

# **CONSISTENCY OF PAY-FOR-PERFORMANCE RESULTS ACROSS A GEOGRAPHICALLY DISPERSED COMMAND**

**DAU RESEARCH REPORT 10-008**



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**PUBLISHED BY**

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**DAU Senior Service College Fellowship**

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# TABLE OF CONTENTS

Abstract .....	v
CHAPTER 1—INTRODUCTION .....	1
Introduction and Preliminary Study .....	1
Research Hypothesis .....	2
Research Methods .....	2
Dependent Variables .....	4
RESULTS – Positive Indications of Consistency .....	6
RESULTS – Mixed Indications of Consistency .....	7
Summary of Positive and Mixed Findings.....	10
CHAPTER 2—PROPOSED PLAN .....	13
Herberg’s Motivation-Hygiene Factors .....	13
Proposed Plan – Develop an Annual Monitoring Process to Review (AMP-Rev)	
Performance Results .....	14
Additional Data Required for Analysis.....	15
Proposed AMP-Rev Plan: Expected Outcome and Benefits .....	17
Proposed AMP-Rev Plan: Constraints.....	18
Pilot Test of Proposed AMP-Rev .....	19
CHAPTER 3—LITERATURE REVIEW .....	21
Motivation and the Psychological Contract.....	21
Herzberg Two-Factor Theory .....	22
Equity Theory .....	24
Performance Management .....	26
Performance Rating Systems .....	28
Forced Ranking Systems.....	29
Government Accountability Office (GAO) Recommendations for NSPS .....	31
CHAPTER 4—RESULTS .....	33
Additional Data Including Employee Financial Benefits for Performance .....	33
Overall Results Oppose Hypothesis of Expected Inconsistency Across Command.....	35
Finding 1: Performance Ratings Increasing Over Time (Potential Area of Improvement).....	35
Finding 2: Payout for Employees has Decreased Significantly Each Year (Potential Trend).....	37

Finding 3: Average Employee Payout Consistent Across Pay Pools (Positive Consistency) .....	38
Finding 4: Average Salary Increase was More Consistent in 2010 (Positive Consistency).....	39
Finding 5: Variation in Salary Increase % due to Difference in Pay Pool Salary Split % (Potential Area of Improvement) .....	41
Finding 6: Pay Pool Variations in Share Split % (Potential Area of Improvement) .....	42
Finding 7: Relationship Between Performance Rating and Job Position (Potential Trend).....	43
No Findings.....	46
CHAPTER 5—IMPLEMENTATION PLAN .....	47
Leadership is the Key to Employee Motivation, Not the Performance System .....	47
Goal and Advantage of Implementation Plan.....	48
Employee Inputs Considering Current Job Rank and Pay Range.....	49
Employee Overtime as an Input.....	50
Employee Outcomes Using Salary Increase and Ratings .....	51
Implementation Under Different Pay-for-Performance Systems, GS or CCAS.....	52
Pre-Decisional Analysis During Pay Pools.....	55
Proposed Timeline for Implementation .....	56
Evaluation of AMP-Rev’s Effectiveness .....	59
CHAPTER 5—RECOMMENDATIONS.....	61
Delimitations.....	62
Future Work .....	63
REFERENCES .....	65
LIST OF ACRONYMS .....	69

## **ABSTRACT**

Annual appraisals across corporate America range from going through the motions of filling out paperwork to an arduous task of force ranking every employee against each other. The primary goal is to use a performance system that can fairly evaluate performance that is both helpful to the organization and equitable for the individual employee. The Department of Defense (DoD) has attempted to improve human resource rewards and recognition with annual appraisals using several pay-for-performance models, including the National Security Personnel System (NSPS). Whether elements of this or any other pay-for-performance system can provide a fair mechanism of evaluation and incentivize the workforce will remain in debate for some time.

This paper will investigate the consistency of evaluations given to over 1,500 employees within a DoD command geographically dispersed in eight locations across the country. Each of the eight separate locations has its own specialized areas, but all work in a particular technical field for the defense industry. NSPS provides a standard way to evaluate the federal workforce, but also allows greater organization flexibility on many human resource tasks like recruitment, pay setting, promotions, and details on annual performance appraisals. The headquarters element of the observed command evaluates the flexible NSPS business rules for each of their subordinate commands to ensure the right level of standardization exists. Therefore, the expected goal would be that a level of consistency should exist between the eight subordinate commands. Using evaluation outcomes for every employee from the previous three years since this command began transition to NSPS, this paper will compare the resultant performance ratings and resultant salary increases and one-time bonus awards. Correlations between performance scores between seniority pay bands (intern, full performance, and senior level) as well as hierarchical (student interns, support staff, professional, and managerial) will also be investigated

for variability. Although representing a very small sliver of the DoD workforce, these results may indicate some of the positive aspects of NSPS as a pay-for-performance system as well as some areas in need of improvement.

# CHAPTER 1 INTRODUCTION

## **Introduction and Preliminary Study**

The National Security Personnel System (NSPS) was designed to successfully incorporate a pay-for-performance annual evaluation for each Department of Defense (DoD) employee. The goal was to create a process that would directly link successful performance of an employee to monetary salary increases and bonuses. This also would be a strategic human resource practice that could make DoD provide more competitive pay when compared with industry. It has several standard procedures but also allows each organization the flexibility to tailor the system to their performance and human resource needs. Through the use of business rules, that flexibility can be outlined and provide a customized structure for how NSPS will specifically be used for any organization. Those business rules provide the final structure that allow each employee and supervisor to have a common language and known procedure on how annual performance evaluations and resulting payout of salary increase and bonus will occur.

When a large organization is dispersed across multiple locations, each with their specialized ways of doing business, it may provide a greater challenge to balance consistent standards with customized needs. This paper will look at one such dispersed organization and investigate the similarity of past employee evaluations to check for overall consistency within those reviews and identify possible areas of improvement. The organization, selected for this study performs many different types of technical services for the U.S. Government. In general, each location organically evaluates the performance of all of their government employees using the same rating scale and similar objectives. Some locations had so many employees, that they had to break employees into separate review groups. These separate review groups were

combined as a single location for the purpose of this study. Total data for employee reviews was collected from nine separate locations and analyzed for consistency.

### **Research Hypothesis**

Even though all of the subordinate commands perform similar functions for DoD, each has its own specialized mission area. This coupled with the geographic dispersion across the United States promotes each subordinate command developing individualized best business practices and organization culture. Therefore, the hypothesis is that the pay-for-performance summarized results will reveal inconsistency and indicate room for improvement in providing a more standardized approach across the entire organization.

### **Research Methods**

Performance review data on every government employee evaluated was collected from 9 different locations for two years. The resulting dataset included over 2,500 data points; a sample of that data is illustrated in Table 1. Each line of data represents a single employee's performance review, including which location they work at, when the review was conducted, the employee's job position, and their resulting performance rating information. At each location, all employees are evaluated in pay pools, designated as "PP" in Table 1 from 1-9. During a pay pool, a group of higher-level managers get together and review every employee within their pool, typically using a standard form that states an employee's annual objectives and both the direct supervisor's and the employee's input on their performance for that year. In this research, a total number of nine different locations or pay pools were compared. Two years of data were included in this research. A given annual performance cycle begins in October and ends in the September of the following year; the next three months allow time for writing the reviews and evaluating all employees in a pay pool. The results are then provided to the employee as a scored evaluation, a salary increase, and a onetime annual bonus provided by January of the next

year. Within the data, as shown in Table 1, the year is designated in the “YR” column; “09” means the employee was given his/her payout of salary and/or bonus in January of 2009 resulting from the pay pool’s assessment on his/her performance from October 2007 to September 2008.

**Table 1: Excerpt of NSPS Raw Data**

PP	YR	PS	WG	PB	RT	SH	S%
1	09	YA	P	1	3	2	19.7
1	09	YB	S	2	3	1	50
1	09	YC	M	2	3	2	61
1	09	YC	M	2	3	2	61
1	09	YC	M	2	3	2	100
1	09	YD	P	1	3	1	0
1	09	YD	P	1	3	1	45.5
1	09	YE	S	2	3	1	60
1	09	YE	S	2	3	2	22.7

Additional independent variables include information about the employee. Every employee is classified, through their job position description, by a pay schedule (PS) and pay band (PB). The work group (WG) is an abbreviation of an employee’s pay schedule grouping those with similar positions, including students, staff, and supervisor employees. Table 2 describes how the pay schedule designation indicates the type of work any particular employee performs.

**Table 2: Direct Relationship Between Work Group and Pay Schedule**

Work Group (WG), 4 <sup>th</sup> column	Pay Schedule (PS), 3 <sup>rd</sup> column
Interns (I)...	include all full time students of any field, designated by YP. These are typically summer students and co-op students that may work full time for a few months a year.
Support Staff (S) ...	includes administrative personnel, designated by YB, as well as technical staff, designated by YE.
Professional staff (P) ...	includes analysts, designated by YA, as well as scientists and engineers, designated by YD.
Managers (M) ...	include any supervisor combining analysts and administrative supervisors (YC) as well as scientist, engineering, and technical supervisors (YF).

Pay band (PB) in Table 1 designates the seniority or skill level of an employee within a given position. Pay band 1 employees are students and interns usually spending a few years learning the details of the job they are in. At Pay band 2, the employee is at “full performance” and is considered experienced at the position they are holding. Pay band 3 indicates a senior-level employee, highly skilled with multiple years of experience. For the technical staff, YE pay schedule, there exists an additional pay band 4 indicating a master skilled employee within that technical field.

**Dependent Variables**

Upon completion of a given year’s pay pool, employees are provided verbal and written feedback on the details of their performance. They also receive the same three quantitative values summarizing their performance for that pay pool.

Rating (RT) – As a result of individually rating each objective for an employee, a composite rating is calculated. This provides an overall level of performance accomplished for that rating period: 1 – Unsatisfactory, 2 – Fair, 3 – Valued Employee, 4 – Exceed Expectations, and 5 – Role Model. The higher the final rating, the more esteemed that employee's performance was considered during the rating cycle.

Shares Awarded (SH) – Directly correlated to the rating is the number of shares provided to the employee. This will translate into how much money will be provided as a total between salary increase or bonus for that year. An employee ranked as a role model can receive 5 or 6 shares, exceed expectations receives 3 or 4 shares, a valued employee receives 1 or 2 shares, and no share or performance payout is provided to an unsatisfactory or fair employee. The more shares a particular employee is assigned, the greater the financial payout for that year. However, the final payout takes into account all other employees' shares within the pay pool. If all employees within a pay pool were assigned a high number of shares, their individual payout would be significantly less.

Salary Split Percentage (S%) – When a monetary value for the performance payout is calculated using the number of shares for an employee, the percentage split indicates how much of that total payout becomes an increase in salary; the balance of the payout will be paid as a onetime bonus for that year. Example, if a single share for an employee is worth \$500 and that employee receive two shares, his/her total payout would be (2x\$500) \$1,000. If an employee has a 40 percent salary split, \$400 dollars would be added to the employee's base salary and the remaining \$600 would be a bonus issued on the first check of the new year.

Each of the nine pay pools use the same overall organizational business rules for administering NSPS ratings, shares, and salary splits. These three resulting variables were used to gage the level of consistency implemented by this nationwide organization.

## RESULTS – Positive Indications of Consistency

The Civilian Personnel Management System (2009) published overall NSPS average ratings for over 110,000 employees. The ratings were recorded in January 2008 for the work performed the previous year, and shown in Figure 1 as “2008 Global.” The combined organization’s overall averages with 748 rated employees in 2008 and 1,680 rated employees in 2009 fall along the same distribution as the global average. The 2009 results more closely match the 2008 global average with slightly more “exceed expectations” ratings offset by lower “valued employee” ratings. This result indicates that the command as a whole has become more consistent compared to the many other government organizations using NSPS.

