

Office of Personnel Management

# Federal Employee Viewpoint Survey

*Empowering employees. Inspiring change.*

Diversity, Equity, Inclusion, and Accessibility Index  
Technical Report

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## Executive summary

The following paper details the development, validation, and release of the Diversity, Equity, Inclusion, and Accessibility (DEIA) Index. The index consists of 13 survey items and is included in the Office of Personnel Management's (OPM) Federal Employee Viewpoint Survey (FEVS). A comprehensive statistical analysis shows that the DEIA Index is a valid and reliable measure of employee perceptions of organizational policies and practices related to DEIA in the Federal workspace. Results also indicate that these perceptions correlate significantly with important outcomes related to organizational effectiveness. Members of OPM's Survey Analysis team, Judah Frank, Dr. Rosemary Miller, Dr. Maria Raviele, and Dr. Kimberly Wells, prepared this paper in collaboration with analysts from Westat, Dr. Naomi Yount and Dr. Katarzyna Zebrak. Questions about the report can be sent to [EVS@opm.gov](mailto:EVS@opm.gov).

# Chapter 1. Introduction and background

The Office of Personnel Management’s (OPM) Survey Analysis team annually administers the OPM Federal Employee Viewpoint Survey (FEVS) to employees across the Federal government (in 2022, more than 1.5 million Federal employees). As a climate survey, it collects employee feedback on management practices and policies impacting employees’ experiences with their immediate jobs and workplaces. FEVS results provide agency leaders insight into workplace change initiatives already under way as well as serve as an important source for assessing where further improvements could be made to achieve and support agency effectiveness and workforce performance.

[Executive Order 14035](#) (EO 14035) on *Diversity, Equity, Inclusion, and Accessibility in the Federal Government* and the current [President’s Management Agenda](#) (PMA) prioritize Diversity, Equity, Inclusion, and Accessibility (DEIA) in government. Prior to 2020, the FEVS included the New Inclusion Quotient or “New IQ” index, consisting of 20 survey items related to inclusive and fair work environments. EO 14035 provided a set of definitions and directed agency focus on DEIA topics making it essential for OPM to develop an updated measure for the FEVS. The goal was to achieve a robust and modern measure of DEIA that aligned with government priorities outlined in the EO and anchored in current DEIA research.

OPM developed and piloted the DEIA measure for the FEVS during 2021. We specifically designed it to align with EO 14035 which features four distinct components: Diversity, Equity, Inclusion, and Accessibility. This report details the survey content development process for each of these DEIA components and includes a summary of definitions and items for each component of the index and a review of the index validation, using data from the 2022 FEVS, when the items were introduced.

## Chapter 2. Diversity Equity Inclusion and Accessibility (DEIA) index development

The development of the DEIA Index began in January 2021. OPM conducted a review of the existing academic literature related to DEIA to identify theoretical frameworks for guiding index development. The work of Shore (2011) and Mor Barak (2017) was particularly influential. In addition to the theoretical frameworks, the literature review yielded several validated DEIA measures (for example, Nishii, 2013; Jansen, et al., 2014; Chung, et al., 2020) examined while developing specific survey items.

Drawing from EO 14035, the academic literature, and previous FEVS items, a list of over 50 survey items was generated and presented to subject matter experts (SMEs) within the Federal government for review and consideration for possible inclusion in the DEIA Index. SME comments helped refine the list to 24 survey items. These items were then administered via electronic survey to over 500 DEIA SMEs across the Federal government for further feedback. This feedback in turn supported further refinement of the DEIA Index to 19 items.

Following protocols for survey content development, OPM pilot-tested these 19 DEIA items. Data were collected through administration of the 2021 FEVS and a standard validation protocol followed to achieve a reliable and valid set of items for the final index. Details can be found in the appendix. With reference to these analyses, the DEIA Index was finalized to include 13 items across the Diversity, Equity, Inclusion, and Accessibility sub-indices.

Details of the DEIA sub-indices and items are discussed next. They are presented in the order of the DEIA Index, beginning with Diversity and ending with Accessibility.

**Diversity.** The Diversity component of the new DEIA measure consists of two survey items which assess the support for diversity within the Federal government. Based on EO 14035, diversity is defined as, “the practice of including the many communities, identities, races, ethnicities, backgrounds, abilities, cultures, and beliefs of the American people, including underserved communities.” Items for the FEVS were designed to identify the extent to which

management practices yield a diversified workforce. This sub-index adds important employee perspectives to HR and personnel databases that provide demographic profiles or objective measures of diversity across agencies, offices, divisions, and work units.

Management practices, from senior leadership to direct supervisors, play an integral role in developing and supporting diversity within an organization (Moran, 2006). Diversity itself has been associated with improved performance (McKay, Avery, & Morris, 2008) and engagement (Downey, van der Werff, & Plaut, 2015), as well as other important outcomes including organizational commitment and turnover intentions (Buttner, Lowe, & Billings-Harris, 2010). The FEVS included two survey items to measure the presence and strength of diversity across the Federal government:

1. My organization’s management practices promote diversity (for example, outreach, recruitment, promotion opportunities).
2. My supervisor demonstrates a commitment to workforce diversity (for example, recruitment, promotion opportunities, development).

These two items were based on items included in FEVS prior to 2021, revised in consultation with subject matter experts and with regard for current research literature. The items were modified to meet goals of improved clarity, specificity, and actionability. Refer to Table 1 for a comparison between the original form of these items and the current form in the new DEIA measure.

**Table 1. Development of Diversity Items**

| Original Diversity Items   | Revised Diversity Items  |
|--|--|
| Policies and programs promote diversity in the workplace (for example, recruiting minorities and women, training in awareness of diversity issues, mentoring). | My organization’s management practices promote diversity (for example, outreach, recruitment, promotion opportunities).          |
| My supervisor is committed to a workforce representative of all segments of society.   | My supervisor demonstrates a commitment to workforce diversity (for example, recruitment, promotion opportunities, development). |

Compared to the original form, the current items cue respondents to consider more concrete, visible, and specific behaviors, thus allowing for more accurate, meaningful, and actionable responses. The specific examples included in the parenthesis derive from EO 14035.

**Equity.** The Equity component consists of three survey items developed using EO 14035’s definition of equity as, “the consistent and systematic fair, just, and impartial treatment of all individuals, including individuals who belong to underserved communities that have been denied such treatment.” The concept of equity has received extensive review in the organizational literature over decades, with various frameworks emerging to conceptualize equity, its antecedents, and its outcomes (Colquitt, Conlon, Wesson, Porter, & Ng, 2001; Colquitt, Greenberg, Zapata-Phelan, 2013). Aligning especially with the fair and just aspects of the EO 14035 definition, Equity items were designed to focus on concepts associated with “distributive justice,” which pertains to the fairness of resource distribution within an organization (Homans, 1961; Greenberg, 1987). Distributive justice has been significantly associated with job satisfaction, organizational commitment, decreased turnover, and improved performance (Colquitt, et. al., 2001).

The Equity items in the DEIA measure focus on relevant aspects of the employment experience, including advancement opportunities and recognition, which both appear in EO 14035 as targeted areas for measurement and improvement. Table 2 has a complete listing of the Equity items.

