a limited set of criteria used by the EPA to determine the CIO rating. The criteria includes the statement "... factors that are important to forecasting future success." It is clear from this statement EPA does consider an investment's ability to accomplish its goals as part of the CIO rating.

**Appendix XIII: Comments from the
Environmental Protection Agency**

During the GAO engagement, the EPA provided GAO with the narrative which goes out monthly with our IT Dashboard update request to investment owners. In addition, the EPA provided GAO the criteria which our Senior Information Officers use in establishing their recommended CIO rating for investments. Both the narrative and the criteria are provided in the attachment and show that risks are considered.

The EPA recognizes that there is a disagreement with the eManifest CIO Risk Rating on April 2015; however, that does not mean that EPA does not consider risks in the designation. Therefore, the EPA believes it should not be included in the list of agencies on page 28 that do not consider an investment's ability to accomplish its goals when setting a CIO rating since this is a critical factor in the EPA CIO ratings.

cc: Bob Trent, OCFO
Mark T. Howard, OCFO
Patricia Randolph Williams, OEI
Michael Rivera, OEI

Appendix XIV: Comments from the Office of Personnel Management



Chief Information Officer

UNITED STATES OFFICE OF PERSONNEL MANAGEMENT
Washington, DC 20415

MAY 09 2016

David Powner
Director, Information Technology, Management Issues
U.S. Government Accountability Office
441 G Street, NW
Washington, DC 20548

Dear Mr. Powner:

Thank you for providing us the opportunity to respond to the Government Accountability Office (GAO) draft report "IT DASHBOARD Agencies Need to Fully Consider Risks When Rating Their Major Investments" (GAO 16-494).

We recognize that even the most well run programs benefit from external evaluations and we appreciate your input as we continue to enhance our programs. Our response to your recommendation is provided below.

Recommendation: To better ensure that the Dashboard ratings more accurately reflect risk, we recommend that: the Secretaries of the Departments of Agriculture, Education, Energy, Health and Human Services, State, the Interior, and Veterans Affairs and the Director of the Office of Personnel Management direct their CIOs to factor active risks into their department's IT Dashboard CIO ratings.

Management Response:

We concur. OPM will factor active risks as an additional component of the CIO rating for the investments we report to the IT Dashboard starting with the next reporting period following the date of this letter.

I appreciate the opportunity to respond to this draft report. If you have any questions regarding our response, please contact Janet Barnes, Director of Internal Oversight and Compliance, at 202-606-3207.

Sincerely,

FOL
Lisa Schlosser
Acting Chief Information Officer

Appendix XV: Comments from the Social Security Administration



SOCIAL SECURITY Office of the Commissioner

May 6, 2016

Mr. David Powner
Director, Information Technology Management Issues
United States Government Accountability Office
441 G Street, NW
Washington, DC 20548

Dear Mr. Powner:

Thank you for the opportunity to review the draft report, "INFORMATION TECHNOLOGY: Agencies Need to Fully Consider Risks When Rating Their Major Investments" (GAO-16-494). Please see our enclosed comments.

If you have any questions, please contact me at (410) 965-0520. Your staff may contact Gary S. Hatcher, Senior Advisor for Records Management and Audit Liaison Staff, at (410) 965-0680.

Sincerely,

A handwritten signature in black ink, appearing to read "MC:JA".

Frank Cristaudo
Executive Counselor to the Commissioner

Enclosure

SOCIAL SECURITY ADMINISTRATION BALTIMORE, MD 21235-0001

COMMENTS ON THE GOVERNMENT ACCOUNTABILITY OFFICE (GAO) DRAFT REPORT, “INFORMATION TECHNOLOGY: AGENCIES NEED TO FULLY CONSIDER RISKS WHEN RATING THEIR MAJOR INVESTMENTS” (GAO-16-494)

GENERAL COMMENTS

SSA is committed to timely, accurate, and fully transparent Federal Information Technology (IT) Dashboard data and investment ratings. We understand our legal responsibilities pursuant to the Federal Information Technology Acquisition Reform Act (FITARA) and, Office of Management and Budget (OMB) guidance. We are making enterprise level improvements to important components of our Capital Planning and Investment Control (CPIC) framework including: incorporating new policies and procedures for our IT investment review board; implementing a new integrated CPIC tool to replace a number of dated systems; and reorganizing several IT governance groups into a single, coordinated component.

As mentioned in the report, we use all of OMB’s suggested factors when considering the Chief Information Officer (CIO) rating process. The report acknowledges that our CIO investment ratings include sound measuring criteria, but calls into question some of the rating results. OMB has reviewed our evaluations on the nine IT investments studied in this report and found us in compliance with the guidance. We stand by our assessments as we originally presented but will revisit our process and rating criteria and the source documentation for improvement opportunity. We appreciate the audit methodology and are in discussions with OMB to determine the correct timing to convert the Disability Case Processing System from red to yellow. Additionally, we recently downgraded the Supplemental Security Income Modernization from green to yellow.

Recommendation 1

Direct the CIO to update agency CIO ratings on a monthly basis, as required in OMB guidance.

Response

We agree. By the end of May 2016, we will expand our dashboard updates beyond cost, schedule, performance, and risk data to start reporting the CIO ratings on a monthly basis rather than quarterly.

Recommendation 2

Direct the CIO to ensure that the CIO ratings reflect the level of risk facing an investment relative to that investment’s ability to accomplish its goals.

Appendix XV: Comments from the Social Security Administration

Response

We agree that our agency head and CIO should work together to appropriately consider risks, but we disagree with any implication that they are not. We believe it is too early in FITARA implementation to conclude that following codified OMB guidance will result in agencies mis-estimating risk. Therefore, given our compliance with the law and OMB guidance, we believe the findings from this report should not imply that our risk assessments do not fulfill the legislative intent of FITARA.

Appendix XVI: GAO Contact and Staff Acknowledgments

GAO Contact

David A. Powner, (202) 512-9286 or pownerd@gao.gov

Staff Acknowledgments

In addition to the contact named above, individuals making contributions to this report included Dave Hinchman (Assistant Director), Karl Seifert (Assistant Director), Kevin Walsh (Assistant Director), Andrew Banister, Rebecca Eyler, Sandra Kerr, and Meredith Raymond.

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