**Figure 1: Command NSPS Ratings Distribution Compared to Global Distribution in 2008**

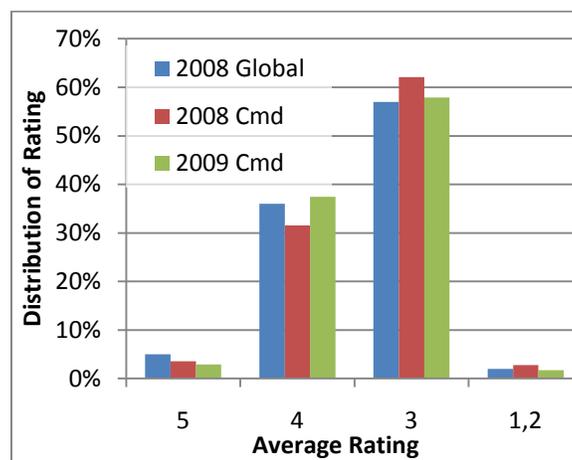
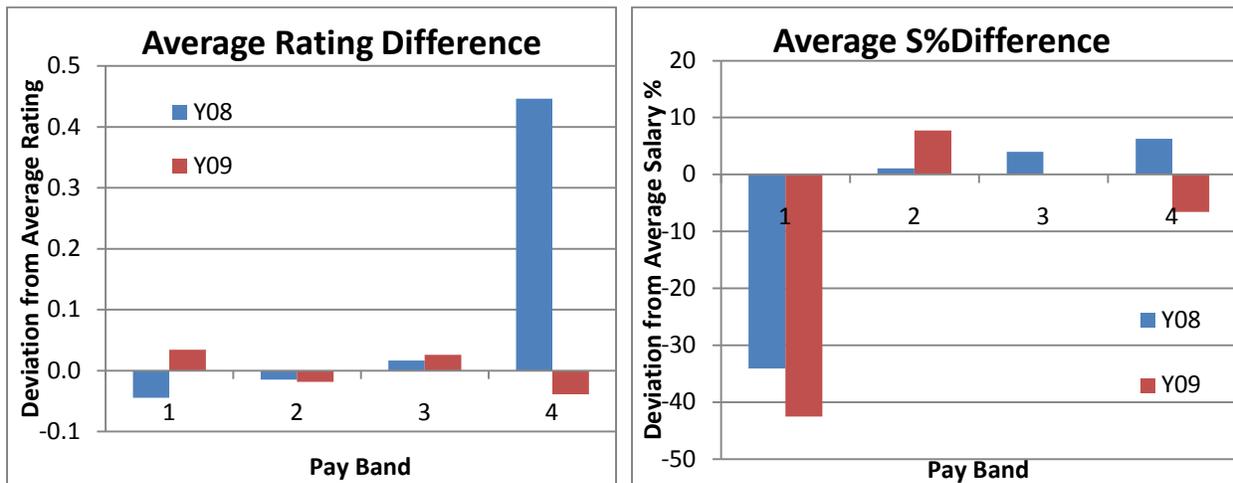


Figure 2 shows differences across the command for the different pay bands. All of the nine pay pools were combined, and these two graphs show the difference in average rating and salary split percentages across the experience level of the workforce. In a perfectly consistent scenario, all of the values on the graph would be zero, indicating that the average rating and share percentages were exactly the same regardless of which pay band an employee was in. NSPS was designed so that employees’ performance would take expected skill level into account. Therefore, if two employees had similar performance, the pay band 1 employee would

likely be exceeding expectations since he/she is working at a higher performance level.

Likewise, a pay band 2 employee working at a similar overall performance level may be coached to improve. In 2008, the most master technicians (pay band 4) seem to have a much higher rating than the overall workforce, but in 2009, all pay bands seem to be normalized. The rating data, in Figure 2 (left), flattening during 2009 could indicate that comparisons between employees, even those with different skill levels, are better following the intended standards.

**Figure 2: Average Difference Between Command Average and Pay Band for NSPS Rating (Left) and Share Percentage Toward Salary (Right)**



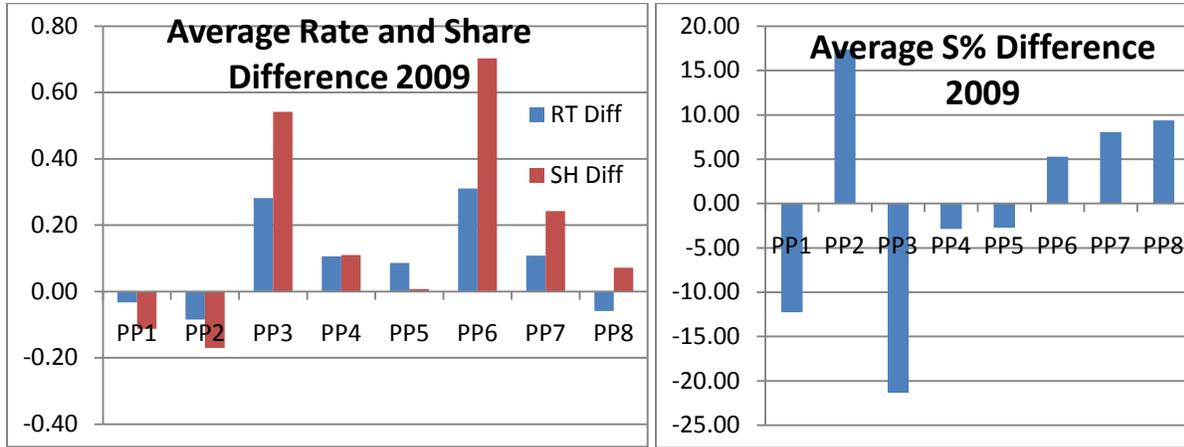
**RESULTS – Mixed Indications of Consistency**

In contrast, the right graph of Figure 2 indicates a possible wider variance across pay bands when looking at the percentage of an employee’s payout that will increase his/her annual salary. It was expected that pay band 1 employee would have a significantly lower share split percentage. Pay band 1 includes full-time students who work part time and interns who have little previous experience. NSPS states that these pay band 1 employees should get all of their payout in a one-time bonus. Salary increases for these employees does not come from NSPS but other incentive mechanisms. Therefore, pay band 1 employees would be expected to have 30-40

percent lower splits than the overall workforce average. However, the difference between pay band 2 (full performance), 3 (senior level), and 4 (master technicians) seems to have increased, although not significantly from the previous year. Additional data of subsequent years may help determine if this trend is becoming more consistent or if a management intervention should be considered.

Figure 1 shows the average rating for the entire organization increased from 3.36 in 2008 to 3.41 in 2009. Only three locations implemented NSPS in 2008 while all eight locations completed pay-for-performance evaluations in 2009. Having such a small change in average rating may actually indicate a fairly consistent first implementation for the five locations in 2009. Figure 3 (left) shows the eight geographically dispersed locations' deviations from that average range from 3.33 for pay pool 2 (PP2) to 3.72 from pay pool 6 (PP6). This resulted in a range in average share from 2.24 for PP2 to 3.11 PP6. The total difference of 0.87 shares between PP2 and PP6 could result in an additional payout of \$700 or more. Data outlining the payout amounts for each of the pay pools was not provided; therefore, any financial benefit from having a higher rating or shares could not be verified. Reviewing Figure 3 (left), pay pools 3 and 6 may be outliers but the rest of the subordinate commands seem to fall within the overall average. Six out of the eight locations seem to be relatively consistent with each other on assigning ratings and shares. Additional financial data and performing a trend analysis in subsequent years will better indicate consistency.

**Figure 3: Differences Between Each Pay Pool and the Overall Command's Average in NSPS Rating and Share (Left) and Share Percentage Toward Salary (Right)**



The difference in share percentage (S%), shown in Figure 3 (right), can become a balancing factor since it indicates the amount of the payout that will be placed into salary, with the balance going as a onetime bonus. Although pay pool 2 (PP2) has the lowest rating and share values, it has the highest average share percentage: 76.3 percent. Therefore, although employees of pay pool 2 (PP2) receive fewer shares, they may have larger payouts and the majority of that payout went to improving their base salary. Pay pool 3 (PP3), on the other hand, had the lowest average share percentage (37.6 percent), so although more shares were provided, the majority of the payout went to a onetime bonus. Without the resulting information about each employee's payout in salary and bonus, only conjecture can be made on the true consistency of the differences in pay pool results across the eight locations. However, attempting to have more consistent values of rating, shares, and salary percentages could be achieved with more standardization over time, which would likely lead to more consistent and understood salary and bonus numbers for employees.

Aggregating across all the pay pools, variations were found in reference to different job positions. Lower average ratings and shares were exhibited for the YD (scientist and engineers), YE (technicians), and YP (student) employees, illustrated in Figure 4. It may be expected that the student employees, YP, would have lower ratings and shares since the primary number of them only work for part of the year and may therefore have less time to make significant contributions toward the command's goals. The share percentage for YP students was not included since that average was 49 percent below the command average of 59 percent; this is due to the NSPS guideline that students, in general, do not get salary increases from NSPS annual payouts but by another mechanism. Share percentage seems to slightly favor the supervisor pay schedules, YC and YF. This may be due to their position being closer to top management overall goals, therefore greater opportunity exists to demonstrate performance toward objectives. These differences are relatively small and may normalize when additional years of evaluation occur.

### **Summary of Positive and Mixed Findings**

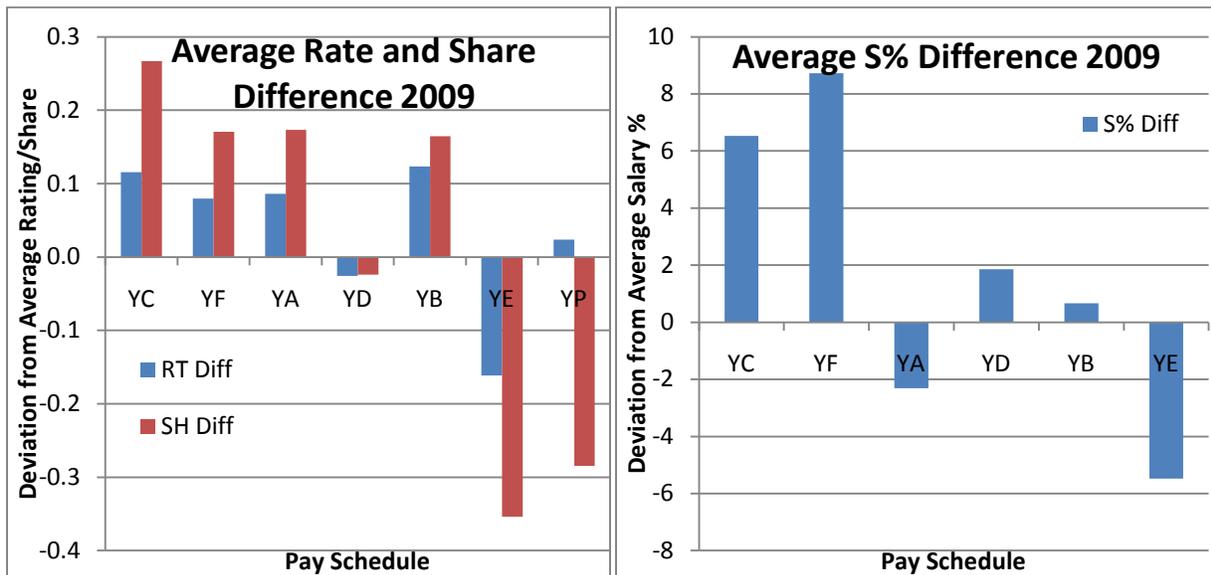
1. Between 2008 and 2009, overall organizational average employee performance ratings, number of shares, and salary percentages seem to be converging toward better consistency.
2. Six out of the eight locations have similar values of average rating, number of shares, and salary percentages.
3. Across all eight locations, supervisors (YF and YC) have higher-than-average ratings, number of shares, and salary percentages. In comparison, scientists and engineers (YD), technicians (YE) and students (YP) have lower performance scores. However, these differences are relatively small and may only be noise within the data.

Although this initial data may point to a few findings, additional information is necessary to determine if consistency across the different eight locations needs to be addressed.

Subsequent data for following years will either confirm that trends are converging or will

indicate areas for improvement. More important, financial information providing the amount of salary and bonus dollars awarded for employees with varying ratings, number of shares, and salary percentages would indicate the true metric for consistency. In most cases employees desire two things from a positive annual review: a high rating score indicating his/her efforts exceeded expectations and the accompany salary increase. With both of those pieces of information, a much stronger analysis could be made.

**Figure 4: Difference Between the Command for Each Pay Schedule Employee Type for NSPS Rating and Share (Left) and Share Percentage Toward Salary (Right)**





## **CHAPTER 2 PROPOSED PLAN**

Performance appraisals can be used for two competing aspects: one can focus on how best to develop an employee and another is to assist in administration tasks like determining pay raises, promotion opportunities, and disciplinary actions (Mathis & Jackson, 2008, pg. 333). As a pay-for-performance appraisal, NSPS is used to recognize an employee's success and apply an increase to his/her salary based on that success. Like other appraisal systems, NSPS can also be used to determine the possibility of advancement and identify opportunities to grow the employee.

### **Herberg's Motivation-Hygiene Factors**

Herzberg's Motivation-Hygiene Theory separates factors into two distinct categories that can affect employee morale. One set of factors can promote job satisfaction and includes recognition for achievement, advancement, and the possibility of occupational growth (Herzberg, 1965, pg. 395). Completely different factors are more responsible for job dissatisfaction including how employees are supervised, working conditions, and salary (Herzberg, 1965, pg. 395). As an example illustrating the subtle difference, using a satisfier factor of providing an employee solid recognition for his/her performance will likely increase an employee's satisfaction; on the other hand, less recognition may not affect the employee's motivation. Conversely, improving a dissatisfier factor like providing a large salary may not change an employee's morale; but if the employee feels his/her salary is low, it will likely drive his/her motivation down quickly.