**Table 2. Equity Items**

| <b>Equity Items</b>  |
|--|
| I have similar access to advancement opportunities (for example, promotion, career development, training) as others in my work unit. |
| My supervisor provides opportunities fairly to all employees in my work unit (for example, promotions, work assignments).            |
| In my work unit, excellent work is similarly recognized for all employees (for example, awards, acknowledgements).                   |



**Inclusion.** The Inclusion component consists of five survey items which focus on supporting an inclusive work environment. EO 14035 defines inclusion as, “the recognition, appreciation, and use of the talents and skills of employees of all backgrounds.”

Development of inclusion items was guided by Brewer’s Optimal Distinctiveness Theory which describes the competing human needs for both belonging to a group and for cultivating individual uniqueness (Brewer, 1991). Belongingness is achieved through developing strong interpersonal relationships with others (Brewer, 1991; Baumeister & Leary, 1995), while uniqueness is preserved by the ability to distinguish oneself from others (Brewer, 1991). An inclusive work environment is best defined as an environment that satisfies both the need to belong and the need to be unique (Shore et al., 2011). It is an environment where individuals are treated as “insiders” within a group, while also being valued for their individuality and unique contributions (Shore et al., 2011). Prior research indicates that an employee’s inclusion status may have significant impact on job satisfaction (Brimhall & Mor Barak, 2018), job engagement (Goswami, & Kishor, 2018) and turnover intentions (Chordiya, 2022).

The Inclusion component of DEIA includes items about belongingness and uniqueness that came from existing measures (Nishii, 2013; Jansen, et al., 2014; Chung, et al., 2020). Table 3 provides a complete listing of the inclusion items.

**Table 3. Inclusion Items**

| Inclusion Items   | Belonging vs. Unique |
|---|----------------------|
| Employees in my work unit make me feel I belong.  | Belonging            |
| Employees in my work unit care about me as a person.  | Belonging            |
| I am comfortable expressing opinions that are different from other employees in my work unit. | Unique               |
| In my work unit, people’s differences are respected.  | Unique               |
| I can be successful in my organization being myself.  | Unique               |

Most inclusion items ask about the concept at the work unit level. Current research shows that experiences with one’s immediate work group more directly determine feelings of inclusion or exclusion (Hackman, 1992).

**Accessibility.** EO 14035 defines accessibility as “the design, construction, development, and maintenance of facilities, information and communication technology, programs, and services so that all people, including people with disabilities, can fully and independently use them.” The Accessibility component of DEIA consists of three items designed to assess the most essential components of accessibility—how easy is it to request accessibility assistance, how timely the assistance is provided, and an overall measure of how the agency met the accessibility need. Table 4 lists the Accessibility items.

**Table 4. Accessibility Items**

| <b>Accessibility Items</b>   |
|--|
| I can easily make a request of my organization to meet my accessibility needs. |
| My organization responds to my accessibility needs in a timely manner.         |
| My organization meets my accessibility needs.                                  |

Unlike the measures of Diversity, Equity, and Inclusion, the Accessibility component can only be answered by respondents who both a) require an accommodation and b) have requested the assistance of their organization in meeting that need. Missing values for this component may be sizable. However, small response sizes does not diminish the importance of the feedback received. The practical aspect of the Accessibility sub-index can drive immediate action to achieve results for individuals requiring accessibility assistance.

The final DEIA Index was added to the FEVS in 2022. DEIA results are included as part of the annual reporting program to agencies. The index is featured in the current President’s Management Agenda and plays a prominent role in advancing the DEIA EO.

## Chapter 3. DEIA validation

A final comprehensive analysis of DEIA items used data from the 2022 FEVS. This section reviews how these data were collected, analyzed, and validated with an overview of results.

### A. Method

#### Data

The data used for these analyses came from the 2022 FEVS. All full-time and part-time, permanent, phase retirement, non-seasonal, non-political employees were eligible to participate in the 2022 FEVS. Agencies also had the option to include Federal employees classified as non-permanent and/or not full- or part-time. Invitations were sent to 1,582,112 employees among 40 departments and large agencies as well as 46 small and independent agencies. A total of 557,778 employees completed the survey for a final response rate of 35 percent.

All questions were asked using five-point Likert-type scales with response options from “Strongly disagree” to “Strongly agree” and most included “Do Not Know” or “No Basis to Judge” response options. Accessibility items also included a “No Accessibility Needs” response option.

#### Analysis

This section describes the analyses conducted to examine the variability of responses as well as the reliability and validity of the new DEIA Index.

**Item Analysis.** Respondent level item frequencies were examined to identify items with high percentages of missing data, or other non-substantive responses (for example, “Do Not Know,” “No Basis to Judge,” or “I do not have any accessibility needs” (for Accessibility sub-index only)). Items with little response variability may not be helpful in differentiating higher-

scoring from lower-scoring agencies. Accordingly, any items with more than 90 percent of respondents answering in the positive (i.e., those answering Strongly agree/Agree) were considered to have low response variability. If more than 30 percent of respondents left an item missing or selected a non-substantive response (except in the case of “I do not have any accessibility needs” response option), the item was flagged for further review because it may not be relevant to a large proportion of respondents. In all subsequent analyses these non-substantive responses were treated as missing.

**Confirmatory Factor Analysis (CFA).** The purpose of a CFA is to confirm a particular pattern of relationships among survey items based on past research and theory (DeVellis, 2003). A CFA was conducted to understand if the items in the proposed sub-indices adequately fit the data. Full-information maximum likelihood estimation method was used to address missingness resulting from either no response or those providing a non-substantive response (Dong & Peng, 2013; Graham, 2009).

We examined standardized factor loadings for each item on its proposed sub-index. Factor loadings above 0.50 indicate that the item’s relationship to the a priori index is acceptable (Brown, 2015; Tabachnick & Fidell, 2007). Several model fit indices were also examined to determine how well the hypothesized factor structure fit the data (Table 5).

**Table 5. Criteria Used to Evaluate Confirmatory Factor Analysis (CFA) Model Fit**

| <b>CFA Model Fit Criteria</b> | <b><math>\chi^2/df</math></b> | <b>CFI</b> | <b>RMSEA</b> | <b>SRMR</b> |
|-------------------------------|-------------------------------|------------|--------------|-------------|
| Value                         | < 5.00                        | ≥ 0.90     | < 0.06       | < 0.08      |

The chi-square goodness of fit statistic assesses the discrepancy between the sample covariance matrix and the model-specified covariance matrix. Lower and non-significant values indicate good fit. Because chi-square tends to be large and statistically significant in larger samples, we also examined the chi-square divided by its degrees of freedom, which is less sensitive to sample size. Values less than 5.00 indicate a good fit to the model (Schumacker & Lomax, 2004). The comparative fit index (CFI) compares the existing model fit

with a null model that assumes the factors in the model are uncorrelated. A CFI value of 0.95 or above typically indicates good model fit; however, values of 0.90 or above are also acceptable (Hu & Bentler, 1999; Kline 2005). The root mean square error of approximation (RMSEA) is a parsimony-adjusted index that favors the simplest model possible (Kline, 2005). A value less than 0.06 for RMSEA indicates good model fit (Hu & Bentler, 1999). The standardized root mean square residual (SRMR) is the standardized difference between the observed covariance and predicted covariance. A value of less than 0.08 for the SRMR is considered good fit (Kenny, 2020).

We conducted two separate CFA models. One model included the Diversity, Equity, and Inclusion sub-indices and the second model only included the Accessibility sub-index. The Accessibility sub-index was modeled separately because of the high percentage of missing data on the items due to greater percentages of employees without accessibility needs.

