



July 2015

# FEDERAL WORKFORCE

## Additional Analysis and Sharing of Promising Practices Could Improve Employee Engagement and Performance

# GAO Highlights

Highlights of [GAO-15-585](#), a report to congressional requesters

## Why GAO Did This Study

Research on both private- and public-sector organizations has found that increased levels of engagement—generally defined as the sense of purpose and commitment employees feel toward their employer and its mission—can lead to better organizational performance.

GAO was asked to review recent trends in federal employee engagement and steps OPM and agencies are taking to improve it. Among other things, this report: (1) describes trends in employee engagement from 2006 through 2014, (2) identifies practices in improving employee engagement, and (3) evaluates OPM's tools and resources to support employee engagement.

To meet these objectives, GAO analyzed responses to FEVS questions from 2006 through 2014, conducted a regression analysis, and reviewed OPM documents and interviewed OPM and other agency officials.

## What GAO Recommends

GAO recommends that the Director of OPM take the following three actions: (1) report annually on drivers of the EEI, (2) provide information on statistically significant changes in EEI scores, and (3) share examples and lessons learned to improve engagement and link engagement to performance in time to inform results of the next survey cycle. OPM concurred with the first recommendation and partially concurred with the second and third recommendations. GAO continues to believe that additional action on these recommendations is needed as discussed in the report.

View [GAO-15-585](#). For more information, contact Robert Goldenkoff at (202) 512-2757 or [goldenkoffr@gao.gov](mailto:goldenkoffr@gao.gov).

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## FEDERAL WORKFORCE

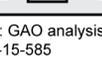
### Additional Analysis and Sharing of Promising Practices Could Improve Employee Engagement and Performance

## What GAO Found

From 2006 through 2014, government-wide engagement levels—as measured by the Office of Personnel Management's (OPM) Employee Engagement Index (EEI)—increased to an estimated high of 67 percent in 2011 and then declined to an estimated 63 percent in 2014. This decline is attributable to several large agencies—including the Department of Defense—bringing down the government-wide average. The government-wide decline masks the fact that the majority of federal agencies either sustained or increased EEI levels during the period. Of the three components that comprise the EEI—employees' perceptions of agency leaders, supervisors, and their intrinsic work experience—perceptions of leaders consistently received the lowest score.

GAO's regression analysis of selected Federal Employee Viewpoint Survey (FEVS) questions identified six practices as key drivers of the EEI (see table), with constructive performance conversations being the strongest.

**Strongest Drivers of the Employee Engagement Index, 2014**

Driver of engagement	FEVS question
 <b>Constructive performance conversations</b>	My supervisor provides me with constructive suggestions to improve my job performance (Q46).
 <b>Career development and training</b>	I am given a real opportunity to improve my skills in my organization (Q1).
 <b>Work-life balance</b>	My supervisor supports my need to balance work and other life issues (Q42).
 <b>Inclusive work environment</b>	Supervisors work well with employees of different backgrounds (Q55).
 <b>Employee involvement</b>	How satisfied are you with your involvement in decisions that affect your work (Q63)?
 <b>Communication from management</b>	How satisfied are you with the information you receive from management on what's going on in your organization (Q64)?

Source: GAO analysis of Office of Personnel Management (OPM) Federal Employee Viewpoint Survey (FEVS) data, 2014. | GAO-15-585

For example, at one agency, supervisors and employees developed a set of topics for quarterly performance conversations to ensure that employees receive consistent and regular constructive feedback and coaching.

OPM developed resources to help agencies use EEI data to strengthen employee engagement but fell short of supporting a holistic approach to improving engagement and linking to performance. For example, OPM does not report whether annual EEI changes are statistically significant—that is, whether the changes were meaningful or due to random chance. Likewise, OPM does not analyze which FEVS questions are associated with higher EEI scores. This information would help agencies better focus their efforts to improve engagement and target resources. Further, OPM has provided limited examples or lessons learned on linking engagement to agency performance, which agencies will need to inform their next survey cycle.

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## Abbreviations

CAP	Cross Agency Priority
CHCO	Chief Human Capital Officers
CFO Act	Chief Financial Officers Act of 1990
EI	Employee Engagement Index
EEO	Equal Employment Opportunity
FEVS	Federal Employee Viewpoint Survey
FTC	Federal Trade Commission
GPRAMA	GPRA Modernization Act of 2010
GS	General Schedule
MSPB	Merit Systems Protection Board
NCUA	National Credit Union Administration
OCIO	Office of the Chief Information Officer
OGC	Office of General Counsel
OPM	Office of Personnel Management
SES	Senior Executive Service

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July 14, 2015

Congressional Requesters:

A growing body of research on both private- and public-sector organizations has found that increased levels of engagement—generally defined as the sense of purpose and commitment employees feel toward their employer and its mission—can lead to better organizational performance.<sup>1</sup> Employee engagement is particularly important within federal agencies, where employees influence the well-being and safety of the public in myriad ways, such as by conducting advanced scientific research, verifying and administering benefits, or ensuring the safety of our workplaces, airports, and national borders. However, government-wide levels of employee engagement have recently declined 4 percentage points, from an estimated 67 percent in 2011, to an estimated 63 percent in 2014, as measured by the Office of Personnel Management’s (OPM) Federal Employee Viewpoint Survey (FEVS), and a score OPM derived from the FEVS beginning in 2010—the Employee Engagement Index (EEI).

In advance of the 2015 FEVS cycle, which began this spring, the administration elevated the importance of strengthening employee engagement across government. For example, strengthening employee engagement is one of three subgoals of the People and Culture Cross Agency Priority (CAP) goal,<sup>2</sup> established under the GPRAMA Modernization Act of 2010 (GPRAMA).<sup>3</sup> Moreover, agency leaders are to be held

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<sup>1</sup>Office of Personnel Management, *2014 Federal Employee Viewpoint Survey Results: Employees Influencing Change: Government-wide Management Report* (Washington, D.C.: 2014).

<sup>2</sup>The other two People and Culture CAP goal subgoals are (1) build a world-class federal management team starting with the SES, and (2) enable agencies to recruit and hire the best talent. Required by GPRAMA, Cross Agency Priority (CAP) goals are designed to address management challenges that are government-wide or crosscutting in nature. 31 U.S.C § 1115(a)(6), (h)(2). CAP goals are a tool intended to accelerate progress on a limited number of priority areas where implementation requires active collaboration between multiple agencies. In the President’s fiscal year 2015 budget, the administration announced 15 CAP goals with a 4-year time horizon.

<sup>3</sup>Pub. L. No. 111-352, 124 Stat. 3866 (2011). GPRAMA updated the Government Performance and Results Act of 1993, Pub. L. No. 103-62, 107 Stat. 285 (1993) (GPRA).

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accountable for making employee engagement a priority, as well as an integral part of their agency's performance management system. The administration also set a goal for these efforts: by the issuance of the 2016 FEVS results, the federal government is expected to increase employee engagement—as measured by the EEI—from 63 percent to 67 percent. In addition, as part of their annual performance plans and appraisals, members of the Senior Executive Service (SES) will be responsible for improving employee engagement within their organizations and for creating inclusive work environments.

Given the decline in employee engagement government-wide, you asked us to examine the federal government's efforts to strengthen employee engagement. This report (1) describes trends in employee engagement as measured by the FEVS, (2) identifies key practices and lessons learned in developing and implementing strategies to improve employee engagement, and (3) evaluates OPM's tools and resources to support agency efforts to improve engagement as it relates to organizational performance. In April 2015, we testified on our review's preliminary results.<sup>4</sup>

To describe trends in employee engagement as measured by the EEI, we analyzed responses to questions from the FEVS (from which the EEI is derived) for the years 2006 through 2014. We started with 2006 to include trends across two different presidential administrations. Because OPM calculates the EEI and its component scores at the group level, we used data from OPM to recalculate the EEI for each individual, which enabled us to conduct regression analysis and assess the statistical significance of changes in the EEI. The individual level calculation is scaled between 0 and 100 and is based on the proportion of each individual's positive responses to the 15 constituent EEI questions.<sup>5</sup> For 2006 and 2008, we calculated the EEI using only 11 of the 15 EEI questions because the 2006 and 2008 surveys did not include four EEI questions that were added to the survey in 2010. We did not make comparisons from 2008 to 2010 because of the change in the index composition.

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<sup>4</sup>GAO, *Federal Workforce: Preliminary Observations on Strengthening Employee Engagement During Challenging Times*, [GAO-15-529T](#) (Washington, D.C.: Apr. 16, 2015).

<sup>5</sup>OPM calculates the EEI by averaging the EEI component scores for a given group, subgroup, or agency, which are an average of the percent positive responses to each of the questions in the respective components of the EEI—leaders lead, supervisors, and intrinsic work experience.

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We analyzed this information government-wide, by agency, and for selected employee population groups. For each analysis, we determined statistically significant changes in the EEI.<sup>6</sup> To assess the reliability of the FEVS data, we examined descriptive statistics and data distribution, and reviewed missing data. We also reviewed FEVS technical documentation as well as the statistical code OPM uses to generate the index and variance estimates. Based on this analysis, we found the data sufficiently reliable for our purposes. For additional details on our analysis of FEVS data, see appendixes I and II.

To identify key practices and lessons learned in developing and implementing strategies to improve employee engagement, we (1) reviewed relevant literature and interviewed knowledgeable researchers, government officials from the United Kingdom, Canada, and Australia responsible for their comparable public-sector employee survey, and consultants on employee engagement; (2) used linear multiple regression analysis to assess the relationship between specific FEVS questions and the 2014 EEI, after controlling for other factors;<sup>7</sup> and (3) reviewed documents and interviewed officials from three case study agencies. We considered the agencies that had the highest average sustained EEI scores, most improved overall EEI scores; and most improved leadership component scores in the EEI from 2010 to 2014. We selected the National Credit Union Administration (NCUA), the Federal Trade Commission (FTC), and the Department of Education (Education) to ensure that we included agencies that had high scores in one or more of the three metrics we identified and that we included at least one Chief Financial Officers Act of 1990 (CFO Act) agency.<sup>8</sup>

To evaluate the support OPM provides to agencies to improve employee engagement, we reviewed OPM guidance, tools, and resources regarding use of FEVS data and related engagement action planning; we also

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<sup>6</sup>To determine whether changes were statistically significant, we measured whether the confidence intervals overlapped. See appendix II for more information on our testing methodology.

<sup>7</sup>For additional details on our regression analysis, see appendixes III and IV.

<sup>8</sup>The CFO Act agencies are the executive branch agencies listed at section 901(b) of title 31, United States Code. The agencies covered by the CFO Act, as amended, are generally the largest federal agencies and account for over 98 percent of the federal workforce.

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interviewed OPM and case study agency officials and members of the Chief Human Capital Officers (CHCO) Council and National Council on Federal Labor-Management Relations joint working group on employee engagement.

We conducted this performance audit from July 2014 to July 2015 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.

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## Background

Engaged employees are more than simply satisfied with their jobs. Instead, according to employee engagement literature, engaged employees

- take pride in their work,
- are passionate about and energized by what they do,
- are committed to the organization, the mission, and their job, and
- are more likely to put forth extra effort to get the job done.

A number of studies of private-sector entities have found that increased levels of engagement result in better individual and organizational performance including increased employee performance, productivity, and profit margins; higher customer service ratings; fewer safety incidents; and less absenteeism and turnover. Studies of the public sector, while more limited, have shown similar benefits. For example, the Merit Systems Protection Board (MSPB) found that higher levels of employee engagement in federal agencies led to improved agency performance, less absenteeism, and fewer equal employment opportunity complaints.<sup>9</sup>

The FEVS measures employees' perceptions of whether, and to what extent, conditions characterizing successful organizations are present in

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<sup>9</sup>U.S. Merit Systems Protection Board, *The Power of Federal Employee Engagement* (Washington, D.C.: September 2008). Results were based on responses to MSPB's Merit Principles Survey, which asks employees about their perceptions of their jobs, work environments, supervisors and agencies and is administered approximately every 3 to 4 years.

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their agencies. OPM has conducted this survey every year since 2010.<sup>10</sup> The EEI is composed of 15 FEVS questions covering the following areas:

- Leaders lead, which surveys employees' perceptions of the integrity of leadership, as well as employees' perception of leadership behaviors such as communication and workforce motivation.<sup>11</sup>
- Supervisors, which surveys employees' perceptions of the interpersonal relationship between worker and supervisor, including trust, respect, and support.<sup>12</sup>
- Intrinsic work experience, which surveys employees' feelings of motivation and competency relating to their role in the workplace.

According to OPM, the EEI does not directly measure employee engagement. Instead, it covers the conditions that lead to employee engagement. Specifically, OPM noted that organizational conditions lead to feelings of engagement, which in turn lead to engagement behaviors, such as discretionary effort, and then to optimum organizational performance.

Sometimes the EEI is discussed in the same context as another workforce metric, the Partnership for Public Service's *Best Places to Work in the Federal Government* rankings. Although these scores are also derived from the FEVS, they were created as a way of rating employee satisfaction and commitment across federal agencies. The rankings are calculated using a weighted formula of three different questions from OPM's FEVS: (1) I recommend my organization as a good place to work, (2) considering everything, how satisfied are you with your job, and (3) considering everything, how satisfied are you with your organization.

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<sup>10</sup>From 2002 to 2008, OPM administered the survey biennially.

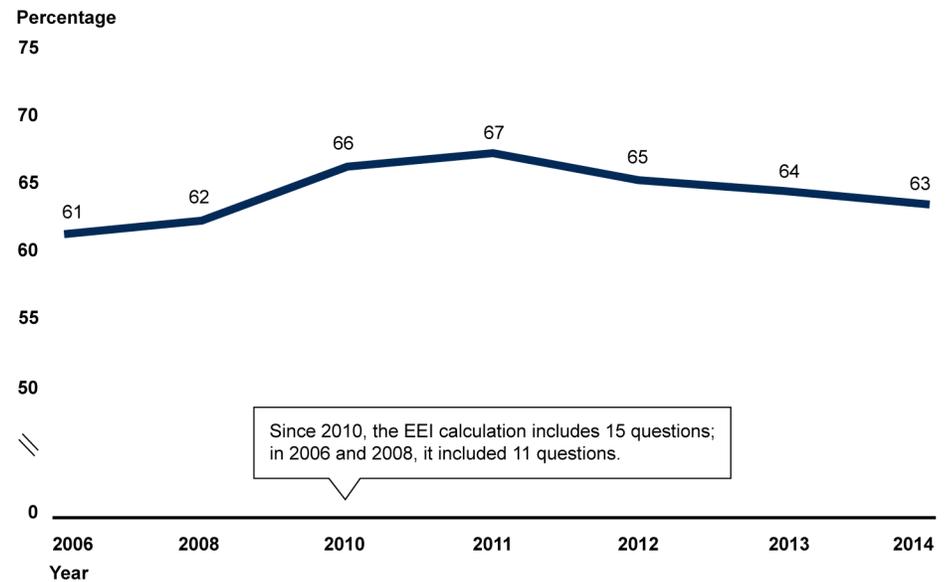
<sup>11</sup>The leaders lead component includes questions about (1) senior leaders—department or agency heads and their immediate leadership team, responsible for directing policies and priorities and typically members of the senior executive service or equivalent (career or political), and (2) managers—those in management positions who typically supervise one or more supervisors.

<sup>12</sup>The supervisors component includes questions about first-line supervisors who are typically responsible for employees' performance appraisals but do not supervise other supervisors.

## Most Agencies Did Not Follow the Government-wide Downward Trend and Maintained or Improved Engagement Levels

The recent government-wide average decline in the EEI masks the fact that the majority of federal agencies sustained and a few increased EEI levels during the same period. From 2006 through 2014, government-wide EEI levels increased to an estimated high of 67 percent in 2011 and then declined to an estimated 63 percent in 2014, as shown in figure 1.<sup>13</sup>

**Figure 1: Trends in the Employee Engagement Index (EEI) Government-wide, 2006 to 2014**



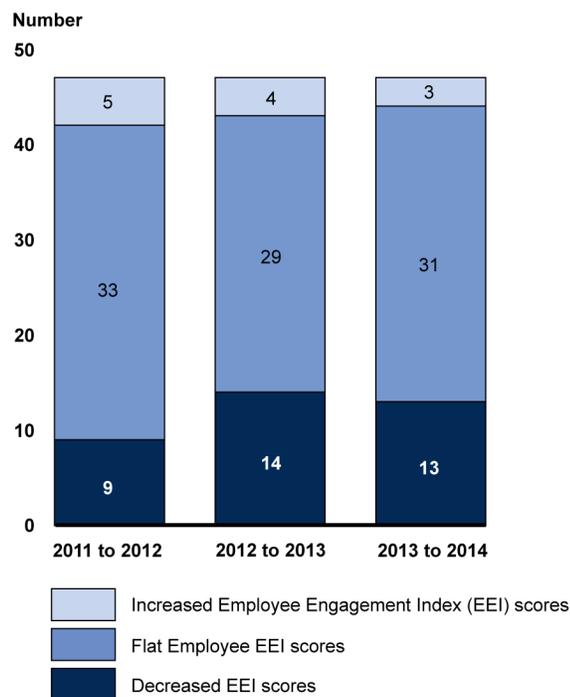
Source: GAO analysis of Office of Personnel Management (OPM) Federal Employment Viewpoint Survey (FEVS) data, 2006-2014. | GAO-15-585

Notes: OPM's FEVS was administered biennially prior to 2010 and annually thereafter. OPM began calculating the EEI in 2010. To determine the EEI for 2006 and 2008, because the FEVS did not include four questions currently used in the EEI, we included only 11 of the 15 EEI questions. We tested the comparability of the 2006 and 2008 estimates with the 2010-2014 estimates and found the trend line with a peak in 2011 was similar when the estimates were plotted by year, but we did not make comparisons from 2008 to 2010 because of the change in the index composition. The EEI estimates shown in this figure have sampling variability of no more than plus or minus 1 percentage point at the 95 percent level of confidence. Data represent agencies with a minimum of 5 years of FEVS data for the years analyzed and at least 100 respondents.

<sup>13</sup>For purposes of this analysis, government-wide means estimates for the 47 agencies with a minimum of 5 years of FEVS data for the years analyzed and at least 100 respondents.

The decline in the EEI that began after 2011 is the result of several large agencies bringing down the government-wide average. For example, we found that 13 out of 47 agencies saw a statistically significant decline in their EEI score from 2013 to 2014. While this is 28 percent of agencies, they employ nearly 69 percent of federal employees and include the Department of Defense, Department of Homeland Security, and Department of Veterans Affairs. Meanwhile, the majority of agencies sustained their EEI levels and a few improved them, as shown in figure 2. Between 2013 and 2014, of 47 agencies included in our analysis of the EEI, 3 increased their scores, 31 held steady, and 13 declined.

**Figure 2: Number of Agencies with Statistically Significant Changes in or Flat Employee Engagement Index (EEI) Levels during Government-wide Decline in the EEI, 2011 to 2014**



Source: GAO analysis of Office of Personnel Management (OPM) Federal Employment Viewpoint Survey (FEVS) data, 2011-2014. | GAO-15-585

Note: Data represent agencies with a minimum of 5 years of FEVS data for the years analyzed and at least 100 respondents. The counts in each bar sum to the number of agencies (from among the group that we analyzed) who participated in the FEVS in the given year. Statistical significance was determined by comparing whether the 95 percent confidence intervals around the agency estimate overlapped or not. A t-test was not conducted to determine if overlapping confidence intervals were statistically different.

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The recent government-wide downward trend in employee engagement levels coincided with external events—such as sequestration, furloughs, and a 3-year freeze on statutory annual pay adjustments from 2011 to 2013—that OPM and others contend negatively affected federal employee morale.<sup>14</sup> For example, in March 2014, we reported that officials from agencies—including those that furloughed employees—raised concerns about how sequestration affected the morale of current employees.<sup>15</sup>

Even one agency with a downward trending engagement score is not to be taken lightly and there is opportunity for improvement at all federal agencies. However, the large number of agencies that sustained or increased their levels of employee engagement during this time suggests that agencies can positively influence employee engagement levels even as they weather difficult external circumstances. For example, the FTC maintained a consistent estimated 76 percent EEI score—well above the government-wide average—throughout the period of general decline.

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### Leadership Component of the EEI Consistently Scores the Lowest

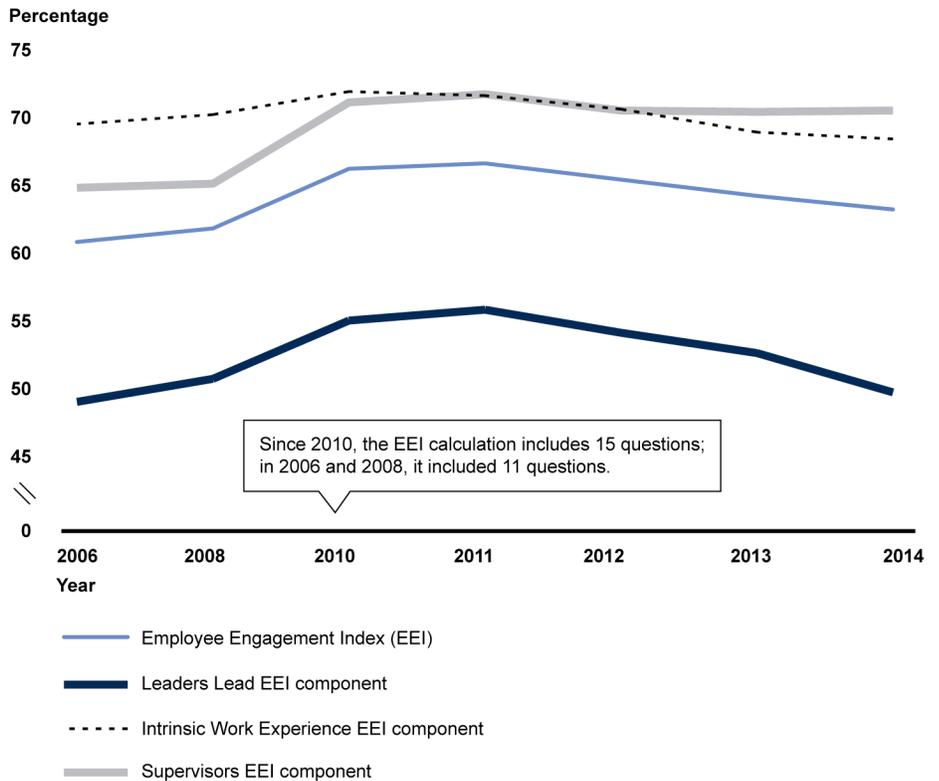
Of the three components that comprise the EEI, employees' perceptions of leaders consistently received the lowest score, and at times was about 20 percentage points lower than the other components. Moreover, from a high point in 2011, leadership scores saw the greatest decrease and accounted for much of the government-wide average decline in the EEI, as figure 3 shows.

