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EMBA PROJECT REPORT

Best Practices and Cost Benefit Analysis of Payroll Reporting

June 2011

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Best Practices and Cost Benefit Analysis of Payroll Reporting

EXECUTIVE SUMMARY

The project was designed to provide an assessment of the best practices used in payroll management by a variety of Navy commands. The project aimed to benchmark the average cost of payroll execution processing at the various Navy commands to determine if Navy Installation Command (NIC) is expending resources effectively. A secondary analysis determined institutional cost-effectiveness and cost-benefits of payroll tracking, reporting, and reconciliation practices with a goal of improving the accuracy of financial reporting.

This report provides an assessment of data collected on the best practices and related costs of similar functions performed at a selection of Navy commands. A variety of cost ratios are provided to determine if other Navy commands are providing similar services more effectively and efficiently. The scope of the project was limited to assessment and comparison of US direct hire civilians and related hours consumed by each command to produce a variety of monthly and annual reports that are required from each command, regardless of the echelon or reporting hierarchy of the command. Effectiveness ratings are based on command opinions of the systems used in the production of the monthly and annual reports. The team recognizes the ratings are subjective and is unable to validate the responses.

Results of the analysis indicate internally-developed systems are preferred over Navy-provided systems by commands. Internally-developed systems provide better management flexibility and easier report generation than Navy-provided systems. Internally-developed systems are least cost efficient although more effective in areas of reporting and tracking costs.

The number of unit identification codes (UICs) managed by a command is a main cost driver in the cost of providing the service. Fewer UICs require less tracking and reporting regardless of the number of full-time equivalent (FTE) reported in each UIC.

The team recommends the client coordinate with Military Sealift Command (MSC) to review their processes and reporting. MSC is the most cost efficient of the participants and reports the highest effectiveness through a combined use of Work Years Personnel Costs (WYPC) and Financial Management System (FMS), an internally developed system.

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I. INTRODUCTION AND BACKGROUND

A. INTRODUCTION

Navy Installation Command (NIC) along with all other Navy commands, are required to collect, monitor, and reconcile payroll data for use in managerial reporting, and financial execution monitoring, as well as use in budget formulation development and official Navy year-end financial reports. NIC manages a total of approximately 16,000 civilian employees worldwide, at 77 installations and 11 Regions. The civilian labor budget is approximately one-third of the \$4.5 billion dollar budget of the command. Effective and efficient management of the civilian payroll tracking, reporting, and reconciliation is of high interest to the command.

The project was designed to provide an assessment of the best practices used in payroll management by a variety of Navy commands. The project aimed to benchmark the average cost of payroll processing at the various Navy commands to determine if NIC is expending resources effectively for this function. A secondary effort analyzed institutional cost-effectiveness and cost-benefits of payroll tracking, reporting, and reconciliation practices with a goal of improving the accuracy of financial reporting.

B. BACKGROUND

NIC has conducted several internal payroll process reviews during the past two years. The reviews revealed that the payroll tracking, reporting, and reconciliation processes are time-consuming efforts, and initial data are considered inaccurate. The Navy requires all Commands to utilize a variety of official tracking and reporting systems, including several different official accounting systems based on the organizational type, Working Capital Fund (WCF) or General Fund (GF), to supply different types of output data collection tools. The forgoing requirements support both requirements set for the in the United States Code (USC) and the

Department of Defense (DoD) Financial Management Regulations (FMR). Title 31 of the USC Section 3512(4)b requires each agency to maintain adequate financial information to meet management purposes. The DOD FMR Volume 1 requires each agency to produce reliable payroll records in support of managerial responsibilities, such as planning, preparing, executing the budget, and required internal and external reporting requirements. The DOD FMR Volume 1 directs that adequate written procedures be established and implemented to maintain these requirements. These requirements are fulfilled by documenting the procedures and process both by Defense Finance and Accounting Services (DFAS) and command-level documentation of payroll processing. The payroll data required to report the Work Year Personnel Cost (WYPC) are required monthly from all Navy commands. The compilation of these reports by Navy commands is believed to require many man-hours to ensure tracking and reconciliation are accomplished according to the DOD FMR Volume 8, Chapter 9.

