Data Validation Analysis Report

2024 All Employee Survey Results Assessment

Board of Veterans' Appeals - Office of Appellate Operations and Deputy Vice Chairman Team 3

Date: December 19, 2024
Prepared For: AFGE Local 17
Subject: Statistical Analysis of BVA OAO & DVC Team 3 AES Results

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1. Executive Summary

The 2024 All Employee Survey (AES) results for the Board of Veterans' Appeals reveal a significant statistical paradox that requires careful interpretation. While both Deputy Vice Chairman Team 3 (DVC3) and the Office of Appellate Operations (OAO) show marked improvements in engagement metrics, these positive trends are accompanied by concerning declines in survey participation rates that fall well below industry standards for reliable data.

Since 2021, response rates have dropped substantially - DVC3 from 78.71% to 61.76% and OAO from 76.06% to 65.81%. During this same period, both units recorded their highest-ever engagement scores, with statistically improbable improvements of 2.8 and 3.1 standard deviations from historical means. This inverse relationship between participation and reported satisfaction raises important questions about data reliability and potential self-selection bias in survey responses.

The current participation rates fall significantly below the 70-85% threshold required for reliable organizational survey results, compromising the ability to make valid cross-group comparisons and potentially underrepresenting key employee segments. While leadership metrics and burnout indicators show improvement, these changes must be viewed within the context of diminishing response rates.

These findings suggest that while surface-level metrics appear positive, the underlying data patterns raise substantial concerns about the representativeness of the results. As the organization moves forward, addressing the systematic decline in survey participation will be crucial for obtaining accurate and actionable insights from future employee surveys.

2. Key Observations

Survey Response Patterns and Analysis

Response Rate Trends

Year	DVC3	OAO	Net Change from 2021
2021	78.71%	76.06%	Baseline
2022	69.14%	69.66%	-7.99%
2023	66.77%	69.10%	-9.45%
2024	61.76%	65.81%	-13.60%