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<sup>14</sup>Sequestration is an automatic across-the-board cancellation of budgetary resources. Sequestration was first established in the Balanced Budget and Emergency Deficit Control Act of 1985 to enforce discretionary spending limits and control the deficit. 2 U.S.C. §§ 900–907d. Accordingly, on March 1, 2013, the President ordered a sequestration to achieve \$85.3 billion in reductions across federal government accounts.

<sup>15</sup>See GAO, *2013 Sequestration: Agencies Reduced Some Services and Investments, While Taking Certain Actions to Mitigate Effects*, [GAO-14-244](#) (Washington, D.C.: Mar. 6, 2014).

**Figure 3: Estimated Employee Engagement Index (EEI) and EEI Component Scores for Leaders Lead, Supervisors, and Intrinsic Work Experience, 2006 to 2014**



Source: GAO analysis of Office of Personnel Management (OPM) Federal Employment Viewpoint Survey (FEVS) data, 2006-2014. | GAO-15-585

Note: OPM’s FEVS was administered biennially prior to 2010 and annually thereafter. OPM began calculating the EEI in 2010. Because the 2006 and 2008 FEVS did not include four questions currently used in the EEI, to determine the EEI for those years we used 11 of the 15 EEI questions. We tested the comparability of the 2006 and 2008 estimates with the 2010-2014 estimates and found the trend lines were similar when the estimates were plotted by year, but we did not make comparisons from 2008 to 2010 because of the change in the index composition. Index estimates shown in this figure have sampling variability of no more than plus or minus 1 percentage point at the 95 percent level of confidence. Data represent agencies with a minimum of 5 years of FEVS data for the years analyzed and at least 100 respondents.

The questions comprising the EEI leadership component focus on integrity of leadership and on leadership behaviors such as communication and workforce motivation (see table 1). Three of the five questions are specific to senior leaders—department or agency heads and their immediate leadership team responsible for directing policies and priorities and typically members of the Senior Executive Service or equivalent (career or political). Two are specific to managers—those in management positions who typically supervise one or more supervisors.

In our 2003 work on transformations, we found that leaders are the key to organizational change—they must set the direction, pace, and tone, and provide a clear, consistent rationale that brings everyone together behind a single mission.<sup>16</sup>

**Table 1: Employee Engagement Index Questions from the Federal Employee Viewpoint Survey**

Leaders lead questions	Supervisors questions	Intrinsic work experience questions
<ul style="list-style-type: none"> <li>In my organization, senior leaders generate high levels of motivation and commitment in the workforce.</li> <li>My organization's senior leaders maintain high standards of honesty and integrity.</li> <li>Managers communicate the goals and priorities of the organization.</li> <li>Overall, how good a job do you feel is being done by the manager directly above your immediate supervisor?</li> <li>I have a high level of respect for my organization's senior leaders.</li> </ul>	<ul style="list-style-type: none"> <li>Supervisors in my work unit support employee development.</li> <li>My supervisor listens to what I have to say.</li> <li>My supervisor treats me with respect.</li> <li>I have trust and confidence in my supervisor.</li> <li>Overall, how good a job do you feel is being done by your immediate supervisor?</li> </ul>	<ul style="list-style-type: none"> <li>I feel encouraged to come up with new and better ways of doing things.</li> <li>My work gives me a feeling of personal accomplishment.</li> <li>I know what is expected of me on the job.</li> <li>My talents are used well in the workplace.</li> <li>I know how my work relates to the agency's goals and priorities.</li> </ul>

Source: Office of Personnel Management. | GAO-15-585

The relative strength of the supervisors component of the EEI suggests that the employee-supervisor relationship is an important aspect of employee engagement. These questions focus on the interpersonal relationship between worker and supervisor and concern supervisors' support for employee development, employees' respect, trust, and confidence in their supervisor, and employee perceptions of an immediate supervisor's performance.<sup>17</sup> This is consistent with MSPB research, which suggests that first-line supervisors are key to employee engagement and organizational performance.<sup>18</sup>

Intrinsic work experience was the strongest EEI component prior to 2011, but fell during the period of government-wide decline in engagement

<sup>16</sup>GAO, *Results-Oriented Cultures: Implementation Steps to Assist Mergers and Organizational Transformations*, GAO-03-669 (Washington, D.C.: July 23, 2003).

<sup>17</sup>FEVS defines supervisor as first-line supervisors typically responsible for employees' performance appraisals and leave approval. This individual does not supervise other supervisors.

<sup>18</sup>U.S. Merit Systems Protection Board, *A Call to Action: Improving First-Level Supervision of Federal Employees* (Washington, D.C.: May, 2010).

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levels. These questions reflect employees' feelings of motivation and competency related to their role in the workplace, such as their sense of accomplishment and their perception of utilization of their skills.

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### Pay Category and Supervisory Status Had the Widest Variation in EEI Levels

Understanding how employee engagement varies within differing populations of employees can enable agency leaders to consider how different cohorts experience their environment and thus can help leadership determine how to focus engagement efforts. For example, knowing that employees with fewer supervisory responsibilities could be less engaged—and could be having a negative effect on organizational performance—could spur agency leaders to direct additional resources to understanding the needs of this subset of the workforce and improving their sense of engagement.

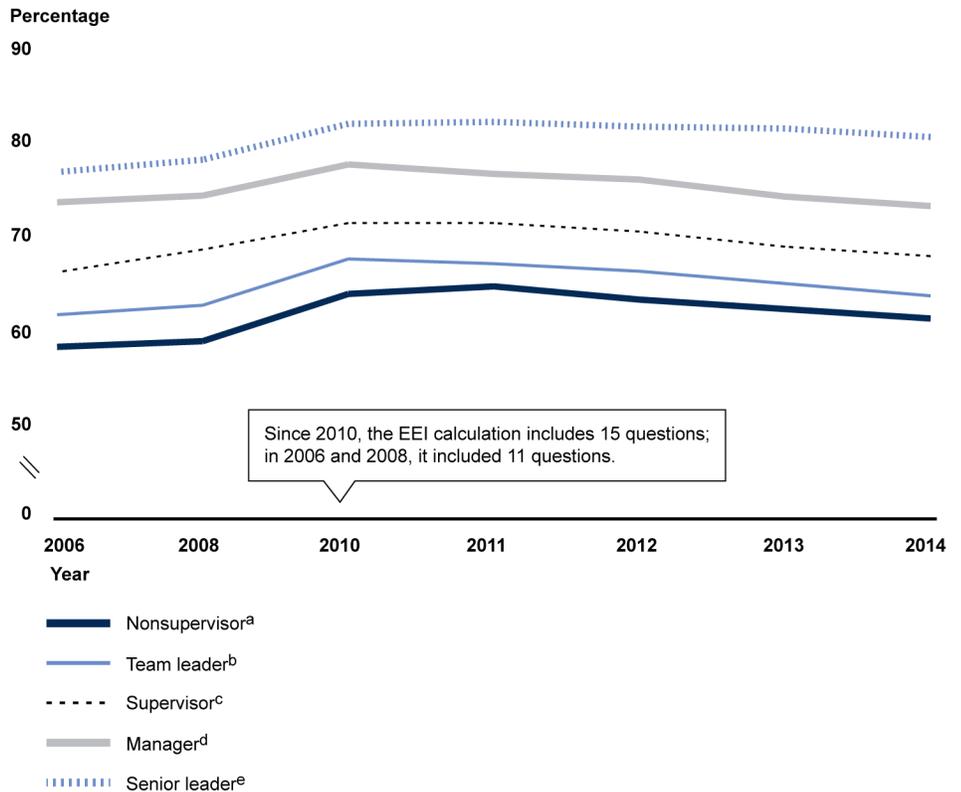
We found that government-wide, the greatest variation in EEI levels was related to pay category and supervisory status. For example, respondents in progressively lower General Schedule (GS) pay categories had progressively lower levels of engagement government-wide. In contrast, employees in the SES pay category reported consistently higher engagement levels—at least 10 percent more than any lower pay category. While there was less difference between the EEI levels of other pay categories, employees in the GS 13 through 15 categories consistently had higher EEI levels than employees in all other lower GS pay categories. Employees in the Prevailing Rate System, commonly known as the wage grade system, consistently had the lowest EEI levels.<sup>19</sup> For example, in 2014, EEI levels for respondents in the SES pay category were an estimated 84.2 percent compared to an estimated 54.7 percent for respondents in the wage grade pay category.

Similarly, respondents with fewer supervisory responsibilities had progressively lower EEI levels government-wide. Because employees in higher pay categories are likely to have more supervisory responsibilities, responses by pay category and supervisory status represent similar populations. Variations in EEI levels by supervisory status are shown in figure 4.

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<sup>19</sup>The Prevailing Rate System is a uniform pay-setting system that covers federal employees who are paid by the hour. The system's goal is to make sure that federal trade, craft, and laboring employees within a local wage area who perform the same duties receive the same rate of pay. 5 U.S.C. § 5343.

**Figure 4: Estimated Employee Engagement Index Government-wide by Supervisory Status, 2006 to 2014**



Source: GAO analysis of Office of Personnel Management (OPM) Federal Employment Viewpoint Survey (FEVS) data, 2006-2014. | GAO-15-585

Notes: OPM's FEVS was administered biennially prior to 2010, when OPM began calculating the EEI, and annually thereafter. Because the 2008 and 2010 FEVS did not include four questions currently used in the EEI, to determine the EEI for those years we used 11 of the 15 EEI questions. We tested the comparability of the 2006 and 2008 estimates with the 2010-2014 estimates and found the trend lines were similar when the estimates were plotted by year, but we did not make comparisons from 2008 to 2010 because of the change in the index composition. Employee Engagement Index estimates for the categories of the employee supervisory status variable have sampling variability of no more than plus or minus 1.5 percentage point at the 95 percent level of confidence except for those in the senior leader category, which have a sampling variability of no more than plus or minus 5.1 percentage points at the 95 percent level of confidence. Data represent agencies with a minimum of 5 years of FEVS data for the years analyzed and at least 100 respondents.

<sup>a</sup>Nonsupervisor means anyone who does not have supervisory responsibilities.

<sup>b</sup>Team leader means someone who provides employees with day-to-day-guidance, but does not have supervisory responsibilities or conduct performance appraisals.

<sup>c</sup>Supervisor means first-line supervisors typically responsible for employees' performance appraisals but that do not supervise other supervisors.

<sup>d</sup>Manager means those in management positions who typically supervise one or more supervisors.

<sup>e</sup>Senior leader means the political or career agency or department head or a member of the immediate leadership team responsible for directing the policies and priorities of the department or

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agency. The individual is typically a member of the Senior Executive Service (SES) or equivalent. Prior to 2014, this category was called Executive and was defined as a member of the SES or equivalent.

With respect to other populations of employees, agency tenure, federal tenure, age, and race consistently resulted in some variation but less than pay category and supervisory status.<sup>20</sup> For example, in 2014, American Indian or Alaska Native respondents reported the lowest engagement for any race category with an estimated EEI of 57.6. Asian respondents reported the highest levels of engagement with an estimated EEI score of 68.4.<sup>21</sup>

Gender, ethnicity (Hispanic/non-Hispanic), and work location (headquarters/field) consistently had the least variation. For example, in 2014, males had an estimated EEI of 63.2 percent and females an estimated EEI of 63.3 percent.<sup>22</sup> For results of our analysis of employee population groups, see appendix II.

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## Key Drivers and Lessons Learned for Strengthening Employee Engagement

Overall we found that what matters most in improving engagement levels is valuing employees—that is, an authentic focus on their performance, career development, and inclusion and involvement in decisions affecting their work. The key is identifying what practices to implement and how to implement them, which can and should come from multiple sources—FEVS and other data sources, other agencies, and OPM. The lessons learned from our three case study agencies were that the goal should not be to just increase a number—that is, have a high EEI—but should also include a focus on improving the organization.

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<sup>20</sup>For the employee population groups of disability, education, sexual orientation, and veteran status, there were 3 years or less of data, so we did not assess differences in variation across years for those employee population groups.

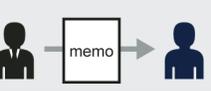
<sup>21</sup>These index estimates have a margin of error of less than plus or minus 1 percentage point.

<sup>22</sup>These index estimates have a margin of error of less than plus or minus 1 percentage point.

## Performance Conversations Are the Strongest Drivers of EEI Levels

Of the various topics covered by the FEVS that we analyzed, we identified six that had the strongest association with higher EEI levels compared to others, as described in figure 5. We used regression analysis to test which selected FEVS questions best predicted levels of employee engagement as measured by the GAO-calculated EEI, after controlling for other factors such as employee characteristics and agency.

**Figure 5: Strongest Drivers of the Employee Engagement Index, 2014**

Driver of engagement	FEVS question
 <b>Constructive performance conversations</b>	My supervisor provides me with constructive suggestions to improve my job performance (Q46).
 <b>Career development and training</b>	I am given a real opportunity to improve my skills in my organization (Q1).
 <b>Work-life balance</b>	My supervisor supports my need to balance work and other life issues (Q42).
 <b>Inclusive work environment</b>	Supervisors work well with employees of different backgrounds (Q55).
 <b>Employee involvement</b>	How satisfied are you with your involvement in decisions that affect your work (Q63)?
 <b>Communication from management</b>	How satisfied are you with the information you receive from management on what's going on in your organization (Q64)?

Source: GAO analysis of Office of Personnel Management (OPM) Federal Employee Viewpoint Survey (FEVS) data, 2014. | GAO-15-585

Notes: Results are based on a linear multiple regression analysis of all FEVS respondents that controlled for 18 potential driver questions, individual level demographic characteristics, and 37 distinct agencies. To set a practical threshold for significance when defining drivers for this discussion, we defined as drivers those FEVS questions for which each positive increase in response was associated with an average 3 percentage point or greater increase in the EEI. Other questions included in our model were statistically significant predictors of engagement, but implied a relatively smaller impact on engagement scores.

**Constructive performance conversations.** We found that having constructive performance conversations was the strongest driver of the EEI. For the question “My supervisor provides me with constructive suggestions to improve my job performance,” we found that, controlling for other factors, someone who answered “strongly agree” on that FEVS question would have, on average, an engagement score that was more

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than 20 percentage points higher than someone who answered “strongly disagree” on the 5-point response scale.<sup>23</sup>

As we found in our March 2003 report on performance management, candid and constructive feedback helps individuals maximize their contribution and potential for understanding and realizing the goals and objectives of an organization.<sup>24</sup> At Education, one of our case study agencies, the Office of the Chief Information Officer (OCIO) implemented a process to help ensure that constructive performance conversations regularly occur. In addition to department-wide requirements for supervisors to hold two performance conversations a year, OCIO officials said that they require all supervisors to offer OCIO employees optional quarterly conversations. These quarterly performance conversations are guided by a set of specific topics that supervisors and employees developed together to ensure that employees receive consistent and regular constructive feedback and coaching.

**Career development and training.** Our analysis found that career development and training was the second strongest driver. For the question, “I am given a real opportunity to improve my skills in my organization,” we found that, controlling for other factors, someone who answered “strongly agree” to that question would have, on average, an engagement score that was 16 percentage points higher than someone who answered “strongly disagree.”

As we found in 2004, the essential aim of training and development programs is to assist an agency in achieving its mission and goals by improving individual and, ultimately, organizational performance.<sup>25</sup> At NCUA, another of our case study agencies, officials said the agency focused on providing training for employees throughout their careers. For example, NCUA requires each employee to develop an individual development plan. For employees new to credit union examining—a

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<sup>23</sup>The five-point scale generally consisted of strongly disagree to strongly agree or very dissatisfied to very satisfied.

<sup>24</sup>GAO, *Results-Oriented Cultures: Creating a Clear Linkage between Individual Performance and Organizational Success*, [GAO-03-488](#) (Washington, D.C.: Mar. 14, 2003).

<sup>25</sup>GAO, *Human Capital: A Guide for Assessing Strategic Training and Development Efforts in the Federal Government*, [GAO-04-546G](#) (Washington, D.C.: March 2004).

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majority of employees—NCUA has a standardized 18-month training program that combines classroom and practical work. New examiners must complete a core set of courses and may also choose additional elective courses. NCUA officials said that they are constantly assessing formal and informal training for entry-level employees to identify areas to improve the curriculum and instruction. For more experienced examiners, NCUA provides continuing training and development, according to these officials.

**Remaining drivers.** For the remaining four drivers, we found that, controlling for other factors, someone who answered “strongly agree” or “very satisfied” to those questions would have, on average, an engagement score that was 12 percentage points higher than someone who answered “strongly disagree” or “very dissatisfied.” Those four drivers are work-life balance (“My supervisor supports my need to balance work and other life issues”), inclusive work environment (“Supervisors work well with employees of different backgrounds”), employee involvement (“How satisfied are you with your involvement in decisions that affect your work”), and communication from management (“How satisfied are you with the information you receive from management on what’s going on in your organization”). Examples of how our three case study agencies implemented practices consistent with these drivers include the following:

- **Work-life balance.** FTC officials implemented an outreach strategy to inform staff about child and elder care resources after learning that employees were not aware of the services or did not know that they qualified for these services. Officials said employee knowledge of and agency commitment to these kinds of programs enhances supervisor support for work-life balance. Similarly, to support work-life balance, as part of its engaged initiative, Education revised telework policies, provided training for managers and employees on the new policies and on working in a telework environment, and improved infrastructure to make telework as effective as time spent in the office, according to Education officials.
- **Inclusive work environment.** The FTC established an agency-wide Diversity Council to develop comprehensive strategies to promote understanding and opportunity throughout FTC. FTC officials said that employees of all levels were interested in forming such a council. This included employees who experienced firsthand the diversity issues as well as managers who could

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address those issues. The goal of FTC’s Diversity Council—composed of representatives from each bureau and office—is to engage employees and supervisors across the agency, make recommendations for improving diversity, and foster the professional development of all agency employees, according to these officials.

- **Employee involvement.** Education’s Office of General Counsel (OGC) has a permanent employee-driven Workforce Improvement Team (WIT) that grew out of an office-wide meeting with employees at all levels to involve employees in the discussions about the FEVS results. As a result of this group’s work, Education’s OGC management introduced additional training and professional development opportunities and improved employee on-boarding through a new handbook and mentoring program. Education’s OGC officials said that the staff-driven WIT has created feelings of stronger ownership, engagement, and influence in office decision making. Education’s OGC officials said that OGC’s management seeks feedback from staff, including from the WIT, to evaluate the effectiveness of improvement efforts. These officials said this strengthens two-way communication, which improves employee engagement and organizational performance.
- **Communication from management.** NCUA officials told us that the head of the agency and its senior leaders communicate with line employees (who are mostly in the field) through quarterly webinar meetings. The meetings are scheduled to accommodate the field employees’ frequent travel schedule and generally start with any “hot topics” and continue with discussion of agency efforts to meet mission goals. The agency head takes questions in advance and during the webinar and, when needed, participants research and share responses with agency employees. According to NCUA officials, these regular, substantive conversations demonstrate top leadership’s commitment and respect for all employees as valued business partners.

These key drivers can help agencies develop a culture of engagement as agencies embed them into the fabric of everyday management practices, rather than simply reacting to the results of the most recent FEVS. Importantly, these six practices were generally the consistent drivers of

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higher EEI levels when we analyzed them government-wide, by CFO Act agency, and by selected employee populations (such as agency tenure and supervisory status).<sup>26</sup> Because these six practices are the strongest predictors of the EEI, this suggests they could be the starting points for all agencies embarking on efforts to improve engagement.

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## Lessons Learned to Improve Employee Engagement Efforts

Our case study agencies also identified three key lessons for improving employee engagement.

- Any change must be implemented using effective management practices.
- The EEI alone is not enough; agencies must look to other sources of data for a complete picture of employee engagement levels in their organization and its components.
- Improving engagement and organizational performance takes time and does not neatly follow the survey cycle; change may involve several efforts and effects are seen at different points in time.

## Use Effective Management Practices to Build a Culture of Engagement

Our three case study agencies attributed their high or increasing levels of engagement to overall effective management practices more so than to efforts specifically aimed at improving engagement levels. Officials at these agencies said they pay attention to employee engagement scores, but also focus on overall positive organizational health and culture and on how their agency implements change efforts. Some of the practices agencies cited parallel those we identified in 2003 as key to successful organizational transformation, including top leadership involvement, consistency, creating a line of sight linking individual results to organizational performance, and employee outreach.<sup>27</sup>

**Top leadership involvement.** Officials from all three of our case study agencies said that top agency leaders were directly involved in organizational improvement efforts. We have previously reported top leadership that is clearly and personally leading the change presents stability and provides an identifiable source for employees to rally around and helps the process/efforts stay the course.<sup>28</sup> For example, Education

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<sup>26</sup>For additional information on our driver analysis, see appendixes III and IV.

<sup>27</sup>GAO, *Highlights of a GAO Forum: Mergers and Transformations: Lessons Learned for a Department of Homeland Security and Other Federal Agencies*, [GAO-03-293SP](#) (Washington, D.C.: Nov. 14, 2002).

<sup>28</sup>[GAO-03-293SP](#).

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officials said Education’s Chief Information Officer is directly involved in efforts to address FEVS scores—he is directly involved in the data analysis, reviewing Education’s OCIO action plans developed by each of his subordinate directors, overseeing implementation of strategies, and assessing their effectiveness.

**Consistency.** Officials at Education’s OCIO said it is important to ensure that policies are applied consistently, which is the goal of that office’s *Speaking with One Voice* initiative. The biweekly management meetings to discuss and clarify the implementation of department policies (e.g., telework, resources, and employee bonuses) were instituted after conversations with employees revealed that policies were inconsistently applied. As a result of the initiative, Education’s OCIO officials said employees know that senior leaders are paying attention to how policies affect employees and are accountable for ensuring appropriate implementation.