What most employees desire from NSPS is first the highest salary increase possible (salary dissatisfier), second the highest performance rating reasonable (recognition satisfier), third the highest bonus possible (salary dissatisfier), and finally possibilities for advancement

and growth (satisfiers). Therefore NSPS, like many other pay-for-performance systems, relates to both factors, but first, it is likely to be a dissatisfier with unappreciated salary increases than as a satisfier of appropriate recognition.

### **Proposed Plan – Develop an Annual Monitoring Process to Review (AMP-Rev)**

#### **Performance Results**

Since NSPS can have such a powerful effect on employee morale that drives both dissatisfaction as well as satisfaction a tool, AMP-Rev, should be created to monitor NSPS results to safeguard from potential dissatisfaction. This will allow the command headquarters to observe any trends that may leave the employees feeling the overall system is not equitable. The monitoring process should be conducted each year, after the annual performance reviews are completed. In this way, the monitoring process would not affect that year's performance reporting results but could be used to create any needed corrective guidance to all the pay pool locations. That guidance must then be communicated to all employees in a timely manner so they can understand and adapt to any changes made to the pay-for-performance system for the next performance cycle.

This monitoring process will be similar to the analysis performed in the Prior Research section. "The most informative approach to ratio analysis combines cross-sectional and time-series analyses" (Gitman, 2009, pg 53). Cross-sectional data analysis investigates variations across the geographically dispersed pay pools as well as demographic differences between employees. Time-series analysis evaluates changes in performance results over time. As mentioned, data collection should be performed each year after the annual review to allow for this time-series analysis. Prior research was only based on two years of data. In the most recent year, 2009, five of the eight pay pools initiated NSPS; therefore no time-series analysis was possible for the majority of the locations.

## **Additional Data Required for Analysis**

During the previous research in Part A, most of the data collection and analysis focused on average employee performance ratings, which addressed the second major factor of NSPS: recognition. The primary factor of salary increase was not able to be addressed, although the share percentage numbers may provide an indication that more salary is being provided to those with higher percentages. This system would need to include financial information for each employee so that an analysis can make sure that the salary increase distribution is equitable across all pay pools. The following is a list of desired additional information that would better allow for combined cross-sectional and time-series analysis.

- 1) *Multiple pay pool data for larger pay pool locations* - Some of the commands are so large they split their employees into several smaller pay pools. This allows for a more effective review by lumping employees with similar job functions. Instead of just using the combined, rolled up, results for a single geographical location, it would be useful to check for internal consistency between these localized pay pools at a single geographical location.
- 2) *Performance Score* - NSPS uses a weighted scoring system that calculates an employee's performance rating. The supervisor and pay pool can determine individual scores for an employee's weighted objectives, but cannot directly change the resulting calculated performance rating. The ability to understand how an employee's rating was calculated may lead to better internal consistency of the final performance rating results. It would be interesting to determine the total number of scores that were on the border of different ratings. Also, someone with a calculated score of 2.51-3.50 can get either 1 or 2 shares, and shares are more directly related to salary increases than ratings. This data

will allow a check to see if the pay pools designate number of shares differently when considered against an employee's calculated score.

- 3) *Performance Payout* - NSPS is not about rating-for-performance or shares-for-performance; it is about pay-for-performance. It would be useful to see how the actual payout (combination of bonus and salary) plays out both within a pay pool and across the command. Even more important would be to include the salary increase and the one-time bonus that was provided to each employee that resulted from his/her performance. Since salary increase was designated as the employees' most important result from NSPS, that factor should be used as a major comparison in both cross-sectional and time-series analysis. Salary increase alone may help monitor possible trends that could lead to employee dissatisfaction.
- 4) *Current Salary* - To make the payout dollars more useful, it would be helpful to use the employee current salary to make additional calculations. Current salary would be used to correlate with performance rating/shares. Do higher paid employees typically get lower ratings (since more is expected from them)? Do they represent a majority of reduced salary splits since they may be coming close to an established salary cap for their position? Under the previous annual appraisal system, most commands followed a very structured schedule for providing fixed salary increases. NSPS claimed that for high performers, they would gain a larger salary increase when compared with the old system. Using currently salary, a comparison for each employee could be made that would calculate the difference in salary increase between NSPS and the old system. From the prior research, it appeared that most employees did enjoy a higher salary increase with NSPS, but this additional data could confirm that finding and therefore be used to improve employee satisfaction with the new system.

- 5) *Pro-Rate Salary Increase* - For students and employees who did not work the whole year, NSPS dictates that their performance payout should be pro-rated. Therefore, an employee who only worked half of a year would receive 50 percent of his/her calculated payout. This information would ensure that their payout and salary numbers were not inappropriately inflated when compared across time or with other pay pool locations.

### **Proposed AMP-Rev Plan: Expected Outcome and Benefits**

Using a pay-for-performance appraisal system is new for the individual pay pools within the command. With such a large culture change, it is expected that there will be several inconsistencies identified when the combined cross-sectional and time-series analysis is performed. Using a tool like the proposed Annual Monitoring Process to Review (AMP-Rev) performance results should not only be able to illustrate inconsistencies but may be used to prioritize the most essential areas that without intervention may lead employees to feel their increases in their salary are not equitable. Using this tool immediately after the performance reviews have been completed provides a mechanism for the most up-to-date information to be used to modify the overall command's business rules. This will empower a more proactive stance; identifying possible trends early will enable minor policy adjustments to take effect before those trends turn into a reality that results in employee job dissatisfaction. Activating the AMP-Rev tool after a performance cycle will prevent any concern that the analysis could be used in a retroactive manner, which could lead to employee distrust of management who could be influenced by early results.

Initially, it is expected that numerous inconsistencies across the geographically dispersed pay pools will be identified. The AMP-Rev tool can then be used by senior management to determine the most pressing issues and help find the greatest leveraging changes that will lead to more consistent results in subsequent years. Over time, both the evolving experience of the pay

pools as well as initiatives developed from AMP-Rev analysis should lead to very consistent and equitable performance results across the command. At that time, the AMP-Rev should remain in place, primarily as a time-series analysis tool, to ensure consistency is maintained.

### **Proposed AMP-Rev Plan: Constraints**

As proposed the AMP-Rev tool is strictly a mathematical tool designed to investigate consistency across several factors and over time. It will identify variation across these conditions; however, it will not assist in providing valid explanations that may be causing those variations. For instance in the Prior Research section, the final finding indicated a possible inconstancy where supervisors are receiving both higher overall ratings and increase share percentages toward salary. This variation could be explained as a “good ole boy network,” where the pay pool was inappropriately inflating supervisors’ performance scores. These higher scores may also be explained due to supervisors having more influence over parts of the organization. They, therefore, have a greater ability to directly impact organization objectives. When the organization is doing well, it appropriately reflects highly on those leaders. If the organization was not meeting its objectives, it may be expected that supervisors would have much lower ratings since they may not be properly integrating the great work individual employees were accomplishing. These explanations for the mathematical variations would need to be determined by an investigation and would not involve AMP-Rev.

As with any simple database tool, the best analysis does not occur using the same standardized reports. The most interesting findings will occur only when an experienced analyst uses data mining techniques to uncover pertinent relationships. As more data is included in the tool as proposed above, the complexity of relationships will require greater understanding of data mining. That understanding is not planned in the initial implementation of the AMP-Rev tool and, therefore, must come from a knowledgeable operator using the system.

### **Pilot Test of Proposed AMP-Rev**

An initial version of the AMP-Rev will be used to explore the potential outcome and benefits of this plan. The additional data proposed earlier in this section will be incorporated into the tool along with the most recent 2010 performance review results. With a total of three years worth of data, possible time-series trends may be able to be identified. The additional data will be used to expand the cross-sectional analysis to investigate a wider possible range of variations across the geographically dispersed pay pool locations. Results from using the AMP-Rev will be presented to the overall command's senior leadership for consideration of any interventions that may need to take place. An action plan will be developed, with the senior leadership, for corrective guidance to the pay pools to improve consistency as well as the use of the AMP-Rev tool in the future.



## **CHAPTER 3 LITERATURE REVIEW**

Overall, the “trend is toward greater use of pay-for-performance systems. A survey of Fortune 1000 firms found that over 80% of the firms use some types of performance-based compensation plans.” (Mathis & Jackson, 2008, pg. 362) Pay-for-performance systems are designed to positively motivate the workforce to perform their jobs better. Those that are successful should be encouraged to perform even better; and lower performers should be identified and coached for improvement. Research has been performed to better understand employee motivation in general and how best to promote that motivation through effective pay-for-performance systems.

### **Motivation and the Psychological Contract**

“A psychological contract may be defined as an unwritten agreement between individuals and the organization of which they are members.” (Brown & Harvey, 2006, pg 14) These contracts “are highly subjective and are specific to each employee. They concern both concrete (pay, working conditions) and abstract (security, challenge) elements of the give-and-take between employer and employee” (Guzzo & Noonan, 1994, pg. 448). One study found that when a positive psychological contract was in place, one that included loyalty and stability for both parties, it correlated to more positive employee work attitudes including identification with the organization, increased devotion, and overall work satisfaction (Lee & Lui, 2009, pg. 322). When expectations are better known between the employee and their organization, that psychological contract should improve employee morale and motivation.

As part of that psychological contract, some studies have found differences on how employees and human resource departments characterize worker inputs. Human resource departments typically consider an employee’s intelligence, education, and experience as traits

acquired when hiring; while in a study employees viewed the three attributes as being used every day and possibly needing an ongoing investment (Siegel, Schraeder, & Morrison, 2008, pg. 71). Understanding which factors that are important to employee's motivation can help organizations better formulate and even articulate their expectations to their employees and build a stronger psychological contract that can lead to better work satisfaction.

### **Herzberg Two-Factor Theory**

Focusing on motivating an employee, their portion of the psychological contract typically includes similar expectations of their employer. Frederick Herzberg posited that employee satisfaction and dissatisfaction in the job comes from two entirely different set of factors.

Herzberg describes these factors in the following way:

What makes people satisfied at work are factors that relate to the content of their jobs—specifically, achievement, recognition for achievement, interesting work, increased responsibility, growth, and advancement. On the other hand, what makes people unhappy at work is not what they do but how well (or poorly) they are treated.... The main factors in this group are company policy and administration practices, supervision, interpersonal relationships, working conditions, salary, status, and security. (Herzberg, 1974, pg. 18)

Herzberg graphed the most important factors that both motivate and dissatisfy employees, ranking them with their level of frequency reported by employees; Table 3 provides that ordered list. Each of these factors may have similar importance, but their ranking within the list is due to the frequency employees mentioned that factor not necessarily about how vital it was to their motivation. For instance, opportunities for advancement and growth may only be considered

occasionally by an employee, yet every day that employee may strive to achieve as well as hope to receive recognition of that achievement. This may be the reason achievement is more frequently listed as a motivator by the employee than the factors of advancement and growth.

**Table 3: Herzberg Factors for employee satisfaction and dissatisfaction**

Most Frequent Motivating/Satisfier Factors	Most Frequent Hygiene/Dissatisfier Factors
1. Achievement	1. Company policy and administration
2. Recognition for achievement	2. Supervision
3. Work itself	3. Interpersonal relations
4. Responsibility	4. Working conditions
5. Advancement	5. Salary
6. Growth	6. Status
	7. Security

*Table 3* provides an ordered list for a typical organization; this order may be very different due to either employee or organizational culture. In one study, salary was the greatest factor in dissatisfaction, as indicated by 87 percent responses from employees, while recognition of achievement the 5<sup>th</sup> most frequent satisfier (Sledge, Miles & Coppage, 2008, pg 1678). A separate study “indicated that the respondents were least satisfied with their salary as well as organizational policies and administration” (Schroder, 2008, pg 239).

Salary, in particular, was a special case in Herzberg’s study: “Because of its ubiquitous nature, salary commonly shows up as motivator as well as hygiene. Although primarily a hygiene factor, it also often takes on some of the properties of a motivator with dynamics similar to recognition of achievement.” (Herzberg, 1974, pg. 20) As mentioned earlier, salary increase

is expected to be the most influential aspect affecting the employee by a pay-for-performance system. Although salary is typically considered a dissatisfaction or hygiene factor, it could also affect several employees in a positive manner and increase motivation. This duality that salary can be either a motivational or dissatisfaction factor could be the impetus for creating a pay-for-performance system; to properly motivate as both an incentive and/or punishment for an employee's performance.

A pay-for-performance system can impact up to four dissatisfaction factors. That system is a company policy that is commonly administered by supervisors. It also directly affects one's salary and is likely to play a factor in interpersonal relations when everyone is discussing preparation for and results from the performance review. As a motivator, the pay-for-performance system is primarily tied to recognition of achievement. In a few organizations, those results may be used to investigate how best to grow an employee or consider him/her for advancement. Since most of the factors that the pay-for-performance system influences are dissatisfiers, many will naturally oppose the use of any system since it is more likely to lead to dissatisfaction than as a motivational tool. After identifying the more important factors that may motivate or more likely demotivate an employee, the next topic discusses how employees typically determine if their situation is fair and equitable.