NIC recognizes data inconsistencies in reports generated from the variety of Navy systems based on criteria established by higher echelons, external offices, policies or directives. The data inconsistencies create a requirement to develop or maintain internal processes to allow tracking, reconciliation and adjustment to the payroll records on a monthly basis. NIC internal execution and management techniques and anecdotal comments from other Navy commands indicate payroll tracking, reporting and reconciliation are time consuming and costly. In an effort to improve accuracy of this reporting, anecdotal information indicates other Navy command's use internal management systems to reconcile and update the official reports. The accuracy and benefits of the quantity and quality of output provided by these internal-developed systems is unknown. The internally-developed systems and processes are not exchanged between Navy commands in any open or reoccurring forum. The basic assumption of the team is the logic underlying the commands' internally-developed systems is based on the common criteria required for payroll tracking, reporting, and reconciliation by higher headquarters.

C. PROJECT OBJECTIVES

This project aimed to document a number of items related to civilian payroll tracking, reporting, and reconciliation to aid the client in advancing internal process improvements. Specific objectives were to determine the following:

- Best practices currently used by a selected number of other Navy commands, and the feasibility of importing these practices to NIC and across all Navy commands.
- The number of different systems used in payroll tracking, reporting, and reconciliation in a sample of the population and where these systems were locally developed (not Navy provided).
- The participating commands' systems that provide the most effective and efficient reporting of payroll data.

D. PROJECT SCOPE

The primary focus of the project was to document the cost of and relative time requirements for payroll execution, and the systems used to manage US direct hire employees (USDH) at the selected and participating commands. Ratios of the selected commands based on total obligation authority to total civilian employees, number of employees to hours required by staff to perform similar functions are all related to producing the variety of monthly and annual reporting for payroll tracking, reporting, and reconciliation.

Foreign national employee data was collected only for reference purposes and to provide a full view of the command responsibility and scope of payroll tracking, reporting, and reconciliation requirements.

The project included both commands financed by Navy General Fund (GF, referred to as appropriated funds) and Working Capital Fund (WCF, referred to as

revolving funds). The distinction between financing type would be highlighted although it was unknown whether the type of funds would be a factor in efficiency or effectiveness.

Cost of internally-developed system and maintenance were excluded and considered a sunk cost of the representative commands.

E. METHODOLOGY

1. Survey

The survey was developed to gather the data needed to answer the research questions. It also collected related demographic information on the participating commands. The survey questions are provided in Appendix A-1.

a. Questions 1 through 11 requested basic command statistics for Fiscal Year 2010. These statistics included type of funding, number of different end strength and work years, and overall budget profile for the data provided.

b. Questions 12 through 15 requested data on the different systems and tools used for payroll tracking, reporting, and reconciliation, including a command self-reported accuracy rating for each of the systems or tools used. Frequency of payroll reconciliation between systems was also requested.

c. Questions 16 and 17 requested hours spent on payroll execution by employee grade level, including separate lines for Senior Executive Service (SES) employees and contractors.

d. Question 18 requested the number of employees required to provide the payroll execution hours in the survey data.

e. Question 19 addressed the command's use of any standardized documentation related to payroll processing procedures. Question 20 requested examples of internal management reports to include an explanation of the report's

purpose. Personally-Identifiable Information (PII) was explicitly asked to be excluded from any reports provided.

2. Participant Selection

Primary selection of commands requested to participate in the survey for data collection was through known work contacts in civilian personnel. Consideration was given to diversity of command statistics, for example, large or small and command-level or Budget Submitting Office (BSO)-level.

An initial invitation was sent to prospective participants to determine the command's willingness to participate and any conflicts that may exist, such as time constraints exacerbated by the budget schedule. The official request with the survey and the project proposal then followed, giving desired participants instructions, requesting any questions be addressed to the researchers, requesting participants to submit completed surveys within 7 business days. Commands could elect to provide data on all operations or a chosen subset of the command operations.

A description of the data provided was requested to ensure proper classification of the data. Four commands elected not to participate. Reasons cited to not participate in the survey were budget deadlines and general workload requirements of the staff involved in completing the survey. To obtain a better sample size, additional commands were requested to participate after the initial deadline had passed. No additional participants were gained from this effort.