**Internal Consistency Reliability Analysis.** Internal consistency reliability indicates how similarly respondents are answering items within each sub-index by assessing how closely related or correlated those items are. Internal consistency reliability was evaluated using Cronbach's alpha ( $\alpha$ ). Cronbach's alpha ranges from 0 to 1, with higher coefficients indicating better reliability. The minimum criterion for acceptable reliability is an alpha of 0.70 (Nunnally & Bernstein, 1994).

**Correlations.** We calculated agency-level percent positive scores for each item (the percent of respondents answering Strongly Agree/Agree) and used these agency-level percent positive scores on the items within each of the proposed sub-indices, and equally weight them to calculate an average agency-level sub-index score. Item and sub-index percent positive scores could range from 0-100. Due to the ordinal nature of the data, we used Spearman's rank order correlations. We examined the following:

1. Correlations among the DEIA sub-indices. The proposed sub-indices should converge or be intercorrelated, as they are designed to assess unique yet related aspects of Diversity, Equity, Inclusion, and Accessibility.

2. Correlations for the DEIA sub-indices with Employee Engagement Index (including separate correlations for the Leaders Lead, Supervisors, and Intrinsic Work Experience sub-indices) and Global Satisfaction Index<sup>1</sup>. To demonstrate predictive validity, DEIA sub-indices should be related to these measures, modeled here as outcomes.

## B. Results

This section provides the results of the psychometric analysis conducted for the DEIA survey items. All results are unweighted unless noted otherwise.

**Item Analysis.** We examined the variability of responses to the DEIA items at the respondent level. Table 6 shows the average percent positive, percent neutral, and percent negative scores. We did not find any items with low variability (i.e., percent positive scores above 90 percent). The percent positive scores ranged from 64 percent to 80 percent.

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<sup>1</sup> The Employee Engagement Index (EEI) is a measure of the conditions for engagement within an organization. The Global Satisfaction Index (GS) is a measure of employee satisfaction on four aspects related to their work: the job, pay, organization, and whether they would recommend their organization as a good place to work. Further information for both indices can be found in the recent versions of the OPM FEVS Governmentwide Management Report and the OPM FEVS Technical Report.

**Table 6. 2022 Federal Employee Viewpoint Survey (FEVS) DEIA item analysis results (N=557,778)**

| <b>Sub-index</b>               | <b>Survey Items</b>  | <b>% Positive</b> | <b>% Neutral</b> | <b>% Negative</b> | <b>% DNK</b> | <b>% NBJ</b> | <b>% NAN</b> | <b>% MI</b> |
|--------------------------------|--|-------------------|------------------|-------------------|--------------|--------------|--------------|-------------|
| <b>Diversity<br/>(2 items)</b> | My organization’s management practices promote diversity (for example, outreach, recruitment, promotion opportunities).              | 71%               | 18%              | 11%               | 8%           | --           | --           | 4%          |
|                                | My supervisor demonstrates a commitment to workforce diversity (for example, recruitment, promotion opportunities, development).     | 75%               | 17%              | 8%                | 8%           | --           | --           | 4%          |
| <b>Equity<br/>(3 items)</b>    | I have similar access to advancement opportunities (for example, promotion, career development, training) as others in my work unit. | 67%               | 15%              | 17%               | 3%           | --           | --           | 4%          |
|                                | My supervisor provides opportunities fairly to all employees in my work unit (for example, promotions, work assignments).            | 72%               | 15%              | 13%               | 5%           | --           | --           | 4%          |
|                                | In my work unit, excellent work is similarly recognized for all employees (for example, awards, acknowledgements).                   | 64%               | 17%              | 19%               | 6%           | --           | --           | 4%          |
| <b>Inclusion<br/>(5 items)</b> | Employees in my work unit make me feel I belong.   | 80%               | 13%              | 7%                | --           | 1%           | --           | 4%          |
|                                | Employees in my work unit care about me as a person.   | 78%               | 15%              | 7%                | --           | 3%           | --           | 4%          |
|                                | I am comfortable expressing opinions that are different from other employees in my work unit.  | 75%               | 12%              | 13%               | --           | 1%           | --           | 5%          |
|                                | In my work unit, people’s differences are respected.   | 76%               | 15%              | 9%                | --           | 2%           | --           | 5%          |
|                                | I can be successful in my organization being myself.   | 75%               | 14%              | 11%               | --           | 1%           | --           | 5%          |

**Table 6. 2022 Federal Employee Viewpoint Survey (FEVS) DEIA item analysis results (N=557,778) (continued)**

| <b>Sub-index</b>                   | <b>Survey Items</b>  | <b>% Positive</b> | <b>% Neutral</b> | <b>% Negative</b> | <b>% DNK</b> | <b>% NBJ</b> | <b>% NAN</b> | <b>% MI</b> |
|------------------------------------|--|-------------------|------------------|-------------------|--------------|--------------|--------------|-------------|
| <b>Accessibility<br/>(3 items)</b> | I can easily make a request of my organization to meet my accessibility needs. | 72%               | 18%              | 10%               | --           | 15%          | 21%          | 5%          |
|                                    | My organization responds to my accessibility needs in a timely manner.         | 66%               | 23%              | 11%               | --           | 18%          | 22%          | 5%          |
|                                    | My organization meets my accessibility needs.                                  | 69%               | 22%              | 9%                | --           | 17%          | 22%          | 5%          |

Notes: DNK=Do not know; NBJ=No basis to judge; NAN=No accessibility needs; MI=Missing Information. Percent positive, neutral, and negative scores may not add up to 100% due to rounding.



We also examined percentages of missing data and other non-substantive responses (for example, “Do Not Know,” “No Basis to Judge,” or “I do not have any accessibility needs” (for Accessibility index only)) (Table 6). We did not find any items with high percentage of missing responses (range 4% to 5%) or non-substantive responses (range 1% to 22%). The highest percentages of non-substantive responses were for the Accessibility items, with 15 percent to 22 percent of respondent’s indicating “No Basis to Judge” or “I do not have any accessibility needs”.

**Internal Consistency Reliability.** All sub-indices had internal consistency reliability at or above criterion ( $\alpha \geq 0.70$ ) (Table 7). Cronbach’s alpha ranged from 0.85 on Diversity to 0.97 on Accessibility. Dropping any items from their respective sub-indices would not result in increases in reliability.

**Confirmatory Factor Analysis.** We conducted a CFA on the DEIA items by testing the two separate models: a three-factor model for Diversity, Equity, and Inclusion and a one-factor model for Accessibility. Table 7 shows standardized factor loadings for the DEIA items on their respective sub-indices. All factor loadings were statistically significant ( $p < 0.05$ ) with magnitudes greater than 0.50, indicating that the items adequately load on the sub-indices. The factor loadings range from 0.78 to 0.96, with an average of 0.87.