### **Equity Theory**

“According to equity theory, employee satisfaction and motivation depend on how fairly the employees believe they are treated in comparison to peers.” (Dubrin, 2010, pg 298) Individuals consider their level of input (work effort, job qualifications, skills and experience, and support of coworkers) in relation to their received outcome (including salary, status and recognition, and other benefits) against some comparison group (Dubrin, 2010, pg 298). This

relationship is based solely on the individual's perception and does not necessarily have to coincide with reality. This perceived equity ratio is expressed below.

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Who the individual compares to is also subjective; it could be someone working at the same level within the office, a team from a different functional division, or the individual could compare his/her current situation with a job held several months earlier. When the perceived comparison appears inequitable, there will be tension to change the conditions of the outcome/input expression. That tension will be directly proportionate to the level of perceived inequity (Adams, 1963, pg. 427), the greater the perceived inequality the stronger the urge to alter the conditions. Adams listed several options employees are likely to do to reduce the feeling of inequity (1963, pg. 427-429):

1. They may change their level of input, for instance they may work less to offset a feeling that they are not being paid enough. On the other hand, employees are likely to step up their efforts if they notice the team around them is working at a higher level.
2. They may attempt to change their outcomes like negotiating for a raise by presenting their high level of inputs (amount they work, superior skills or experience, etc).
3. They may alter their perceptions of their own inputs and outcomes; reconsidering the value of the inputs they provide and the current resultant outcomes.
4. They may reconsider or influence other's inputs and outcomes; by encouraging the comparison person to change their level of effort or even leave the workforce, their perceived inequity could rebalance.

5. They may change who they compare themselves to; instead of comparing themselves with someone that received a very large raise they may now consider their inputs with someone else who had a similar raise.
6. They may remove themselves from the situation through higher absenteeism, requesting transfer to another group, or even finding another job entirely.

Any of the above mechanisms may be used by the employee to relieve any perceived inequity; in fact, employees may use several of the above options automatically without realizing. In one experiment, it was found that when an employee was informed that his/her qualifications (inputs) were not up to standard, but they would still be compensated at a higher pay (outcome); that employee performed at a higher level than those that were appropriately paid for their qualifications. (Adams & Jacobsen, 1964, pg. 23). This higher level of performance was considered due to the perceived inequity of the employee; the worker felt overcompensated for his/her qualifications and therefore stepped up his/her input to compensate. However, if a group of individuals are overcompensated collectively, they are likely to compare their input and outcomes with those around them who are equally overcompensated. This condition will likely not lead to any improvement in performance since the employees will believe their current situation is equitable (Adams, 1968, pg. 315).

### **Performance Management**

“An effective performance management system should do the following: make clear what the organization expects, provide performance information to employees, identify areas of success and needed development, and document performance for personal records.” (Mathis & Jackson, 2008, pg. 327) The many governmental appraisal systems, to include NSPS, the Total Army Performance Evaluation System (TAPES), and the Contribution-based Compensation and Appraisal System (CCAS), all were designed to perform the four elements above. Yet an

emphasis on pay-for-performance caused the development of these newer systems, such as NSPS and CCAS, to augment TAPES that typically was not used to link pay with performance.

Performance appraisals can be used for two competing aspects: one can focus on how best to develop an employee and another is to assist in administration tasks like determining pay raises, promotion opportunities, and disciplinary actions (Mathis & Jackson, 2008, pg. 333). All these actions are important aspects of performance management and, thus, better emphasizing of three separate review sessions should be considered. Mathis and Jackson (2008) discuss how some employers first discuss overall performance, reviewing the positive contributions and areas of improvement. Later, a separate review will discuss training and development opportunities that may better reinforce the employee's contributions or address a performance gap. Finally, a third discussion would focus on compensation, including pay raises and promotion opportunities. In many annual appraisals, particularly pay-for-performance, a single review with the supervisor will quickly outline both performance and the resulting pay raise and bonuses. Most employees will then focus on the pay increase, and the performance discussion may be lost. The development opportunity discussion many times never occurs; either due to lack of resources, little planning to provide employee training, or it may be expected that the employee will initiate a development discussion.

Blimes and Gould (2009) state several issues with government performance appraisal systems, including the difficulty in developing objectives since many government outcomes cannot be measured easily. Advancing trade, reducing poverty, and many other activities vital to government cannot pinpoint success within an annual cycle easily. Few employees trust that they will be accurately evaluated since most supervisors have inadequate training and were not required to meet concrete standards themselves (Blimes & Gould, 2009, pg. 199).

## **Performance Rating Systems**

Most governmental rating systems, including TAPES, CCAS, and NSPS, apply a graphic rating scale to score each employee using numerical representation of descriptions of performance. These descriptions include role model, high performance, valued employee, or need improvement to assist the rater in designating an employee's performance. The benefit with a performance rating system is that it is easy to develop and provide a simple rating process. This system can work very well when the categories being scored are linked closely with the employee's actual job duties (Mathis & Jackson, 2008).

When attempting to compare employees to each other, there is a benefit of having more generic objectives. A generic objective like "employee development" is broad enough to include achievements of some employees pursuing academic degrees while others can focus on technical training. With these generic goals, the rater may find it more difficult to determine superior performance with broad objectives than employee-specific goals that spell out exactly what it takes to achieve and surpass that objective. "Another drawback is that the descriptive words sometimes used in scales may have different meaning to different raters" (Mathis & Jackson, 2008, pg. 342). What "exceeds expectations" for one supervisor may not even meet the bar for another.

The drawback of different meanings for objectives and scoring is compensated for by the NSPS use of pay pools. Since a body of individuals must review over a large group of employees, the group becomes a normalization factor to ensure a common standard, and common scoring has occurred. This information defining objectives and scorings must then be communicated to supervisors and employees so that the entire organization knows what to expect from objectives and how to achieve desired scores. Essentially, this communication will ensure a correct psychological contract—the "unwritten agreement between and employee and

the organization which specifies what each expects to give to and receive from the other” (Ivancevich, Konopaske, & Matteson, 2008, pg 129). Jeffery Immelt, CEO of General Electric was quoted as saying, “We give feedback, we coach, we invest in training—and we have clear performance goals. People know where they stand; they know we will help them to be the best they can be; and they agree on their annual goals and objectives” (Bartlett and McLean, 2005, pg. 12). The key to a performance rating system is the initial involvement of the employee in the goals and objectives, providing continual feedback, and properly coaching each employee to become better.

### **Forced Ranking Systems**

“While traditional performance appraisals tend to be criterion based (setting a performance bar), forced ranking is about distinguishing people. Forced ranking demands a differentiation among performers” (Hazels & Sasse, 2008, pg. 35). Bartlett and McLean (2003) summarized the mechanics of forced ranking that Jack Welch ingrained into General Electric’s organizational culture. Ranking would compel supervisors to distinguish the top 20 percent of their workforce as top performers, who would be most rewarded to ensure they remained with the company. The lowest 10 percent would also be identified who would then be coached, trained, and later terminated if their performance did not improve. GE’s ranking looked not only at performance, but also at the promotability of each employee. An employee who was a high performer, but was deemed unlikely to be promoted would be highly valued but not as prized as someone who exhibited both high performance and high ability to be promoted.

Grote (2005, as cited by Hazels & Sasse, 2008, pg. 36) claimed the benefits of this system: “Without forced ranking, managers are tempted to be too kind and not confront performance problems. Furthermore, it may be difficult for a manager to admit he or she has made a hiring mistake.” It also allows a company to focus limited resources for bonuses,

training, and awards appropriately to the higher ranked performers. Due to these advantages, “A recent study by Novations Group Inc. found that a total of 54.8% of all responding companies used forced ranking” (Hazels & Sasse, 2008, pg. 35).

Hazels and Sasse (2008) lists several drawbacks of forced ranking; the most significant can cause negative effects on morale, since employees are constantly concerned about their ranked order. “The Novations' study cited earlier found that almost 44 percent of respondents felt morale was negatively affected” (pg. 37). Forced ranking can also eliminate teamwork since workers, in fear of losing their own ranking, will be reluctant to help others. There are concerns that the lowest ranked employee in a high-performing team may actually be a very high performer as measured against standards and therefore penalized for working in such a strong team. The workplace can also become more political as individuals vie for the jobs that are most likely to yield the best ranking. Even proponents of force ranking typically admit that over time, there is a diminishing return as the lowest performers have already been weeded out.

In a one study, certain aspects of forced ranking appealed to potential employees more than others. Employee candidates “were most inclined to find attractive those systems that had less stringent consequences for low performers, higher differentiation of rewards, large comparison groups, and frequent feedback. The consequences for low performers had the single most powerful influence on their attraction to different FDS [Forced Distribution Systems]” (Blume, Baldwin, & Rubin, 2009, pg. 86). Therefore, the policy on what occurs to lower performers will be the most influential to the organization’s culture that uses a forced ranking system. Therefore, Hazels and Sasse (2008), recommend only using forced distribution “in conjunction with, not in place of, traditional performance evaluations” and once “it has been used to eliminate those individuals not doing their jobs at acceptable levels, it should be discontinued” (pg. 37).

## **Government Accountability Office (GAO) Recommendations for NSPS**

In 2008, the GAO made the following four recommendations on how the Department of Defense could improve their NSPS implementation (Ferrell, 2008, pg. 42):

- Require a third party to perform predecisional demographic and other analysis as appropriate for pay pools.
- Require commands to publish the final overall rating results.
- Provide guidance to pay pools and supervisors that encourages them to rate employees appropriately, including using all categories of ratings as warranted by comparing employees' individual performance against the standards.
- Develop and implement a specific action plan to address employee perceptions of NSPS.

The original intent of the AMP-Rev tool addresses GAO's first recommendation with the exception that AMP-Rev's suggested use was to be post-decisional. That way AMP-Rev would provide analysis on trends and demographics that could be used to guide policy the next year without any fear that it could influence the results of the current year's results. AMP-Rev could be used by a third party before a decision of the results was finalized, but that would be a more aggressive use of the tool than was originally intended. This tool can also be used to address GAO's second recommendation by providing a means to publish more than just rating results, adding share percentage and payout information as well, that would increase transparency without jeopardizing personal information. These results were designed to be used to provide guidance to pay pools and supervisors (3<sup>rd</sup> GAO recommendation) and could become a vital part of a specific action plan to address employee concerns with NSPS (4<sup>th</sup> GAO recommendation).

Over a year later, the most recent GAO report included three recommendations for action (Ferrell, 2009, pg. 50):

- Review and evaluate the effectiveness of the department's training.
- Ensure that guidance is in place for conducting a postdecisional analysis that specifies what process the components should follow to investigate and eliminate potential barriers to fair and equitable ratings.
- Include, as part of the department's monitoring of the implementation of its system, efforts to monitor and evaluate how the safeguards specifically are implemented by lower-level organizations across the department.

The AMP-Rev tool was designed to address the last two GAO recommendations. Note that the second recommendation is similar to 2008 with two major differences. First, third party analysis is no longer recommended, meaning the data reduction can be performed as an internal measure within a command. Second, the recommendation switches from pre-decisional to post-decisional analysis. This mimics the original intent of AMP-Rev, to be used within a command for post-decision analysis to monitor and ensure fair practices in performance scoring has occurred (3<sup>rd</sup> GAO recommendation). Therefore, the prototype of AMP-Rev addresses the primary concerns GAO has with the current implementation of NSPS.

## **CHAPTER 4 RESULTS**

In January 2010, the eight geographical locations within the studied command completed another performance review involving over 1,800 employees. This additional data was incorporated within the prototype AMP-Rev tool to provide additional time series analysis. The additional data for each employee mimicked the categories described in Table 1 within Part A. Most of the proposed supplementary data for each employee was not included due to a concern for disseminating employee personal information: the employee's performance score, performance payout, current salary, and pro-rated salary increase. For very large locations that broke their employees into groups to be evaluated in separate pay pools, the employee was matched to his/her particular pay pool. This allowed for a check on internal consistency to ensure that within one geographical location all of their pay pools acted consistently with each other.

### **Additional Data Including Employee Financial Benefits for Performance**

Avoiding the release of personal information for each employee, summary data instead was provided on resulting performance payout and awards for each pay pool. The following data was most valuable to the cross-sectional analysis between pay pools: average payout %, average salary increase %, and average bonus %. These percentage numbers were used to normalize performance payouts across a wide range of employee salaries. Based upon the amount of shares awarded, each employee was designated an amount for his/her payout, which included both a salary increase and a one-time bonus award. For example, one employee initially making \$50,000 a year may receive a \$2,500 payout, of which \$2,000 goes to an increase in annual salary and \$500 to a one-time bonus. A supervisor, within the same pay pool, may make \$100,000 a year and received a \$5,000 payout broken into a \$2,000 increase in salary and a one-

time bonus of \$3,000. Although the payout dollars between the employee and the supervisor are remarkably different, they both received the same payout percentage as indicated below.

$$\frac{\text{-----}}{\text{-----}} = \frac{\text{-----}}{\text{-----}} = 5\%$$

Looking at the distribution of the payout, both the employee and the supervisor received the same salary increase: \$2,000. However, the employee had a double the salary increase % than the supervisor as shown in the inequality below.

$$\frac{\text{-----}}{\text{-----}} > \frac{\text{-----}}{\text{-----}}$$

Averaging the two salary increase % above (4 percent and 2 percent) would yield 3 percent overall. The bonus % also uses each employee's current salary as a normalization factor. In this case, the supervisor has a much higher bonus % than the employee, yet the two calculates an average bonus % of 2%.

$$\frac{\text{-----}}{\text{-----}} + \frac{\text{-----}}{\text{-----}} = \frac{\text{-----}}{\text{-----}}$$

This averaging of salary increase and bonus was performed for all the employees within each of the pay polls. These measures provided a normalized comparison between pay pools on the primary pay-for-performance factor: employee salary. This information led to nearly half of the findings relating to the consistency of the overall command's implementation of their pay-for-performance implementation.