3. Command Response and Demographics

The following commands participated in the study:

- Navy Installation Command (NIC); our client
- Chief of Naval Personnel (CNP)

- Field Support Activity (FSA)
- Military Sealift Command (MSC)
- Naval Facilities Command (NAVFAC)
- Office of the Judge Advocate General (OJAG)
- Space and Naval Warfare Systems Command (SPAWAR)

Demographic data of the participating commands is found in Appendix A-2. Both NIC and MSC provided enterprise-wide data, including all costs within their BSO responsibilities. OJAG provided command-wide data for both OJAG and Naval Legal Service Command budgets, but is not a BSO. Four of the participants, CNP, FSA, NAVFAC, and SPAWAR, provided data on their headquarters only, though all four commands also function as BSOs. MSC was the only participant with data for WCF; the other six commands provided information on GF budgets. The number of Unit Identification Codes (UICs) varied significantly by participant. NIC included the most (184 UICs) in the reported data. FSA, reporting on their headquarters activity, only reported data related to one UIC. The data for NIC included the most DHUS employees, reported at a FY10 actual end strength of 13,575 and full-time equivalents (FTEs) of 13,275.

4. Procedure

a. Standard civilian labor rates were applied to the data collected from participants. Hours reported for civilian personnel were converted to costs using the Department of the Navy (DoN), Program Objective Memorandum FY2012 (POM-12) Programming Rates (2010) (Appendix A-3). For the General Schedule (GS) employees (and those employees on comparable pay schedules), Fiscal Year 2012 costs were used, and included base salary, a 36.25% benefit cost factor, and a 20.54% locality pay average in accordance with DoN POM-12 guidance (2010). SES hours were also converted to costs using the POM-12 Programming Rates, but were

based upon the midpoint of the unburdened rate of the DoN POM-12 guidance (2010). The yearly cost for each GS and SES employee was divided by 1776 hours, the annual productive hours for civilian positions according to the Office of Management and Budget Circular No. A-76 (2003). For contractors, an estimated hourly cost was requested from the commands due to large variances found in contractor costs. Question 18 requested the number of employees with payroll execution hours reported in the survey data.

b. Survey data from the participants was used to develop the following ratios for comparison:

- Payroll Execution Hours to Number of UICs
- Payroll Execution Costs to Number of UICs
- Payroll Execution Hours to Full-Time Equivalents (FTEs)
- Payroll Execution Costs to Full-Time Equivalents (FTEs)
- Payroll Execution Hours to Payroll Budget
- Payroll Execution Costs to Payroll Budget
- Payroll Budget to Overall Budget

c. Comparisons of the commands were developed based on the ratios and data. Commands with similar demographic statistics were also grouped for comparison as follows:

- Working Capital Fund (WCF) commands and General Fund (GF) commands
- Enterprise-wide data, command-wide data, and headquarters-only data
- Navy-provided primary systems for payroll tracking, Standard Accounting and Recording System – Field Level (STARS-FL), WYPC, and Navy-Enterprise Resource Planning (Navy ERP) system and internally-

developed primary system for payroll tracking, Facilities Information System (FIS) and internet-based Basic Enterprise Tools System (iBETS).

- Select Navy-provided primary system for payroll tracking (STARS-FL and WYPC), Navy ERP (as a separate group), and internally-developed primary system for payroll tracking (FIS and iBETS)
- Comparison of individual primary payroll-tracking systems

II. RESULTS

A. COMMAND STATISTICS

1. Systems

Appendix B-1 shows the responses to Questions 12 through 15. The responses indicate that the primary systems used are STARS-FL (also referred to as STARS), WYPC, FIS, iBETS, and Navy ERP. STARS-FL (including Budget Builder), WYPC, and Navy ERP are all Navy-provided systems. FIS and iBETS are internally-developed systems used for payroll tracking, reporting, and reconciliation. Budget Builder is a commercial off-the-shelf system used to consolidate STARS-FL data and civilian manpower data from Navy systems. Most ratings given to the different systems were between 7 and 10 (1 being very inaccurate; 10 being very accurate). Two commands gave ratings of 10 to all systems used. In all cases, Navy-provided systems are used for external reports, rather than an internally-developed system. In all commands except MSC, payroll was reconciled biweekly.