**Table 7. 2022 Final DEIA internal consistency reliability and CFA standardized factor loadings**

| <b>Sub-index and Items</b>   | <b>Cronbach's Alpha<br/>(alpha if item<br/>deleted)</b> | <b>Standardized<br/>Factor<br/>Loadings</b> |
|--|---|---|
| <b>Diversity (2 items)</b>   | 0.85  | --  |
| My organization's management practices promote diversity (for example, outreach, recruitment, promotion opportunities).              | --  | 0.81  |
| My supervisor demonstrates a commitment to workforce diversity (for example, recruitment, promotion opportunities, development).     | --  | 0.92  |
| <b>Equity (3 items)</b>  | 0.89  | --  |
| I have similar access to advancement opportunities (for example, promotion, career development, training) as others in my work unit. | 0.87  | 0.82  |
| My supervisor provides opportunities fairly to all employees in my work unit (for example, promotions, work assignments).            | 0.82  | 0.91  |
| In my work unit, excellent work is similarly recognized for all employees (for example, awards, acknowledgements).                   | 0.86  | 0.84  |
| <b>Inclusion (5 items)</b>   | 0.93  | --  |
| Employees in my work unit make me feel I belong.   | 0.90  | 0.88  |
| Employees in my work unit care about me as a person.   | 0.91  | 0.87  |
| I am comfortable expressing opinions that are different from other employees in my work unit.  | 0.92  | 0.78  |
| In my work unit, people's differences are respected.   | 0.90  | 0.86  |
| I can be successful in my organization being myself.   | 0.91  | 0.82  |
| <b>Accessibility (3 items)</b>   | 0.97  | --  |
| I can easily make a request of my organization to meet my accessibility needs.   | 0.96  | 0.93  |
| My organization responds to my accessibility needs in a timely manner.   | 0.95  | 0.95  |
| My organization meets my accessibility needs.  | 0.94  | 0.96  |

Note: Two separate CFA models were tested for (1) Diversity, Equity, Inclusion and (2) Accessibility

Two of the four goodness-of-fit indices for the three-factor model satisfied the criteria for acceptable fit of the model to the data (Table 8). Specifically, the CFI was 0.92 (criterion is  $\geq 0.90$ ) and the SRMR was 0.04 (criterion is  $< 0.08$ ). The RMSEA was 0.14 (criterion is  $< 0.06$ ) and the chi-square value divided by the degrees for freedom was 10,777.38 (criterion of  $< 5.00$ ).

**Table 8. 2022 Final DEIA CFA model fit indices**

| CFA Model                    | $\chi^2*$  | <i>df</i> | $\chi^2/df$ | CFI  | RMSEA (CI)            | SRMR |
|------------------------------|------------|-----------|-------------|------|-----------------------|------|
| Diversity, Equity, Inclusion | 344,876.28 | 32        | 10,777.38   | 0.92 | 0.14<br>(0.141-0.142) | 0.04 |

\* Chi-square is significant at  $p < 0.05$ .

CI = 90% confidence intervals. CFI = Comparative Fit Index. RMSEA = Root Mean Square Error of Approximation.

SRMR = Standardized Root Mean Square Residual.

Note: Goodness-of-fit indices are not available for the CFA model testing Accessibility as it is only 3 items.

The large number of observations used in the analysis (N=557,778) and the relatively small CFA model ( $df=32$ ) could contribute to the large chi-square value divided by the degrees of freedom. To test this possibility, we examined an identical CFA model in a smaller, random sample of respondents (N=850). While the resulting chi-square statistic divided by its degrees of freedom did not meet the criterion for acceptable model fit, it was substantially smaller than in the original model (17.63 vs 10,777.38) (Table 9). The remaining rounded fit indices are identical.

**Table 9. 2022 Final DEIA CFA model fit indices (N=850 randomly selected respondents)**

| CFA Model                    | $\chi^2*$ | <i>df</i> | $\chi^2/df$ | CFI  | RMSEA (CI)            | SRMR |
|------------------------------|-----------|-----------|-------------|------|-----------------------|------|
| Diversity, Equity, Inclusion | 564.06    | 32        | 17.63       | 0.92 | 0.14<br>(0.133-0.154) | 0.04 |

\* Chi-square is significant at  $p < 0.05$ .

CI = 90% confidence intervals. CFI = Comparative Fit Index. RMSEA = Root Mean Square Error of Approximation.

SRMR = Standardized Root Mean Square Residual.

Note: Goodness-of-fit indices are not available for the CFA model testing Accessibility as it is only 3 items.

**Correlations.** Table 10 and 11 show Spearman correlations among the DEIA sub-indices percent positive scores at the agency level. The correlations based on unweighted scores range from 0.52 for Diversity with Accessibility to 0.82 for Equity with Inclusion (refer to Table

10). The correlations on weighted scores range from 0.55 for Diversity with Accessibility to 0.83 for Equity with Inclusion (refer to Table 11). All correlations are statistically significant.

**Table 10. DEIA Index agency-level percent positive unweighted intercorrelations (N=85)**

| DEIA Sub-indices | Diversity | Equity | Inclusion | Accessibility |
|------------------|-----------|--------|-----------|---------------|
| Diversity        | --        |        |           |               |
| Equity           | 0.74      | --     |           |               |
| Inclusion        | 0.70      | 0.82   | --        |               |
| Accessibility    | 0.52      | 0.73   | 0.74      | --            |

Note: All correlations are statistically significant (p<0.05).

**Table 11. DEIA Index agency-level percent positive weighted intercorrelations (N=85)**

| DEIA Sub-indices | Diversity | Equity | Inclusion | Accessibility |
|------------------|-----------|--------|-----------|---------------|
| Diversity        | --        |        |           |               |
| Equity           | 0.78      | --     |           |               |
| Inclusion        | 0.73      | 0.83   | --        | 0.75          |
| Accessibility    | 0.55      | 0.74   | 0.75      | --            |

Note: All correlations are statistically significant (p<0.05).

Tables 12 and 13 show Spearman correlations for the DEIA Index and sub-indices with key outcome measures at the agency level. The correlation for the unweighted DEIA Index with Employee Engagement Index is 0.90 (including 0.81 for Leaders Lead, 0.85 for Supervisors, and 0.83 with Intrinsic Work Experience) (Table 12). The correlation between the DEIA Index and Global Satisfaction is 0.82. The correlations on weighted scores (shown in Table 13) are 0.91 for the DEIA Index with Employee Engagement Index (including 0.81 for Leaders Lead, 0.84 for Supervisors, and 0.83 with Intrinsic Work Experience) and 0.83 for the DEIA Index with Global Satisfaction. All correlations are statistically significant.

**Table 12. DEIA Index agency-level unweighted correlations with outcomes (N=85)**

| DEIA Index and Sub-indices | Employee Engagement Index | Leaders Lead | Supervisors | Intrinsic Work Experience | Global Satisfaction Index |
|----------------------------|---------------------------|--------------|-------------|---------------------------|---------------------------|
| DEIA Index                 | 0.90                      | 0.81         | 0.85        | 0.83                      | 0.82                      |
| Diversity                  | 0.71                      | 0.65         | 0.71        | 0.60                      | 0.66                      |
| Equity                     | 0.84                      | 0.74         | 0.77        | 0.79                      | 0.76                      |
| Inclusion                  | 0.86                      | 0.73         | 0.83        | 0.78                      | 0.72                      |
| Accessibility              | 0.76                      | 0.72         | 0.67        | 0.73                      | 0.74                      |

Note: All correlations are statistically significant ( $p < 0.05$ ).

**Table 13. DEIA Index agency-level weighted correlations with outcomes (N=85)**

| DEIA Index and Sub-indices | Employee Engagement Index | Leaders Lead | Supervisors | Intrinsic Work Experience | Global Satisfaction Index |
|----------------------------|---------------------------|--------------|-------------|---------------------------|---------------------------|
| DEIA Index                 | 0.91                      | 0.81         | 0.84        | 0.83                      | 0.83                      |
| Diversity                  | 0.74                      | 0.67         | 0.72        | 0.62                      | 0.68                      |
| Equity                     | 0.86                      | 0.75         | 0.78        | 0.79                      | 0.78                      |
| Inclusion                  | 0.87                      | 0.73         | 0.84        | 0.80                      | 0.74                      |
| Accessibility              | 0.76                      | 0.72         | 0.69        | 0.75                      | 0.74                      |

Note: All correlations are statistically significant ( $p < 0.05$ ).