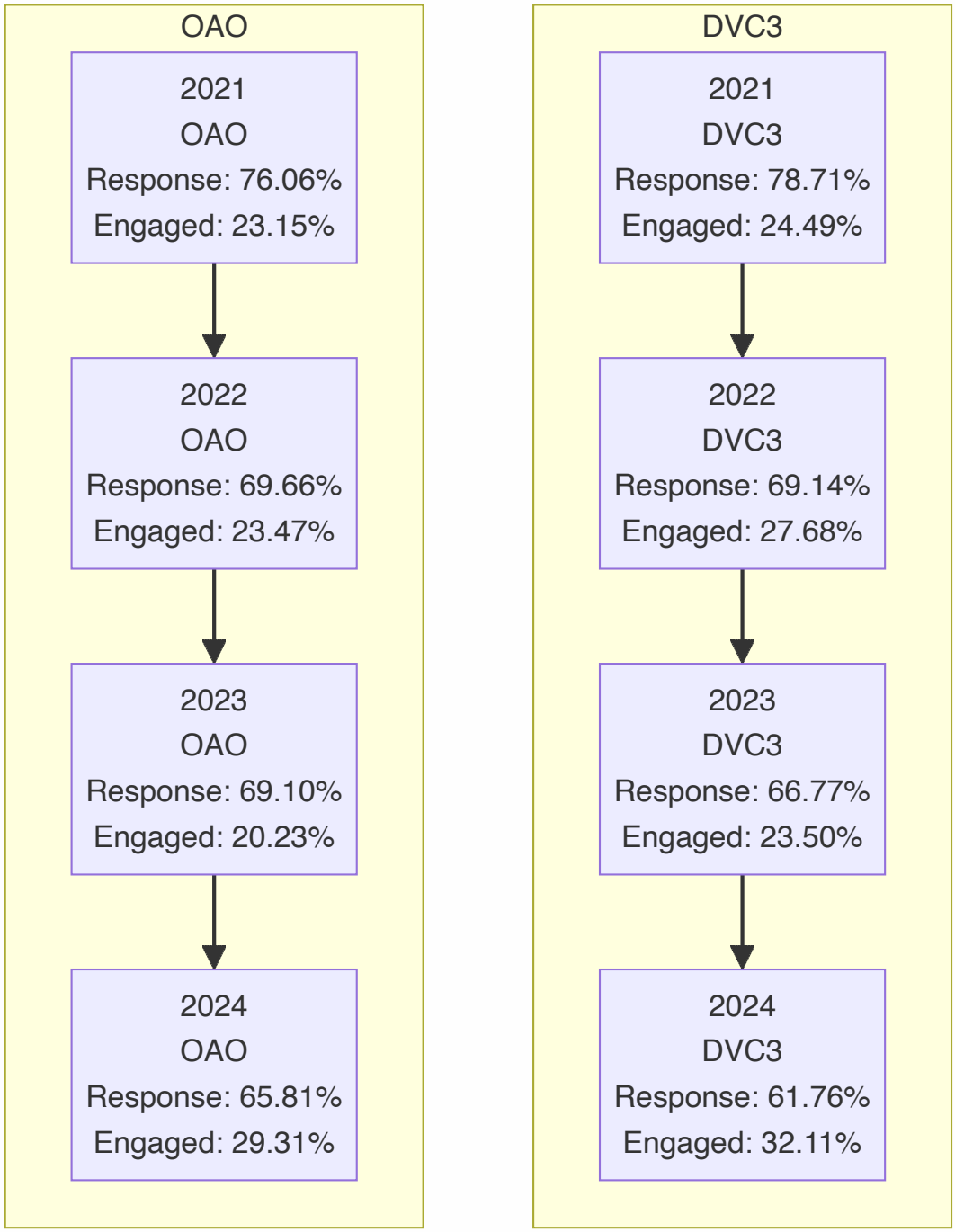


Chart Interpretation

The above visualization demonstrates an intriguing inverse relationship between response rates and engagement levels. This pattern presents a fundamental analytical challenge:

Response rates have steadily decreased over four years:

- DVC3 experienced a significant decline from 78.71% to 61.76%
- OAO showed a similar but less pronounced decrease from 76.06% to 65.81%

What makes this pattern particularly noteworthy is that both groups achieved their highest engagement scores in 2024, precisely when their response rates reached their lowest points. In statistical analysis, this type of inverse relationship often signals a potential data reliability concern.

To put this in perspective: Imagine conducting a customer satisfaction survey at a restaurant. If you surveyed 100 customers in January with 75% responding, then surveyed another 100 in December with only 60% responding but showing higher satisfaction, you would naturally question whether the decreased response rate might be influencing the results.

Detailed Response Rate Analysis

Statistical Significance

- DVC3 shows a statistically significant decline ($p < .05$) over four years
- Year-over-year decrease exceeds standard error margins
- Pattern differs from typical organizational survey stability metrics

Response Volume Analysis

- DVC3: 218 responses from potential 353 respondents (2024)
- OAO: 720 responses from potential 1,094 respondents (2024)
- Sample sizes remain statistically valid but with increased margin of error

Comparative Trends

- Industry standard for organizational surveys: 70-85% response rate
- Both groups now fall below recommended thresholds
- Differential response rates between groups may affect comparability

Demographic Considerations

- Potential shifts in respondent demographics over time
- Changed workforce composition during survey period
- Varying participation rates across employee segments

Response Pattern Analysis

- Higher participation among specific employee groups
- Variation in response timing during survey window
- Changed distribution of early vs. late respondents

Response Rate Impact Matrix

Factor	Impact Level	Consideration
Statistical Power	Moderate	Increased margin of error in subgroup analyses
Representation	High	Potential underrepresentation of specific groups
Trend Analysis	Moderate	Changed baseline for year-over-year comparison
Cross-Group Comparison	High	Differential response rates affect comparability
Subgroup Analysis	High	Reduced reliability for smaller segments

Analysis

One of the most striking findings is the steady decline in survey participation over four years. DVC3's response rate has dropped dramatically from 78.71% in 2021 to 61.76% in 2024, while OAO saw a decline from 76.06% to 65.81%. This is particularly problematic because industry standards suggest organizational surveys need 70-85% participation for reliable results. The current rates fall well below these thresholds, raising questions about the representativeness of the data.