**Line of sight.** FTC officials emphasized the importance of creating a line of sight between the agency’s mission and the work of each employee. As we have previously reported, successful organizations create a “line of sight” showing how team, unit, and individual performance can contribute to overall organizational results.<sup>29</sup> FTC officials said that the agency lists every employee that contributed to a case in the pleadings, from the attorneys and paralegals to the information technology specialists who provided computer support. Officials said that legal actions are the culmination of the efforts of many employees, both mission and mission-support staff, and including their names on pleadings helps create a line of sight from each employee’s contribution to the organization’s success. Further, FTC officials said they recognize how mission support functions, such as excellent human resources customer service contribute to the agency mission. For example, FTC officials said that they emphasize to the human resources staff that their prompt handling of payroll and benefits issues contributes to the overall efficiency and mission accomplishment by minimizing the time other FTC employees expend on these concerns. As a result, mission employees can focus on accomplishing their mission-related responsibilities.

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<sup>29</sup> [GAO-03-293SP](#).

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Supplemental Data Sources  
Enable Agencies to Pinpoint  
Efforts

**Employee outreach.** According to officials at all three of our case study agencies, they all reach out to employees and their labor union representatives, if applicable, to obtain insight into their FEVS scores or to inform other improvement efforts. Our 2003 report found that employee involvement strengthens the improvement process by including frontline perspectives and experiences.<sup>30</sup> By participating in improvement task teams, employees have additional opportunities to share their experiences and shape policies and procedures as they are being developed and implemented.<sup>31</sup> For example, in 2012, while NCUA's EEI score was above the government-wide level, FEVS questions about awards, performance appraisals, and merit-based promotions were its lowest scoring categories. NCUA officials said they contracted with an external facilitator to conduct workshops and webinar-based feedback sessions with employees to gain insight into their FEVS results and identify root causes influencing the survey scores. These officials said that using external facilitators offered employees confidentiality and created an environment that encouraged open conversations. Based on these feedback sessions, NCUA created an internal employee-driven committee to inform revisions to the awards, performance appraisals, and merit-based promotion process, and developed recommendations for NCUA's management to implement these changes. Most of the committee's recommendations were implemented.

According to officials at our case study agencies, while the EEI provides a useful barometer for engagement, other indicators can provide officials with a deeper insight into reasons for engagement levels and areas for improvement. Other data such as turnover rates and equal employment opportunity (EEO) complaints—which are likely already collected by federal agencies—can provide additional insight and strategies for improving employee engagement. Notably, MSPB found that there is a statistically significant correlation between higher levels of employee engagement and fewer EEO complaints.<sup>32</sup> Officials in the three case study agencies said that they pay attention to their FEVS scores, but other sources of data can provide explanatory or agency-specific information valuable to developing improvement strategies.

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<sup>30</sup>[GAO-03-669](#).

<sup>31</sup>[GAO-03-669](#).

<sup>32</sup>U.S. Merit Systems Protection Board, *The Power of Federal Employee Engagement* (Washington, D.C.: September 2008).

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As one example, NCUA officials said they identified a slight increase in turnover in recent years from the human capital data and are reviewing their exit survey process in calendar year 2015 to determine the best way to gather this information as well as to identify trends in reasons for employees leaving. NCUA officials said providing applicants with a clear understanding of the work will help to ensure a good position fit initially, which leads employees to stay engaged with the organization. Credit union examiners often travel between credit unions and do not regularly report to an office. Therefore, NCUA is revising its vacancy announcements to better communicate the nontraditional work environment of field staff, which officials said comprises nearly 80 percent of the agency's workforce. For example, NCUA officials said that applicants are asked to also indicate preferences on working independently.

#### Effects of Engagement Efforts Occur Over Multiple Years

Case study agency officials told us that they take a multi-year, multi-prong approach to improving engagement and do not base engagement efforts solely on the survey cycle or focus their attention on year to year changes in the EEI. Some case study agency officials said a single survey cycle does not provide enough time to implement changes and see results because real change usually takes more than 1 year. The FEVS cycle begins around May and agencies receive results in September or October. It may be late-winter or early-spring before an agency will have designed an action plan. By the time the next survey cycle begins, agencies may still be interpreting results and developing and implementing their action plans.

Moreover, according to case study agency and other officials we interviewed, the annual survey cycle does not allow enough time for employees' perceptions to change before the next cycle begins.<sup>33</sup> For example, an Education official said that it took a few years to see the effects of engagement-related actions. Members of the Chief Human Capital Officers Council and National Council on Federal Labor-Management Relations joint working group on employee engagement said that the effects of initiatives implemented to improve engagement will not be reflected in the EEI scores for at least a couple of years, which makes evaluating their effectiveness challenging.

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<sup>33</sup>Similarly, we found in our work on organizational transformations that change efforts can take as much as 5 to 7 years. [GAO-03-293SP](#).

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OPM officials agreed that efforts to improve engagement should not be based on the survey cycle, but noted the benefits of an annual survey. Specifically, OPM stated that agencies are increasingly using the FEVS as a management tool to help them understand issues at all levels of an organization and to take specific action to improve employee engagement and performance. An annual survey such as FEVS can help ensure that newly appointed agency officials (or a new administration) can maintain momentum for change, as the surveys suggest employees are expecting their voices to be heard. Further, OPM officials noted if agencies, managers, and supervisors know that their employees will have the opportunity to provide feedback each year, they are more likely to take responsibility for influencing positive change.

Instead of focusing exclusively on FEVS and EEI scores, case study agencies took a longer term approach to their engagement efforts. For example, according to officials, Education established engagED, a long-term cultural change initiative, to build a more innovative, collaborative and results-oriented agency and create a more engaged workforce. This initiative focused on three areas—increasing multi-way communications, performance accountability, and professional growth opportunities—which officials said were consistently identified as challenges through the FEVS analysis and facilitated feedback discussions. Instead of focusing on one specific FEVS question, Education identified these broad themes to bring about a systemic change, according to officials. EngagED addressed these challenges through several actions intended to prompt thoughtful discussion among employees, accountability for results, and developmental opportunities. Among others, these actions included the following:

- Quarterly all-staff meetings with the Secretary to discuss various topics.
- A “lunches with leaders” program allowed agency employees more access, input, and participation in key topics discussed by senior agency leaders.
- A redesigned performance appraisal system to simplify and standardize performance rating levels to more clearly reflect performance expectations, and consistently recognize and reward successful performers within principal offices and across the agency.
- Periodic leadership summits to provide agency leaders with developmental activities identified by staff that are focused on teams, individual leadership, and problem resolution.
- An Education Policy Briefing Series to provide agency employees with an opportunity to learn about cutting-edge education issues that relate

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to the goals and work of the agency and to provide a forum for staff to interact and share expertise.

According to Education officials, this longer-term, broad-based approach helped Education improve its scores even while government-wide scores were decreasing. Officials said they monitor each year's results, but their success demonstrates the value of taking a long-term perspective.

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## OPM Has Created Tools and Resources to Improve Engagement, but They Fall Short of Supporting a Holistic Approach to Improving Engagement and Linking to Performance

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### Limitations in Data Analysis and Reporting Hinder Agencies' Ability to Target Resources and Assess Progress

OPM provides a number of tools and resources to support agencies' efforts to use EEI data to identify areas that need improvement, as shown in table 2. However, these tools do not provide agencies with the drivers of the EEI or enable agencies to determine if changes in EEI levels are meaningful.

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**Table 2: Office of Personnel Management (OPM) Tools and Resources to Support Federal Employee Viewpoint Data Analysis and Reporting**

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<b>Tools and resources supporting data analysis and reporting</b>	<b>Online Reporting and Analysis Tool</b> <p>An online mechanism to share OPM generated government-wide and agency specific survey reports and facilitate data analysis. For 2014, OPM produced over 30,000 unique reports on various subsets of the federal workforce, which were delivered to agencies via this tool.</p> <b>Unlocking Federal Talent Dashboard</b> <p>An online data dashboard that visually displays agency-specific employee engagement survey results and administrative data. As of May 2015, OPM had provided access to over 9,600 users, including members of the Senior Executive Service.</p> <b>OPM survey administration points of contact</b> <p>A group that supports agencies with the administration of the Federal Employee Viewpoint Survey.</p>
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Source: GAO summary of Office of Personnel Management information. | GAO-15-585

### Agencies Lack Key Information on Drivers of Engagement

One of OPM’s key strategic goals is to help agencies create inclusive work environments where a diverse federal workforce is fully engaged and energized to put forth its best effort, achieve their agency’s mission, and remain committed to public service. OPM’s strategic plan for fiscal years 2014-2018 states that it will ensure agencies target, address, and measure key drivers of employee engagement.<sup>34</sup> However, OPM does not analyze the drivers of the EEI or provide agencies the tools to do so. A driver analysis based on FEVS questions can help agencies more effectively target limited resources and can provide a roadmap to design strategies to improve EEI levels.

OPM officials told us that they do not conduct a driver analysis to determine which FEVS questions are associated with higher EEI scores and report them via OPM’s online tools because they would have to use a more complicated and less transparent method of calculating the EEI. Specifically, to conduct a driver analysis OPM would have to calculate the EEI for each individual respondent by determining the proportion of positive responses to the 15 EEI questions for each respondent. OPM would also have to account for unanswered questions. OPM currently calculates the EEI by averaging all the positive responses to the EEI questions for the group of respondents. While OPM officials

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<sup>34</sup>OPM’s *Strategic Plan, FY2014-2018* states that OPM will (1) provide leadership training to increase employee engagement; (2) support agencies in hiring leaders strong in managing and leading high performing organizations; (3) provide a comprehensive suite of engagement service and models for agencies and employees; and (4) ensure agencies target, address, and measure key drivers of employee engagement.

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acknowledged the importance and value of the individual level calculation for determining drivers, they said that the benefit of the current method of calculating the EEI is that it is simpler and officials can see how the scores are calculated—as an average. However, OPM officials noted that they could separately conduct a driver analysis outside of the online tools. In 2006, OPM conducted a regression analysis to identify which questions best predicted overall job satisfaction, overall satisfaction with the organization, and intent to stay or leave.<sup>35</sup> This suggests that OPM has the capability to conduct such an analysis.

Research on employee engagement emphasizes the importance of identifying the drivers of an engagement or related metric as an initial step in improving employee engagement. For example, the Partnership for Public Service's *Best Places to Work in the Federal Government* guidance lists a driver analysis as a key element in determining where agencies should focus their action planning efforts. If managers understand the drivers of engagement, then they can better target their engagement efforts, particularly in times of limited resources. The results of our driver analysis demonstrate consistency of results government-wide and by CFO Act agency as well as selected employee populations. Similar or even more limited investment of OPM resources could yield information that would benefit all agencies. However, by not determining which FEVS questions are associated with higher EEI levels, OPM is missing an opportunity to assist agencies in targeting their engagement resources.

### Agencies Lack Key Data to Assess Progress in Strengthening Engagement

As noted earlier, the administration has said agency leaders will be held accountable for making employee engagement a priority and making it an integral part of their agency's performance management system. For example, the December 2014 memorandum on engagement and performance calls on agencies to incorporate engagement measures into SES and agency performance plans. According to the memorandum, SES performance plans are to include a measurable component related to improving employee engagement by 2016.<sup>36</sup> GPRAMA annual performance plans are to include baselines and organizational targets for

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<sup>35</sup>Office of Personnel Management, *Federal Human Capital Survey, Results from the 2006 Federal Human Capital Survey* (Washington, D.C.: 2006).

<sup>36</sup>SES Performance Plans reflect annual performance expectations and requirements for individual members of the SES.

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strengthening employee engagement with a focus on a percent change.<sup>37</sup> As agencies begin to use engagement measures to inform other performance measurement decisions, understanding whether EEI changes are statistically significant will become especially important.

However, OPM does not report whether changes in agency EEI scores are statistically significant—that is, whether the change is meaningful and not due to random chance. As a result, agency officials do not have the information they need to appropriately interpret changes in the EEI. OPM does provide agencies with absolute changes in the EEI—increases and decreases that may or may not be statistically significant due to sampling variability. The method we used to determine statistical significance showed that only 34 percent (16 of 47) of the absolute changes in agency EEI scores from 2013 to 2014 were actually statistically significant.<sup>38</sup>

Without understanding whether changes are statistically significant, managers may take action based on data that has limited meaning. For example, a manager might assume an annual increase in the EEI meant specific engagement efforts were successful when they were not or assume an annual decline in the EEI meant specific engagement efforts were not successful and abandon an effort too soon. Statistical significance is a function of two things: (1) the size of the change—the increase or decrease in the EEI, and (2) the size of the population sampled. In general, the smaller the sample, the larger the change needs to be before it is statistically significant, and the larger the sample, the smaller a change needs to be to be significant. In FEVS, sample sizes tend to be substantially smaller at smaller agencies. For example, from 2013 to 2014 the Federal Mediation and Conciliation Service, with a workforce of over 200 employees, had a 2 percentage point change in the EEI, which was not statistically significant, based on the method we used to determine statistical significance. During that same period, the

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<sup>37</sup>Required by GPRAMA, agency performance plans establish performance goals to define the level of performance to be achieved during the year in which the plan is submitted and the next fiscal year; express such goals in an objective, quantifiable, and measurable form; and, among other requirements, describe how the performance goals contribute to the general goals and objectives established in the agency's strategic plan. 31 U.S.C. § 1115(b).

<sup>38</sup>Of the differences in index estimates for the remaining 31 agencies, others may be statistically different when a different method of determining statistical significance is used. For additional information on statistically significant changes in agency EEI scores, see appendix II.

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Department of Defense—the largest federal agency with over 700,000 employees—had about a 0.7 percentage point decrease in the EEI; this was a statistically significant change.<sup>39</sup> Without knowing whether changes in the EEI are statistically significant, agency officials do not have the context to determine whether a change is meaningful.

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**OPM Has Efforts to Identify and Share Promising Practices Underway But Needs More Focus on Linking Engagement and Performance**

As agencies move from analyzing data to developing strategies to improving engagement and linking it to organizational performance, the specific strategies and lessons learned from the experiences of other agencies can be beneficial to those who may be seeking information related to improving employee engagement and performance. Table 3 describes OPM efforts to help agencies develop and implement strategies to improve employee engagement and link engagement to performance.

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<sup>39</sup>As a result of the Department of Defense's large sample size, most changes in FEVS scores will be statistically significant, making it difficult for agency leaders to prioritize engagement efforts. Therefore, agency officials may need to look to other sources of information to inform their efforts, as we discussed in the previous section.

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**Table 3: Office of Personnel Management (OPM) Tools and Resources to Support Agency Efforts to Develop Strategies to Improve Engagement and Link to Performance**

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**Tools and resources supporting strategy development to improve engagement**

**Unlocking Federal Talent Dashboard Community of Practice**

The online community of practice feature is designed to serve as a platform for the sharing of promising practices. OPM's goal is to populate the Community of Practice page with promising practices identified by various means, including some of the resources listed below.

**OPM Engagement Outreach Team**

A group of OPM liaisons have ongoing conversations with President's Management Council agency points of contact to help foster a culture of engagement while collecting information that can be shared as best practices.

**In-person events**

Innovation Lab events and Federal Employee Engagement Forum held at the White House in partnership with the Office of Management and Budget and the Presidential Personnel Office, which brought together agency representatives to share best practices.

**Employee Engagement Working Group**

This joint Chief Human Capital Officers Council and National Council on Federal Labor-Management Relations Employee Engagement working group was formed to identify and share promising practices, explore cultural barriers and enablers of engagement, and identify measures and incentives for improving engagement.

**Meetings with Senior Accountable Officials**

In conjunction with senior Office of Management and Budget officials, senior OPM officials held meetings with Senior Accountable Officials to discuss agency and component/regional engagement strategies, including barriers and challenges.

**Fee-for-Service Assistance**

OPM's Human Resource Solutions (HRS) provides survey analysis and follow-up survey support (e.g., focus groups, action planning). In addition, HRS offers organizational and job design assistance; onboarding assistance; employee and leadership education, training, and development; performance management guidance; and other customized services.

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**Tools and resources to support linking engagement to performance**

**HRstat**

HRstat is a chief human capital officer-led quarterly data driven review of the key metrics that contribute to agencies' human resources goals. These reviews are to include metrics to strengthen engagement. Through their HRstat processes, agencies are to define success in terms of specific human capital metrics that demonstrate linkages between engagement, organizational health, and agency performance. Once agencies have designed a measurement strategy, launched actions to strengthen engagement, and integrated engagement fully into their human capital strategies and operating plans, they will use their HRstat quarterly reviews to closely monitor performance and drive continuous improvement. HRstat was launched in May 2012 as a pilot, with full implementation expected in 2015. OPM officials said they are in the early planning stages of a Human Capital Analytics Symposium in mid-October, which, according to OPM officials, will keynote strategic alignment, linking mission with human capital goals, partnering program offices through HRstat, finding the right metrics, and engaging leadership.

**Agency annual performance plans and reports**

Annual performance plans and reports will include goals related to employee engagement.

**Senior Executive Service performance**

Employee engagement targets will be added to the Leading People element of Senior Executive Service performance plans.

**Return on investment information**

Agencies are to collect information to link employee engagement to mission results. OPM is studying how to link engagement to outcomes at three agencies whose missions align with the production of quantifiable outputs.

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Source: GAO summary of Office of Personnel Management information. | GAO-15-585

**OPM has Implemented Strategies to Identify Promising Practices, but Practices Have Not Been Widely Shared**

OPM has several efforts under way to support agencies' efforts to develop and implement strategies to improve engagement and link it to performance. Most of these efforts focus on the identification and sharing of promising practices, where OPM works in partnership with federal agencies. During the course of our audit, OPM officials described the following avenues for identifying these practices—the Engagement Outreach Team, in-person events, the CHCO Council–National Council on Federal Labor-Management Relations Employee Engagement Working Group, and through the designation of agency-appointed Senior Accountable Officials. OPM officials said their goal is to use the Community of Practice page on UnlockTalent.gov as the platform for sharing the identified promising practices. However, as of May 2015, OPM has only posted limited content on the Community of Practice page—video clips from three events.

**Engagement Outreach Team.** OPM's Engagement Outreach Team is a seven-person intra-agency team formed in August 2014, representing four OPM offices. Each outreach team member provides individualized support to three to four President's Management Council agencies and identifies potential promising practices. OPM officials said the Outreach Team speaks with each of their assigned agencies, and based on these

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conversations, the Outreach Team meets weekly to share successes and challenges, address action items on their respective agencies' efforts, and identify potential promising practices.

However, as of May 2015, none of the promising practices identified by the Outreach Team had been added to the Community of Practice page on UnlockTalent.gov and OPM officials said they did not have a plan for how they will use the information gathered from President's Management Council agencies to inform the Community of Practice page. In April 2015, OPM officials said the Outreach Team was evaluating all of the qualitative data received from agencies, including feedback on previous events and resources offered by the team to determine the next best steps forward, including developing content for the Community of Practice page of UnlockTalent.gov. However, officials did not provide a time frame for completing the evaluation or developing the content.

**In-person events.** During the fall of 2014, OPM hosted three in-person, Washington, D.C.-based events for agency officials aimed at identifying promising practices in improving employee engagement. Specifically, in November 2014, OPM partnered with OMB and the Presidential Personnel Office to hold the Federal Employee Engagement Forum event at the White House. Panels of public- and private-sector representatives discussed (1) approaches to improving employee engagement and performance through use of data, (2) best practices in collaborative engagement strategies, and (3) the best use of tools and strategies to improve employee engagement and performance. OPM officials said approximately 150 people attended including senior agency officials or their staff and representatives from national labor unions and private-sector organizations. OPM also held two sessions for agency officials in OPM's Innovation Lab to identify strategies for improving employee engagement.<sup>40</sup> OPM officials said about 20 people attended each session from 11 different agencies. Participants included CHCOs and other senior leaders as well as other agency officials involved with employee engagement efforts.

On May 18, 2015, following a briefing on the preliminary findings of our audit, OPM posted video clips on the Community of Practice page of

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<sup>40</sup>OPM's Innovation Lab is a distinct physical space with a set of policies for engaging people and using technology in problem solving.

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UnlockTalent.gov from the Federal Employee Engagement Forum held at the White House and another in-person event, the SES Leadership Event. Regarding the Innovation Lab events, according to OPM officials, summaries of the sessions were shared with participants and by request with other officials. OPM officials said they have no further plans for when and how to share the Innovation Lab summaries with a broader government-wide audience.

**CHCO Council–National Council on Federal Labor-Management Relations Employee Engagement Working Group.** Coordinated by the CHCO Council Executive Director, the working group was launched in February 2014 with representatives from 15 agencies and 8 nongovernment organizations including federal employee unions and organizations representing managers and executives. The group meets on approximately a quarterly basis and is organized into three subcommittees—(1) promising practices, (2) key enablers and barriers, and (3) measures and incentives. Two representatives, one each from an agency and a labor union, co-chair the full working group and each of the subcommittees. The group’s 2014 work culminated in presentations to the CHCO Council and the National Council on Federal Labor-Management Relations.<sup>41</sup>

According to the CHCO Council Executive Director, a key goal of the working group is to identify practices that will be shared on the Community of Practice page of UnlockTalent.gov. However, despite the preliminary work as reflected in the November 2014 presentations, no practices had been posted on the Community of Practice page, as of May 2015. Further, according to the CHCO Council Executive Director, agencies have been reluctant to hold their engagement practices up as a model.

**Agency-Appointed Senior Accountable Officials.** According to OPM officials, from March through May 2015, OPM met once with each agency’s Senior Accountable Official to discuss their agency’s engagement baseline, plans for engagement activities, assistance needed, and best practices. In addition, OPM officials said in May 2015 they hosted a workshop for the Senior Accountable Officials to share

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<sup>41</sup>The presentations included alternative employee engagement indices and information on key qualities of organizational culture promoting employee engagement.

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Agencies Lack Examples or Guidance to Link Engagement to Agency Performance

leading practices and strategies to address common challenges. OPM officials said materials from this event were provided to participants, and included examples from participating agencies. OPM officials said after this workshop, they designed five workgroups for Senior Accountable Officials or their designee to work with officials from the People and Culture CAP goal to address specific engagement challenges. OPM officials said the workgroup's outcomes and next steps will be shared in the fall of 2015, when the 2015 survey results are available to agencies.