2. Monthly Payroll Execution Cost

Appendix B-2 shows the responses to Question 16, indicating the hours spent monthly by GS level (or contractor) on monthly payroll reporting and reconciling requirements. FSA had the fewest hours and lowest annual costs associated with monthly payroll reporting and reconciling requirements. SPAWAR had the most hours and highest annual costs associated with monthly payroll reporting and reconciling requirements.

3. Annual Payroll Execution Cost

Appendix B-3 shows the responses to Question 17 and indicates the hours spent annually by GS level (or contractor) on annual reporting and reconciling

requirements (excludes the monthly requirements in Question 16). FSA again had the fewest hours and lowest annual costs associated with yearly payroll reporting and reconciling requirements. However, NIC had the most hours and highest annual costs associated with yearly payroll reporting and reconciling requirements.

4. Payroll Execution Staffing

Appendix B-4 presents the number of employees by GS level (or contractor) used by each command in payroll tracking, reporting, and reconciliation, as requested in Question 18. One command (FSA) indicated only one individual, a GS-13, is associated with these functions. NIC has the most personnel used, with 10 employees working on these functions. Based upon the total hours reported on this survey, it is assumed that most employees do not focus solely on payroll tracking, reporting, and reconciliation. For example, NIC reported a total of 1120 hours for one GS-14 employee. This was the most hours of any employee reported in this survey, but this accounts for less than 70% of that individual's workload using 1,776 productive work hours (Office of Management and Budget, 2003).

B. COMMAND RATIOS

1. Command Comparisons

Table 1 shows by command the following ratios: total annual payroll execution hours per UIC, total annual payroll execution costs per UIC, total annual payroll execution hours per FTE, total annual payroll execution costs per FTE, total annual payroll execution hours in relation to the payroll budget, total annual payroll execution costs as a percentage of the payroll budget, and the payroll budget

as a percentage of the overall budget. Annual payroll execution is the total hours or costs associated with both monthly and annual payroll reporting requirements.¹

Table 1. Command Comparisons

Command	NIC	CNP	FSA	NAVFAC	OJAG	SPAWAR	MSC
Execution Hour/UIC	12.97	199.75	88.00	308.00	18.97	78.36	10.25
Execution Cost/UIC	\$1,085.83	\$11,286.93	\$6,330.66	\$21,072.23	\$1,113.26	\$6,173.68	\$908.48
Execution Hour/FTE	0.18	3.90	3.38	1.75	3.17	0.69	0.08
Execution Cost/FTE	\$15.05	\$220.23	\$243.49	\$119.73	\$186.04	\$54.72	\$6.65
Execution Hour/Payroll Budget	0.0000019	0.0000314	0.0000282	0.0000515	0.0000395	0.0000050	0.0000009
Execution Cost/Payroll Budget	0.02%	0.18%	0.20%	0.35%	0.23%	0.04%	0.01%
Payroll Budget/Overall Budget	21.24%	18.89%	87.70%	93.81%	72.84%	14.63%	24.23%

a. NAVFAC had the most annual hours devoted to payroll execution in relation to the number of UICs reported (616 hours for 2 UICs). MSC had the fewest hours in relation to UICs reported (625 hours for 61 UICs).

b. NAVFAC had the highest annual costs associated with its payroll tracking, reporting, and reconciliation in relation to the number of UICs reported. Also consistent with the payroll execution hours per UIC, MSC had the lowest annual costs associated with payroll execution in terms of number of UICs reported.

c. CNP reported the most annual hours devoted to payroll execution in relation to the FTE reported (799 hours for 205 FTEs). This is different from the ratio of annual payroll hours to number of UICs. MSC still had the fewest annual hours for payroll tracking, reporting, and reconciliation to FTEs (625 hours for 8330 FTEs). It is important to note that MSC FTEs for civilian mariners is 1.4 per person on board. While this may skew the FTE ratios in MSC's favor, using their End Strength figures in lieu of the FTEs did not affect their rank as the lowest for this ratio.