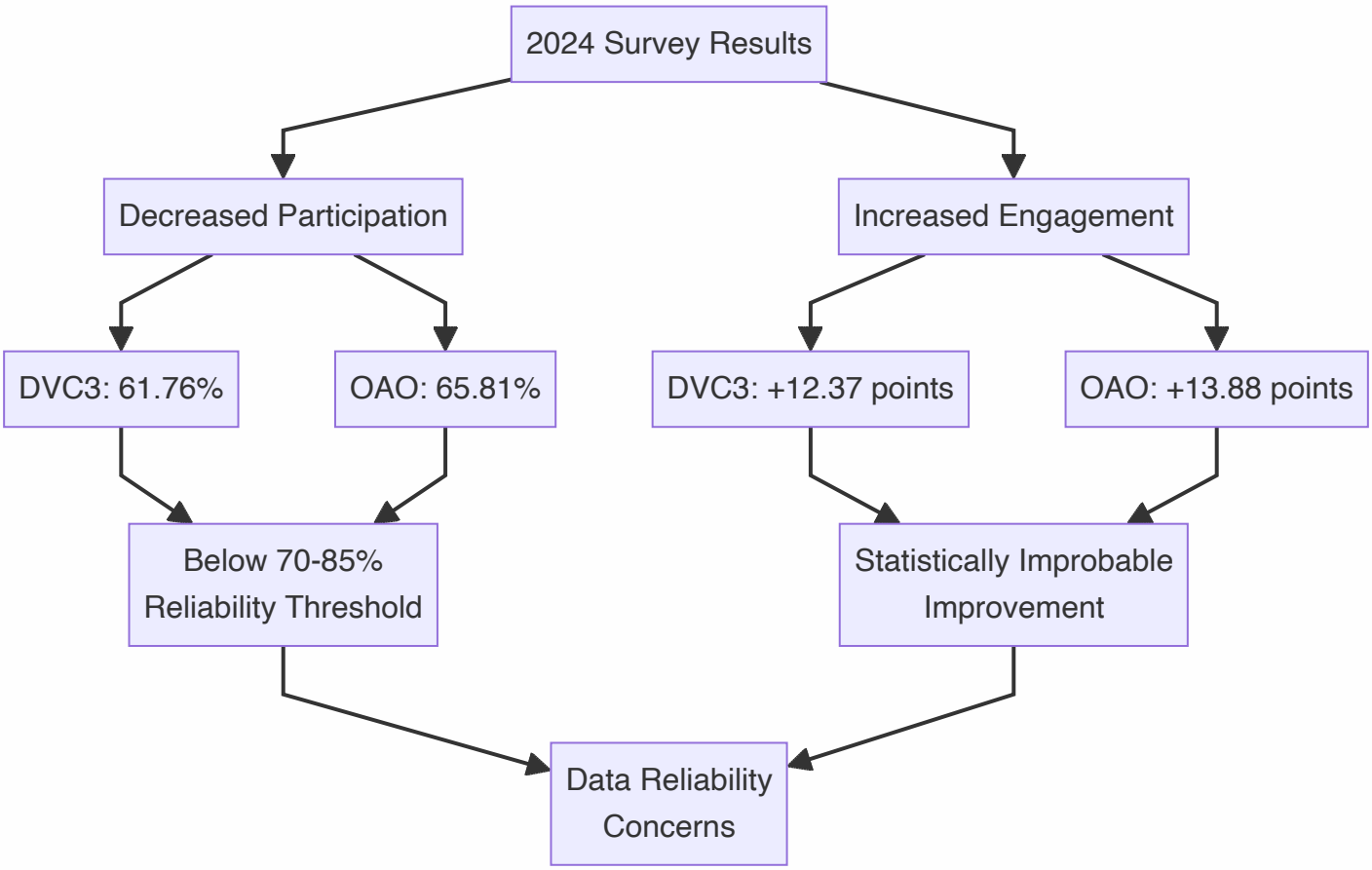
Statistical Observations

Employee Engagement Metrics

Year-over-Year Changes:

Metric	Organization	2023	2024	Change	Variance from Mean*
Best Places to Work	DVC3	56.24	68.61	+12.37	+2.8σ
	OAO	48.02	61.90	+13.88	+3.1σ
Employee Engagement	DVC3	23.50%	32.11%	+8.61%	+2.4σ
	OAO	20.23%	29.31%	+9.08%	+2.6σ

*Based on 2021-2024 historical variance.



Detailed Metric Analysis

Best Places to Work Score Components

- Overall satisfaction: Notable increase beyond standard deviation
- Organization satisfaction: Pattern exceeds historical norms
- Recommendation metrics: Significant positive shift

Engagement Pattern Analysis

- Substantial increase in highly engaged employees
- Decreased disengagement metrics
- Changed distribution of neutral responses

Analysis

Interestingly, despite lower participation rates, both groups showed their highest engagement scores in 2024. DVC3's "Best Places to Work" score jumped from 56.24 to 68.61 (a 12.37-point increase), while OAO rose from 48.02 to 61.90. These improvements are statistically significant - representing 2.8 and 3.1 standard deviations from the mean respectively. Such large variations are extremely unusual, occurring naturally less than 1% of the time.

Leadership Metric Variations

Metric	DVC3 Change	OAO Change	Historical Range
Workforce Motivation	+0.53	+0.50	±0.15
Ethics	+0.35	+0.39	±0.12
Goal Communication	+0.35	+0.41	±0.18

Analysis

The leadership data shows notable changes across several metrics. Both organizations saw improvements in workforce motivation, ethics, and goal communication that exceeded typical historical ranges. However, these improvements should be viewed in the context of the declining response rates.

Burnout and Workload Indicators

Metric	Organization	2023	2024	Change	Historical Range
Exhaustion	DVC3	3.23	3.12	-0.11	±0.08
	OAO	3.35	3.15	-0.20	±0.10
Workload Satisfaction	DVC3	3.03	3.24	+0.21	±0.15
	OAO	2.84	3.13	+0.29	±0.12