Linking increased employee engagement to improved organizational performance is important because it recognizes that improved engagement is not an end in itself. Instead, the ultimate aim is to enhance the ability of agencies to cost-effectively carry out their missions. The administration's December 2014 memorandum calls for agencies to establish the linkage between employee engagement and mission performance. Specifically, agencies are to collect return on investment information—that is, whether a change in engagement levels resulted in improvements to performance metrics related to agency mission, such as a reduction in error rates.

OPM, as the lead agency on the CAP employee engagement subgoal, has provided limited examples or guidance for how agencies could establish a linkage between engagement and performance. According to OMB officials, establishing such a link is the key step in agency efforts to improve employee engagement and performance. OPM officials said they began a study on how to link engagement to outcomes at three agencies whose outputs can be quantitatively measured. These agencies are the U.S. Mint's Bureau of Engraving and Printing, the Patent and Trademark Office, and OPM's Retirement Services Division. Specifically, OPM planned to analyze the relationship between EEI scores and production or performance measures at a team level. However, this effort has been delayed with no estimated completion date, and officials said that linking the EEI to team level performance or production outputs has been more difficult than anticipated. Following a briefing on the preliminary findings of our audit, OPM posted a video clip from the Federal Employee Engagement Forum panel on linking metrics to business outcomes. While this is an important step, the video segment featured only one example from a federal agency.

Because experience with linking employee engagement in the public sector to organizational performance is limited (as indicated by our interviews with OPM and OMB officials and the literature that we reviewed), agencies do not have a clear model on how to make this link

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and demonstrate that it resulted in improved mission accomplishment. Even at our three case study agencies—each of which have high or improving EEI scores—officials said that they lacked sufficient in-house expertise to develop and conduct such an analysis.

Pursuant to the People and Culture Employee Engagement CAP subgoal, the administration has established a target of improving employee engagement government-wide to 67 percent by the issuance of 2016 FEVS results, a 4 percentage point increase from the 2014 government-wide score.<sup>42</sup> Without the ability to link increased engagement to improved performance, the extent to which an increase of 4 percentage points will translate into improved performance is unclear. Further, given the time horizon necessary to see real improvements, it is unclear if efforts to improve engagement can be achieved by 2016.

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## Conclusions

Higher levels of employee engagement can translate into higher levels of organizational performance. However, for agencies to attain the ultimate goal of improving organizational performance, agencies must take a holistic approach—analyzing data, developing and implementing strategies to improve engagement, and linking their efforts to improved performance.

The tools and resources OPM has developed represent an important first step toward helping agencies improve employee engagement. However, OPM cannot ensure officials are correctly understanding and using EEI data, because it does not report on whether EEI changes are statistically significant—that is, whether the changes are due to something other than chance. OPM also does not determine the FEVS questions that lead to increased EEI levels, which would enable agencies to focus on areas that drive engagement.

At the same time, informed decisions require more than just EEI data. When faced with multiple options, agencies need to target their resources to the practices found to drive employee engagement—notably constructive performance conversations. Moreover, as indicated by our case study agencies, how changes are implemented—including the involvement of top leadership, consistency, employee outreach, and

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<sup>42</sup><http://www.performance.gov/node/3394/view?view=public#overview>.

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creating a line-of-sight between individual and organizational performance—ultimately affects whether those changes merely produce temporary compliance or result in sustainable cultural transformation. Further, other data can be used to provide more specific information on what needs attention. However, efforts take time and should not be seen solely as an annual effort measured by the results of the next survey, but as a continuous process.

Although OPM has developed a process for identifying and collecting promising practices, OPM's sharing of promising practices has been limited, and whether and when its efforts will come to fruition is unclear. Promising practices around analyzing EEI data and implementing improvement strategies are important; however, given the public sector's limited experience linking engagement to performance, promising practices on creating this linkage are critical.

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## Recommendations for Executive Action

In furtherance of its role to support agencies' efforts to improve employee engagement and performance, we recommend that the Director of OPM take the following three actions:

1. To enable agencies to better target resources for engagement efforts, OPM should annually analyze and report on drivers of the EEI government-wide and by selected subsets of the federal workforce, such as agencies or employee population groups.
2. To enable agencies to identify meaningful changes in EEI levels, OPM should provide agencies with information on whether annual changes to EEI scores, both government-wide and by selected subsets of the federal workforce, are statistically significant.
3. To ensure agencies are leveraging promising practices and lessons learned from other agencies in developing effective strategies to improve engagement and performance, OPM should, in partnership with federal agencies,
  - expand its efforts to share promising practices to include information on linking engagement to mission accomplishment and monitoring how engagement investments improve performance through data-driven reviews, like HRstat; and
  - implement its strategy to share these practices in time to inform agency efforts stemming from their 2015 FEVS results.

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## Agency Comments and Our Evaluation

We provided a draft of this product to the Director of OPM for comment. In written comments, which are reproduced in appendix V, OPM concurred with our first recommendation and partially concurred with our second and third recommendations.

OPM stated that it concurred with our recommendation to analyze and report on the drivers of employee engagement government-wide and by subsets of the federal workforce. OPM said that starting with the release of the 2015 FEVS, it is committed to conducting, analyzing, and reporting on key drivers of the EEI at the government-wide level and has formed a working group to make recommendations on the scope of the analysis and the reporting in subsets of the federal workforce.

OPM stated that it partially concurred with our recommendation to provide information on whether changes are statistically significant, and noted that among other actions, the working group referenced above is to provide guidance on how best to disseminate this information to agencies. At the same time, OPM maintained that in addition to the EEI, agencies should also rely on multiple indicators to assess organizational performance. This was a key point that we made in our report. Specifically, we said that in addition to the EEI, other indicators—such as turnover data—can provide officials with additional insights into reasons for engagement levels and areas for organizational improvement. However, in order for agencies to meaningfully use EEI data in their analyses, we continue to recommend that OPM provide agencies with information on whether changes in the EEI are statistically significant.

With respect to our third recommendation, OPM noted that while it agreed with our recommendation to share promising practices in time to inform agency efforts based on the FEVS 2015 survey results, OPM disagreed with our assessment of OPM's efforts. In its written comments, OPM outlined the steps taken to identify and share promising practices after being briefed on the findings of our audit. For example, OPM noted that in May 2015, it held a workshop with the Senior Accountable Officials responsible for agency engagement efforts in an effort to share promising practices and generate solutions to common challenges; OPM also noted it has formed workgroups among the Senior Accountable Officials around specific topic areas, with a goal of sharing those practices with the larger federal community this fall. We have modified our report to include more information on OPM's efforts and plans to share promising practices with agencies in time to inform the analysis of the FEVS 2015 survey results. However, until such information is shared with the larger federal community and includes models for linking engagement to mission

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accomplishment, we continue to believe that OPM should take additional actions to assist agencies in leveraging their lessons learned, as we recommended.

We also provided a draft of this product to the Secretary of Education, Chairwoman of the FTC, and the Chairman of NCUA for technical review and comment. We received technical comments from them that we incorporated, as appropriate.

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As agreed with your offices, unless you publicly announce the contents of this report earlier, we plan no further distribution until 30 days from the report date. At that time, we will send copies to the appropriate congressional committees, the Director of the Office of Personnel Management, and other interested parties. In addition, the report will be available at no charge on the GAO website at <http://www.gao.gov>.

If you or your staff have any questions about this report please contact me at (202) 512-2757 or [goldenkoffr@gao.gov](mailto:goldenkoffr@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 key contributions to this product are listed in appendix VI.



Robert Goldenkoff  
Director  
Strategic Issues

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*List of Requesters*

The Honorable Elijah E. Cummings  
Ranking Member  
Committee on Oversight and Government Reform  
House of Representatives

The Honorable Gerald E. Connolly  
Ranking Member  
Subcommittee on Government Operations  
Committee on Oversight and Government Reform  
House of Representatives

The Honorable Stephen F. Lynch  
Ranking Member  
Subcommittee on National Security  
Committee on Oversight and Government Reform  
House of Representatives

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# Appendix I: Data Preparation and Calculation of the Employee Engagement Index

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To determine the trends in employee engagement as measured by the Office of Personnel Management (OPM) Federal Employee Viewpoint Survey (FEVS) and identify key practices to improve employee engagement we analyzed (1) employee engagement index scores (EEI) from 2006 to 2014 and (2) the extent to which selected 2014 FEVS questions predicted EEI scores. This appendix describes our methodology for preparing the dataset and for calculating the EEI to conduct these analyses. For the methodology and results of our analysis of EEI trends, see appendix II; for our methodology for identifying the drivers of the 2014 EEI, see appendix III; and for the results of our driver analysis, see appendix IV.

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## Federal Employee Viewpoint Survey

The FEVS provides a snapshot of employees' perceptions about how effectively agencies manage their workforce. Topic areas are employees' (1) work experience, (2) work unit, (3) agency, (4) supervisor, (5) leadership, (6) satisfaction, (7) work-life, and (8) demographics. OPM has administered the FEVS annually since 2010; from 2002 to 2010, OPM administered the survey biennially.<sup>1</sup> The FEVS includes a core set of questions, and agencies have the option of adding questions to the surveys sent to their employees.

The FEVS is based on a sample of full- and part-time, permanent, non-seasonal employees of departments and large, small, and independent agencies, which in 2014 represented about 97 percent of the federal executive branch workforce. According to OPM, the sample is designed to ensure representative survey results would be reported by agency, subagency, and senior leader status as well as for the overall federal workforce. Once the necessary sample size is determined for an agency, if more than 75 percent of the workforce would be sampled, OPM conducts a full census of all permanent, non-seasonal employees. For 2014, the total sample size was 872,495.<sup>2</sup> According to OPM, this size was more than sufficient to ensure a 95 percent chance that the true population value would be between plus or minus 1 percent of any estimated percentage for the total federal workforce.

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<sup>1</sup>Prior to 2010, the survey was known as the Federal Human Capital Survey.

<sup>2</sup>OPM has adjusted its sampling approach over the years, which has resulted in different sample sizes. In 2012, its approach mainly involved a census with a sample size of 1,622,375.

Government-wide, in 2014, 392,752 employees completed surveys for a response rate of 46.8 percent. Among departments and large agencies, the Department of Veterans Affairs had the lowest response rate—32.6 percent—and the National Science Foundation had the highest—77.3 percent.

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## Data Set Provided by OPM

We analyzed the 2006 through 2014 FEVS data file containing the 84 core questions and demographic variables provided to us by OPM. The datasets contain the full demographic and work unit location information on the respondents. OPM forward coded older FEVS datasets to match the coding for the 2014 survey so that question numbering and response categories were consistent across time. If a question from the 2014 survey instrument was not present in a previous year, OPM coded the questions as missing in the older data set.

To assess the reliability of the FEVS data, we examined descriptive statistics, data distribution, and reviewed missing data. We also reviewed FEVS technical documentation as well as the statistical code OPM uses to generate the index and variance estimates, and we interviewed officials responsible for collecting, processing, and analyzing the data. On the basis of these procedures, we believe the data were sufficiently reliable for use in the analysis presented in this report.

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## Employee Engagement Index

OPM first introduced the EEI in 2010, when it contained 8 questions. OPM revised it in 2011 to contain the 15 questions that currently comprise the EEI. According to OPM, the EEI is a measure of the conditions conducive to engagement. The EEI consists of three components—leaders lead, supervisors, and intrinsic work experience. OPM calculates the EEI by averaging the component scores, which are an average of the percent of positive responses to each question in the respective component. For a full list of EEI questions, see table 1 earlier in this report.

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## GAO's Calculation of the EEI

To determine trends in employee engagement as measured by the FEVS for the years 2006 to 2014, we calculated the EEI using the data provided by OPM. For 2010 to 2014, we calculated the index using responses to the 15 questions contained in the current index. For 2006 and 2008, we

calculated the EEI using only 11 of the 15 EEI questions because the 2006 and 2008 surveys did not include four questions that were added to the survey in 2010.<sup>3</sup> Because OPM calculates the EEI and its component scores at the group level, we used data from OPM to recalculate the EEI for each individual, which enabled us to conduct regression analysis and assess the statistical significance of changes in EEI.<sup>4</sup> The individual level calculation is scaled between 0 and 100 and is based on the proportion of each individual's positive responses to the 15 constituent EEI questions.

To test the comparability of the 2010 to 2014 estimates, which we calculated based on the 15 questions in the current EEI, and the 2006 and 2008 estimates, which we calculated based on the 11 EEI questions in the survey at that time, we recalculated the EEI for 2010 to 2014 using just the 11 EEI questions present in the 2006 and 2008 survey data. The revised EEI estimates for 2010 to 2014 based upon just the 11 questions averaged about 2.9 percentage points less than the EEI estimates based on the full 15 questions. While the trend line with a peak in 2011 was similar when the estimates were plotted by year, we did not make comparisons from 2008 to 2010 because of the change in the index composition.

To generate estimates for agencies and employee population groups, we aggregated the index across individuals using the appropriate sample weights. We followed the replicate weight variance estimation methodology recommended by OPM to generate sample variance

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<sup>3</sup>Those were question number 6 - I know what is expected of me on the job; question number 48 - My supervisor listens to what I have to say; question number 49 - My supervisor treats me with respect; and question number 60 - Overall, how good a job do you feel is being done by the manager directly above your immediate supervisor?

<sup>4</sup>Questions with item nonresponse were not included in the EEI calculation. The denominator in the fraction to determine the average percent positive response for the index was the number of questions with a non-missing response. Item nonresponse was minimal in the questions that make up the intrinsic work experience and supervisor components, 99 percent and 97 percent of FEVS respondents answered at least 4 of the 5 questions for them, respectively, in 2014. Item nonresponse occurred relatively more frequently in the questions which comprise the leaders lead components. For this measure 93 percent of respondents answered at least 4 of the 5 questions in 2014. Item nonresponse among the index questions was comparable for 2006 to 2013. We set the index estimate to missing for a small number (which ranged from 1 to 6) of respondents in each year that failed to answer any of the questions used in the construction of the index. We estimated the individual EEI score as long as the survey respondent validly answered at least one question in the EEI.

estimates for the index scores.<sup>5</sup> This enabled us to analyze the drivers of engagement and assess the statistical significance of differences.

To ensure that our calculation of the EEI would yield sufficiently similar results as OPM's methodology for 2014, we assessed the correlation between the two versions. When aggregated to the agency level, our index is nearly perfectly correlated with the OPM measure in 2014 ( $\rho=0.99971$ ). To confirm the cohesiveness of the individual index, we calculated Cronbach's alpha, a measure of internal consistency that ranges from zero to 1 for 2014. The alpha value of .94 suggests that the scale of the items captures the majority of the variation in the underlying items, indicating high internal consistency.<sup>6</sup>

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<sup>5</sup>OPM provided us with the replicate weight files and jack knife coefficients for each year of FEVS data.

<sup>6</sup>We did not attempt to assess the validity of the EEI or its three components using factor analysis or other methods.

# Appendix II: Trends in Employee Engagement Index Levels

Using the Employee Engagement Index (EEI) calculated at the individual level, for 2006 through 2014 we analyzed the EEI

- government-wide, including the EEI components scores;
- by agency for those with a minimum of 5 years of Federal Employee Viewpoint Survey (FEVS) data for the years analyzed and at least 100 respondents, and
- by employee population measured by the FEVS.

For each analysis, we determined statistically significant year-to-year changes in the EEI from 2006 to 2014, with the exception of 2008 to 2010 because the questions in the EEI for those years were not comparable. We identified statistical differences by assessing whether the 95 percent confidence intervals of two estimates overlapped or not rather than conducting multiple t-tests; confidence intervals that do not overlap represent differences that are statistically significant. If the change was statistically significant, there is less than a 5 percent probability that the difference occurred by chance. This method of assessing difference is conservative, in that it may underestimate the amount of statistically significant differences in cases of minor overlap of confidence intervals, but does not require us to use a testing methodology modification such as a Bonferroni adjustment to account for multiple comparisons.<sup>1</sup> Table 4 below shows the downward trend in the government-wide EEI and for two of the three components.

**Table 4: Estimated Government-wide Employee Engagement Index (EEI) and EEI Component Scores, 2006 through 2014**

	2006	2008	2010	2011	2012	2013	2014
EEI overall	60.8	61.8	66.2	66.6	65.4	64.2	63.2
Leaders lead	49.0	50.7	55.0	55.8	54.1	52.6	49.7
Intrinsic work experience	69.5	70.2	71.9	71.6	70.6	68.9	68.4
Supervisors	64.8	65.1	71.1	71.7	70.5	70.4	70.5

Legend:

 Statistically significant increase from previous year's EEI score at the 95 percent confidence level

<sup>1</sup>For a discussion of this methodology, see Nathaniel Schenker and Jane F. Gentleman, *The American Statistician*, vol. 55, no. 3 (August 2001): pp. 182-186.

**Appendix II: Trends in Employee Engagement Index Levels**

	Statistically significant decrease from previous year's EEI score at the 95 percent confidence level
	We could not determine whether changes were statistically significant because of changes in the set of questions used to calculate the index.

Source: GAO analysis of Office of Personnel Management (OPM) Federal Employee Viewpoint Survey (FEVS) data, 2006-2014. | GAO-15-585

Notes: Government-wide estimates are for the 47 agencies with a minimum of 5 years of FEVS data for the years analyzed and at least 100 respondents. OPM's FEVS was administered biennially prior to 2010 and annually thereafter. OPM began calculating the EEI in 2010. To determine the EEI for 2006 and 2008, because the FEVS did not include four questions currently used in the EEI, we included only 11 of the 15 EEI questions. The EEI estimates shown in this table have sampling variability of no more than plus or minus 1 percentage point at the 95 percent level of confidence.

Tables 5 and 6 show the EEI trends for the 47 agencies with a minimum of 5 years of FEVS data for the years analyzed and at least 100 respondents and whether year to year changes were statistically significant. These tables are the basis for figure 2.

**Table 5: Estimated Employee Engagement Index (EEI) by Chief Financial Officers Act of 1990 (CFO Act) Agency, 2006 through 2014**

CFO Act agency	2006	2008	2010	2011	2012	2013	2014
Agency for International Development	63.2	65.8	65.2	64.8	67.3	65.5	63.7
Agriculture	60.7	59.6	63.3	65.0	63.5	62.8	62.6
Commerce	62.5	65.0	68.6	69.8	69.8	70.4	69.8
Defense	62.8	63.7	68.1	67.6	67.0	64.9	64.2
Education	56.0	58.3	62.5	64.3	64.6	66.3	66.4
Energy	60.8	62.3	64.7	63.5	64.9	63.9	60.9
Environmental Protection Agency	61.4	63.1	66.6	67.1	67.8	64.1	62.7
General Services Administration	64.5	64.6	69.9	70.5	69.5	68.6	67.8
Health and Human Services	61.6	61.9	66.3	65.6	66.1	66.4	66.2
Homeland Security	50.3	55.6	61.0	60.4	58.0	56.2	54.1
Housing and Urban Development	57.1	56.4	59.3	61.4	62.0	56.9	56.6
Interior	57.1	58.0	64.0	64.1	64.0	62.2	61.5
Justice	63.3	63.6	68.1	69.1	66.8	66.5	66.2
Labor	61.4	61.2	64.2	64.2	64.4	62.5	63.9
National Aeronautics and Space Administration	70.4	71.3	75.9	75.3	76.3	77.1	77.2
National Science Foundation	70.4	71.9	70.8	67.1	65.1	67.7	68.7
Nuclear Regulatory Commission	71.7	77.2	79.7	78.8	75.3	74.6 <sup>a</sup>	74.6 <sup>a</sup>

**Appendix II: Trends in Employee Engagement Index Levels**

<b>CFO Act agency</b>	<b>2006</b>	<b>2008</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
Office of Personnel Management	60.2	64.2	68.9	71.5	70.5	71.6 <sup>a</sup>	71.6 <sup>a</sup>
Small Business Administration	53.5	60.3	63.0	65.1	64.2	64.7	62.4
Social Security Administration	65.1	64.5	70.0	72.0	68.7	66.7	66.5
State	65.7	67.4	72.1	72.5	71.0	69.2	69.7
Transportation	52.0	52.4	61.0	62.6	64.4	65.2	63.9
Treasury	61.9	61.8	68.9	70.3	69.4	67.1	66.1
Veterans Affairs	59.2	60.8	63.1	64.8	62.5	63.1	61.2

Legend:

	Statistically significant increase from previous year's EEI score at the 95 percent confidence level
	Statistically significant decrease from previous year's EEI score at the 95 percent confidence level
	We could not determine whether changes were statistically significant because of changes in the set of questions used to calculate the index.

Source: GAO analysis of Office of Personnel Management (OPM) Federal Employee Viewpoint Survey (FEVS) data, 2006-2014. | GAO-15-585

Notes: The Chief Financial Officers of 1990 (CFO) Act agencies are the executive branch agencies listed at section 901(b) of title 31, United States Code. The agencies covered by the CFO Act, as amended, are generally the largest federal agencies and account for over 98 percent of the federal workforce. OPM's FEVS was administered biennially prior to 2010 and annually thereafter. OPM began calculating the EEI in 2010. To determine the EEI for 2006 and 2008, because the FEVS did not include four questions currently used in the EEI, we included only 11 of the 15 EEI questions. The EEI estimates shown in this table have sampling variability of no more than plus or minus 2 percentage points at the 95 percent level of confidence except for the following estimates: Department of State (2.5 percentage points in 2006); Social Security Administration (2.1 percentage points in 2010, 3.9 percentage points in 2006); Department of the Treasury (3.9 percentage points in 2006); and Department of Veterans Affairs (2.6 percentage points in 2010, 2.7 percentage points in 2006).

<sup>a</sup>Estimates appear the same due to rounding. Actual estimates are different before rounding.