¹ Annual payroll execution hours referred to the sum of the hours spent on monthly reports (multiplied by 12) and the hours spent on yearly requirements. Annual payroll execution costs were the costs associated with the annual payroll execution hours (for monthly and annual requirements).

d. FSA reported the highest annual costs for payroll execution per FTE reported. MSC reported the lowest annual costs of payroll execution per FTE.

e. In calculating annual payroll execution hours in relation to payroll budget, the resulting figures were so small as to be almost insignificant. Therefore, these ratios were not used in our analysis.

f. The annual payroll execution costs reported accounted for less than 0.5% of all commands' payroll budgets. NAVFAC had the highest percentage, at 0.35%. MSC had the lowest percentage, at 0.01%.

g. The commands naturally fell into two categories in regards to the payroll budget as a percentage of the overall budget. NIC, CNP, SPAWAR, and MSC all had payroll budgets that accounted for less than 25% of their overall budget. FSA, NAVFAC, and OJAG had payroll budgets accounting for over 70% of their overall budget.

2. General Fund and Working Capital Fund Comparisons

Appendix B-5 shows a comparison of the ratios between the command with WCF and those commands reporting GF budgets. MSC was the only WCF command among our participants, and they also reported the lowest annual payroll tracking, reporting, and reconciliation hours and costs. Therefore, all WCF statistics related to these are the lowest. The exception is the payroll budget as a percentage of the overall budget, with the GF commands showing only 20.57% compared to 24.23% for WCF.

3. Enterprise-Wide, Headquarters-Only, and Command-Wide Comparisons

Table 2 shows a comparison of the ratios by command which reported enterprise-wide data (NIC and MSC), headquarters-only data (CNP, FSA, NAVFAC, and SPAWAR), and command-wide data (OJAG).

Table 2. Enterprise-Wide, Headquarters-Only, and Command-Wide Comparisons

	Enterprise-wide	Headquarters	Command-wide
Execution Hour/UIC	12.97	131.39	18.97
Execution Cost/UIC	\$1,085.86	\$8,974.08	\$1,113.26
Execution Hour/FTE	0.18	1.30	3.17
Execution Cost/FTE	\$15.05	\$88.56	\$186.04
Execution Hour/Payroll Budget	0.0000019	0.0000112	0.0000395
Execution Cost/Payroll Budget	0.02%	0.08%	0.23%
Payroll Budget/Overall Budget	21.24%	16.02%	72.84%

a. The ratios for annual payroll execution hours and costs in relation to UICs are very similar for both the enterprise-wide and command-wide commands. This is likely related to the similar number of UICs reported by the enterprise-wide (184 and 61) and command-wide (62) commands, which were significantly higher than those that reported data for headquarters-only (1, 2, 4, and 11 UICs).

b. The ratios for annual payroll execution hours and costs in relation to FTEs vary significantly between all three groups. However, the enterprise-wide commands reflect the lowest ratios for FTEs. For example, the annual costs per FTE for the enterprise-wide commands are less than one-fifth of the headquarters commands' cost ratio, which is the next lowest.

c. The commands reporting command-wide data had the highest costs for payroll tracking, reporting, and reconciliation as a percentage of their annual payroll budget. The commands reporting enterprise-wide data spent the lowest percentage of their payroll budget on payroll execution.

d. The enterprise-wide and headquarters-only commands both have, as groups, smaller payroll budgets as a percentage of their overall budget. The command-wide data, including only OJAG, shows a large payroll budget as a percentage of its overall budget.

C. SYSTEM RATIOS

1. Navy-Provided and Internally-Developed System Comparisons

Table 3 shows the comparison of ratios between those commands primarily using a Navy-provided system and those using an internally-developed system for payroll tracking, reporting, and reconciliation. STARS, WYPC, and Navy ERP were all included in the Navy-provided system group in Table 3. FIS and iBETS were included in the internally-developed system group in Table 3.

Table 3. Navy-Provided and Internally-Developed Systems Comparisons

	Navy-provided System	Internally- developed System
	STARS, WYPC, NAVY ERP	FIS, iBETS
Execution Hour/UIC	18.24	28.00
Execution Cost/UIC	\$1,435.24	\$1,736.98
Execution Hour/FTE	0.21	2.48
Execution Cost/FTE	\$16.23	\$153.76
Execution Hour/Payroll Budget	0.0000023	0.0000430
Execution Cost/Payroll Budget	0.02%	0.27%
Payroll Budget/Overall Budget	21.28%	77.83%

a. The commands using internally-developed systems spend more annual hours (and have higher associated costs) for payroll execution per UIC than those commands using a Navy-provided system.

b. The commands using internally-developed systems spend more annual hours (and have higher associated costs) for payroll execution per FTE than those commands using a Navy-provided system.

c. The commands using internally-developed systems also spend more on payroll execution costs as a percentage of their payroll budget.

d. The commands with internally-developed systems for payroll tracking, reporting, and reconciliation have significantly higher payroll percentages in relation to their overall budgets.