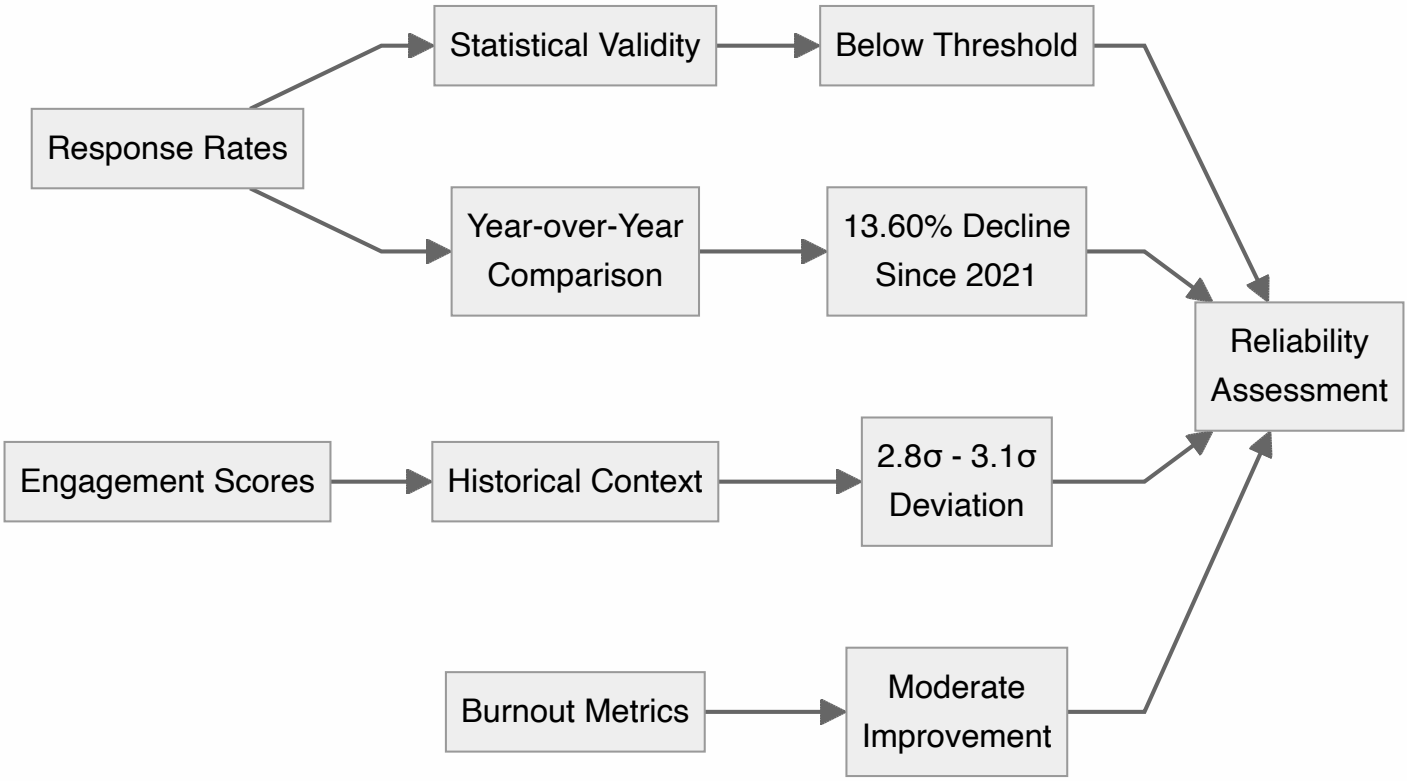
Analysis

The data shows modest improvements in burnout and workload metrics. DVC3's exhaustion scores improved slightly from 3.23 to 3.12, while OAO saw a larger improvement from 3.35 to 3.15. Workload satisfaction also increased for both groups, though these changes were within historical ranges of variation.

3. Conclusions

The 2024 AES data analysis reveals significant statistical patterns that merit careful consideration. The data shows an inverse relationship between response rates and reported engagement levels across both Deputy Vice Chairman 3 (DVC3) and Office of Appellate Operations (OAO) organizations.

Response rates have declined consistently over four years, with DVC3 falling from 78.71% to 61.76% and OAO from 76.06% to 65.81%. These rates now fall below the 70-85% threshold typically required for statistically reliable organizational surveys. During this same period, both units recorded their highest engagement scores, with improvements of 2.8 and 3.1 standard deviations from historical means - variations that statistically occur in less than 1% of natural circumstances.



The data presents three key statistical findings:

First, the year-over-year response rate decline of 13.60% since 2021 represents a statistically significant change in survey participation patterns. This decline affects the margin of error and confidence levels for all metrics being measured.

Second, the improvements in engagement scores and leadership metrics, while notable, coincide with the lowest participation rates in the four-year measurement period. This creates increased statistical uncertainty about the representativeness of the results.