**Table 6: Estimated Employee Engagement Index (EEI) for Non-CFO Act Agencies, 2006 through 2014**

<b>Non-CFO Act agency</b>	<b>2006</b>	<b>2008</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
Broadcasting Board of Governors	47.1	46.1	55.7	57.4	56.0	58.1	55.7
Commodity Futures Trading Commission	57.5	68.2	71.7	72.9	68.1	64.0	56.2
Consumer Product Safety Commission	56.5	56.5	65.3	68.7	68.8	69.5	64.1
Corporation for National and Community Service	66.1	65.6	71.6	68.9	66.8	67.5	66.7
Court Services and Offender Supervision Agency	62.2	67.6	70.8	70.6	67.2	64.8	63.1

**Appendix II: Trends in Employee Engagement Index Levels**

<b>Non-CFO Act agency</b>	<b>2006</b>	<b>2008</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
Equal Employment Opportunity Commission	59.1	60.0	62.7	65.5	66.8	65.0	64.9
Export Import Bank of the United States	68.4	67.1	<sup>a</sup>	63.6	62.5	60.3	58.1
Federal Communications Commission	<sup>a</sup>	55.4	69.4	69.0	69.1	73.1	69.6
Federal Election Commission	58.1	58.4	64.4	62.7	58.7	61.0	59.9
Federal Energy Regulatory Commission	65.2	69.2	70.4	71.0	69.8	72.5	73.7
Federal Mediation and Conciliation Service	73.1	<sup>a</sup>	73.2	72.2	76.9	81.3	79.3
Federal Trade Commission	68.3	70.5	75.7	75.5	74.5	75.0	75.5
International Trade Commission	62.8	63.2	69.1	67.1	65.1	69.3	71.0
Merit Systems Protection Board	69.5	69.5	72.5	71.3	68.2	68.0	62.2
National Archives and Records Administration	58.5	59.3	63.0	61.6	59.3	59.8	59.0
National Credit Union Administration	62.9	60.0	66.3	67.8	72.5	70.0	71.7
National Gallery of Art	<sup>a</sup>	<sup>a</sup>	64.7	63.5	61.8	65.0	64.8
National Labor Relations Board	63.4	59.5	63.3	66.1	65.5	63.9 <sup>b</sup>	63.9 <sup>b</sup>
National Transportation Safety Board	56.5	65.2	68.2	67.5	65.8	64.0	63.3
Office of Management and Budget	71.3	74.5	65.7	63.1	72.6	68.2	73.1
Pension Benefit Guaranty Corporation	62.3	63.1	70.0	69.4	67.3	64.2	65.3
Railroad Retirement Board	59.3	60.8	65.6	66.1	67.9	68.8	67.9
Securities and Exchange Commission	65.9	60.6	61.0	61.0	62.1	62.3	66.0

Legend:

	Statistically significant increase from previous year's EEI score at the 95 percent confidence level
	Statistically significant decrease from previous year's EEI score at the 95 percent confidence level
	We could not determine whether changes were statistically significant because of changes in the set of questions used to calculate the index.

Source: GAO analysis of Office of Personnel Management (OPM) Federal Employee Viewpoint Survey (FEVS) data, 2006-2014. | GAO-15-585

Notes: Data include agencies with a minimum of 5 years of FEVS data for the years analyzed and at least 100 respondents. OPM's FEVS was administered biennially prior to 2010, when OPM began calculating the EEI, and annually thereafter. To determine the EEI for 2006 and 2008, because the FEVS did not include four questions currently used in the EEI, we included only 11 of the 15 EEI questions. The EEI estimates shown in this table have sampling variability of no more than plus or minus 4 percentage points at the 95 percent level of confidence except for the following estimates: Merit Systems Protection Board (5.4 percentage points in 2011); Export Import Bank of the United

States (4.2 percentage points in 2011, 5 percentage points in 2012); Federal Election Commission (4.5 percentage points in 2012); and the U.S. International Trade Commission (5.6 percentage points in 2012).

<sup>a</sup>Agency did not participate in FEVS during this year.

<sup>b</sup>Estimates appear the same due to rounding. Actual estimates are different before rounding.

## Employee Population Group Results

Table 7 shows the estimated EEI by employee population category. To determine the extent of variation in responses within an employee population, we measured the greatest possible amount of variation in each of the years 2006 through 2014. Specifically, we measured the percentage point difference between the confidence interval upper bound of the category with the highest EEI and the lower bound confidence interval of the category with lowest EEI in each of the years. Pay category and supervisory status consistently had the widest variation in EEI scores.

**Table 7: Estimated Employee Engagement Index (EEI) Levels by Employee Population Group, 2006 through 2014**

	2006	2008	2010	2011	2012	2013	2014
<b>Age category</b>							
25 or younger	65.4	67.2	74.6	73.6	69.1	69.3	68.8
26 to 29	61.7	64.4	70.3	69.0	65.8	64.3	63.3
30 to 39	61.0	61.3	66.2	66.8	64.8	63.4	62.2
40 to 49	60.6	62.2	65.8	66.6	65.5	64.1	63.0
50 to 59	60.1	60.4	65.9	65.7	65.2	64.3	63.3
60 or older	62.8	63.8	67.1	67.2	67.2	66.4	64.4
<b>Agency tenure</b>							
< 1 year	72.4	70.5	75.6	75.8	74.6	74.5	72.9
1 to 3 years	63.2	65.8	70.5	69.2	68.2	67.1	66.1
4 to 5 years	58.8	60.8	65.6	65.1	63.7	63.0	62.5
6 to 10 years	59.7	59.2	62.4	64.1	62.6	61.8	61.1
11 to 20 years	59.2	60.3	64.9	64.8	63.9	62.4	61.2
> 20 years	61.3	62.0	66.4	67.0	66.4	65.6	65.0
<b>Disability status</b>							
Disabled	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	60.7	60.1	59.0
Not disabled	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	66.2	65.1	64.1
<b>Ethnicity</b>							
Hispanic/Latino	61.3	62.5	66.2	66.0	64.6	63.0	61.3

**Appendix II: Trends in Employee Engagement Index Levels**

	2006	2008	2010	2011	2012	2013	2014
Not Hispanic/Latino	60.8	61.7	66.4	66.7	65.6	64.5	63.6
<b>Education level</b>							
Less than high school	a	a	a	a	a	a	66.1
High school diploma or equivalent	a	a	a	a	a	a	65.1
Trade or technical certificate	a	a	a	a	a	a	59.8
Some college	a	a	a	a	a	a	60.9
Associate's degree	a	a	a	a	a	a	60.6
Bachelor's degree	a	a	a	a	a	a	63.7
Master's degree	a	a	a	a	a	a	64.8
Doctoral/professional degree	a	a	a	a	a	a	66.2
<b>Federal tenure category</b>							
< 1 year	a	67.0	78.4	77.8	77.8	76.9	74.8
1 to 3 years	a	67.6	72.2	70.8	69.8	69.3	68.1
4 to 5 years	a	61.7	66.0	66.5	64.6	64.0	63.8
6 to 10 years	a	60.2	63.4	64.5	63.0	62.2	61.4
11 to 14 years	a	60.2	65.2	64.2	63.3	61.6	60.6
15 to 20 years	a	60.4	63.8	64.5	63.0	61.8	61.1
> 20 years	a	61.4	65.7	66.1	65.6	64.7	64.0
<b>Gender</b>							
Male	60.3	61.6	66.4	66.3	65.6	64.1	63.2
Female	61.5	62.1	66.2	67.1	65.3	64.6	63.3
<b>Pay category</b>							
Prevailing Rate System <sup>b</sup>	56.2	57.9	61.5	61.3	61.0	58.7	57.4
General Schedule (GS) 1 to GS 6 <sup>c</sup>	61.1	60.2	63.7	65.4	63.1	62.5	61.0
GS 7 to GS 12 <sup>c</sup>	60.4	60.9	65.9	66.3	65.0	63.5	62.3
GS 13 to GS 15 <sup>c</sup>	64.5	65.6	69.8	69.8	69.1	67.7	66.9
Senior Executive Service <sup>d</sup>	80.7	81.7	83.6	82.5	83.8	83.7	84.2
Senior Level/Scientific or Professional <sup>e</sup>	57.1	67.1	72.7	70.3	73.3	68.3	68.6
Other pay category <sup>f</sup>	58.6	59.4	64.1	62.6	60.9	61.4	60.3
<b>Race category</b>							
American Indian or Alaska Native	57.6	57.7	60.6	59.3	58.7	57.9	57.6

**Appendix II: Trends in Employee Engagement Index Levels**

	2006	2008	2010	2011	2012	2013	2014
Asian	65.7	67.9	70.0	71.7	70.0	69.6	68.4
Black or African American	61.3	62.4	67.0	67.5	65.8	65.4	64.1
Native Hawaiian or other Pacific Islander	63.3	57.5	65.2	64.5	63.8	63.0	61.4
White	61.0	61.9	66.9	66.8	65.8	64.6	63.6
Two or more races	51.8	56.0	56.3	61.4	60.1	59.0	58.1
<b>Sexual orientation</b>							
Heterosexual or straight	a	a	a	a	66.5	65.5	64.5
Gay, lesbian, bisexual, or transgender	a	a	a	a	61.5	61.4	60.7
Prefer not to state	a	a	a	a	58.3	56.5	55.7
<b>Supervisory status</b>							
Nonsupervisor <sup>g</sup>	58.2	58.8	63.8	64.6	63.2	62.2	61.2
Team leader <sup>h</sup>	61.6	62.6	67.5	67.0	66.2	64.9	63.6
Supervisor <sup>i</sup>	66.1	68.5	71.3	71.3	70.4	68.8	67.8
Manager <sup>j</sup>	73.5	74.2	77.5	76.5	75.9	74.1	73.1
Senior leader <sup>k</sup>	76.7	78.0	81.8	82.0	81.5	81.3	80.4
<b>Veterans status</b>							
No prior service	a	a	a	a	a	a	63.9
Guard Reserves	a	a	a	a	a	a	62.9
Retired	a	a	a	a	a	a	66.6
Discharged/separated	a	a	a	a	a	a	58.9
<b>Work location</b>							
Headquarters	63.3	64.6	68.2	68.2	67.1	66.0	65.3
Field	59.7	60.4	65.3	65.6	64.3	63.1	61.9

Legend:

	Statistically significant increase from previous year's EEI score at the 95 percent confidence level
	Statistically significant decrease from previous year's EEI score at the 95 percent confidence level
	We could not determine whether changes were statistically significant because of changes in the set of questions used to calculate the index.

Source: GAO analysis of Office of Personnel Management (OPM) Federal Employee Viewpoint Survey (FEVS) data, 2006-2014. | GAO-15-585

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## Appendix II: Trends in Employee Engagement Index Levels

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Notes: Data includes agencies with a minimum of 5 years of FEVS data for the years analyzed and at least 100 respondents. OPM's FEVS was administered biennially prior to 2010, when OPM began calculating the EEI, and annually thereafter. To determine the EEI for 2006 and 2008, because the FEVS did not include four questions currently used in the EEI, we included only 11 of the 15 EEI questions. Index estimates shown in this table have sampling variability of no more than plus or minus 5 percentage points at the 95 percent level of confidence except for the following estimates: Federal tenure, <1 year (6.3 percentage points in 2008); Pay category, Senior Level/Scientific or Professional (5.4 percentage points in 2011, 7.3 percentage points in 2010, 21.7 percentage points in 2008, 10.2 percentage points in 2006); Race, Native Hawaiian or other Pacific Islander (7.6 percentage points in 2010, 5.6 percentage points in 2008, 6.2 percentage points in 2006); supervisory status, senior leaders (5.1 percentage points in 2008).

<sup>a</sup>Data are not available or the response categories changed from prior years preventing comparable estimates.

<sup>b</sup>The Prevailing Rate System, also known as the Federal Wage System, is a uniform pay-setting system that covers federal employees who are paid by the hour. The system's goal is to make sure that federal trade, craft, and laboring employees within a local wage area who perform the same duties receive the same rate of pay. 5 U.S.C. § 5343.

<sup>c</sup>The General Schedule (GS) is the federal government's system for defining and organizing federal positions, primarily to assign rates of pay, based on a position's duties, responsibilities, and qualification requirements. GS is divided into 15 grades, which are numerical designations based on the complexity of the work and knowledge required to do the job and are on a scale of GS-1 to GS-15 as defined by law. 5 U.S.C. § 5104.

<sup>d</sup>Senior Executive Service (SES) includes managerial, supervisory, and policy positions classified above General Schedule (GS) grade 15 or equivalent positions in the executive branch of the federal government.

<sup>e</sup>Senior Level includes most senior level employees that are in nonexecutive positions whose duties are broad and complex enough to be classified above GS-15. Scientific or Professional includes non-executive positions classified above the GS-15 level that involve performance of high-level research and development in the physical, biological, medical, or engineering sciences, or a closely-related field.

<sup>f</sup>Other is a pay category not listed above.

<sup>g</sup>Nonsupervisor means anyone who does not have supervisory responsibilities.

<sup>h</sup>Team leader means someone who provides employees with day-to-day-guidance, but does not have supervisory responsibilities or conduct performance appraisals.

<sup>i</sup>Supervisor means first-line supervisors typically responsible for employees' performance appraisals but that do not supervise other supervisors.

<sup>j</sup>Manager means those in management positions who typically supervise one or more supervisors.

<sup>k</sup>Senior leader means the political or career agency or department head or a member of the immediate leadership team responsible for directing the policies and priorities of the department or agency. The individual is typically a member of the Senior Executive Service (SES) or equivalent. Prior to 2014, this category was called Executive and was defined as a member of the SES or equivalent.

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# Appendix III: GAO's Analysis of the Drivers of the Employee Engagement Index

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Our analysis of the drivers of engagement measures the extent to which selected FEVS questions predict the EEI. To conduct this analysis, we reviewed relevant literature and interviewed knowledgeable individuals to identify and refine a list of potential drivers of engagement, and then identified corresponding FEVS questions not included in the EEI. Using FEVS 2014 data, we then used multiple linear regression analysis to assess the correlation between the driver questions and the EEI, controlling for other factors such as agency and employee characteristics. We used both statistical significance and the magnitude of regression coefficients to define drivers of the EEI. We conducted sensitivity tests to ensure that our results were robust to differences in model specification, functional form, and to the exclusion of cases with high levels of missing data. In addition to our government-wide analysis, we analyzed the drivers among employees at each of the Chief Financial Officers Act agencies and selected employee populations. Results of these analyses were generally consistent with our government-wide analysis.

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## Identification of FEVS questions

To determine the FEVS questions to include in our statistical model we reviewed relevant literature and interviewed knowledgeable researchers, government officials from the United Kingdom, Canada, and Australia responsible for their comparable public-sector employee survey, and consultants on employee engagement. We then categorized all the potential drivers identified by sector—such as academia, consultants, and the federal government. We selected the drivers identified by two or more sectors, as well as those for public policy reasons we considered important to include in our model. We subsequently identified the corresponding FEVS questions not included in the EEI that reflected the concepts for each of the drivers. We selected at least one FEVS question as a proxy for each of the potential drivers that we identified, as shown in table 8. The questions that we selected were those we determined to be the most actionable by managers and representative of the potential driver. We also selected three drivers and questions for other public policy considerations.

**Table 8: Potential Drivers and Corresponding Selected 2014 Federal Employee Viewpoint Survey (FEVS) Questions Included in GAO's Statistical Model**

Potential Driver Identified in Engagement Literature	2014 FEVS Question Selected for Model as Proxy for Potential Driver	2014 FEVS Question Number
Career development and training	I am given a real opportunity to improve my skills in my organization.	1
Communication	How satisfied are you with the information you receive from management on what's going on in your organization?	64
Coworkers and teamwork	The people I work with cooperate to get the job done.	20
Diversity and inclusion	Supervisors work well with employees of different backgrounds.	55
Employee empowerment and involvement	I believe the results of this survey will be used to make my agency a better place to work.	41
Employee empowerment and involvement	How satisfied are you with your involvement in decisions that affect your work?	63
Fair and equitable treatment <sup>a</sup>	I can disclose a suspected violation of any law, rule or regulation without fear of reprisal. <sup>a</sup>	17
Fair and equitable treatment <sup>a</sup>	Arbitrary action, personal favoritism and coercion for partisan political purposes are not tolerated. <sup>a</sup>	37
Fair and equitable treatment <sup>a</sup>	Prohibited Personnel Practices are not tolerated. <sup>a</sup>	38
Innovation	Creativity and innovation are rewarded.	32
Mission/job/skills match	The workforce has the job-relevant knowledge and skills necessary to accomplish organizational goals.	29
Pay and benefits	Considering everything, how satisfied are you with your pay?	70
Performance management	My supervisor provides me with constructive suggestions to improve my job performance.	46
Physical work environment	Physical conditions allow employees to perform their jobs well.	14
Recognition	In my work unit, differences in performance are recognized in a meaningful way.	24
Resource and information access	I have sufficient resources to get my job done.	9

Potential Driver Identified in Engagement Literature	2014 FEVS Question Selected for Model as Proxy for Potential Driver	2014 FEVS Question Number
Work-life balance	My supervisor supports my need to balance work and other life issues.	42
Workload	My workload is reasonable.	10

Source: GAO analysis of employee engagement literature and Office of Personnel Management FEVS. | GAO-15-585

<sup>a</sup>Potential driver and question were selected for public policy considerations.

## Government-wide Statistical Analysis

To assess the relationship between potential drivers and employee engagement as measured by our index, controlling for other factors, we used linear multiple regression analysis using FEVS 2014 data. Our ordinary least squares regression analysis assesses the unique correlation between the potential drivers and engagement, controlling for respondent characteristics. For most models, we controlled for supervisory status, agency tenure, location, veteran's status, and age. In other models we also controlled for respondent's sex, education, reported likelihood of leaving their job in the near future, race, Hispanic ethnicity, disability status, and sexual orientation. With the exception of age group and agency, we used the modal category of the sample as a referent category.<sup>1</sup> We also included a variable to control for how many of the 15 index questions the respondent answered. In general, our agency variable included dummies for 37 individual agencies and an intercept for the remaining agencies, which tended to be substantially smaller in size; results were similar when we tested a model with intercepts for all

<sup>1</sup>Because the distribution of ages is weighted towards the older groups, we chose to use a referent category closer to the middle of the distribution than the modal category. For agency, we selected Labor as our referent because its average EEI was similar to the average across all agencies in 2014.

individual agencies available in the sample.<sup>2</sup> We used statistical software to account for the sample design in our variance estimates.<sup>3</sup>

Prior to testing driver questions, we ran a series of regressions to test whether factors such as agency or employee characteristics predicted an individual's score on the EEI. Although some of the coefficients in our model of employee engagement as a function of agency (captured by 83 agency dummies) were statistically significant, the model with just agency had poor predictive power as indicated by a low  $R^2$  of 0.02.<sup>4</sup> Our primary model of employee population variables included supervisory status, sex, education, agency tenure, military service status, disability status, age group, plans to leave one's job, Hispanic ethnicity, race, sexual orientation, and a control for number of index questions missing. The  $R^2$  of the employee population model was 0.17, suggesting that variation in the employee characteristics predicted approximately 17 percent of the variation in employee engagement. A model that combined both employee characteristics and agency intercepts for 37 distinct agencies had a nearly identical  $R^2$  of 0.18.

Given the modest ability of employee characteristic and agency to predict variation in employee engagement as measured by our index, we turned to an analysis of potential drivers of engagement. Our primary models tested the 18 potential drivers we selected to capture different concepts reflected in our background research and literature review; see above for information on driver identification and selection. In general, responses to each driver were measured on a five-point scale (generally, strongly disagree to strongly agree or very dissatisfied to very satisfied), with

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<sup>2</sup>The 37 agencies include the 24 CFO Act agencies as well as other agencies that participated in early FEVS data collection efforts.

<sup>3</sup>Variance was estimated via Taylor series linearization using Stata software survey regression procedures, incorporating sampling weights and treating agency as a stratification variable. We did not use replicate weights in the regression analysis primarily because of the computational requirements of such analysis in light of the sample size, number of parameters to be estimated, and number of models and specification tests run, and also because they were unlikely to have a substantive impact on the interpretation of our regression results.

<sup>4</sup> $R^2$  is a sample specific measure of how well the variation in the model's independent variables (such as agency or demographics) predicts the variation in the dependent or outcome variable (here, engagement). It runs from 0 to 1, with a score of 0 suggesting that the model has no explanatory power and a score of 1 suggesting that the independent variables predict 100 percent of the variation in the dependent variable.

some questions offering a “do not know” response category. For respondents missing or answering “do not know” to specific driver questions, we imputed data using the agency-level average for that individual to avoid losing cases in estimation through listwise deletion.<sup>5</sup>

Our model treats drivers of engagement as linear predictors of the engagement index. This is a strong assumption in light of the fact that the response categories to the driver questions are ordinal, rather than interval data. In other words, while the responses are ordered, the difference between two adjacent categories (such as very negative and somewhat negative) is not necessarily equal to the difference between two other adjacent categories (such as neutral and somewhat positive), and therefore the assumption of linearity may not be appropriate. We conducted sensitivity tests to ensure that our results were similar when we treated the drivers as categorical variables including intercepts for item nonresponse and no basis to judge responses. Given that our results were similar under either specification, we decided to use the linear covariates in our models to ease the interpretation of results and to reduce the degrees of freedom required to estimate the model.

Given the large number of cases in our government-wide analysis, nearly all of the coefficients on the drivers in the model were statistically significant. Accordingly, we incorporated a substantive threshold in our determination of whether an independent variable acted as a driver. We considered variables to be drivers of engagement if they had a coefficient that rounded to 3 or above, indicating that on average, each increase in positivity of responses was associated with a 3 percentage point increase in the 0 to 100 measure of engagement.<sup>6</sup> In other words, a coefficient of 3 implies that, compared to a respondent who answered neutrally to a given driver question, a respondent who answered very positively (which is two

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<sup>5</sup>Approximately one-third of the sample did not answer or responded “do not know” to one or more of the 18 potential driver questions.

<sup>6</sup>In our government-wide model, all of the coefficients that rounded to 3 or above were statistically different from coefficients that rounded to 2 or below at the  $p < .05$  level, as shown by non-overlapping confidence intervals.

units above neutral) would have a predicted engagement score 6 percentage points higher.<sup>7</sup>

The results for our government-wide model appear in table 9 in appendix IV. They demonstrate that while almost all of the questions we tested attained statistical significance, a subset of questions could be considered drivers in that they had statistically significant coefficients that rounded to 3 or above. As shown in table 9, we identified six driver questions that strongly and significantly predicted the employee engagement score after controlling for agency and employee characteristics—these were questions 1, 42, 46, 55, 63 and 64.