As can be seen above in Tables 12-13, agency-level correlations between the DEIA Index and the outcome percent positive scores are relatively high ( $>0.80$ )<sup>2</sup>. Specifically, the correlation with Employee Engagement Index on weighted percent positive scores was 0.91. Because both the DEIA items and the outcomes came from the same survey, common method bias (CMB) may have affected these measures. To test this, we conducted a Harman Single Factor analysis and a Common Latent Factor analysis. The results of both analyses indicated possible presence of CMB (more than 50% of the common method variance explained) (Eichorn, 2014).

<sup>2</sup> We also examined the correlations at the individual level (not shown) and found similar results as the agency-level correlations and therefore did not include them.

## Conclusions

Analysis of the DEIA index using the 2022 FEVS data demonstrates good psychometric properties. Standardized factor loadings and model fit indices from the CFA provides support for the construct validity of the four DEIA sub-indices. Internal consistency reliability estimates are acceptable for all four sub-indices. The DEIA sub-indices are significantly intercorrelated, indicating adequate conceptual convergence. In addition, the DEIA Index is significantly related to key outcome measures, suggesting acceptable predictive validity.

# Appendix. Diversity, Equity, Inclusion, and Accessibility (DEIA) item development

## Introduction

As mentioned in the body of the report, the DEIA Index items were pilot tested in the 2021 FEVS. OPM administered the survey between November 1, 2021, and December 3, 2021, to a sample of eligible full-time and part-time permanent Federal employees. At the end of the FEVS survey, respondents were asked if they would be willing to participate in a Test Items section. Of the 292,520 respondents, 186,582 (64%) responded to the test items.

## I. Methods

### Measures

The pilot study DEIA measure consisted of 20 items assessing six a priori components of Diversity, Equity, Inclusion (consisting of 3 sub-components: Belonging, Unique, and Involvement), and Accessibility in the workplace (Table A1). All items were developed with the goal of providing actionable information to Federal agencies.

All questions were asked using five-point Likert-type scales with response options from “Strongly disagree” to “Strongly agree” and most included “Do Not Know” or “No Basis to Judge” response options. Accessibility items also included a “No Accessibility Needs” response option.

**Table A1. Pilot DEIA A Priori Sub-indices**

| <b>Index</b>  | <b>Description of Survey Item Content*</b>   | <b>Number of Pilot Study Items</b> |
|---|--|------------------------------------|
| <b>Diversity</b>  | The practice of including the many communities, identities, races, ethnicities, backgrounds, abilities, cultures, and beliefs of the American people, including underserved communities.   | 2                                  |
| <b>Equity</b>   | The consistent and systematic fair, just, and impartial treatment of all individuals, including individuals who belong to underserved communities that have been denied such treatment.  | 3                                  |
| <b>Inclusion:</b><br>Belonging<br>Unique<br>Involvement | The recognition, appreciation, and use of the talents and skills of employees of all backgrounds. Items in this section consider relevant aspects of the workplace, specifically, Belonging, Unique, and Involved.                   | 12                                 |
| <b>Accessibility</b>                                    | The design, construction, development, and maintenance of facilities, information and communication technology, programs, and services so that all people, including people with disabilities, can fully and independently use them. | 3                                  |

\* Source: Executive Order 14035

## Analyses

The psychometric analyses conducted with the 2021 FEVS pilot study data were identical to those conducted on the 2022 FEVS data and described in section (a) Method of the main report.

## II. Results

This section provides the results of the psychometric analysis conducted on the survey items for the DEIA measure. All results are unweighted.



**Item Analysis.** Examination of the variability of responses to the DEIA items at the respondent level was conducted. Table A2 shows the average percent positive, percent neutral, and percent negative scores. There were no items with low variability (i.e., percent positive scores above 90 percent). Item scores ranged from 58 percent to 85 percent positive.

Percentages of missing data and other non-substantive responses (for example, “Do Not Know,” “No Basis to Judge,” or “I do not have any accessibility needs” (for Accessibility Index only) were also examined (Table A2). There were no items with high percentage of missing responses (range < 1% to 2%). Non-substantive responses ranged from 1 percent to 30 percent. The highest percentages of non-substantive responses were for the Accessibility items, with 22 percent to 30 percent indicating they had no basis to judge or had no accessibility needs.

**Table A2. Item Analysis Results for Pilot DEIA Items (N = 186,582)**

| <b>Sub-index</b>                              | <b>Survey Item</b>   | <b>% Positive</b> | <b>% Neutral</b> | <b>% Negative</b> | <b>% DNK</b> | <b>% NBJ</b> | <b>% NAN</b> | <b>% MI</b> |
|---|--|-------------------|------------------|-------------------|--------------|--------------|--------------|-------------|
| <b>Diversity<br/>(2 items)</b>                | My organization’s management practices promote diversity (for example, outreach, recruitment, promotion opportunities).              | 67%               | 20%              | 13%               | 9%           | --           | --           | < 1%        |
|   | My supervisor demonstrates a commitment to workforce diversity (for example, recruitment, promotion opportunities, development).     | 73%               | 19%              | 8%                | 9%           | --           | --           | < 1%        |
| <b>Equity<br/>(3 items)</b>                   | I have similar access to advancement opportunities (for example, promotion, career development, training) as others in my work unit. | 69%               | 13%              | 17%               | 3%           | --           | --           | < 1%        |
|   | My supervisor provides opportunities fairly to all employees in my work unit (for example, promotions, work assignments).            | 74%               | 13%              | 13%               | 5%           | --           | --           | 1%          |
|   | In my work unit, excellent work is similarly recognized for all employees (for example, awards, acknowledgements).                   | 66%               | 15%              | 19%               | 6%           | --           | --           | < 1%        |
| <b>Inclusion:<br/>Belonging<br/>(4 items)</b> | Employees in my work unit include me in networking and office events.  | 82%               | 12%              | 6%                | --           | 7%           | --           | 1%          |
|   | Employees in my work unit treat me as a valued member of the team.   | 85%               | 9%               | 6%                | --           | 1%           | --           | 2%          |
|   | Employees in my work unit make me feel I belong.   | 80%               | 12%              | 7%                | --           | 1%           | --           | 1%          |
|   | Employees in my work unit care about me as a person.   | 79%               | 15%              | 6%                | --           | 3%           | --           | 1%          |