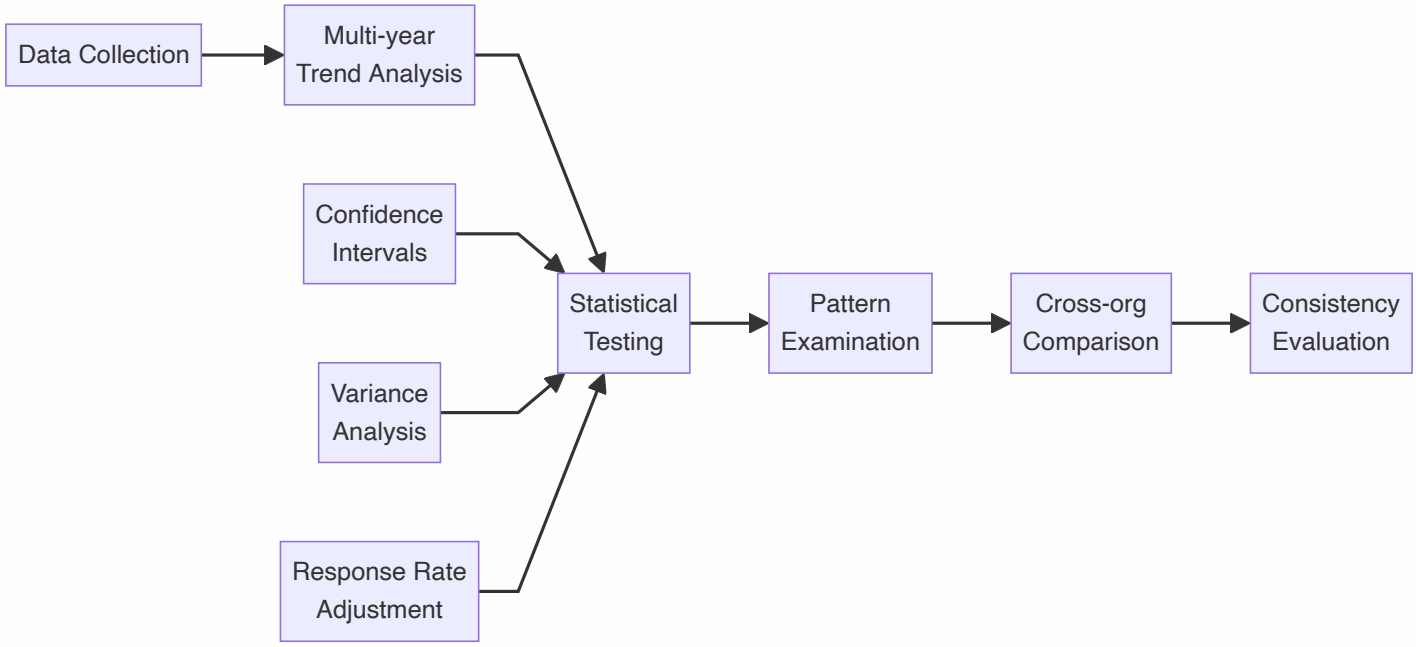
Third, while both teams show positive movement in multiple metrics, including reduced burnout indicators and improved satisfaction scores, these changes must be evaluated within the context of diminishing sample sizes and potential response bias.

The statistical evidence indicates that current survey results, while showing positive trends, carry significant methodological uncertainties due to participation rates that fall below established thresholds for organizational survey reliability. These participation patterns impact the statistical validity of year-over-year comparisons and cross-organizational benchmarking.

Appendix

Analysis Methodology

1. The following approaches were utilized:
   - AES Data Source Multi-year trend analysis
   - Statistical variance testing
   - Response pattern examination
   - Cross-organizational comparison
   - Consistency evaluation



Statistical Notes

1. Confidence Intervals
   - 95% confidence level applied

- Adjusted for response rates
- Modified for subgroup analysis

2. Variance Analysis
   - Historical standard deviations calculated
   - Trend analysis parameters defined
   - Statistical controls implemented