The strongest driver from our model was an employee's response to question 46, a question related to performance management, which asks whether "my supervisor provides me with constructive suggestions to improve my job performance." Compared to employees who gave a neutral response to this question, employees who strongly agreed had an average employee engagement score approximately 10.5 percentage points higher on a 0 to 100 scale after controlling for other factors such as agency, employee characteristics and other drivers. Similarly, compared to employees who responded strongly disagree, employees who answered strongly agree had an EEI score, on average, more than 20 points higher.

The second strongest driver we identified was question 1, "I am given a real opportunity to improve my skills in my organization." Compared to those who answered neutral to this measure of career development and training, those who answered strongly agree had predicted engagement scores approximately 8 percentage points higher. Compared to a strongly disagree response, the EEI score was, on average, approximately 16 points higher.

Four other questions had slightly smaller coefficients that rounded to 3 or above, suggesting that a respondent who answered strongly agree (or

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<sup>7</sup>The predicted increase of 6 percentage points is based on a coefficient of 3 (equivalent to 3 percentage points) times two theoretically linear unit increases—from neutral to agree (or satisfied), then from agree (or satisfied) to strongly agree (or very satisfied). A predicted increase in engagement of 12 percentage points is based on increase from strongly disagree (or very dissatisfied) to strongly agree (or very satisfied), which represents a 4 unit increase of an average of 3 apiece.

very satisfied) would have a predicted engagement level approximately 5 to 7 points higher than one who answered neutral, controlling for other factors. Compared to a strongly disagree (or very dissatisfied) response, the EEI score was, on average, approximately 12 points higher. These four questions were question 42 (“My supervisor supports my need to balance work and life issues”); question 55 (“Supervisors work well with employees of different backgrounds”); question 63 (“How satisfied are you with your involvement in decisions that affect your work?”); and question 64 (“How satisfied are you with the information you receive from management on what is going on in your organization?”)

The coefficients in our analysis indicate the unique association between a given independent variable, such as a driver or employee population control, accounting for the potential effects of other variables. The  $R^2$  of our final model including all potential drivers, a full list of employee characteristics, and controls for 37 distinct agencies, was 0.74. This suggests that the variables included in our regression could predict approximately 74 percent of the variation in the EEI, a much higher proportion than models based on either agency or employee characteristics alone.

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## Sensitivity Testing

The imputation process described above has the potential to artificially attenuate variance estimates for our coefficients. Accordingly, our statistical model of drivers of engagement includes intercepts for each imputed independent variable as a control variable. Because it was not unusual for the coefficients on many imputation flags to be statistically significant in multiple models, we ran models that excluded imputed data for those questions identified as drivers by the criteria above, and we found consistent results in terms of which variables had statistically significant coefficients that rounded to 3 and above.

We also tested our model using a categorical specification of the potential driver variables that included dummies for missing and no basis to judge values for each independent variable, and we found results generally consistent with our main model.<sup>8</sup> In light of these results, as well as

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<sup>8</sup>We tested models with both 3-category scales (negative, neutral, positive) and the full 5-category scales (very negative to very positive) and intercepts for don't know and missing responses for each of the potential driver variables. While the pattern of the coefficients was not perfectly linear for all potential drivers, for the most part coefficients increased in a consistent fashion as responses became more positive.

reasons cited above, we determined that the linear specification is sufficient for identifying which independent variables appear to best predict variation in the engagement index. However, we also recognize that it may be appropriate to relax the assumption of linearity depending on the research question.

Finally, we tested our model on subsets of the population with response patterns that could reflect data quality issues, such as missing more than a third of the index questions or more than half of the driver variables. Our results from these analyses were consistent with the overall government-wide estimates.

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## Limitations

The potential drivers we considered in our models were selected based on an extensive review of academic, government, and policy-related literature and a logical assessment of the particular concepts with which they related. However, researchers may disagree over which FEVS questions provide the best and most actionable proxies for the drivers we identified. Had we selected different questions as proxies for drivers found in the literature, our results may have been different.

FEVS was not initially designed with the express purpose of measuring engagement or of identifying factors related to engagement. To the extent policymakers seek to use data to assess drivers of engagement, best practices suggest designing a survey or questions to align expressly with the concepts of interest. Although we believe that FEVS as designed and currently implemented is sufficient for an analysis such as that presented above, our sensitivity tests suggest that alternative measures of engagement or drivers might provide different insights as to which factors most strongly predict engagement.

Our analysis does not provide insight into the validity of the EEI for measuring conditions conducive to engagement or employee engagement directly. Although we found that the 15 questions comprising the EEI had strong internal cohesion, we did not conduct factor analysis or additional research to determine whether an alternative scale or questions better captured the concept of engagement.<sup>9</sup>

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<sup>9</sup>Cronbach's alpha, a measure of internal consistency that ranges from 0 to 1, was 0.94 for the 15 questions included in the index.

Our model is not a causal assessment of the relationship between the specific FEVS questions included in our model and increased engagement. While our results identify some areas that might relate to increased engagement, we cannot be certain that an investment in a specific driver will result in increases in employee engagement. However, our results do confirm a general consistency of which drivers of the EEI, as measured by questions currently available in FEVS data, appear to be statistically and substantively significant across a wide range of agencies and subgroups. In other words, across agencies and selected employee population groups, positive responses to the six FEVS questions in our government-wide model were associated with increases in the EEI.

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## Agency Driver Analysis

To assess potential drivers for agencies, we replicated our government-wide regression model among employees at the 24 CFO Act agencies. We limited our analysis to the CFO Act agencies because they were of sufficient size so as to produce reliable results. As shown in tables 10 through 15 in appendix IV, the drivers for the CFO Act agencies were generally consistent with the results of our government-wide analysis, with some exceptions. For example, for several agencies, question 63 would not meet our definition of a driver in that the coefficient does not always round to 3 or above.

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## Employee Population Group Analysis

We analyzed the drivers by employee population groups. We selected employee population groups (1) with different amounts of variation in EEI levels within the employee population group; (2) with distinct subsets of the employee population from the others selected (for example, we did not select both pay category and supervisory status because the categories would represent similar populations); and (3) for which, in our opinion, agencies could identify actionable steps for a subset of the employee population group. The employee population groups we analyzed were supervisory status, age, veterans status, work location (headquarters or field), and agency tenure. We then estimated versions of our regression model that included a subset of employee characteristic control variables to assess which potential drivers most strongly correlated with EEI, after controlling for agency and other factors. As shown in tables 16 to 20 in appendix IV, the drivers for the selected employee population groups were generally consistent with the results of our government-wide analysis, with minor exceptions. For example, when analyzing potential drivers by age group, question 63 does not reach our threshold for a driver among respondents younger than 40.

# Appendix IV: Results of GAO's Analysis of the Drivers of the Employee Engagement Index

**Table 9: Government-wide Regression Model Results (Full Model), 2014**

Question/Variable	Coefficient	Standard error
Federal Employee Viewpoint Survey question included in GAO model		
Question No. 1: I am given a real opportunity to improve my skills in my organization.	3.82***	0.05
Question No. 42: My supervisor supports my need to balance work and other life issues.	2.88***	0.05
Question No. 46: My supervisor provides me with constructive suggestions to improve my job performance.	5.26***	0.05
Question No. 55: Supervisors work well with employees of different backgrounds.	3.40***	0.05
Question No. 63: How satisfied are you with your involvement in decisions that affect your work?	2.61***	0.05
Question No. 64: How satisfied are you with the information you receive from management on what's going on in your organization?	3.12***	0.05
Question No. 9: I have sufficient resources to get my job done.	0.53***	0.04
Question No. 10: My workload is reasonable.	0.35***	0.04
Question No. 14: Physical conditions allow employees to perform their jobs well.	0.26***	0.04
Question No. 17: I can disclose a suspected violation of any law, rule or regulation without fear of reprisal.	1.82***	0.04
Question No. 20: The people I work with cooperate to get the job done.	1.43***	0.04
Question No. 24: In my work unit, differences in performance are recognized in a meaningful way.	1.02***	0.05
Question No. 29: The workforce has the job-relevant knowledge and skills necessary to accomplish organizational goals.	0.92***	0.05
Question No. 32: Creativity and innovation are rewarded.	1.75***	0.05
Question No. 37: Arbitrary action, personal favoritism and coercion for partisan political purposes are not tolerated.	1.12***	0.05
Question No. 38: Prohibited Personnel Practices are not tolerated.	-0.01	0.05
Question No. 41: I believe the results of this survey will be used to make my agency a better place to work.	1.38***	0.04
Question No. 70: Considering everything, how satisfied are you with your pay?	-0.24***	0.03
<b>Imputation flags by question</b>		
Question 1	-1.98*	0.95
Question 9	-1.2	0.62

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<b>Question/Variable</b>	<b>Coefficient</b>	<b>Standard error</b>
Question 10	-2.09***	0.38
Question 14	-0.81	0.43
Question 17	-0.82***	0.18
Question 20	-0.91	0.68
Question 24	0.92***	0.18
Question 29	-2.20***	0.3
Question 32	1.87***	0.21
Question 37	0.67***	0.18
Question 38	-0.52***	0.15
Question 41	0.53***	0.13
Question 42	-2.38***	0.47
Question 46	-0.80*	0.4
Question 55	-1.33***	0.16
Question 63	2.72***	0.56
Question 64	1.63**	0.51
Question 70	0.53	0.47
<b>Supervisory status</b>		
Nonsupervisor	ref.	.
Team leader	0.92***	0.11
Supervisor	0.48***	0.11
Manager	0.90***	0.15
Senior leader	1.13***	0.27
Missing	0.97*	0.43
<b>Sex</b>		
Male	ref.	.
Female	1.31***	0.08
Missing	0.06	0.34
<b>Education level</b>		
Less than high school	0.28	1.23
High school diploma/GED or equivalent	-0.14	0.18
Trade or technical certificate	-0.25	0.24
Some college (no degree)	-0.23*	0.11
Associate's degree (e.g. AA, AS)	-0.41**	0.14
Bachelor's degree (e.g. BA, BS)	ref.	.
Master's degree (e.g. MA, MS, MBA)	0.25*	0.1
Doctoral/professional degree (e.g. Ph.D., MD, JD)	0.77***	0.13

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<b>Question/Variable</b>	<b>Coefficient</b>	<b>Standard error</b>
Missing	-0.28	0.42
<b>Agency tenure</b>		
Less than 1 year	-0.02	0.27
1 to 3 years	-0.05	0.13
4 to 5 years	0.06	0.12
6 to 10 years	ref.	.
11 to 20 years	-0.23*	0.11
More than 20 years	-0.24*	0.12
Missing	-0.07	0.42
<b>Work location</b>		
Headquarters	ref.	.
Field office	-0.49***	0.08
Missing	-0.04	0.3
<b>Military service status</b>		
No prior military service	ref.	.
Currently in National Guard or Reserves	-0.39	0.26
Retired	0.25	0.13
Separated or discharged	-0.59***	0.11
Missing	-0.37	0.34
<b>Disability status</b>		
Disabled	0.13	0.11
Not disabled	ref.	.
Missing	0.69	0.37
<b>Age group</b>		
25 and under	1.38**	0.45
26-29	0.03	0.24
30-39	-0.06	0.12
40-49	ref.	.
50-59	-0.16	0.09
60 or older	0.01	0.12
Missing	1.96***	0.59
<b>Intent to leave</b>		
No	2.92***	0.11
Yes, to retire	1.42***	0.19
Yes, to take another job within the federal government	ref.	.
Yes, to take another job outside the federal government	0.07	0.2

**Appendix IV: Results of GAO's Analysis of the Drivers of the Employee Engagement Index**

<b>Question/Variable</b>	<b>Coefficient</b>	<b>Standard error</b>
Yes, other	-0.76***	0.19
Missing	0.98*	0.4
<b>Ethnicity</b>		
Hispanic/Latino	0.1	0.13
Not Hispanic/Latino	ref.	.
Missing	-0.56	0.29
<b>Race</b>		
American Indian or Alaska Native	0.15	0.25
Asian	-0.33	0.18
Black or African American	0.07	0.11
Native Hawaiian or other Pacific Islander	-1.28**	0.42
White	ref.	.
Two or more races	-0.23	0.2
Missing	-1.00***	0.2
<b>Sexual orientation</b>		
Heterosexual or straight	ref.	.
Gay, lesbian, bisexual, or transgender	0.13	0.22
I prefer not to say	-1.24***	0.12
Missing	-0.42*	0.18
<b>Flag for number of the 15 index questions for which respondent answered do not know or gave no response</b>		
No index questions missing/do not know	ref.	.
1 to 5 index questions missing/do not know	-0.88***	0.09
6 to 10 index questions missing/do not know	4.58***	0.63
More than 10 index questions missing/do not know	2.72*	1.39
<b>Agency</b>		
Agriculture	-0.98***	0.19
Agency for International Development	-1.35***	0.38
Pension Benefit Guaranty Corporation	-2.61***	0.7
Office of Management and Budget	-0.3	0.89
Commerce	-1.22***	0.23
National Credit Union Administration	-1.49**	0.55
Defense	-0.04	0.17
Justice	0.1	0.22
Labor	ref.	.
Energy	-1.60***	0.24
Federal Energy Regulatory Commission	-0.88	0.5

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<b>Question/Variable</b>	<b>Coefficient</b>	<b>Standard error</b>
Education	-1.41***	0.35
Equal Employment Opportunity Commission	1.87***	0.47
Environmental Protection Agency	-0.70*	0.32
Federal Communications Commission	-0.82	0.64
Court Services and Offender Supervision Agency	0.06	0.59
Federal Trade Commission	-1.84**	0.69
General Services Administration	-1.44***	0.22
Health and Human Services	-0.43*	0.17
Homeland Security	-0.57**	0.18
Housing and Urban Development	-0.59*	0.3
Broadcasting Board of Governors	-0.48	0.52
Interior	-0.80***	0.2
National Science Foundation	-1.13*	0.52
National Labor Relations Board	0.11	0.61
National Aeronautics and Space Administration	-1.47***	0.21
National Archives and Records Administration	-0.79*	0.4
Nuclear Regulatory Commission	-1.33***	0.32
Office of Personnel Management	0.54	0.28
Railroad Retirement Board	0.28	0.67
Small Business Administration	-0.74	0.44
Securities and Exchange Commission	-0.82*	0.34
State	-0.21	0.32
Social Security Administration	0.98***	0.23
Transportation	-1.12***	0.25
Treasury	-0.29	0.16
Veterans Affairs	0.29	0.18
Other	-1.15**	0.38

Legend: \* p<0.05, \*\* p<0.01, \*\*\* p<0.001

Constant: -46.42\*\*\* R-squared: 0.74 Number of cases: 392,749

Design degrees of freedom: 392,667

Source: GAO analysis 2014 Office of Personnel Management Federal Employee Viewpoint Survey data. | GAO-15-585

Notes: Model is an ordinary least squares regression with the GAO-constructed employee engagement index as the dependent variable and linear specifications of drivers with agency mean imputation for individuals with item nonresponse or "do not know" responses. Positive coefficients reflect increases in positivity. We incorporated a substantive threshold in our determination of whether an independent variable acted as a driver. We considered variables to be drivers of engagement if they had a coefficient that rounded to 3 or above, indicating that on average, each increase in positivity of responses was associated with a 3 percentage point increase in the 0 to 100 scale.

**Appendix IV: Results of GAO's Analysis of the Drivers of the Employee Engagement Index**

**Table 10: GAO's Regression Model Results for Agency for International Development, Agriculture, Commerce, and Defense (Potential Driver Coefficients Only)**

<b>Question</b>	<b>Agency for International Development</b>	<b>Agriculture</b>	<b>Commerce</b>	<b>Defense</b>
Question No. 1: I am given a real opportunity to improve my skills in my organization.	4.40***	3.29***	4.15***	3.86***
Question No. 42: My supervisor supports my need to balance work and other life issues.	1.67***	3.00***	2.63***	2.96***
Question No. 46: My supervisor provides me with constructive suggestions to improve my job performance.	6.01***	5.51***	5.14***	5.05***
Question No. 55: Supervisors work well with employees of different backgrounds.	3.36***	3.32***	3.60***	3.55***
Question No. 63: How satisfied are you with your involvement in decisions that affect your work?	2.21***	3.11***	2.62***	2.80***
Question No. 64: How satisfied are you with the information you receive from management on what's going on in your organization?	2.90***	3.15***	3.37***	3.37***
Question No. 9: I have sufficient resources to get my job done.	0.04	0.32*	0.64**	0.42***
Question No. 10: My workload is reasonable.	-0.01	0.27	-0.29	0.34***
Question No. 14: Physical conditions allow employees to perform their jobs well.	0.12	0.32*	0.14	0.29***
Question No. 17: I can disclose a suspected violation of any law, rule or regulation without fear of reprisal.	1.74***	1.41***	1.09***	2.09***
Question No. 20: The people I work with cooperate to get the job done.	1.49***	1.63***	1.87***	1.31***
Question No. 24: In my work unit, differences in performance are recognized in a meaningful way.	0.48	0.99***	0.57**	1.00***
Question No. 29: The workforce has the job-relevant knowledge and skills necessary to accomplish organizational goals.	0.37	0.92***	0.44	1.16***
Question No. 32: Creativity and innovation are rewarded.	2.65***	1.90***	1.69***	1.83***
Question No. 37: Arbitrary action, personal favoritism and coercion for partisan political purposes are not tolerated.	1.00*	1.09***	1.49***	1.12***
Question No. 38: Prohibited Personnel Practices are not tolerated.	0.25	-0.16	-0.63*	0.01
Question No. 41: I believe the results of this survey will be used to make my agency a better place to work.	2.05***	2.07***	1.67***	1.25***
Question No. 70: Considering everything, how satisfied are you with your pay?	-0.39	-0.05	0.12	-0.41***
R-squared	0.74	0.73	0.75	0.73
Number of cases	2,045	20,161	9,892	75,025
Degrees of freedom (model)	89	89	89	89
Design degrees of freedom	2,044	20,160	9,891	75,024

Legend: \* p<0.05; \*\* p<0.01; \*\*\* p<0.001

Source: GAO analysis 2014 Office of Personnel Management Federal Employee Viewpoint Survey data. | GAO-15-585

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Notes: Model is an ordinary least squares regression with the GAO-constructed employee engagement index as the dependent variable and linear specifications of drivers with agency mean imputation for individuals with item nonresponse or "do not know" responses. In addition, for imputation flags for potential driver variables, models control for supervisory status, agency tenure, age group, location, number of index questions missing, race, ethnicity, plans to leave agency, sexual orientation, education, sex, and disability. We incorporated a substantive threshold in our determination of whether an independent variable acted as a driver. We considered variables to be drivers of engagement if they had a coefficient that rounded to 3 or above, indicating that on average, each increase in positivity of responses was associated with a 3 percentage point increase in the 0 to 100 scale.

**Table 11: GAO's Regression Model Results for Education, Energy, Environmental Protection Agency, and General Services Administration (Potential Driver Coefficients Only)**

Question	Education	Energy	Environmental Protection Agency	General Services Administration
Question No. 1: I am given a real opportunity to improve my skills in my organization.	3.26***	4.11***	4.15***	4.10***
Question No. 42: My supervisor supports my need to balance work and other life issues.	3.40***	2.71***	3.04***	3.05***
Question No. 46: My supervisor provides me with constructive suggestions to improve my job performance.	5.15***	5.29***	5.19***	5.70***
Question No. 55: Supervisors work well with employees of different backgrounds.	2.78***	2.99***	3.08***	3.59***
Question No. 63: How satisfied are you with your involvement in decisions that affect your work?	3.10***	3.32***	3.11***	2.44***
Question No. 64: How satisfied are you with the information you receive from management on what's going on in your organization?	2.81***	3.56***	3.25***	2.90***
Question No. 9: I have sufficient resources to get my job done.	0.02	0.61**	0.36	0.58**
Question No. 10: My workload is reasonable.	0.23	0.05	-0.21	0.19
Question No. 14: Physical conditions allow employees to perform their jobs well.	-0.07	-0.26	0.02	0.36*
Question No. 17: I can disclose a suspected violation of any law, rule or regulation without fear of reprisal.	1.52***	1.98***	1.13***	1.65***
Question No. 20: The people I work with cooperate to get the job done.	1.42***	1.60***	1.94***	1.34***
Question No. 24: In my work unit, differences in performance are recognized in a meaningful way.	1.11**	0.86***	1.29***	0.59**
Question No. 29: The workforce has the job-relevant knowledge and skills necessary to accomplish organizational goals.	0.83	0.61*	1.07**	1.00***
Question No. 32: Creativity and innovation are rewarded.	1.48***	2.49***	2.02***	1.36***
Question No. 37: Arbitrary action, personal favoritism and coercion for partisan political purposes are not tolerated.	0.84	0.90***	0.80*	0.68**
Question No. 38: Prohibited Personnel Practices are not tolerated.	-0.49	-0.35	0.49	-0.08
Question No. 41: I believe the results of this survey will be used to make my agency a better place to work.	2.45***	1.27***	1.71***	1.93***

**Appendix IV: Results of GAO's Analysis of the Drivers of the Employee Engagement Index**

Question	Education	Energy	Environmental Protection Agency	General Services Administration
Question No. 70: Considering everything, how satisfied are you with your pay?	0.27	-0.68***	-0.92***	-0.39*
R-squared	0.77	0.75	0.75	0.75
Number of cases	2,415	6,515	3,863	8,567
Degrees of freedom (model)	88	89	88	89
Design degrees of freedom	2,414	6,514	3,862	8,566

Legend: \* p<0.05; \*\* p<0.01; \*\*\* p<0.001

Source: GAO analysis 2014 Office of Personnel Management Federal Employee Viewpoint Survey data. | GAO-15-585

Notes: Model is an ordinary least squares regression with the GAO-constructed employee engagement index as the dependent variable and linear specifications of drivers with agency mean imputation for individuals with item nonresponse or “do not know” responses. In addition, for imputation flags for potential driver variables, models control for supervisory status, agency tenure, age group, location, number of index questions missing, race, ethnicity, plans to leave agency, sexual orientation, education, sex, and disability. We incorporated a substantive threshold in our determination of whether an independent variable acted as a driver. We considered variables to be drivers of engagement if they had a coefficient that rounded to 3 or above, indicating that on average, each increase in positivity of responses was associated with a 3 percentage point increase in the 0 to 100 scale.