**Table A2. Item Analysis Results for Pilot DEIA Items (N = 186,582) (continued)**

| Sub-index                                   | Survey Item   | % Positive | % Neutral | % Negative | % DNK | % NBJ | % NAN | % MI |
|---|---|------------|-----------|------------|-------|-------|-------|------|
| <b>Inclusion: Unique<br/>(4 items)</b>      | I am comfortable expressing opinions that are different from other employees in my work unit.                     | 76%        | 11%       | 13%        | --    | 1%    | --    | 1%   |
|   | Employees in my work unit are open to differing viewpoints.   | 73%        | 16%       | 12%        | --    | 2%    | --    | 1%   |
|   | In my work unit, people’s differences are respected.  | 77%        | 14%       | 9%         | --    | 2%    | --    | 1%   |
|   | I can be successful in my organization being myself.  | 76%        | 13%       | 12%        | --    | 1%    | --    | 1%   |
| <b>Inclusion: Involvement<br/>(4 items)</b> | I can influence decisions in my work unit.  | 71%        | 16%       | 13%        | --    | 2%    | --    | 1%   |
|   | When needed, my supervisor asks for my perspective on work-related matters.                                       | 80%        | 10%       | 10%        | --    | --    | --    | 1%   |
|   | My supervisor involves me in decisions that affect my work.   | 75%        | 13%       | 12%        | --    | --    | --    | 1%   |
|   | Senior leaders seek input (for example, listening sessions, surveys) from employees of all different backgrounds. | 58%        | 19%       | 23%        | 10%   | --    | --    | 1%   |
| <b>Accessibility<br/>(3 items)</b>          | I can easily make a request of my organization to meet my accessibility needs.                                    | 73%        | 16%       | 11%        | --    | 20%   | 29%   | 1%   |
|   | My organization responds to my accessibility needs in a timely manner.  | 65%        | 22%       | 13%        | --    | 24%   | 30%   | 1%   |
|   | My organization meets my accessibility needs.   | 70%        | 20%       | 10%        | --    | 22%   | 30%   | 1%   |

Notes: DNK=Do not know; NBJ=No basis to judge; NAN=No accessibility needs; MI=Missing information. Percent positive, neutral, and negative scores may not add up to 100% due to rounding.

**Initial Internal Consistency Reliability.** All sub-indices had internal consistency reliability at or above criterion ( $\alpha \geq 0.70$ ) (Table A3). Cronbach’s alpha ranged from 0.83 on Diversity to 0.96 on Accessibility. Dropping any items from their respective sub-indices would not have resulted in substantive increases in reliability.

**Initial Confirmatory Factor Analysis.** We conducted a CFA on the pilot DEIA items by testing two separate models: a five-factor model for Diversity, Equity, Belonging, Unique, Involvement and a one-factor model for Accessibility. Table A3 displays standardized factor loadings for the DEIA items on their respective sub-indices. All factor loadings were statistically significant ( $p < 0.05$ ) with magnitudes greater than 0.50, indicating that the items adequately loaded on the sub-indices. The factor loadings ranged from 0.63 to 0.96, with an average of 0.87.

**Table A3. Initial Internal Consistency Reliability and CFA Standardized Factor Loadings for Pilot DEIA Items**

| <b>Sub-index and Items</b>   | <b>Cronbach’s Alpha<br/>(alpha if item<br/>deleted)</b> | <b>Standardized<br/>Factor<br/>Loadings</b> |
|--|---|---|
| <b>Diversity (2 items)</b>   | 0.83  |   |
| My organization’s management practices promote diversity (for example, outreach, recruitment, promotion opportunities).              | --  | 0.76  |
| My supervisor demonstrates a commitment to workforce diversity (for example, recruitment, promotion opportunities, development).     | --  | 0.93  |
| <b>Equity (3 items)</b>  | 0.89  |   |
| I have similar access to advancement opportunities (for example, promotion, career development, training) as others in my work unit. | (0.86)  | 0.80  |
| My supervisor provides opportunities fairly to all employees in my work unit (for example, promotions, work assignments).            | (0.81)  | 0.91  |
| In my work unit, excellent work is similarly recognized for all employees (for example, awards, acknowledgements).                   | (0.85)  | 0.84  |

**Table A3. Initial Internal Consistency Reliability and CFA Standardized Factor Loadings for Pilot DEIA Items (continued)**

| <b>Sub-index and Items</b>  | <b>Cronbach's Alpha<br/>(alpha if item<br/>deleted)</b> | <b>Standardized<br/>Factor<br/>Loadings</b> |
|---|---|---|
| <b>Inclusion: Belonging (4 items)</b>   | 0.95  |   |
| Employees in my work unit include me in networking and office events.   | (0.96)  | 0.83  |
| Employees in my work unit treat me as a valued member of the team.  | (0.93)  | 0.95  |
| Employees in my work unit make me feel I belong.  | (0.92)  | 0.96  |
| Employees in my work unit care about me as a person.  | (0.94)  | 0.90  |
| <b>Inclusion: Unique (4 items)</b>  | 0.92  |   |
| I am comfortable expressing opinions that are different from other employees in my work unit.                     | (0.90)  | 0.81  |
| Employees in my work unit are open to differing viewpoints.   | (0.88)  | 0.90  |
| In my work unit, people's differences are respected.  | (0.88)  | 0.92  |
| I can be successful in my organization being myself.  | (0.91)  | 0.81  |
| <b>Inclusion: Involvement (4 items)</b>   | 0.87  |   |
| I can influence decisions in my work unit.  | (0.84)  | 0.78  |
| When needed, my supervisor asks for my perspective on work-related matters.                                       | (0.82)  | 0.89  |
| My supervisor involves me in decisions that affect my work.   | (0.81)  | 0.91  |
| Senior leaders seek input (for example, listening sessions, surveys) from employees of all different backgrounds. | (0.89)  | 0.63  |
| <b>Accessibility (3 items)</b>  | 0.96  |   |
| I can easily make a request of my organization to meet my accessibility needs.                                    | (0.95)  | 0.92  |
| My organization responds to my accessibility needs in a timely manner.  | (0.94)  | 0.95  |
| My organization meets my accessibility needs.   | (0.94)  | 0.95  |

Note: Two separate CFA models were tested for (1) Diversity, Equity, Belonging, Unique, Involvement and (2) Accessibility.

Two of the four goodness-of-fit indices for the four-factor model satisfied the criteria for acceptable fit of the model to the data (Table A4). Specifically, the CFI was 0.96 (criterion is  $\geq 0.90$ ) and the SRMR was 0.05 (criterion is  $< 0.08$ ). The RMSEA was 0.07 (criterion is  $< 0.06$ ) and the chi-square value divided by the degrees for freedom was 1,031.23 (criterion of  $< 5.00$ ).

**Table A4. Initial Pilot DEIA CFA Model Fit Indices**

| CFA Models   | $\chi^2*$  | <i>df</i> | $\chi^2/df$ | CFI  | RMSEA (CI)            | SRMR |
|--|------------|-----------|-------------|------|-----------------------|------|
| <b>Diversity, Equity, Belonging, Unique, Involvement</b> | 112,404.32 | 109       | 1,031.23    | 0.96 | 0.07<br>(0.074-0.075) | 0.05 |

\* Chi-square is significant at  $p < 0.05$ .

CI = 90% confidence intervals. CFI = Comparative Fit Index. RMSEA = Root Mean Square Error of Approximation.

SRMR = Standardized Root Mean Square Residual.

Note: Goodness-of-fit indices are not available for the CFA model testing Accessibility as it is only 3 items.

## Decisions on final DEIA items

Decisions about which DEIA items should be retained or dropped were based on the results of psychometric analysis, content relevance, and discussions with the OPM Office of Diversity, Equity, Inclusion and Accessibility. In some cases, additional analyses, such as exploratory factor analysis and correlations among DEIA individual items or for DEIA individual items with outcome measures were also examined to aid with decision making. One important goal of item selection was to shorten the Inclusion sub-index in such a way that it would become a single index combining items from the Inclusion sub-components of Belonging, Unique, and Involvement. The Involvement sub-component consistently emerged as a separate factor from the other Inclusion items and was deemed to be different conceptually than the remaining Inclusion sub-components (Belonging and Unique). Thus, it was not included in the Inclusion sub-index. Further details on decisions for each DEIA item and the rationale for dropping items are provided in Table A5.