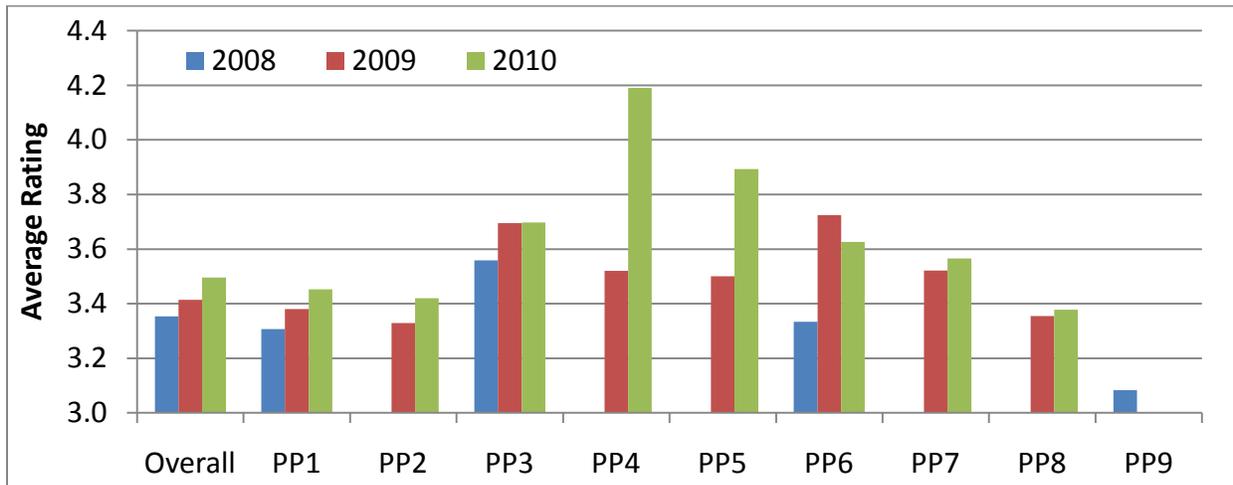
## **Overall Results Oppose Hypothesis of Expected Inconsistency Across Command**

For this command, the analysis did not support the hypothesis that several inconsistencies within the pay-for-performance system would be identified and need to be prioritized for improvement. Instead, this command, even with the eight geographically dispersed locations, had a high level of consistency for salary (prime dissatisfier factor) and ratings (secondary satisfier factor). There were a couple areas of potential improvement, which are identified in the findings that could further increase consistency with the ratings and payouts. Each finding is categorized in one of three areas: findings that illustrate a positive consistency of results across the command, findings that indicate a potential area of improvement and could be used to stimulate corrective action, and findings that point to a potential trend that should be further investigated but require no corrective action at this time.

### **Finding 1: Performance Ratings Increasing Over Time (Potential Area of Improvement)**

Over the last two years, the overall command's average rating has increased about 0.07 points each year. Although a relatively modest creep, this increase in rating performance is consistent across most of the geographical locations. Figure 5 shows only one exception to this rating creep: pay pool 6 (PP6) average rating went down between 2009 and 2010. In all other cases, the average performance rating increased every year for every pay pool. In many cases these increases were very small; however, both pay pool 4 and 5 provided ratings improvements of about a half a point each. Such a large increase in performance rating would result in an additional share value for every employee within that pay pool.

**Figure 5: Rating Creep Across All Pay Pools**



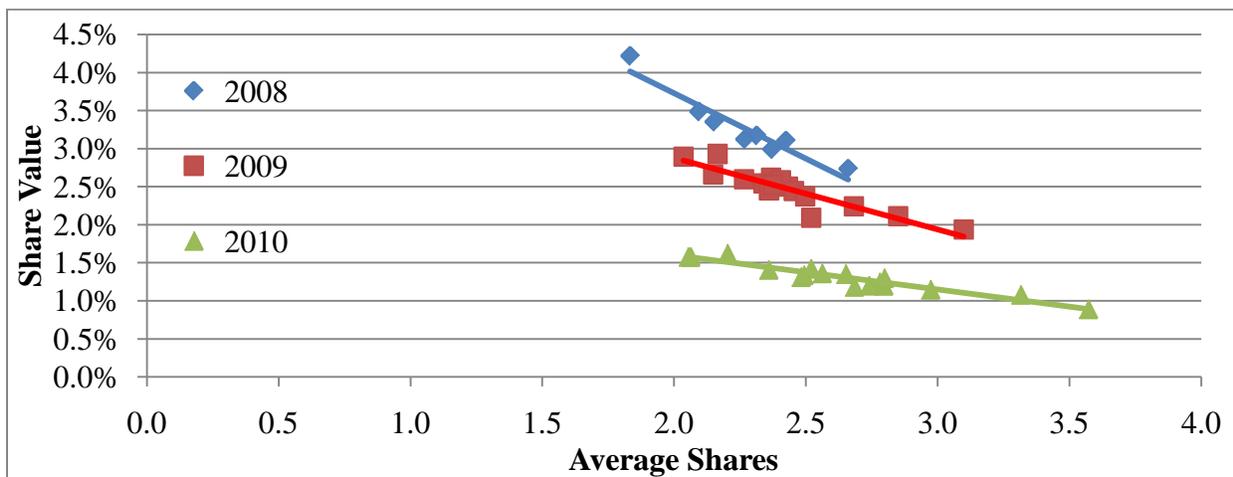
The small increase in performance ratings across all locations may indicate the pay pools' desire to increase the employee satisfier factor of recognition through slightly elevated ratings. If this performance creep is consistent across all pay pools, a short-term positive effect on employee satisfaction is likely. However, over time, elevated ratings will become expected and there will no longer be room on the performance rating scale to recognize high performers. In 2010, pay pools 4 and 5 provided high average ratings of 4.2 and 3.9 respectively indicate that their average employee "exceeds expectations." Those pay pools may find it difficult to recognize a higher-performing employee in subsequent years since the rating scale only goes up to 5. One of the purposes of NSPS was to provide a scale that would recognize a range of performance; that benefit will be nullified when everyone who previously was considered a valued employee (performance rating of 3) over time has an expected rating of a role model, 5, due to this performance rating creep. A potential area of improvement may be for the command to provide guidance to maintain an average performance rating around 3.5 or lower.

**Finding 2: Payout for Employees has Decreased Significantly Each Year (Potential Trend)**

NSPS was designed so that the more shares given across a particular pay pool, the lower each individual share is worth. Figure 6 shows this relationship. Each dot indicates an individual pay pool, those locations with multiple pay pools have additional data points plotted to this graph. Each pay pool has its average number of shares awarded to its employees on the horizontal axis and the resulting share value on the vertical axis. A linear trendline shows for each year as more shares are awarded the lower that pay pool’s share value.

The data also shows that for each year, significantly fewer amount of funds have been placed within the pay pool. The share value from 2008 is double that of 2010. The amount of money placed into each pay pool is established at a higher headquarters; this command and its subsequent pay pools implemented what had been dictated as the amount in pay pools. Nonetheless, the total amount of dollars for the pay pools to be distributed has lowered resulting employees with a higher number of shares being more financially rewarded in 2008 than if they received the same number of shares in 2009, or 2010.

**Figure 6: Each Year Has Provided Less Funding for Pay Pools**

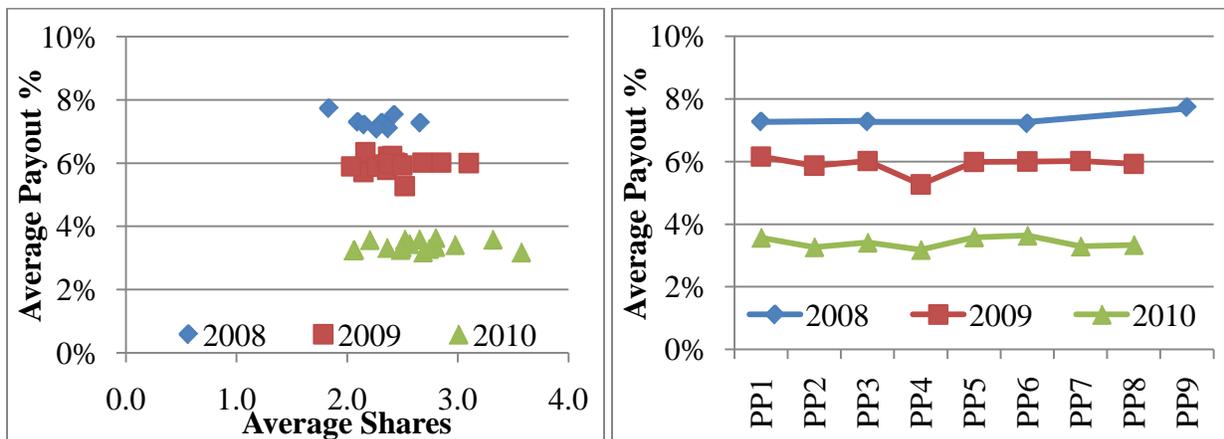


### Finding 3: Average Employee Payout Consistent Across Pay Pools (Positive Consistency)

The share value balances the pay pool's differences in providing performance ratings. Figure 7 illustrates the consistency of average payout % regardless of the number of shares awarded (left graph) or geographic location (right graph). For a given year, all data points create a relatively flat line, showing that all pay pools awarded very consistent payouts. Reviewing Figure 7 for 2010, one pay pool awarded an average of 3.57 shares while the other extreme was only 2.06 shares. However, the average employee would have made a slightly higher payout working for the pay pool that gave fewer shares.

This paper's hypothesis expected inconsistency between pay pools; however, as Figure 7 shows, even with deviations in the performance rating and number of shares awarded, the employee payout was relatively consistent across all pay pools. This balancing factor can be best seen by first observing the small dip in the payout of pay pool 4 (PP4) in both 2009 and 2010 in Figure 7. In contrast, Figure 5 shows that PP4 generally awarded higher performance ratings. Although in 2010, PP4 had by far the highest average performance rating, it also had the lowest payout % of all other pay pools. A final observation can be seen confirming finding 2; for each successive year the average payout to employees decreases significantly.

**Figure 7: Average Employee Payout Consistent Regardless Of Shares Awarded**



**Finding 4: Average Salary Increase was More Consistent in 2010 (Positive Consistency)**

Although consistency of average payout is a powerful indicator, the most desired result for the majority of employees is getting the highest salary increase % possible. As the primary dissatisfier factor, Figure 8 maps out the average salary increase % across pay pools. Although there is a much greater variability in salary increase % than total payout %, in 2010, consistency improved considerably across the pay pools. The large variability in 2009 in salary increase % is likely due to first time implementations of NSPS for five of the eight pay pools. The improved consistency between 2009 and 2010 can be best illustrated by comparing the difference between the lowest (PP2, PP3) and highest (PP7) salary increase pay pools. This difference between the two extreme pay pools would result in an employee who makes \$50,000 a year to receive \$1,090 greater salary increase in 2009, but only \$300 greater salary increase in 2010. Maintaining and even narrowing the gap for salary increase between pay pools is probably the most important factor to illustrate pay-for-performance consistency across the command.