2. Navy-Provided, Navy ERP and Internally-Developed System Comparisons

Table 4 shows Navy ERP (as the primarily-used system for payroll tracking, reporting, and reconciliation) statistics separate from the other Navy-provided systems (STARS and WYPC). All Navy commands will be incorporated into a Navy ERP system eventually. Separating Navy ERP from the other systems may provide useful statistics for future planning purposes. SPAWAR was the only command of the respondents using Navy ERP. Two other commands using Navy ERP were contacted, but did not respond to the survey request. The additional information from the non-responding commands would be useful to determine if after implementation, the Navy ERP system will realize efficiencies and increase effectiveness.

Table 4. Navy-Provided, Navy ERP, and Internally-Developed System Comparisons

	Navy-provided System		Internally-developed System
	STARS, WYPC	Navy ERP	FIS, iBETS
Execution Hour/UIC	15.60	78.36	28.00
Execution Cost/UIC	\$1,226.75	\$6,173.68	\$1,736.98
Execution Hour/FTE	0.18	0.69	2.48
Execution Cost/FTE	\$14.05	\$54.72	\$153.76
Execution Hour/Payroll Budget	0.0000020	0.0000050	0.0000430
Execution Cost/Payroll Budget	0.02%	0.04%	0.27%
Payroll Budget/Overall Budget	22.18%	14.63%	77.83%

a. The command using Navy ERP spent more annual hours (and had higher associated costs) for payroll execution per UIC than commands using either other Navy-provided systems or internally-developed systems.

b. The command using Navy ERP spent more annual hours (and had higher associated costs) for payroll execution per FTE than those commands using a Navy-provided system, but less than those using internally-developed systems.

c. The command using Navy ERP spent approximately the same on payroll execution costs as a percentage of their payroll budget as other Navy-provided systems (0.02% and 0.04%, respectively). This percentage is much smaller than the percentage for commands using internally-developed systems, which averages 0.27% of their payroll budget.

d. The command using Navy ERP for payroll tracking, reporting, and reconciliation had the smallest payroll percentage in relation to its overall budget.

3. Individual System Comparisons

Table 5 shows all primary systems' statistics independently to compare an individual system's annual time and cost requirements for payroll tracking, reporting, and reconciliation. It is noted that many statistics will reflect only independent command's data (found in Table 1), since STARS is the only system used by more than one command.

Table 5. Individual System Comparisons

	STARS	WYPC	FIS	iBETS	NAVY ERP
Execution Hour/UIC	17.32	10.25	308.00	18.97	78.36
Execution Cost/UIC	\$1,329.47	\$908.48	\$21,072.23	\$1,113.26	\$6,173.68
Execution Hour/FTE	0.24	0.08	1.75	3.17	0.69
Execution Cost/FTE	\$18.60	\$6.65	\$119.73	\$186.04	\$54.72
Execution Hour/Payroll Budget	0.0000026	0.0000009	0.0000515	0.0000395	0.0000050
Execution Cost/Payroll Budget	0.02%	0.01%	0.35%	0.23%	0.04%
Payroll Budget/Overall Budget	21.23%	24.23%	93.81%	72.84%	14.63%

a. FIS had the most annual hours devoted to payroll execution in relation to the number of UICs reported (616 hours for 2 UICs). WYPC had the fewest hours in relation to UICs reported (625 hours for 61 UICs).

b. FIS had the highest annual costs associated with its payroll tracking, reporting, and reconciliation in relation to the number of UICs reported. Also

consistent with the payroll execution hours per UIC, WYPC had the lowest annual costs associated with payroll execution in terms of number of UICs reported.

c. iBETS had the most annual hours devoted to payroll execution in relation to the FTE reported (1176 hours for 371 FTEs). This is different from the ratio of annual payroll hours to number of UICs. WYPC still had the fewest annual hours for payroll tracking, reporting, and reconciliation to FTEs (625 hours for 8330 FTEs).

d. iBETS had the highest annual costs for payroll execution per FTE reported. WYPC had the lowest annual costs of payroll execution per FTE.

e. The annual payroll execution costs still accounted for less than 0.5% of the payroll budget being tracked. FIS had the highest percentage, at 0.35%. WYPC had the lowest percentage, at 0.01%.

f. STARS, WYPC, and Navy ERP systems were used for commands with payroll budgets accounting for less than 25% of their overall budget. FIS and iBETS were used for commands with payroll budgets that account for over 70% of their overall budget.