**Table A5. Decisions on DEIA Items Based on Psychometric Analysis Results and Content Review**

| Sub-index                              | Survey Item  | Recommendation | Rationale for Dropping |
|--|--|----------------|------------------------|
| <b>Diversity<br/>(2 items, Keep 2)</b> | My organization’s management practices promote diversity (for example, outreach, recruitment, promotion opportunities).              | Keep           | N/A                    |
|  | My supervisor demonstrates a commitment to workforce diversity (for example, recruitment, promotion opportunities, development).     | Keep           | N/A                    |
| <b>Equity<br/>(3 items, Keep 3)</b>    | I have similar access to advancement opportunities (for example, promotion, career development, training) as others in my work unit. | Keep           | N/A                    |
|  | My supervisor provides opportunities fairly to all employees in my work unit (for example, promotions, work assignments).            | Keep           | N/A                    |
|  | In my work unit, excellent work is similarly recognized for all employees (for example, awards, acknowledgements).                   | Keep           | N/A                    |

|   |   |      |   |
|---|---|------|---|
| <b>Inclusion:<br/>Belonging<br/>(4 items, Keep 2)</b> | Employees in my work unit include me in networking and office events. | Drop | May no longer be as conceptually relevant given the hybrid work environment.  |
|   | Employees in my work unit treat me as a valued member of the team.    | Drop | <ul style="list-style-type: none"> <li>• Was very highly correlated with the item <i>Employees in my work unit make me feel I belong</i> (r=0.92 for respondent level scores; r=0.97 for agency level percent positive scores).</li> <li>• Had slightly lower correlations with most outcome measures (EEI, and Global Satisfaction) (average correlation = 0.36) than <i>Employees in my work unit make me feel I belong</i> (average correlation = 0.38)</li> </ul> |



**Table A5. Decisions on DEIA Items Based on Psychometric Analysis Results and Content Review (continued)**

| Sub-index   | Survey Item   | Recommendation | Rationale for Dropping   |
|---|---|----------------|--|
| <b>Inclusion: Belonging</b><br><b>(4 items, Keep 2)</b><br><b>(continued)</b> | Employees in my work unit make me feel I belong.  | Keep           | N/A  |
|   | Employees in my work unit care about me as a person.  | Keep           | N/A  |
| <b>Inclusion: Unique</b><br><b>(4 items, Keep 3)</b>                          | I am comfortable expressing opinions that are different from other employees in my work unit. | Keep           | N/A  |
|   | Employees in my work unit are open to differing viewpoints.                                   | Drop           | <ul style="list-style-type: none"> <li>• The content of this item was determined to be adequately captured by the remaining items that were deemed to be more conceptually relevant.</li> <li>• The percent neutral for this item was higher relative to the other three items measuring Uniqueness (16% vs 11%-14%), indicating that the item may not have been as clear to respondents as the other items.</li> <li>• Subject matter experts (SMEs) noted that this item and the one below (“In my work unit, people’s differences are respected”) overlapped somewhat in content. Because Cronbach’s alpha would be the same if dropping either item (0.88), and the standardized factor loading for the item below was slightly higher than for this one (0.92 vs 0.90), SMEs preferred keeping the item.</li> </ul> |
|   | In my work unit, people’s differences are respected.  | Keep           | N/A  |
|   | I can be successful in my organization being myself.  | Keep           | N/A  |

**Table A5. Decisions on DEIA Items Based on Psychometric Analysis Results and Content Review (continued)**

| Sub-index   | Survey Item   | Recommendation | Rationale for Dropping  |
|---|---|----------------|---|
| <b>Inclusion:<br/>Involvement<br/>(4 items, Drop all)</b> | I can influence decisions in my work unit.  | Drop           | Involvement was consistently a separate factor from the other Inclusion items and is different conceptually than the remaining Inclusion items (Belonging and Unique) and thus should not be included as a sub-component of Inclusion. In addition, the Involvement items had lower correlations with the outcome measures. |
|   | When needed, my supervisor asks for my perspective on work-related matters.                                       | Drop           |   |
|   | My supervisor involves me in decisions that affect my work.   | Drop           |   |
|   | Senior leaders seek input (for example, listening sessions, surveys) from employees of all different backgrounds. | Drop           |   |
| <b>Accessibility<br/>(3 items, Keep 3)</b>                | I can easily make a request of my organization to meet my accessibility needs.                                    | Keep           | N/A   |
|   | My organization responds to my accessibility needs in a timely manner.  | Keep           | N/A   |
|   | My organization meets my accessibility needs.   | Keep           | N/A   |

**Final Internal Consistency Reliability.** All final pilot DEIA sub-indices had internal consistency reliability at or above criterion ( $\alpha \geq 0.70$ ) (Table A6). Cronbach’s alpha ranged from 0.83 on Diversity to 0.96 on Accessibility. Dropping any items from their respective sub-indices would not have resulted in increases in reliability.

**Final Confirmatory Factor Analysis.** We conducted a CFA on the final pilot DEIA items by testing two separate models: a three-factor model for Diversity, Equity, and Inclusion and a one-factor model for Accessibility. Table A6 displays standardized factor loadings for the DEIA items on their respective sub-indices. All factor loadings were statistically significant ( $p < 0.05$ ) with magnitudes greater than 0.50, indicating that the items adequately loaded on the sub-indices. The factor loadings ranged from 0.74 to 0.95, with an average of 0.86.

**Table A6. Final Internal Consistency Reliability and CFA Standardized Factor Loadings for Pilot DEIA Items**

| Sub-index and Items  | Cronbach’s Alpha<br>(alpha if item deleted) | Standardized<br>Factor<br>Loadings |
|--|---|------------------------------------|
| <b>Diversity (2 items)</b>   | 0.83  |                                    |
| My organization’s management practices promote diversity (for example, outreach, recruitment, promotion opportunities).              | --  | 0.77                               |
| My supervisor demonstrates a commitment to workforce diversity (for example, recruitment, promotion opportunities, development).     | --  | 0.92                               |
| <b>Equity (3 items)</b>  | 0.89  |                                    |
| I have similar access to advancement opportunities (for example, promotion, career development, training) as others in my work unit. | (0.86)                                      | 0.81                               |
| My supervisor provides opportunities fairly to all employees in my work unit (for example, promotions, work assignments).            | (0.81)                                      | 0.90                               |
| In my work unit, excellent work is similarly recognized for all employees (for example, awards, acknowledgements).                   | (0.85)                                      | 0.84                               |

**Table A6. Final Internal Consistency Reliability and CFA Standardized Factor Loadings for Pilot DEIA Items (continued)**

| Sub-index and Items   | Cronbach's Alpha (alpha if item deleted) | Standardized Factor Loadings |
|---|--|------------------------------|
| <b>Inclusion (5 items)</b>  | 0.92                                     |                              |
| Employees in my work unit make me feel I belong.  | (0.89)                                   | 0.88                         |
| Employees in my work unit care about me as a person.  | (0.90)                                   | 0.87                         |
| I am comfortable expressing opinions that are different from other employees in my work unit. | (0.91)                                   | 0.74                         |
| In my work unit, people's differences are respected.  | (0.89)                                   | 0.85                         |
| I can be successful in my organization being myself.  | (0.90)                                   | 0.80                         |
| <b>Accessibility (3 items)</b>  | 0.96                                     |                              |
| I can easily make a request of my organization to meet my accessibility needs.                | (0.95)                                   | 0.92                         |
| My organization responds to my accessibility needs in a timely manner.                        | (0.94)                                   | 0.95                         |
| My organization meets my accessibility needs.   | (0.94)                                   | 0.95                         |

Note: Two separate CFA models were tested for (1) Diversity, Equity, Belonging, Inclusion and (2) Accessibility.