**Figure 8: Average Salary Increase Was More Consistent in 2010**

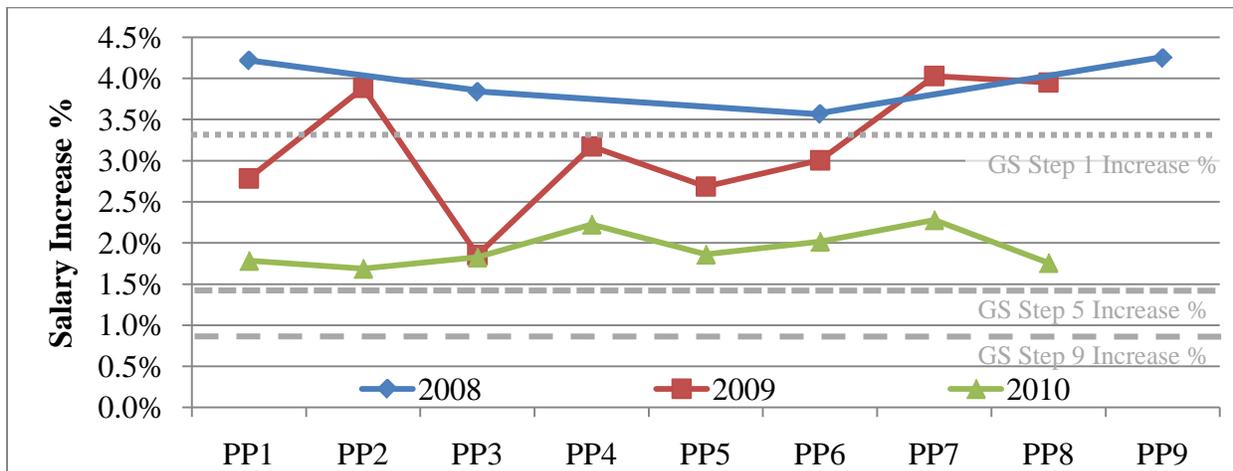


Figure 8 also highlights finding 2 showing that for each successive year, employees receive smaller salary increases. The previously used pay system, general schedule (GS),

typically employed automatic salary increases based on the amount of time an employee worked within a particular pay grade; those salary increases are highlighted on Figure 8 with a series of dashed gray lines. The top line of 3.33 percent annual salary increase was only given to the employees just beginning within the band (Step 1 employees); that high salary increase was automatically given for at most two years. The middle line (Step 5) indicates employees that may get a raise every two years and the lowest line (Step 9) was for the most senior employees within a band. Most employees fall within the lower two gray lines gaining an average annual pay raise of around 1 percent.

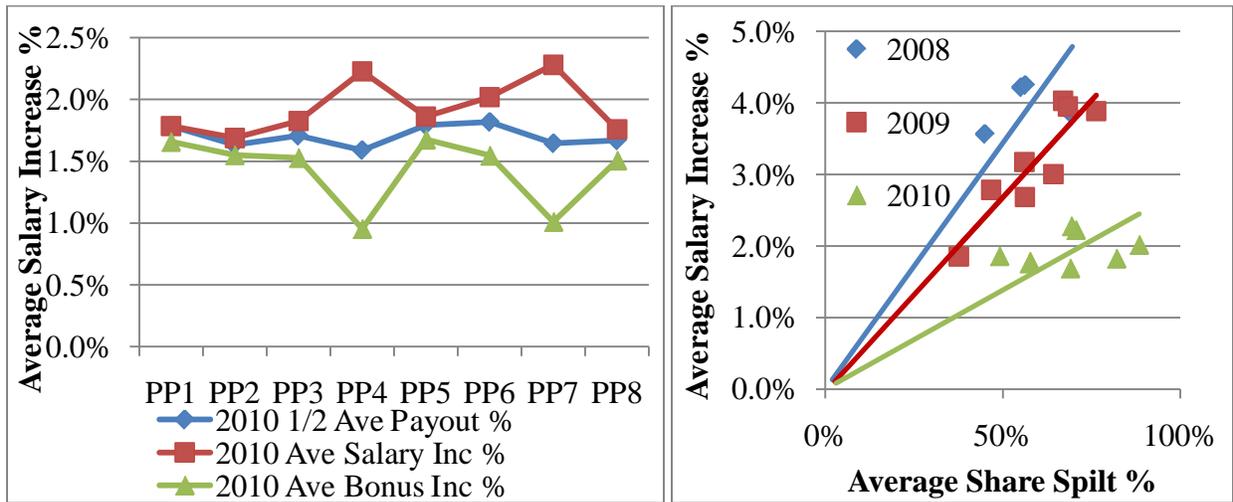
In 2008, every employee, including the most senior, was likely to get much larger raises than expected under the GS system. This likely resulted in overall high employee satisfaction with NSPS for that first year. However, such large salary increases over time would drive everyone's salary quickly toward the cap for a given pay band. At that point, there would be no more room to give salary increases, and all of the payout would only go to one-time bonuses. Employees now at their salary cap may have less incentive to perform, since their salary would remain unchanged regardless of their performance. Lowering the amount of funds allowed to be distributed each year in both 2009 and 2008 may have been a response to bring salary increases back to a level that would not "break the bank" of the command. Even at the lowest level in 2010, the average employee would still have a larger salary increase under NSPS rather than GS. If this salary increase level goes lower than the 0.8 percent of the GS Step 9, it would likely cause employees to consider the NSPS system less advantageous than the automatic pay raises on GS. It is recommended that the average salary increase should be maintained between the step 9 (0.08 percent) and step 5 (1.4 percent) levels.

**Finding 5: Variation in Salary Increase % Due to Differences in Pay Pool Salary Split %  
(Potential Area of Improvement)**

Investigating further into the variations in salary increase, Figure 9 (left graph) plots on top the average salary increase % for 2010, the same line as in Figure 8. The lower line in Figure 9 (left) provides the bonus %. For every pay pool in 2010, they gave more of the total payout to salary increase than in bonus, resulting in the salary line consistently above the bonus one. To accentuate this difference, the middle line is the average payout % divided in half so that graphically, it should bisect the salary and bonus lines. Although the middle payout % line is relatively flat and therefore more consistent across the pay pools, larger variations in salary and bonus offset each other. In particular, pay pools 4 and 7 seem to have higher ratios of salary to bonus.

Figure 9 (right graph), graphically shows that for a given year, as a pay pool designates a higher percentage of the total payout to salary, the natural result is that a higher employee salary increase occurs. If salary increase % is the primary dissatisfier for employee and consistency is the goal, the key may be to consider guidelines for pay pools to be more consistent in designating the percentage proportion of the total payout to salary. Since the total payout is consistent across all pay pools, finding 3, then making the share split % more consistent should result in less variability in salary increase %.

**Figure 9: Average Salary Increase Related to Inconsistent Pay Pool Salary Split %:**



**Finding 6: Pay Pool Variations in Share Split % (Potential Area of Improvement)**

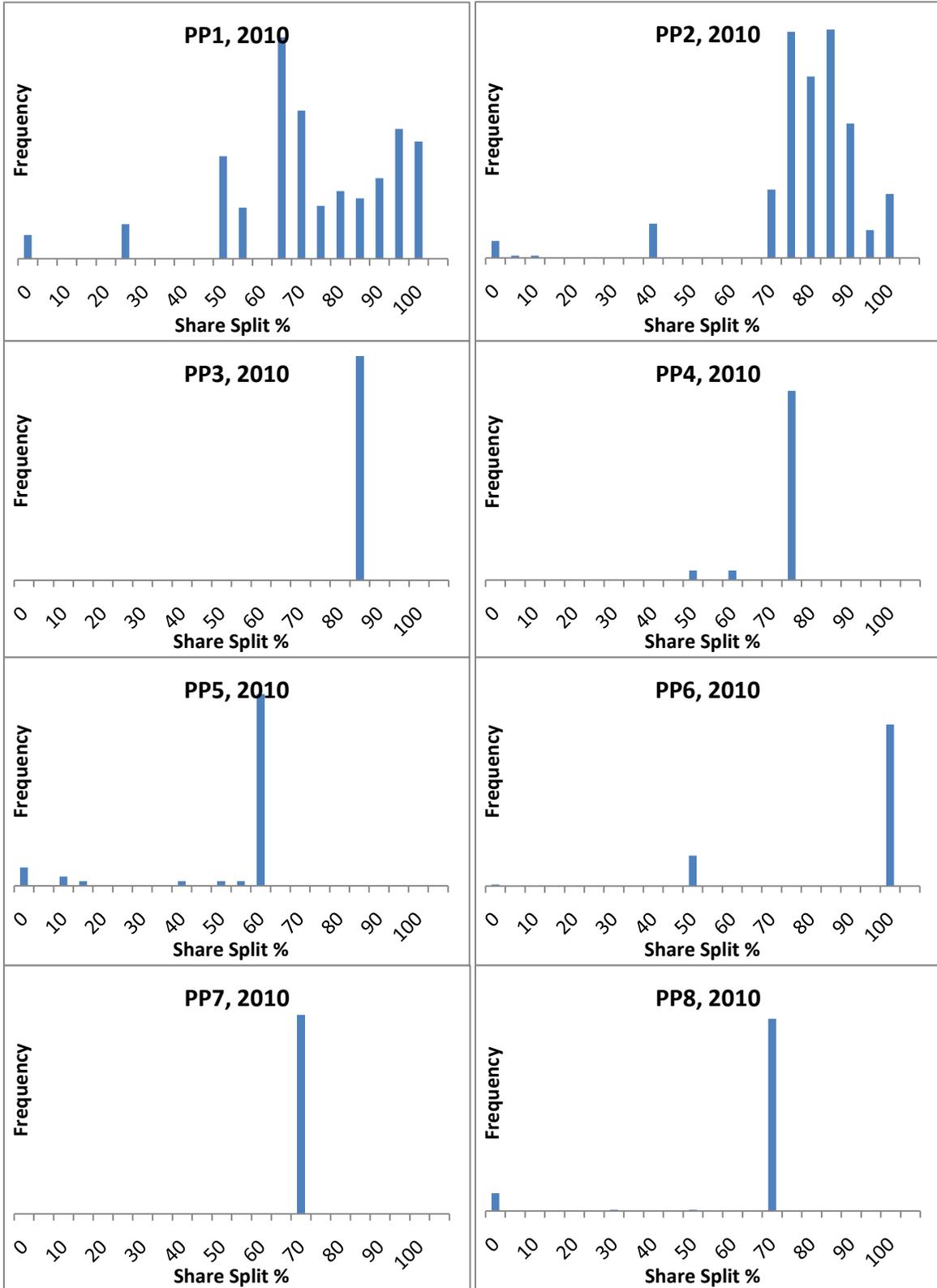
Finding 5 recommended considering consistency in pay pool share split % to reduce variability in salary increase % across geographical locations. Histograms categorized the share split % for each pay pool for 2010, collectively illustrated in *Figure 10*. Each histogram is broken down into 5 percent bins starting with 0 percent, 0.1-5 percent, 5.1-10 percent ... 95.1-100 percent. The height of the blue lines indicates the relative number of employees whose share percentage falls into that particular bin. For instance, pay pool 1 has a large variety of share percentages awarded; however most are 45 percent and above. Pay pool 2 has slightly less variety and most are 65 percent and above. Pay pools 3 and 7 gave the same share percentage to every one of their employees, 82.9 percent and 69.3 percent respectively; while pay pool 6 primarily gave their employees 100 percent to salary, with only a few exceptions of 47.3 percent and 0 percent. Greater consistency of share split % may require guidance to promote standardization across all the pay pools.

### **Finding 7: Relationship Between Performance Rating and Job Position (Potential Trend)**

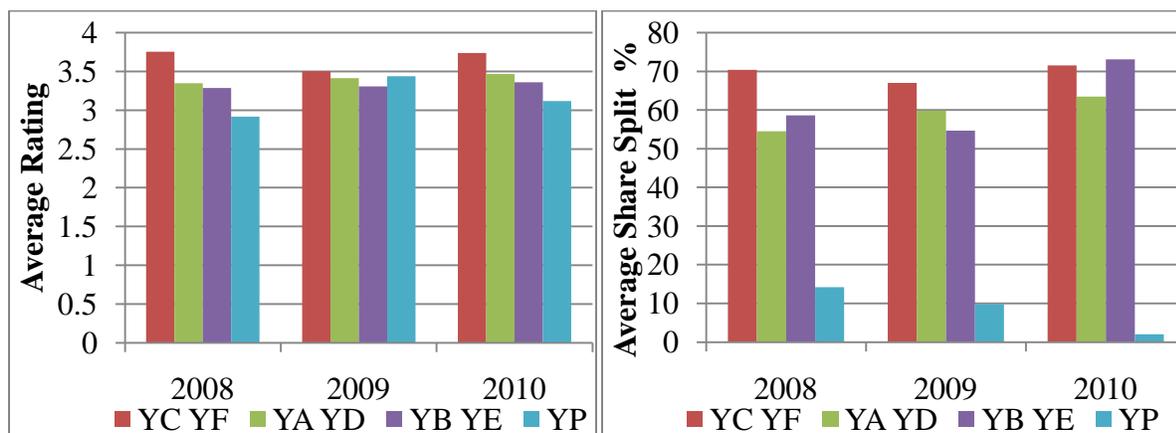
NSPS uses seven different pay schedules that are loosely related to job positions. Refer to Table 2 in Part A for more definition. Figure 11 graphs the average performance rating (left) and share split % (right) for the different job positions. Figure 11 (left) shows that certain job positions seem to receive higher performance ratings. From highest performance rating down the following order is observed:

1. Supervisors (YC YF)
2. Analysts, Scientist, and Engineers (YA YD)
3. Administrative and Technical staff( YB, YE)
4. Students (YP)

**Figure 10: Finding 6: 2010 Variations in Share Split %**



**Figure 11: Relationship between Rating and Pay Schedule**



This progression in ratings may be due to an employee’s position having more leverage to directly affect a command’s objectives. Students, being new to the organization and only working part time, are likely not to be able to affect the organization as much as the administrative and technical staff. Within a more technical organizations, like the one in this study, analysts, scientists, and engineers may directly impact the products created or the services provided by the organization, resulting in higher performance ratings. Supervisors, responsible for integrating the activities of the previous jobs positions, can have the greatest impact in affecting organizational objectives. Therefore, this relationship with higher performance ratings may not indicate favoritism for a particular job position, but may be caused by the natural influence that job category has over the organization.