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III. RECOMMENDATIONS AND CONCLUSION

A. CONCLUSIONS

1. Fixed Cost to Provide Payroll Execution

Comparison of commands' cost data indicates UICs drive up cost although basic cost of providing service is required regardless of number of FTE or UICs managed or the accuracy of systems. A minimal level of effort is required to provide any payroll execution reporting. This minimum level of effort can be called a fixed cost. This would include the basic cost to maintain requirements related to maintaining and reporting a single FTE or data for a single UIC. The data suggests the basic cost increases with the increase in the number of UICs to maintain and report. The specific variable cost per additional UIC was difficult to determine based on the variations in the data sources although the execution cost reported by FSA could be used as a baseline level of effort to maintain a single UIC.

The data suggests there may be certain efficiencies gained from tracking, reporting, and reconciling payroll execution as an enterprise (see Table 2). Although the command-wide statistics may disagree with the conclusion that larger commands can operate more efficiently, it should also be noted that OJAG as a command is quite small in terms of FTE. For example, SPAWAR has 1241 FTEs at their headquarters, while OJAG has 371 FTEs command-wide.

2. Most Cost Effective and Efficient

Comparison across the various ratios indicates MSC has the lowest cost per UIC and FTE to manage the command payroll tracking, reporting, and reconciliation. The extent and usage of FMS for generating payroll execution reports, and whether it is related to WYPC accuracy in payroll tracking, reporting, and reconciliation, is unknown. However, it is reasonable to infer that MSC's use of FMS increases their cost effectiveness and efficiencies of reporting since all but one

of the other commands included in this study also used WYPC. Further research is recommended to conduct interviews with commands to determine the extent that internally-developed systems contribute to the accuracy of WYPC, leading to improved cost effectiveness and efficiencies in management of the processes.

3. Internally-Developed Systems

Commands' internally-developed systems are rated as the more accurate over Navy-provided systems. Of the commands surveyed, 71% have internally-developed systems to manage civilian execution data. Internally-developed systems are less cost efficient to maintain for purposes of payroll execution management than Navy-provided systems. Navy-provided systems cost \$1,435 per UIC compared to the internally-developed systems that cost \$1,700 per UIC. Cost per FTE to manage the reporting requirements is also higher for internally-developed systems, \$153 per FTE over Navy-provided systems at \$15 per FTE.

Commands using internally-developed systems have larger total payroll execution costs as a portion of the command's total budget than of commands using Navy-provided systems. Payroll costs of the two commands with internally-developed systems compromise over 70% of the total command's budget whereas four of the commands using Navy-provided systems average between 15-25% of the total budget. The single exception of a command using a Navy-provided system is FSA reporting 87% of the total budget as payroll costs. In relative command size, FSA is the smallest, reporting only 26 FTE. This suggests that commands with larger total payroll cost prefer to utilize an internally-developed system to ensure the reported cost is accurate and reliable as the command's non-pay funding will be (is more) negatively impacted by inaccurate payroll data. This impacts the command's ability to fulfill its mission requirements in total.

4. Navy-Provided Systems

Six of the seven commands in the survey use WYPC. However, it is suspected that FSA uses WYPC in some capacity as well, given the existence of standardized documentation for payroll processing procedures for WYPC reconciliation and adjustment. The WYPC reporting system is not, however, ranked as a primary system of choice by the commands. MSC ranked the WYPC system comparable to their internally-development FMS system. This suggests that the MSC processes or internally-developed system contributes to the accuracy of WYPC reporting.

Based on the accuracy rating of the Navy ERP system, it appears to be one of the most accurate systems. This project was unable to determine cost effectiveness relative to other command's using ERP systems due to the single sample. Two other commands using Navy ERP did not respond to the request for survey data. It should be noted that cost increases are expected with new systems (learning curve theory). SPAWAR is in the second year of ERP implementation/usage. Standardization of ERP throughout all Navy commands would imply a cost effective solution at the end of the implementation period over command specific processes currently in use. However, the small sample size of each group suggests that generalizing these results should be limited.