**Table 12: GAO’s Regression Model Results for Health and Human Services, Homeland Security, Housing and Urban Development, and Interior (Potential Driver Coefficients Only)**

Question	Health and Human Services	Homeland Security	Housing and Urban Development	Interior
Question No. 1: I am given a real opportunity to improve my skills in my organization.	4.01***	3.75***	3.18***	3.59***
Question No. 42: My supervisor supports my need to balance work and other life issues.	2.82***	2.85***	2.93***	2.79***
Question No. 46: My supervisor provides me with constructive suggestions to improve my job performance.	5.30***	5.46***	5.56***	5.11***
Question No. 55: Supervisors work well with employees of different backgrounds.	3.21***	2.73***	3.40***	2.97***
Question No. 63: How satisfied are you with your involvement in decisions that affect your work?	2.98***	2.12***	2.71***	3.61***
Question No. 64: How satisfied are you with the information you receive from management on what’s going on in your organization?	2.91***	2.84***	3.17***	3.54***
Question No. 9: I have sufficient resources to get my job done.	0.35***	0.83***	0.45	0.16
Question No. 10: My workload is reasonable.	0.17	0.57***	0.28	-0.03
Question No. 14: Physical conditions allow employees to perform their jobs well.	-0.02	0.35***	0.21	0.13
Question No. 17: I can disclose a suspected violation of any law, rule or regulation without fear of reprisal.	1.76***	1.52***	1.54***	1.99***

**Appendix IV: Results of GAO's Analysis of the Drivers of the Employee Engagement Index**

Question	Health and Human Services	Homeland Security	Housing and Urban Development	Interior
Question No. 20: The people I work with cooperate to get the job done.	1.73***	1.60***	1.12***	1.57***
Question No. 24: In my work unit, differences in performance are recognized in a meaningful way.	0.84***	1.56***	1.03**	1.15***
Question No. 29: The workforce has the job-relevant knowledge and skills necessary to accomplish organizational goals.	1.00***	0.29*	0.61*	0.81***
Question No. 32: Creativity and innovation are rewarded.	1.82***	1.86***	2.16***	1.67***
Question No. 37: Arbitrary action, personal favoritism and coercion for partisan political purposes are not tolerated.	1.07***	1.07***	0.80*	1.22***
Question No. 38: Prohibited Personnel Practices are not tolerated.	-0.17	-0.07	-0.25	-0.29
Question No. 41: I believe the results of this survey will be used to make my agency a better place to work.	1.39***	1.41***	1.65***	1.65***
Question No. 70: Considering everything, how satisfied are you with your pay?	-0.29***	-0.05	0.02	-0.1
R-squared	0.75	0.74	0.76	0.75
Number of cases	32,806	42,798	3,890	18,384
Degrees of freedom (model)	89	89	89	89
Design degrees of freedom	32,805	42,797	3,889	18,383

Legend: \* p<0.05; \*\* p<0.01; \*\*\* p<0.001

Source: GAO analysis 2014 Office of Personnel Management Federal Employee Viewpoint Survey data. | GAO-15-585

Notes: Model is an ordinary least squares regression with the GAO-constructed employee engagement index as the dependent variable and linear specifications of drivers with agency mean imputation for individuals with item nonresponse or “do not know” responses. In addition, for imputation flags for potential driver variables, models control for supervisory status, agency tenure, age group, location, number of index questions missing, race, ethnicity, plans to leave agency, sexual orientation, education, sex, and disability. We incorporated a substantive threshold in our determination of whether an independent variable acted as a driver. We considered variables to be drivers of engagement if they had a coefficient that rounded to 3 or above, indicating that on average, each increase in positivity of responses was associated with a 3 percentage point increase in the 0 to 100 scale.

**Table 13: GAO's Regression Model Results for Justice, Labor, National Aeronautics and Space Administration, National Science Foundation (Potential Driver Coefficients Only)**

Question	Justice	Labor	National Aeronautics and Space Administration	National Science Foundation
No. 1: I am given a real opportunity to improve my skills in my organization.	3.67***	3.37***	4.32***	3.72***
Question No. 42: My supervisor supports my need to balance work and other life issues.	3.35***	2.77***	2.90***	1.49*
Question No. 46: My supervisor provides me with constructive suggestions to improve my job performance.	5.23***	5.34***	4.25***	5.22***

**Appendix IV: Results of GAO's Analysis of the Drivers of the Employee Engagement Index**

<b>Question</b>	<b>Justice</b>	<b>Labor</b>	<b>National Aeronautics and Space Administration</b>	<b>National Science Foundation</b>
Question No. 55: Supervisors work well with employees of different backgrounds.	3.92***	3.52***	3.42***	3.69***
Question No. 63: How satisfied are you with your involvement in decisions that affect your work?	2.55***	2.82***	3.22***	2.82***
Question No. 64: How satisfied are you with the information you receive from management on what's going on in your organization?	2.74***	3.01***	2.99***	2.55***
Question No. 9: I have sufficient resources to get my job done.	0.69***	0.39**	0.46**	-0.28
Question No. 10: My workload is reasonable.	0.05	-0.01	-0.07	0.23
Question No. 14: Physical conditions allow employees to perform their jobs well.	0.52**	0.21	-0.38*	-0.23
Question No. 17: I can disclose a suspected violation of any law, rule or regulation without fear of reprisal.	1.81***	1.35***	2.05***	1.75**
Question No. 20: The people I work with cooperate to get the job done.	1.45***	1.49***	1.69***	1.38*
Question No. 24: In my work unit, differences in performance are recognized in a meaningful way.	1.19***	0.55**	0.57**	-0.5
Question No. 29: The workforce has the job-relevant knowledge and skills necessary to accomplish organizational goals.	1.24***	0.75***	1.49***	1.54*
Question No. 32: Creativity and innovation are rewarded.	1.56***	2.10***	1.52***	2.03**
Question No. 37: Arbitrary action, personal favoritism and coercion for partisan political purposes are not tolerated	1.28***	1.47***	0.86***	1.30*
Question No. 38: Prohibited Personnel Practices are not tolerated.	-0.3	-0.22	-0.24	0.78
Question No. 41: I believe the results of this survey will be used to make my agency a better place to work.	1.39***	1.68***	1.58***	1.80***
Question No. 70: Considering everything, how satisfied are you with your pay?	-0.2	0	-0.39*	-0.24
R-squared	0.72	0.77	0.73	0.8
Number of cases	17,213	10,953	9,430	917
Degrees of freedom (model)	89	89	89	87
Design degrees of freedom	17,212	10,952	9,429	916

Legend: \* p<0.05; \*\* p<0.01; \*\*\* p<0.001

Source: GAO analysis 2014 Office of Personnel Management Federal Employee Viewpoint Survey data. | GAO-15-585

Notes: Model is an ordinary least squares regression with the GAO-constructed employee engagement index as the dependent variable and linear specifications of drivers with agency mean imputation for individuals with item nonresponse or "do not know" responses. In addition, for imputation flags for potential driver variables, models control for supervisory status, agency tenure, age group, location, number of index questions missing, race, ethnicity, plans to leave agency, sexual orientation, education, sex, and disability. We incorporated a substantive threshold in our determination of whether an independent variable acted as a driver. We considered variables to be drivers of engagement if they had a coefficient that rounded to 3 or above, indicating that on average, each increase in positivity of responses was associated with a 3 percentage point increase in the 0 to 100 scale.

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**Table 14: GAO's Regression Model Results for Nuclear Regulatory Commission, Office of Personnel Management, Small Business Administration, and Social Security Administration (Potential Driver Coefficients Only)**

<b>Question</b>	<b>Nuclear Regulatory Commission</b>	<b>Office of Personnel Management</b>	<b>Small Business Administration</b>	<b>Social Security Administration</b>
Question No. 1: I am given a real opportunity to improve my skills in my organization.	3.37***	3.11***	3.30***	3.31***
Question No. 42: My supervisor supports my need to balance work and other life issues.	2.98***	2.91***	2.43***	3.11***
Question No. 46: My supervisor provides me with constructive suggestions to improve my job performance.	4.69***	5.39***	6.43***	5.66***
Question No. 55: Supervisors work well with employees of different backgrounds.	3.09***	3.85***	3.01***	3.47***
Question No. 63: How satisfied are you with your involvement in decisions that affect your work?	3.86***	2.44***	2.66***	2.12***
Question No. 64: How satisfied are you with the information you receive from management on what's going on in your organization?	1.98***	3.00***	3.14***	2.76***
Question No. 9: I have sufficient resources to get my job done.	0.47	0.57*	0.28	0.60***
Question No. 10: My workload is reasonable.	0.02	0.03	0.69	0.63***
Question No. 14: Physical conditions allow employees to perform their jobs well.	-0.35	0.16	-0.62	-0.03
Question No. 17: I can disclose a suspected violation of any law, rule or regulation without fear of reprisal.	1.32**	1.65***	1.93***	1.85***
Question No. 20: The people I work with cooperate to get the job done.	1.21**	1.44***	2.05***	1.10***
Question No. 24: In my work unit, differences in performance are recognized in a meaningful way.	1.46***	1.01***	0.25	1.09***
Question No. 29: The workforce has the job-relevant knowledge and skills necessary to accomplish organizational goals.	0.42	0.62	-0.05	0.87***
Question No. 32: Creativity and innovation are rewarded.	2.10***	1.13***	1.95***	1.85***
Question No. 37: Arbitrary action, personal favoritism and coercion for partisan political purposes are not tolerated.	0.89*	0.6	1.40*	0.98***
Question No. 38: Prohibited Personnel Practices are not tolerated.	-0.24	0.35	-1.04	0.33
Question No. 41: I believe the results of this survey will be used to make my agency a better place to work.	2.03***	2.45***	2.22***	1.33***
Question No. 70: Considering everything, how satisfied are you with your pay?	-0.14	-0.09	-0.59	-0.06
R-squared	0.77	0.75	0.79	0.73

**Appendix IV: Results of GAO's Analysis of the Drivers of the Employee Engagement Index**

<b>Question</b>	<b>Nuclear Regulatory Commission</b>	<b>Office of Personnel Management</b>	<b>Small Business Administration</b>	<b>Social Security Administration</b>
Number of cases	2,467	3,596	1,395	9,539
Degrees of freedom (model)	89	89	88	89
Design degrees of freedom	2,466	3,595	1,394	9,538

Legend: \* p<0.05; \*\* p<0.01; \*\*\* p<0.001

Source: GAO analysis 2014 Office of Personnel Management Federal Employee Viewpoint Survey data. | GAO-15-585

Notes: Model is an ordinary least squares regression with the GAO-constructed employee engagement index as the dependent variable and linear specifications of drivers with agency mean imputation for individuals with item nonresponse or "do not know" responses. In addition, for imputation flags for potential driver variables, models control for supervisory status, agency tenure, age group, location, number of index questions missing, race, ethnicity, plans to leave agency, sexual orientation, education, sex, and disability. We incorporated a substantive threshold in our determination of whether an independent variable acted as a driver. We considered variables to be drivers of engagement if they had a coefficient that rounded to 3 or above, indicating that on average, each increase in positivity of responses was associated with a 3 percentage point increase in the 0 to 100 scale.

**Table 15: GAO's Regression Model Results for State, Transportation, Treasury, and Veterans Affairs (Potential Driver Coefficients Only)**

<b>Question</b>	<b>State</b>	<b>Transportation</b>	<b>Treasury</b>	<b>Veterans Affairs</b>
Question No. 1: I am given a real opportunity to improve my skills in my organization.	3.81***	4.12***	3.81***	3.88***
Question No. 42: My supervisor supports my need to balance work and other life issues.	2.69***	2.57***	3.23***	2.70***
Question No. 46: My supervisor provides me with constructive suggestions to improve my job performance.	5.01***	5.26***	5.55***	5.34***
Question No. 55: Supervisors work well with employees of different backgrounds.	3.32***	3.37***	3.52***	3.59***
Question No. 63: How satisfied are you with your involvement in decisions that affect your work?	3.59***	2.96***	2.30***	2.08***
Question No. 64: How satisfied are you with the information you receive from management on what's going on in your organization?	3.31***	3.24***	3.14***	2.80***
Question No. 9: I have sufficient resources to get my job done.	0.22	0.43	0.29***	0.82***
Question No. 10 My workload is reasonable.	0.21	0.55*	0.46***	0.69***
Question No. 14: Physical conditions allow employees to perform their jobs well.	-0.02	0.09	0.19**	0.37***
Question No. 17: I can disclose a suspected violation of any law, rule or regulation without fear of reprisal.	1.88***	1.39***	1.49***	1.85***
Question No. 20: The people I work with cooperate to get the job done.	1.56***	1.03***	1.31***	1.34***
Question No. 24: In my work unit, differences in performance are recognized in a meaningful way.	2.14***	0.62*	0.64***	0.92***

**Appendix IV: Results of GAO's Analysis of the Drivers of the Employee Engagement Index**

Question	State	Transportation	Treasury	Veterans Affairs
Question No. 29: The workforce has the job-relevant knowledge and skills necessary to accomplish organizational goals.	1.57***	1.10***	0.80***	0.84***
Question No. 32: Creativity and innovation are rewarded.	1.73***	2.02***	1.66***	1.49***
Question No. 37: Arbitrary action, personal favoritism and coercion for partisan political purposes are not tolerated.	1.21***	0.93**	0.80***	1.10***
Question No. 38: Prohibited Personnel Practices are not tolerated.	0	0.03	0.03	0.19
Question No. 41: I believe the results of this survey will be used to make my agency a better place to work.	0.61*	1.95***	1.86***	1.28***
Question No. 70: Considering everything, how satisfied are you with your pay?	-0.64*	0.21	-0.20**	-0.06
R-squared	0.71	0.75	0.74	0.75
Number of cases	3,776	11,673	51,037	27,639
Degrees of freedom (model)	89	89	89	89
Design degrees of freedom	3,775	11,672	51,036	27,638

Legend: \* p<0.05; \*\* p<0.01; \*\*\* p<0.001

Source: GAO analysis 2014 Office of Personnel Management Federal Employee Viewpoint Survey data. | GAO-15-585

Notes: Model is an ordinary least squares regression with the GAO-constructed employee engagement index as the dependent variable and linear specifications of drivers with agency mean imputation for individuals with item nonresponse or "do not know" responses. In addition, for imputation flags for potential driver variables, models control for supervisory status, agency tenure, age group, location, number of index questions missing, race, ethnicity, plans to leave agency, sexual orientation, education, sex, and disability. We incorporated a substantive threshold in our determination of whether an independent variable acted as a driver. We considered variables to be drivers of engagement if they had a coefficient that rounded to 3 or above, indicating that on average, each increase in positivity of responses was associated with a 3 percentage point increase in the 0 to 100 scale.

**Table 16: GAO's Regression Model Results for Age Categories (Potential Driver Coefficients Only)**

Question	25 and under	26-29	30-39	40-49	50-59	60 and above
Question No. 1: I am given a real opportunity to improve my skills in my organization.	3.47***	4.45***	4.22***	4.01***	3.85***	3.55***
Question No. 42: My supervisor supports my need to balance work and other life issues.	3.63***	2.69***	2.92***	2.83***	2.78***	3.52***
Question No. 46: My supervisor provides me with constructive suggestions to improve my job performance.	3.61***	4.77***	5.23***	5.45***	5.37***	5.09***
Question No. 55: Supervisors work well with employees of different backgrounds.	4.26***	3.19***	3.09***	3.22***	3.52***	4.07***
Question No. 63: How satisfied are you with your involvement in decisions that affect your work?	2.18***	2.20***	2.25***	2.68***	3.01***	2.96***
Question No. 64: How satisfied are you with the information you receive from management on what's going on in your organization?	2.83***	2.30***	2.91***	3.25***	3.29***	3.30***

**Appendix IV: Results of GAO's Analysis of the Drivers of the Employee Engagement Index**

<b>Question</b>	<b>25 and under</b>	<b>26-29</b>	<b>30-39</b>	<b>40-49</b>	<b>50-59</b>	<b>60 and above</b>
Question No. 9: I have sufficient resources to get my job done.	0.1	0.68**	0.78***	0.51***	0.42***	0.49***
Question No: 10 My workload is reasonable.	0.8	0.12	0.41***	0.46***	0.38***	0.37***
Question No. 14: Physical conditions allow employees to perform their jobs well.	0.45	0.16	0.19*	0.32***	0.20***	0.16
Question No. 17: I can disclose a suspected violation of any law, rule or regulation without fear of reprisal.	2.27***	1.71***	1.82***	1.87***	1.90***	1.78***
Question No. 20: The people I work with cooperate to get the job done.	1.71***	1.34***	1.26***	1.40***	1.68***	1.32***
Question No. 24: In my work unit, differences in performance are recognized in a meaningful way.	0.89	1.50***	1.24***	0.97***	0.84***	0.90***
Question No. 29: The workforce has the job-relevant knowledge and skills necessary to accomplish organizational goals.	0.65	0.99***	0.79***	0.93***	1.06***	0.99***
Question No. 32: Creativity and innovation are rewarded.	2.27***	2.45***	1.99***	1.62***	1.71***	1.71***
Question No. 37: Arbitrary action, personal favoritism and coercion for partisan political purposes are not tolerated.	1.47**	1.30***	1.24***	1.03***	1.20***	0.98***
Question No. 38: Prohibited Personnel Practices are not tolerated.	-0.86	0.04	-0.2	0.06	0.01	0.24
Question No. 41: I believe the results of this survey will be used to make my agency a better place to work.	1.30**	1.20***	1.33***	1.57***	1.46***	1.82***
Question No. 70: Considering everything, how satisfied are you with your pay?	0.45	0.05	-0.15	-0.09	-0.1	-0.09
R-squared	0.71	0.71	0.73	0.74	0.74	0.74
Number of cases	2,806	12,992	67,651	105,013	142,639	58,869
Degrees of freedom (model)	87	90	90	90	90	90
Design degrees of freedom	387,805	389,732	389,922	389,923	389,922	389,922

Legend: \* p<0.05; \*\* p<0.01; \*\*\* p<0.001

Source: GAO analysis 2014 Office of Personnel Management Federal Employee Viewpoint Survey data. | GAO-15-585

Notes: Model is an ordinary least squares regression with the GAO-constructed employee engagement index as the dependent variable and linear specifications of drivers with agency mean imputation for individuals with item nonresponse or “do not know” responses. In addition, for imputation flags for potential driver variables, subgroup models control for 37 distinct agencies, the number of index questions missing, as well as the following employee population group variables: agency tenure, supervisory status, location, and military status. We incorporated a substantive threshold in our determination of whether an independent variable acted as a driver. We considered variables to be drivers of engagement if they had a coefficient that rounded to 3 or above, indicating that on average, each increase in positivity of responses was associated with a 3 percentage point increase in the 0 to 100 scale.

**Appendix IV: Results of GAO's Analysis of the Drivers of the Employee Engagement Index**

**Table 17: GAO's Regression Model Results for Agency Tenure Categories (Years) (Potential Driver Coefficients Only)**

<b>Question</b>	<b>&lt;1 year</b>	<b>1-3</b>	<b>4-5</b>	<b>6-10</b>	<b>11-20</b>	<b>&gt;20</b>
Question No. 1: I am given a real opportunity to improve my skills in my organization	3.36***	3.62***	3.56***	3.27***	3.05***	3.40***
Question No. 42: My supervisor supports my need to balance work and other life issues.	2.97***	2.98***	2.89***	2.96***	2.93***	3.11***
Question No. 46: My supervisor provides me with constructive suggestions to improve my job performance	4.89***	5.07***	5.21***	5.60***	5.61***	5.20***
Question No. 55: Supervisors work well with employees of different backgrounds.	4.53***	3.94***	3.54***	3.44***	3.44***	3.71***
Question No. 63: How satisfied are you with your involvement in decisions that affect your work?	2.94***	2.82***	2.79***	3.04***	3.10***	3.40***
Question No. 64: How satisfied are you with the information you receive from management on what's going on in your organization?	3.92***	3.31***	3.57***	3.32***	3.26***	3.41***
Question No. 9: I have sufficient resources to get my job done.	0.5	0.23*	0.42***	0.48***	0.44***	0.34***
Question No. 10 My workload is reasonable.	0.44	0.17	0.17	0.22**	0.26**	0.17*
Question No. 14: Physical conditions allow employees to perform their jobs well.	-0.2	0.01	-0.04	0.07	0.29***	0.14
Question No. 17: I can disclose a suspected violation of any law, rule or regulation without fear of reprisal.	0.98**	1.60***	1.54***	1.60***	1.51***	1.50***
Question No. 20: The people I work with cooperate to get the job done.	1.57***	1.19***	1.33***	1.14***	1.26***	1.47***
Question No. 24: In my work unit, differences in performance are recognized in a meaningful way.	0.32	0.73***	0.80***	0.66***	0.75***	0.65***
Question No. 29: The workforce has the job-relevant knowledge and skills necessary to accomplish organizational goals.	0.44	1.10***	1.17***	1.07***	0.98***	1.10***
Question No. 32: Creativity and innovation are rewarded.	1.54***	2.05***	2.19***	1.84***	1.83***	1.67***
Question No. 37: Arbitrary action, personal favoritism and coercion for partisan political purposes are not tolerated.	1.62***	1.03***	1.23***	1.20***	1.36***	1.11***
Question No. 38: Prohibited Personnel Practices are not tolerated.	-0.34	0.08	0.02	-0.01	0.04	0.19
Question No. 41: I believe the results of this survey will be used to make my agency a better place to work.	1.32***	1.41***	1.19***	1.65***	1.70***	1.82***
Question No. 70: Considering everything, how satisfied are you with your pay?	0.26	0	-0.02	0.08	0.15*	-0.01
R-squared	0.74	0.76	0.75	0.76	0.76	0.75
Number of cases	6,530	50,047	51,994	81,290	86,763	89,803
Degrees of freedom (model)	87	89	89	89	89	88
Design degrees of freedom	388,121	389,923	389,923	389,922	389,923	389,922

Legend: \* p<0.05; \*\* p<0.01; \*\*\* p<0.001

Source: GAO analysis 2014 Office of Personnel Management Federal Employee Viewpoint Survey data. | GAO-15-585

Notes: Model is an ordinary least squares regression with the GAO-constructed employee engagement index as the dependent variable and linear specifications of drivers with agency mean imputation for individuals with item nonresponse or "do not know" responses. In addition, for

**Appendix IV: Results of GAO's Analysis of the Drivers of the Employee Engagement Index**

imputation flags for potential driver variables, subgroup models control for 37 distinct agencies, the number of index questions missing, as well as the following employee population group variables: supervisory status, location, age group and military status. We incorporated a substantive threshold in our determination of whether an independent variable acted as a driver. We considered variables to be drivers of engagement if they had a coefficient that rounded to 3 or above, indicating that on average, each increase in positivity of responses was associated with a 3 percentage point increase in the 0 to 100 scale.