Figure 11 (right) provides share split % across job descriptions. As expected, students (YP), have near-zero percentages. NSPS is not meant to be a mechanism for students to gain salary increases. In general, all of a student’s payout should go into a one-time bonus. No other relationship between job positions and share split % can be identified at this time. It is recommended that this continue to be monitored in the future to observe possible future trends.

## **No Findings**

Several areas of analysis did not find any correlations. Additional data was requested for the larger locations that had multiple pay pools. This data found that pay pools at the same location were internally consistent; they shared properties with the average across their location. For this reason, in the figures above, locations with multiple pay pools were combined and displayed as a unified average for that location.

No unexpected relationships were found between the different pay bands and the resulting ratings or share percentages. Pay band 1 employees, including interns and students, did show a significantly lower share split %. This result was expected, since NSPS is not meant to provide salary increase for those employees. Pay band 1 employees typically had all their payout received as a one-time bonus.

Some relationships between share percentage splits and performance ratings were noted in 2009. Some pay pools, in 2009 gave higher-rated employees a higher share split % toward salary. However, this practice was not found in 2010 data. Many other areas of analysis were attempted, but no significant findings were observed.

## **CHAPTER 5 IMPLEMENTATION**

Considering Herzberg's two factor theory, most pay-for-performance systems are most likely to affect employee motivation in two ways. Most important, employees wish to have the highest salary possible; therefore, they will desire the largest salary increases as result of their performance. Categorized primarily as a dissatisfier, having an equitable system to distribute salary raises can avoid significant drop in employee morale from feelings of an unfair performance appraisal. Using the performance rating to recognize an employee's contribution to the command is only a secondary effect. Employees having a high rating in a system that truly differentiates performance can be a contributing factor in motivating them to work harder. However, performance systems alone are more likely to have a negative effect on employees and therefore must be used as a part of a larger coaching and leadership effort to motivate the workforce.

### **Leadership is the Key to Employee Motivation, Not the Performance System**

Referring again to Herzberg's theory, some of the greatest motivators for employee come from the work itself, the level of responsibility the employee believes he/she has, and his/her opportunity to achieve. All of these factors are influenced on a daily bases by the supervisors and organization, and are not influenced by the performance management system. Other motivating factors include recognition of achievement, possibility of advancement, and opportunities for growth. Often, these motivational elements are overlooked by a supervisor rushing to complete numerous other organizational tasks or to complete documentation of the appraisal itself. However, the greatest opportunity for a performance management system to positively impact the workforce is if employee recognition, advancement, and development be incorporated by supervisors. This leadership challenge of focusing on an employee's

achievements and his/her future should be addressed not only during annual appraisals but routinely throughout the year. The pay-for-performance system and the resulting annual appraisal should merely be a “punctuation point” emphasizing the results of performance to an employee who already should know where he/she stands. It is during the performance review with the employee that the supervisor needs to map out the significant employee inputs that were used to determine the outcomes of salary increase and rating. That discussion is vital for the employee to understand that his/her efforts and resulting performance review is equitable. The salary increase and rating should only be considered a tool used for that “punctuation.” The AMP-Rev should be considered a tool to gain insight on those performance results.

### **Goal and Advantage of Implementation Plan**

Pay-for-performance systems can have a huge motivational effect, primarily negative, on workforce morale if executed improperly. This plan is proposed to provide a structural method, using analysis metrics, to help ensure the performance ratings and financial rewards of the performance management system are distributed equitably. By developing a tool, such as AMP-Rev, to calculate simple statistical analysis of performance review results, these metrics can be provided to senior leadership with minimal additional labor. The annual analysis should only require a couple of man-days of labor from human resources professionals. Analysis during pay pool reviews should happen in parallel of the review process with negligible additional labor. By performing this analysis during the pay pool review, it is possible that a small savings to the organization will occur by avoiding inadvertent extreme payouts to high-performing employees.

The greatest benefit of this plan is in providing objective metrics that will indicate a high level of consistency of the review system across the organization. These metrics can then be shared to the workforce or other agencies providing a much higher level of transparency of the pay-for-performance system. This level of transparency, exhibiting highly consistent metrics,

will lead to greater trust and overall satisfaction by employees, senior leaders, and any auditors of the employed pay-for-performance system. When an area of improvement has been identified, it will be done early and will illustrate the organization's proactive commitment to improving the already consistent performance management system.

This implementation plan addresses two of the three GAO recommendations (Ferrell, 2009, pg. 50) to monitor the implementation of NSPS at the lower-level commands and ensure the system is fair and equitable. Without an implementation plan such as this one, details of the NSPS implementation is likely to remain shrouded from employees and the GAO. This will continue to increase the level of distrust with the system. However, with the very small investment leveraging current employees' time to perform this analysis and provide any corrective guidance, the level of trust of NSPS will increase leading to the pay-for-performance as a positive motivational force for employees.

### **Employee Inputs Considering Current Job Rank and Pay Range**

Equity theory states the importance of matching employee inputs (level of effort) to their outcomes (performance rating and salary increase). Since the pay-for-performance system also matches input to outcome; both of those pieces of information are needed by AMP-Rev to effectively analyze performance results. Due to personal information disclosure limitations, information on individual employee salary was released for this study. However, this vital information is needed to do a proper analysis of performance evaluation. To understand the level of input an employee is expected to perform, their current job rank and salary information is required. Under the GS system, both salary and rank was defined for every employee. A supervisor may make the salary of a GS grade 13 step 4, and his/her subordinate would have a similar salary as a GS grade 12 step 10 (Office of Personnel Management, 2010). Although these two employees make similar salary, different expectations in performance would be

applied. Under NSPS, the pay schedule and grade provides less differentiation between employees; in this case the supervisor might be a YC-02 while his/her subordinate a YA-02.

The bands in NSPS were designed to compress the highly categorized GS system with 10 steps inside every one of the 15 grades, totaling 150 different ranks. NSPS uses only 3 or 4 bands, allowing for greater flexibility in assigning pay. During a pay pool review, it can be advantageous to have a greater degree of differentiation when determining an employee's expected level of input. Since most organizations within DoD have a long history working under the GS system, it is recommended that for each employee an equivalent GS grade and step be provided along with the pay-for-performance job designation within the AMP-Rev tool.

In GS, the range of salary of a particular grade increases in discrete steps from step 1 to step 10. Using pay banding, the ranges are bounded by NSPS rules and can be additionally limited by an organization's business rules. For instance a salary range for an entire pay band may range from \$50,000-\$75,000. Yet an organization may further designate control points such that a junior technician may receive between \$50,000-\$60,000, a senior technician from \$55,000-\$70,000, and a master technician from \$65,000-\$75,000. These additional control points should also be listed within the AMP-Rev tool. That way, a junior technician making \$60,000 and at the top of their pay range will be evaluated differently than a master technician at the bottom of their range with \$65,000. Having this pay range information will also prove vital in determining an appropriate share split percentage once a payout was calculated. It would be expected that, in general, employees near the top of their established pay range are likely to receive smaller percentages in salary and more in bonuses than those much lower in the pay range.

### **Employee Overtime as an Input**

There can be a debate on whether an employee who works overtime has already been compensated for his/her performance. As an example, an employee who consistently works 10

hours of overtime every week would be expected that he/she would achieve 25 percent more results through his/her 50 hours a week than the typical employee only working 40 hours. Since he/she has already been compensated with overtime pay, that additional 25 percent achievement may not indicate his/her performance exceeded expectations. Unless the amount of overtime that the employee earned over the performance cycle is provided during the review, it cannot be taken into account as both an employee input and outcome. Therefore, it is recommended that the number of overtime hours be included in the AMP-Rev tool for every employee.

### **Employee Outcomes Using Salary Increase and Ratings**

All of the findings within this study referred to the identified Herzberg factors of payout or salary increase and performance rating. This study used a prototype of the AMP-Rev tool and collected over 4,500 data points for employee performance ratings over the previous three years. However, due to personal information disclosure, there was no information provided for individual employee payouts, salary increase, or bonus awards. Since this salary information is the biggest factor-relating performance systems and employee motivation. It is vital that this information be provided for the AMP-Rev tool.

Implementation of the AMP-Rev tool must therefore be limited to human resource professionals within the organization; those that already have a need-to-know access of employee personal information. These professions could then use the AMP-Rev tool to identify possible trends using the larger employee data set. The tools could investigate variations in performance ratings and current salary levels (do higher salaried employees typically receive lower ratings?), the percentage of the workforce that are near the top of their pay range, and perhaps, most important, what are the trends at the employee level between their performance and resulting salary increase. Any results can then be presented, without the need to divulge any employee-specific information. This trend analysis was done for this study; human resource

professionals calculated average payout, salary increases, and bonuses for each of the pay pools and only presented that data. Those calculations were enough to develop several findings within the study without the need to provide employee personal information. Therefore, the best implementation of the AMP-Rev tool is for it to be used only by human resource professionals to provide the initial analysis of trends with all needed employee information; then presenting those trends such that employee information has been removed.

For organizations with a long legacy using the GS system, it is recommended that performance salary increase be equated to the GS step increases for each employee. A senior employee who previously expected to receive a step increase every three years should be happy to discover any NSPS payout resulting in a salary increase equivalent to a step increase greater than 0.33. By equating NSPS results to GS, employees will learn that even with lower ratings achieved in NSPS, they are likely to be financially better off with the pay-for-performance system. This should also make employee feel the new system more equitable and can lead to greater satisfaction with the performance management system.

### **Implementation Under Different Pay-For-Performance Systems, GS or CCAS**

This study has presented using the AMP-Rev tool to focus on the employee inputs and outcomes for the NSPS performance reviews. However, this tool can be used with other pay-for-performance systems. What is required is the appropriate employee inputs, including his/her job designation, current salary, salary pay range, and overtime earned. *Table 4* provides an example of how these four employee inputs can be related to three different performance management systems: NSPS, GS, and CCAS.

**Table 4: Employee Inputs for Different Performance Management Systems**

Employee Inputs	Job Description	Salary Pay Range	Current Base Salary	Overtime Earned
NSPS	Pay Schedule and Pay Band Ex. YE-02	Pay band range for YE-02 Ex. \$33,270 - \$59,505	\$56,991 (90.4 % near top of the range)	520 hrs last year (10 hrs/week)
GS	Grade and Step Ex. GS 11 Step 5	Base Salary from GS 11 Step 1 to Step 10 Ex. \$50,287 - \$65,371	\$56,991 (44.4 % near top of the range)	Same as above
CCAS	Career Path and Broadband Level Ex. NH-II	Broadband range for NH-II Ex. \$24,431-\$65,371	\$56,991 (79.5 % near top of the range)	Same as above

Concluded from this study, the most important performance outcomes include performance rating, salary increase, and bonus information. This information can be provided using most performance management systems as shown in *Table 5*. GS is typically not considered pay-for-performance; however, it could be adapted using some of the principles of NSPS, including evaluating full-performance employees in pay pools. This would allow for employees to be matched with their objectives as well as differentiated between each other. Using a pay pool panel, more objective performance ratings could be provided to employees since supervisors would be able to participate in the review of all the employees within a pay pool and not limited to only reviewing their direct subordinates. Those employees designated as high performers could then be eligible for a quality step increase (providing an increase in job rank and salary) and/or a one-time bonus presented as a performance award. By adding the time

and rigor of a pay panel, the GS system could gain the benefits learned from NSPS and be used as a pay-for-performance system. The AMP-Rev tool could then be used to help monitor the consistency of the resulting performance ratings and quality step increases in the same way as this study reviewed NSPS results.

CCAS seems to bring an even greater level of flexibility and variability in both developing performance ratings and assigning financial benefits to the employee. As such, a tool like AMP-Rev could prove even more vital to ensure consistency across an organization. Under CCAS, AMP-Rev would require an additional input, each employee's expected level of contribution. This score, inherently part of CCAS, provides a single number of an employee's target performance. This expected contribution score articulates in one number what the elements of job description and salary attempted to define in NSPS as appropriate employee input. As an employee's performance is rated, a resulting contribution score is calculated. If an employee's calculated score is greater than his/her expected level of contribution, then the employee can be considered as exceeding expectations or "above the rail." Conversely, a lower score indicates an employee may not be working at their appropriate level. This 'below the rail' employee may not receive a bonus nor a salary increase, and his/her pay could be reduced. Therefore, for any given employee, the amount that his/her contribution score is above or below their expected score could be used by AMP-Rev to numerically analyze the employee's performance.