Two of the four goodness-of-fit indices for the four-factor model satisfied the criteria for acceptable fit of the model to the data (Table A7). Specifically, the CFI was 0.92 (criterion is  $\geq 0.90$ ) and the SRMR was 0.04 (criterion is  $< 0.08$ ). The RMSEA was 0.13 (criterion is  $< 0.06$ ) and the chi-square value divided by the degrees for freedom was 3,232.32 (criterion of  $< 5.00$ ).

**Table A7. Final CFA Model Fit Indices: Diversity, Equity, and Inclusion**

| CFA Models                              | $\chi^2*$  | <i>df</i> | $\chi^2/df$ | CFI  | RMSEA (CI)            | SRMR |
|---|------------|-----------|-------------|------|-----------------------|------|
| <b>Diversity, Equity, and Inclusion</b> | 103,434.38 | 32        | 3,232.32    | 0.92 | 0.13<br>(0.131-0.133) | 0.04 |

\* Chi-square is significant at  $p < 0.05$ .

CI = 90% confidence intervals. CFI = Comparative Fit Index. RMSEA = Root Mean Square Error of Approximation.

SRMR = Standardized Root Mean Square Residual.

Note: Goodness-of-fit indices are not available for the CFA model testing Accessibility as it is only 3 items.

The large number of observations used in the analysis (N=186,582) and the relatively small CFA model ( $df=32$ ) may have contributed to the large chi-square value divided by the degrees

of freedom. To test this, we examined an identical CFA model in a smaller, random sample of respondents (N=850). As shown in Table A8, although the resulting chi-square statistic divided by its degrees of freedom did not quite meet the criterion for acceptable model fit, it was substantially smaller than in the original model (14.58 vs 3,232.32). The remaining fit indices were nearly identical.

**Table A8. Final CFA Model Fit Indices: Diversity, Equity, and Inclusion (N=850 Randomly Selected Respondents)**

| CFA Models                              | $\chi^2*$ | df | $\chi^2/df$ | CFI  | RMSEA (CI)            | SRMR |
|---|-----------|----|-------------|------|-----------------------|------|
| <b>Diversity, Equity, and Inclusion</b> | 466.60    | 32 | 14.58       | 0.93 | 0.13<br>(0.117-0.137) | 0.04 |

\* Chi-square is significant at  $p < 0.05$ .

CI = 90% confidence intervals. CFI = Comparative Fit Index. RMSEA = Root Mean Square Error of Approximation.

SRMR = Standardized Root Mean Square Residual.

Note: Goodness-of-fit indices are not available for the CFA model testing Accessibility as it is only 3 items.

**Correlations.** Table A9 shows Spearman correlations among the final pilot DEIA Index percent positive scores at the agency level. The correlations ranged from 0.62 for Diversity with Accessibility to 0.83 for Equity with Inclusion. All correlations were statistically significant ( $p < 0.05$ ).

**Table A9. Pilot DEIA Index Percent Positive Intercorrelations (N=80)**

| DEIA Sub-indices | Diversity | Equity | Inclusion |
|------------------|-----------|--------|-----------|
| Diversity        | --        |        |           |
| Equity           | 0.77      | --     |           |
| Inclusion        | 0.66      | 0.76   | --        |
| Accessibility    | 0.62      | 0.73   | 0.72      |

Note: All correlations are statistically significant ( $p < 0.05$ ).

Table A10 shows Spearman correlations for the DEIA sub-indices with key outcome measures at the agency level. The correlation for the unweighted DEIA Index with Employee Engagement Index was 0.92 (including 0.80 for Leaders Lead, 0.86 for Supervisors, and 0.83 with Intrinsic Work Experience). The correlation between the DEIA Index and Global Satisfaction was 0.83. All correlations were statistically significant ( $p < 0.05$ ).

**Table A10. Pilot DEIA Index Agency Level Correlations with Outcomes (N=80)**

| <b>DEIA Index and Sub-indices</b> | <b>Employee Engagement Index</b> | <b>Leaders Lead</b> | <b>Supervisors</b> | <b>Intrinsic Work Experience</b> | <b>Global Satisfaction Index</b> |
|-----------------------------------|----------------------------------|---------------------|--------------------|----------------------------------|----------------------------------|
| DEIA Index                        | 0.92                             | 0.80                | 0.86               | 0.83                             | 0.83                             |
| Diversity                         | 0.74                             | 0.72                | 0.64               | 0.64                             | 0.69                             |
| Equity                            | 0.83                             | 0.76                | 0.77               | 0.79                             | 0.78                             |
| Inclusion                         | 0.82                             | 0.68                | 0.76               | 0.73                             | 0.69                             |
| Accessibility                     | 0.80                             | 0.66                | 0.81               | 0.72                             | 0.75                             |

Note: All correlations are statistically significant ( $p < 0.05$ ).

Table A11 shows Spearman correlations for the DEIA sub-indices with key outcome measures at the individual level. The correlation for the unweighted DEIA Index with Employee Engagement Index was 0.78 (including 0.73 for Leaders Lead, 0.71 for Supervisors, and 0.73 with Intrinsic Work Experience). The correlation between the DEIA Index and Global Satisfaction was 0.74. All correlations were statistically significant ( $p < 0.05$ ).

**Table A11. Pilot DEIA Index Individual Level Correlations with Outcomes**

| <b>DEIA Index and Sub-indices</b> | <b>Employee Engagement Index</b> | <b>Leaders Lead</b> | <b>Supervisors</b> | <b>Intrinsic Work Experience</b> | <b>Global Satisfaction Index</b> |
|-----------------------------------|----------------------------------|---------------------|--------------------|----------------------------------|----------------------------------|
| DEIA Index                        | 0.78                             | 0.73                | 0.71               | 0.73                             | 0.74                             |
| Diversity                         | 0.61                             | 0.56                | 0.55               | 0.56                             | 0.53                             |
| Equity                            | 0.69                             | 0.62                | 0.68               | 0.62                             | 0.66                             |
| Inclusion                         | 0.63                             | 0.57                | 0.6                | 0.57                             | 0.61                             |
| Accessibility                     | 0.80                             | 0.66                | 0.81               | 0.72                             | 0.75                             |

Note: All correlations are statistically significant ( $p < 0.05$ ).

Agency-level correlations between the DEIA Index and the outcome percent positive scores were relatively high ( $\geq 0.80$ ). Specifically, the correlation with EEI was 0.92. Because both the DEIA items and the outcomes came from the same survey, these measures may have been affected by the common methods bias (CMB). To test this, we conducted a Harman Single Factor analysis and a Common Latent Factor analysis. The results of both analyses indicated possible presence of CMB (more than 50% of the common method variance explained). However, it should be noted that the same correlations obtained at the individual level were substantially lower (Table A11). This suggests that the high correlations could be partially

explained by the aggregation of scores at the agency level and examining average percent positive scores instead of means.

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