**Table 18: GAO's Regression Model Results for Location Categories (Potential Driver Coefficients Only)**

<b>Question</b>	<b>Headquarters</b>	<b>Field</b>
Question No. 1: I am given a real opportunity to improve my skills in my organization.	3.44***	3.30***
Question No. 42: My supervisor supports my need to balance work and other life issues.	2.88***	3.03***
Question No. 46: My supervisor provides me with constructive suggestions to improve my job performance.	5.24***	5.43***
Question No. 55: Supervisors work well with employees of different backgrounds.	3.72***	3.53***
Question No. 63: How satisfied are you with your involvement in decisions that affect your work?	3.33***	2.92***
Question No. 64: How satisfied are you with the information you receive from management on what's going on in your organization?	3.37***	3.39***
Question No. 9: I have sufficient resources to get my job done.	0.35***	0.43***
Question No. 10 My workload is reasonable.	0.11	0.25***
Question No. 14: Physical conditions allow employees to perform their jobs well.	0.1	0.09*
Question No. 17: I can disclose a suspected violation of any law, rule or regulation without fear of reprisal.	1.57***	1.53***
Question No. 20: The people I work with cooperate to get the job done.	1.40***	1.21***
Question No. 24: In my work unit, differences in performance are recognized in a meaningful way.	0.54***	0.80***
Question No. 29: The workforce has the job-relevant knowledge and skills necessary to accomplish organizational goals.	0.97***	1.10***
Question No. 32: Creativity and innovation are rewarded.	1.92***	1.86***
Question No. 37: Arbitrary action, personal favoritism and coercion for partisan political purposes are not tolerated.	1.14***	1.21***
Question No. 38: Prohibited Personnel Practices are not tolerated.	0.08	0.05
Question No. 41: I believe the results of this survey will be used to make my agency a better place to work.	1.51***	1.61***
Question No. 70: Considering everything, how satisfied are you with your pay?	-0.05	0.10*
R-squared	0.76	0.76
Number of cases	143,387	222,955
Degrees of freedom (model)	93	92
Design degrees of freedom	389,922	389,057

Legend: \* p<0.05; \*\* p<0.01; \*\*\* p<0.001

Source: GAO analysis of 2014 Office of Personnel Management Federal Employee Viewpoint Survey data. | GAO-15-585

Notes: Model is an ordinary least squares regression with the GAO-constructed employee engagement index as the dependent variable and linear specifications of drivers with agency mean imputation for individuals with item nonresponse or "do not know" responses. In addition, for

**Appendix IV: Results of GAO's Analysis of the Drivers of the Employee Engagement Index**

imputation flags for potential driver variables, subgroup models control for 37 distinct agencies, the number of index questions missing, as well as the following employee population group variables: agency tenure, supervisory status, age group, and military status. We incorporated a substantive threshold in our determination of whether an independent variable acted as a driver. We considered variables to be drivers of engagement if they had a coefficient that rounded to 3 or above, indicating that on average, each increase in positivity of responses was associated with a 3 percentage point increase in the 0 to 100 scale.

**Table 19: GAO's Regression Model Results for Military Status Categories (Potential Driver Coefficients Only)**

<b>Question</b>	<b>No prior service</b>	<b>Guard/ Reserve</b>	<b>Retired</b>	<b>Separated/ discharged</b>
Question No. 1: I am given a real opportunity to improve my skills in my organization.	3.42***	3.36***	3.17***	3.18***
Question No. 42: My supervisor supports my need to balance work and other life issues.	2.98***	2.86***	3.02***	2.98***
Question No. 46: My supervisor provides me with constructive suggestions to improve my job performance.	5.38***	5.38***	5.06***	5.46***
Question No. 55: Supervisors work well with employees of different backgrounds.	3.55***	3.70***	4.08***	3.44***
Question No. 63: How satisfied are you with your involvement in decisions that affect your work?	2.96***	2.46***	3.48***	3.11***
Question No. 64: How satisfied are you with the information you receive from management on what's going on in your organization?	3.23***	3.66***	3.95***	3.57***
Question No. 9: I have sufficient resources to get my job done.	0.39***	0.59*	0.14	0.58***
Question No. 10: My workload is reasonable.	0.15**	0.2	0.32**	0.35***
Question No. 14: Physical conditions allow employees to perform their jobs well.	0.08*	-0.28	0.1	0.20*
Question No. 17: I can disclose a suspected violation of any law, rule or regulation without fear of reprisal.	1.46***	1.87***	1.91***	1.48***
Question No. 20: The people I work with cooperate to get the job done.	1.32***	1.22***	1.24***	1.17***
Question No. 24: In my work unit, differences in performance are recognized in a meaningful way.	0.69***	1.66***	0.68***	0.64***
Question No. 29: The workforce has the job-relevant knowledge and skills necessary to accomplish organizational goals.	1.16***	0.42	0.97***	0.85***
Question No. 32: Creativity and innovation are rewarded.	1.94***	1.88***	1.85***	1.69***
Question No. 37: Arbitrary action, personal favoritism and coercion for partisan political purposes are not tolerated.	1.21***	1.21***	1.10***	1.23***
Question No. 38: Prohibited Personnel Practices are not tolerated.	0.02	-0.12	0.09	0.11
Question No. 41: I believe the results of this survey will be used to make my agency a better place to work.	1.66***	1.18***	1.33***	1.51***
Question No. 70: Considering everything, how satisfied are you with your pay?	0.09*	0.26	-0.16	0.07
R-squared	0.75	0.78	0.76	0.76
Number of cases	259,053	6,549	41,831	55,385

**Appendix IV: Results of GAO's Analysis of the Drivers of the Employee Engagement Index**

Question	No prior service	Guard/ Reserve	Retired	Separated/ discharged
Degrees of freedom (model)	91	91	91	91
Design degrees of freedom	389,921	389,026	389,853	389,923

Legend: \* p<0.05; \*\* p<0.01; \*\*\* p<0.001

Source: GAO analysis 2014 Office of Personnel Management Federal Employee Viewpoint Survey data. | GAO-15-585

Notes: Model is an ordinary least squares regression with the GAO-constructed employee engagement index as the dependent variable and linear specifications of drivers with agency mean imputation for individuals with item nonresponse or "do not know" responses. In addition, for imputation flags for potential driver variables, subgroup models control for 37 distinct agencies, the number of index questions missing, as well as the following employee population group variables: agency tenure, supervisory status, location, and age group. We incorporated a substantive threshold in our determination of whether an independent variable acted as a driver. We considered variables to be drivers of engagement if they had a coefficient that rounded to 3 or above, indicating that on average, each increase in positivity of responses was associated with a 3 percentage point increase in the 0 to 100 scale.

**Table 20: GAO's Regression Model Results for Supervisory Status Categories (Potential Driver Coefficients Only)**

Question	Nonsupervisor	Team leader	Supervisor	Manager	Executive
Question No. 1: I am given a real opportunity to improve my skills in my organization.	3.38***	3.26***	3.28***	3.40***	3.22***
Question No. 42: My supervisor supports my need to balance work and other life issues.	3.11***	2.65***	2.87***	2.70***	2.95***
Question No. 46: My supervisor provides me with constructive suggestions to improve my job performance.	5.35***	5.48***	5.46***	5.08***	3.90***
Question No. 55: Supervisors work well with employees of different backgrounds.	3.64***	3.58***	3.68***	2.88***	3.45***
Question No. 63: How satisfied are you with your involvement in decisions that affect your work?	2.90***	2.96***	3.54***	3.94***	4.60***
Question No. 64: How satisfied are you with the information you receive from management on what's going on in your organization?	3.26***	3.51***	3.76***	3.50***	3.72***
Question No. 9: I have sufficient resources to get my job done.	0.41***	0.37***	0.47***	0.26	0.51*
Question No. 10: My workload is reasonable.	0.28***	-0.06	0.32**	0.05	-0.81**
Question No. 14: Physical conditions allow employees to perform their jobs well.	0.18***	0.05	0.02	-0.47***	-0.35
Question No. 17: I can disclose a suspected violation of any law, rule or regulation without fear of reprisal.	1.47***	1.55***	1.59***	1.97***	2.52***
Question No. 20: The people I work with cooperate to get the job done.	1.29***	1.18***	1.30***	1.37***	1.35***
Question No. 24: In my work unit, differences in performance are recognized in a meaningful way.	0.74***	0.81***	0.61***	0.38*	0.24
Question No. 29: The workforce has the job-relevant knowledge and skills necessary to accomplish organizational goals.	1.17***	1.13***	0.72***	0.49*	-0.1

**Appendix IV: Results of GAO's Analysis of the Drivers of the Employee Engagement Index**

<b>Question</b>	<b>Nonsupervisor</b>	<b>Team leader</b>	<b>Supervisor</b>	<b>Manager</b>	<b>Executive</b>
Question No. 32: Creativity and innovation are rewarded.	1.88***	2.10***	1.67***	1.77***	1.25***
Question No. 37: Arbitrary action, personal favoritism and coercion for partisan political purposes are not tolerated	1.18***	1.13***	1.13***	1.93***	0.29
Question No. 38: Prohibited Personnel Practices are not tolerated.	0	0.18	0.15	-0.26	0.99*
Question No. 41: I believe the results of this survey will be used to make my agency a better place to work.	1.62***	1.48***	1.64***	1.51***	1.35***
Question No. 70: Considering everything, how satisfied are you with your pay?	0.10*	0.14	-0.07	-0.34**	-0.77***
R-squared	0.76	0.75	0.75	0.75	0.77
Number of cases	241,927	49,746	48,776	21,663	7,071
Degrees of freedom (model)	90	90	90	90	90
Design degrees of freedom	389,920	389,923	389,923	389,923	389,923

Legend: \* p<0.05; \*\* p<0.01; \*\*\* p<0.001

Source: GAO analysis 2014 Office of Personnel Management Federal Employee Viewpoint Survey data. | GAO-15-585

Notes: Model is an ordinary least squares regression with the GAO-constructed employee engagement index as the dependent variable and linear specifications of drivers with agency mean imputation for individuals with item nonresponse or “do not know” responses. In addition, for imputation flags for potential driver variables, subgroup models control for 37 distinct agencies, the number of index questions missing, as well as the following employee population group variables: agency tenure, location, age group, and military status. We incorporated a substantive threshold in our determination of whether an independent variable acted as a driver. We considered variables to be drivers of engagement if they had a coefficient that rounded to 3 or above, indicating that on average, each increase in positivity of responses was associated with a 3 percentage point increase in the 0 to 100 scale.

# Appendix V: Comments from the Office of Personnel Management



Planning and Policy  
Analysis

UNITED STATES OFFICE OF PERSONNEL MANAGEMENT

Washington, DC 20415

JUL 02 2015

Dr. Robert Goldenkoff  
Director, Strategic Issues  
U.S. Government Accountability Office  
441 G Street, NW  
Washington, DC 20548

Dear Dr. Goldenkoff:

Thank you for providing us the opportunity to respond to the U.S. Government Accountability Office's (GAO) draft report, "Federal Workforce: Additional Analysis and Sharing of Promising Practices Could Improve Employee Engagement and Performance," GAO-15-585, GAO Engagement #451117. We recognize that any program benefits from external evaluations and we appreciate your input. Our responses to the three recommendations outlined in the draft report are given below.

**Recommendation #1:** To enable agencies to better target resources for engagement efforts, OPM should annually analyze and report on drivers of the Employee Engagement Index (EEI) government-wide and by selected subsets of the federal workforce, such as agencies or demographic groups.

**Management Response:**

**We concur.** Driver analysis, in combination with the many reports and on-demand analytic capabilities of Federal Employee Viewpoint Survey (FEVS) data the U.S. Office of Personnel Management (OPM) produces, serves as a valuable tool for agency officials charged with assessing and improving employee engagement levels as measured by the EEI. We have established a collaborative working group of OPM analysts and the FEVS contractor to compare and contrast different statistical methods, in addition to the method GAO utilized, along with alternatives from organizational research literature. This working group has been tasked with designing a concise, easily interpretable report targeted for agency managers to summarize key takeaway points from the driver analysis. We anticipate this will take the form of a separate report, not a section within a larger, more formal report, such as the Agency Management Report (AMR) that is currently part of the FEVS report portfolio.

OPM is committed to conducting, analyzing, and reporting on key drivers of the EEI at the Government-wide level, starting with the release of the 2015 FEVS. Once we receive the recommendations from the newly established working group that is focused on implementing this GAO recommendation, OPM will be equipped to determine the potential scope of this analysis and reasonable reporting levels. For example, there are 87 agencies (with 799 sub-components) that participated in the 2015 FEVS. We will need to determine if it is reasonable to report annual driver analysis at the sub-component level.

**Recommendation #2:** To enable agencies to identify meaningful changes in EEI levels, OPM should provide agencies with information on whether annual changes to EEI scores, both government-wide and by selected subsets of the federal workforces, are statistically significant.

**Management Response:**

**We partially concur.** OPM concurs on the importance of enabling agencies to identify meaningful changes in EEI levels; however, indicating statistically significant differences in EEI levels in some situations can indicate a meaningful change but, in other situations, levels of statistical significance have less practical importance on

their own. Therefore, agencies most rely on multiple indicators in addition to statistical significance changes in the EEI levels when evaluating meaningful changes in organizational performance.

In earlier versions of the AMR, which is 1 of the 9 agency-specific products included in the OPM formal FEVS report portfolio, tables were included summarizing trends in percent positive scores indicating whether the given year-over-year change was statistically significant. Although these percent positive scores are the basic building blocks of the EEI, we have never formally reported whether year-over-year changes in the EEI—or any other index—were statistically significant. The working group established to implement Recommendation #1 will also deliberate on this recommendation and will provide guidance on how best to incorporate this information in our portfolio of reports.

Note that, beginning with the 2014 FEVS, based in large part from agency feedback, we stopped reporting significance testing results of percent positive changes in the AMRs. However, we provided guidance to agencies with regard to applying general rules in interpreting their results. For example, a difference of 5 percentage points or more is considered a notable difference; this is especially true for larger agencies where a change of 0.7 percentage points could be statistically significant.

Consequently, we generally concur with GAO's observation regarding the importance of understanding the statistical significance of agencies' EEI changes to enable more effective management of individual Senior Executive Service (SES) performance as well as organizational performance. However, we again note that agencies must rely on multiple indicators, in addition to the statistical significance of changes in the EEI levels, when evaluating meaningful changes in organizational performance to which individual SES performance will be aligned and assessed.

OPM recently began leading an interagency effort on the development of SES performance requirements to be included in FY 2016 SES performance plans holding SES members accountable for employee engagement. Participating agencies acknowledged the potential usefulness of EEI as one of a number of possible performance indicators but not necessarily as the primary or sole indicator of employee engagement progress. As we proceed with this effort, we will particularly emphasize the implementation of GAO's recommendations to focus on incorporating the key drivers of engagement identified by GAO and gathering and sharing best practices for SES performance requirements relating to employee engagement.

**Recommendation #3:** To ensure agencies are leveraging the promising practices of and lessons learned from other agencies in developing effective strategies to improve engagement and performance, OPM should

- Expand its efforts to share promising practices to include information on linking engagement to mission accomplishment and monitoring how engagement investments improve performance through data-driven reviews, like HRStat; and
- Implement its strategy to share these practices in time to inform agency efforts stemming from their 2015 FEVS results.

**Management Response:**

**We partially concur.** We are in complete agreement with GAO's recommendation that the sharing of promising practices among agencies in time to inform agency plans based on their reviews of 2015 FEVS results is an effective and efficient mechanism for broad adoption of tested practices. However, we disagree with GAO's assessment of OPM's efforts to disseminate best practices.

The GAO report emphasizes the utilization of the [Unlockedtalent.gov](http://Unlockedtalent.gov) Community of Practice (CoP) as the main source for OPM to share promising practices to improve employee engagement. We assert that this is only one avenue in which OPM continues to share promising practices. OPM strongly disagrees with the GAO declaration that "OPM Has Not Followed Through on its Efforts to Identify and Share Promising Practices to

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## Appendix V: Comments from the Office of Personnel Management

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Improve Engagement and Performance.” Since the release of the December 23, 2014, memorandum on Strengthening Employee Engagement and Organizational Performance, many of OPM’s activities have centered around gathering, sharing, and collaborating with agencies with regard to promising practices for improving employee engagement.

For instance, based on the memorandum guidance, agencies were instructed to appoint a Senior Accountable Official (SAO) by January 23, 2015. Starting in February, we reached out to all agency SAOs informing them that we (OPM and the U.S. Office of Management and Budget (OMB)) would like to meet with each agency to discuss current baselines, where they plan to focus their engagement activities, places they felt they could use assistance, and methods they felt were best practices.

To prepare for these meetings, the OPM engagement outreach team created and finalized individual SAO toolkits; the toolkits contain summaries of the team’s conversations with each agency and a high-level overview of the agency’s FEVS data around the EEL. In a span of approximately eight weeks (March 19- May 11, 2015), we conducted 26 in-person agency SAO meetings. At these meetings, we discussed employee engagement, what challenges the agency faced, promising practices the agency implemented and areas where the agency needed help or guidance from OPM in order to improve employee engagement.

On May 18, 2015, OPM, OMB, and the White House Presidential Personnel Office (PPO) hosted an Employee Engagement SAO Workshop at the Eisenhower Executive Office Building. The overall purpose of this workshop was to bring together the SAOs as a community to share what we learned during the individual agency SAO meetings and have the SAOs work together to share best practices and together generate solutions to common challenges that many agencies face while improving employee engagement. Immediately following the SAO workshop, OPM compiled the notes, handouts, and agency promising practices that were shared during the workshop. For example, one agency shared an Employee Engagement Roadmap that they developed. This roadmap outlined how their different workforce segments, from the Secretary, managers and front line supervisors, to individual employees, play a critical role in employee engagement.

At the end of the workshop, we discussed topic areas that could be further explored via workgroups to help develop solutions to common challenges. After analyzing the qualitative data collected during the workshop, five areas emerged for further exploration. On May 28, 2015, OPM reached out to agency SAOs and the workshop participants asking them if they would be interested in participating in one of the five area workgroups. We sent a link to an electronic data collection form where individuals had two weeks to sign up to participate in a specific workgroup. The expectations of the workgroups are as follows:

**Duration:** Once the workgroups are formed and have initial kick-off meetings, each workgroup will be in place for the next three-six months. The SAOs will reconvene in the Fall to discuss outcomes and next steps. This Fall meeting will occur after 2015 FEVS results are released to help agencies capitalize on the latest set of survey results.

**Outcome:** Each workgroup will discuss key challenges and document promising practices and approaches in relation to their topic area. This could include specific examples from both the Federal Government and the private sector. A priority will be placed on Government examples with details on how those practices were put into place and how they provided a positive impact or improvement. The goal is, at a minimum, to share the outputs from the workgroups with the rest of the Federal community via the Communities of Practice (CoP) section of [UnlockTalent.gov](http://UnlockTalent.gov).

**Participants:** Each workgroup will be chaired by an agency SAO or designee and will have an advisor from the OPM/OMB/PPO People & Culture Team. The rest of the participants from each group are individuals across different Federal Agencies and members of the labor/management community that have knowledge and experience in the specific topic area of the workgroup and who are working on employee engagement efforts. There are 56 workgroup participants representing 20 agencies. The groups include a balance of individuals

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from agencies on both the component level and headquarters level, as well as participants from the Chief Human Capital Officer (CHCO) and SAO communities.

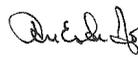
**Value:** Our goal is not to create an additional burden on agencies to participate in these workgroups in addition to others that have been formed on employee engagement efforts. Instead, we want to re-focus and integrate the efforts that have already been underway by the CHCO/Labor Management Council workgroup on employee engagement into these five new workgroups with specific objectives.

As indicated above, OPM has implemented a strategy on collecting and sharing promising practices with the SAO community. Since the SAOs are responsible for improving employee engagement in their individual agencies, we focused our strategy and resources with providing the SAO community with the opportunity to partner with other agencies and collaborate on effective employee engagement efforts.

In June 2014, OPM established the HRStat CoP whose purpose is to create a space where all of the CHCO agencies can collaborate and leverage their promising practices around HRStat data-driven reviews. The HRStat CoP meets quarterly and maintains an on-line portal on OMBMAX. At the quarterly meetings, OPM invites speakers to discuss effective strategies that can enhance the agencies' HRStat processes, (e.g., at the July 2015 meeting, OPM's Diversity Office will talk about The New IQ, and use of "inclusion metrics" to monitor engagement strategies). We are also in the early stages of planning a Human Capital Analytics Symposium in mid-October that will keynote strategic alignment, linking mission with human capital goals, partnering with program offices through HRStat, finding the right metrics, and engaging leadership. This Symposium comes at a good time to share these practices as agencies will be receiving their 2015 FEVS results in October, and the information from the Symposium will come in time to inform agency efforts stemming from these FEVS results. In sum, we believe we have made excellent progress on our strategy to assist agencies by disseminating best practices in employee engagement.

We appreciate the opportunity to respond to this draft report. If you have any questions regarding our response, please contact me at [Jonathan.Foley@opm.gov](mailto:Jonathan.Foley@opm.gov) or (202) 606-4794.

Sincerely,



Jonathan Foley  
Director  
Planning and Policy Analysis

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# Appendix VI: GAO Contact and Acknowledgments

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For further information regarding this statement, please contact Robert Goldenkoff, Director, Strategic Issues, at (202) 512-2757 or [goldenkoffr@gao.gov](mailto:goldenkoffr@gao.gov).

Individuals making key contributions to this statement include Chelsea Gurkin, Assistant Director; Tamara Stenzel, Analyst-in-Charge; Carl Barden, Alyssia Borsella, Martin De Alteriis, Deirdre Duffy, Robert Gebhart, Donna Miller, Anna Maria Ortiz, Ulyana Panchishin, Jerry Sandau, and Karissa Schafer.

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