**Table 5: Performance Outcomes for Different Performance Management Systems**

Performance Outcomes	Performance Rating	Salary Increase	Bonus Award
NSPS	Ratings range from highest (5) to lowest (1) performance	Percentage split of the performance payout towards annual salary increase.	Remaining percentage Split of the performance payout towards bonus.
GS	Ratings range from highest (1) to lowest (5) performance	Eligibility for a Quality Step Increase	Eligibility for Performance Award
CCAS	Calculate difference between Expected Level of Contribution and resulting Contribution Score	Eligibility for a Contribution Rating Increase	Eligibility for Contribution Award

Higher performance in CCAS can result in both a salary increase and a one-time bonus. These incentives, dictated by management, can be part of the AMP-Rev’s analysis to ensure consistency of CCAS practices across a large organization.

**Pre-Decisional Analysis During Pay Pools**

This study has focused on the use of the AMP-Rev tool as a post-decisional analysis application to review performance results for trends in variability. However, this same tool is recommended to be used locally during the pay pool reviews. This allows not only for real-time analysis of how a pay pool is implementing any changes to ensure consistency, it can directly

assist providing more equitable performance ratings and salary increases. This tool would enable the pay pool to prevent undue performance rating tracking, by showing how rating scores have increased since the previous year. Using the input parameters, such as the GS equivalent grade and step, a pay pool may be able to quickly determine an expected level of performance for each employee as he/she reviews his/her accomplishments. When awarding the number of shares and split percentages to salary, the tool can help ensure a proper and equitable salary increase is provided to every employee. It can immediately inform the pay pool if a “valued employee” may be getting a smaller salary increase than appropriate, particularly when compared to the GS system. Likewise, some high performers may be received unduly high salary increases when a more modest increase would be more fitting. Since the AMP-Rev tool was designed to analyze the consistency of the pay-for-performance system, it may be best used to perform that task as the reviews are being made.

Finally, since each location has access to the tool, each will know exactly what the greater organization will be using for their analysis on consistency. If guidance was issued to improve consistency in a certain area—for instance, how share split percentages should be administered—the pay pool will be able to analyze how they are currently performing during that performance review. If improvements can be made during the original pay pool review, this will save time rather than being forced to reconvene the pay pool to make adjustments.

### **Proposed Timeline for Implementation**

The expected cost for this plan is the opportunity cost by reassigning duties to current employees. Human resource professionals are already assigned to collect data on NSPS employees and perform the necessary payroll actions. If it would be possible to train them on the AMP-Rev tool and allow them time to use that tool to analyze the data; only a minimal amount of additional labor cost would ensue. The larger cost would be the overhead labor for software

engineers to develop a more professional tool and to upgrade that tool part-time. It is possible that a computer scientist student could develop this tool as his/her summer project.

This plan would, therefore, cause minimal impact to the workload of many individuals. Computer scientists will have the bulk of the workload developing the tool and working with the users to provide necessary upgrades. The human resource personnel already do a lot of work with NSPS; now they would need to spend an additional day or two to perform some analysis of the performance results. The pay pools would be less impacted; it would likely require one human resource person in the review dedicated to applying data into the tool as the performance reviews are conducted. Finally, only a small amount of additional effort would be required by the senior leadership to review the analysis and provide necessary guidance back to the pay pools. These four activities of developing the tool, analyzing the data, conducting performance reviews, and issuing strategic guidance are listed in the timeline of activities for this implementation plan in *Table 6*. After the initial implementation year, an annual cycle will become routine. Pay pools would use the tool during the interim reviews (April) and annual reviews (November), the higher organization then use the tool to monitor overall trends (January), the senior leadership provide any corrective guidance (July) and throughout the application continues to be upgraded by the development team.

**Table 6: Implementation Timeline**

Time	Activity	Implementation Step
May 2010	Train & Analyze	Have organization’s human resource professionals begin to learn AMP-Rev prototype. Add in the recommended employee information and perform similar analysis over the last three years.
June 2010	Develop	Create small team (possibly computer students) to modify AMP-Rev prototype or develop new system, using input from human resource professionals.
July 2010	Strategic Guidance	Present updated analysis, with enhanced employee data, to organization leadership. They provide corrective guidance to the pay pools.
Sept 2010	Develop & Train	Provide beta version of upgraded AMP-Rev tool to pay pools. Provide tutorials and instruction using last year’s data on the features of the tool.
Nov 2010	Performance Review	Pay pools use AMP-Rev during performance reviews for pre-decisional analysis. Make note of how the tool helped and what variations are endorsed and the situation around them.
Dec 2010	Develop	Pay pools provide feedback to AMP-Rev developing team for further upgrades.
Jan 2011	Analyze	Higher organization begins cross-sectional and time-series analysis of previous year’s performance ratings across all pay pools.
Feb 2011	Develop & Strategic Guidance	Another revision of AMP-Rev tool should be worked by development team. Leadership issues any guidance to pay pools from trends presented by AMP-Rev.
Apr 2010	Performance Review	Pay pools that perform interim reviews, will use an updated version of AMP-Rev during review process and address leadership guidance.

## **Evaluation of AMP-Rev's Effectiveness**

AMP-Rev itself can be used to determine its own effectiveness. The purpose of the tool is to identify trends so that they can be corrected. Subsequent performance, reviews after guidance has been provided, will already be analyzed and changes noted. If the additional guidance is provided by this organization to create more consistent average performance ratings and resist rating creep is successful, the result for the following year would expect that average performance ratings across pay pools would have less variance and a lower overall average.

Since there would be no evidence that, without guidance, the pay pools would continue to slowly inflate performance ratings and maintain high variability, an experiment could be set up. This would consist of randomly assigning pay pools, one group receiving guidance and the other group as control. The results from the two groups could then be compared using AMP-Rev to see if that guidance caused in any statistical change. Although an academically sound experiment, it is not recommended to implement this since the purpose is to decrease variability and improve equitable results across all pay pools. It is more important to improve the equitability of all pay pools than to perform a viable experiment. Therefore, it is recommended to monitor yearly results, make adjustments to all pay pools, and then follow up to see if identified trends are counteracted. A best case example would occur if every year older inconsistent trends would be alleviated and new trends identified.

Another method to judge the effectiveness of AMP-Rev would be to apply the tool to a different organization that has archived their performance review data. For instance, even a GS organization could have data on employee job rank, current salaries, and performance ratings, step increases, and performance awards over several years. The AMP-Rev could perform cross-sectional and time-series analysis and make possible recommendations for improvement. Then, in subsequent years, a time-series analysis could determine if positive changes occurred. Since

these changes occurred after the intervention of guidance developed using the AMP-Rev tool, it may be surmised that this procedure was the major cause promoting the positive change.

Although changes in performance ratings over time can be used to judge the success of this tool as part of an overall performance management improvement initiative, an external survey or metric would provide additional benefit in determining success. A meeting with the organization's human resource professionals could be used to gain informal feedback whether the AMP-Rev tool was used during the pay pool reviews, what problems could be improved upon, and what features were most used and possibly further enhanced. A survey could provide both qualitative and quantitative feedback on the use of the tool. Finally, if any trends, conclusions, or reports were created by the pay pools if they could be reviewed by the higher organization insights on how AMP-Rev was used and if it was helpful. In the end, a user community could be established to both determine AMP-Rev's effectiveness and how best to make improvements to the tool or the performance management implementation in general.

## **CHAPTER 6 RECOMMENDATIONS**

It is recommended that a tool similar to AMP-Rev be developed to be used for both pre-decisional analysis at the localized pay pools to monitor consistency during employee performance reviews and for post-decisional analysis at the higher command to monitor long-term trends and issue guidance to ensure the implemented pay-for-performance system is as equitable across all locations.

It is recommended that the AMP-Rev tool be used by human resource personnel so that employee sensitive information can be included within the initial analysis. This additional data includes current salary, awarded bonuses, and salary increases for each employee. To help determine the appropriate level of employee input, the number of hours compensated for overtime should be presented for each employee.

For commands that have a long legacy using the GS system, it is recommended that every employee's salary and job description be equated to the closest GS grade and step. The resulting salary increase for each employee should be converted to the equivalent step increase for that employee's approximate GS grade level. This way, explaining both what is expected of an employee and how their performance resulted in a financial payout will be easily understood by both the supervisor and employee.

It is recommended that the AMP-Rev tool be released to the local pay pools to assist them in the pay pool review process. The above recommendations using this tool should be leveraged during the performance evaluation process. This action will facilitate more equitable and consistent performance results for the local pay pool that should also result in less variability for the overall organization.

The AMP-Rev tool can also be used with other performance management systems by incorporating similar information on employee inputs and performance outcomes. Examples of this data was provided for the GS and CCAS performance systems. The tool could be used with the GS system, but in addition it is recommended that a pay pool be used to review GS full performance personnel making the GS system more like a pay-for-performance system.

### **Delimitations**

The AMP-Rev tool is only a mathematical application that is geared to look for trends and inconsistencies from the results of a performance system. As such, all of the findings are only based on mathematical calculations that do not take into account the more important leadership realities that may explain such variations. For instance, Finding 1 shows large variations in the performance scoring across pay pools and a general trend indicating a slow rise in those ratings over time. This study is only able to speculate on the cause and effect decisions that may have lead to the data. The purpose of the AMP-Rev tool is merely identifying variations so that further investigation can learn if that variation need be corrected. If one location had overcome a unique challenge in that year, it would be expected that its ratings would be higher compared to other locations. On the other hand, it may also be likely that a location may be losing some of the rigor in its performance review and allowing an increase in ratings to occur. The AMP-Rev tool cannot make a determination why a trend occurred, nor can it judge if the trend is an inconsistent practice that should be remedied or a validate implementation which that actually improved how equitable the pay-for-performance was executed.

Due to a lack of time during the analysis, calculations could not be performed to test for statistical significance for the findings. Referring to Finding 1, it would be helpful to know that the performance rating increase for each pay pool was statistically significantly each year. If no

statistical significance could be determined, then Finding 1 should be redesignated as a “potential trend” rather than a “potential area of improvement.” It is recommended this statistical analysis be performed before acting on any of the findings within this study.

By focusing on any variations, there can be a tendency that the final goal is blind consistency across all variables. Within a given year, it should be expected that several variations in the system should occur. It would not be equitable for employees if pay pools drove doggedly for consistency. Instead, special considerations should be encouraged but documented. For instance, if a systemic problem was recognized by the pay pool as a responsibility of supervisors, it should be encouraged that supervisors for that pay pool have lower performance ratings for that term. Using the AMP-Rev tool may help identify if such a trend was forming during the pay pool review. Instead of the pay pool compensating and adjusting numbers to appear more consistent, it is recommended that the performance ratings stand and that the trend be noted and endorsed by the pay pool. When post-decisional analysis by the higher command is completed, this documentation would be used to understand some of the rolled up variations analyzed by AMP-Rev. The goal is not to achieve a consistent performance results, but to be able to understand and explain any variations so that the performance management system will be seen as equitable by all employees.

### **Future Work**

Much of the recommendations outline the proposed future enhancements using the AMP-Rev tool. Most important, is including statistical significance to mathematically endorse any findings mined by a data analysts using AMP-Rev. The additional statistical rigor would greatly validate a trend and punctuate the importance of a finding. Initially, it is recommended that the results from this study be reexamined using statistical significance. The AMP-Rev tool should be developed to automatically include the standard statistical packages like the ability to

calculate pair wise T-tests and analysis of variance (ANOVA). In the future, when a data analyst identifies a potential finding, he/she will be able to quickly use the statistical packages to validate the statistical significance of that finding.

As noted, additional information on employee inputs and outcomes will provide a much richer cross-sectional analysis. Providing the closest equivalent GS grade and step for each employee would allow for comparisons with other government organizations that may use different performance management systems. Since salary increase percentage is the most important factor to the employee. This needs to be included in the cross-sectional analysis for all employees. Numerous checks on who get the largest raises could be performed to ensure the most equitable procedure to distribute raises has occurred.

This tool should be provided to all the pay pools within the organizations so that they can benefit looking at trends as they proceed with performance reviews. An evaluation metric should be developed to help determine the usefulness of the AMP-Rev tool to those pay pools. Is it being used? If not, is it because the tool is too complicated? What are the best features of AMP-Rev used by each pay pool? This information could then be used to make user friendly modifications to the tool and determine if pre-decisional analysis of the performance results is helpful.

Finally, it would be interesting to use AMP-Rev within a different organization and perhaps one with a different performance management system. An investigation could then be executed on how the two organizations approach performance management and how different pay-for-performance systems compare.

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## LIST OF ACRONYMS

AMP-Rev	Annual Monitoring Process to Review
ANOVA	Analysis of Variance
CCAS	Contribution-Based Compensation and Appraisal System
DoD	Department of Defense
GAO	Government Accountability Office
GE	General Electric
GS	General Schedule
HR	Human Resource
NSPS	National Security Personnel System
PB	Pay Band
PP	Pay Pool
PS	Pay Schedule
RT	Rating
SH	Shares Awarded
S%	Share Split Percentage
TAPES	Total Army Performance Evaluation System
WG	Work Group
YR	Year