5. Staff levels

The data indicates personnel performing payroll execution functions are not dedicated exclusively to performing this service. In fact, three of the non-responding commands cited time constraints imposed by budget formulation submission requirements as one of the reasons for their non-response. This implies that the same individuals that would report time spent on payroll execution are also performing duties related to this process, which is mostly separate from execution requirements. Additionally, even though NIC is the largest of the commands

surveyed in term of FTEs, they do not have any individuals solely devoted to payroll execution functions. While this could lead to problems with efficiently completing payroll execution due to lack of time, payroll execution tracking, reporting, and reconciliation is a cyclical process, which means that it would be unreasonable to expect an individual to have this as their sole job duty.

6. Standard Documentation and Reporting

No relationship appears to exist between internally-developed systems and standardized documentation (see Appendix C-1). Using a Navy-provided system versus an internally-developed system was not an indicator of the existence of standardized documentation at the commands.

7. Managerial Reporting

The team was unable to provide a comparison of the managerial reporting produced by the participant commands as 85% did not provide the requested data. This eliminated the team's ability to compare internal reporting requirements produced by the command's to determine if commonalities exist and if additional output would be required from the Navy-provided systems.

B. LIMITATIONS

The small sample size of each group suggests that generalizing these results should be limited and not infer similar results would be gained from a larger sample population. The system results indicate strongly that most Navy commands prefer the internally-developed system; however, the data also suggests many commands use the Navy-provided systems as their system of choice.

The results use a set of self-reported accuracy ratings provided by the participant commands of the systems they used in payroll tracking, reporting and

reconciliation. The accuracy ratings are independent data points for which there does not exist an independent validation procedure, whether referencing the internally-developed or Navy-provided systems.

C. RECOMMENDATIONS

The client should contact MSC Comptroller to express an interest in reviewing MSC's processes and systems usage related to payroll tracking, reporting and reconciliation. The client should emphasize the positive results of the study to MSC and indicate a desire to leverage the experience and knowledge that MSC has developed.

While WYPC is the primary system used by MSC, it is believed that FMS is a contributing factor to the efficiency of MSC's reporting as all other commands surveyed report using WYPC. The client should utilize the results of the study that indicate MSC has developed collaboration between the two systems, FMS and WYPC, that would be beneficial to the client's goal of improving the timeliness and accuracy of the payroll reporting processes. Specifically, NIC should:

1. Determine how FMS is used in conjunction with WYPC.
2. Determine if MSC exports or imports data between systems and what systems are involved.
3. Request specific internal and external reports used in the MSC payroll tracking, reporting, and reconciliation process to determine if the report format is useful for NIC. Internal reports would be useful for management in determining availability of funds, current payroll execution rates, cumulative FTE, etc. External reports would be useful for reporting requirements for outside data calls.

D. FURTHER RESEARCH

Sample size is a significant concern with this study so the same survey information could be gathered from more commands under each of the major categories in future research. It would be helpful to have more commands of varying demographics, such as small or large commands, those with WCF, or those with only Research, Development, Test and Evaluation (RDT&E) funding. Specific to the goals of this study, it would also be helpful to have more commands that use an internally-developed system as their primary system for payroll execution. Additionally, if data is gathered from more commands that use WYPC or ERP as their primary system, the results concerning these two systems would be better supported by data from the larger sample size.

Extending the survey questionnaire to include the capture of the other functions performed by payroll execution personnel and the priorities of these functions may further inform the conclusions. For example, staffing may be inadequate in the area of payroll execution (and therefore less hours were reported) because the other job responsibilities are of higher importance to the command.

One noted limitation of this study was the subjective ratings of accuracy, which could be an area for further research. Providing detailed criteria for the rating standards, such as a 10 rating is the equivalent of the system was correct 98% of the time or better, could assist with better comparison of the effectiveness of systems.

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APPENDIX A-1. SAMPLE SURVEY

A. General Command Statistics

(Please use FY10 actual exhibits for this section where applicable.)

1. Describe the program (just HQ, command-wide, for what purpose, etc.) the survey data input is based upon. Please keep in mind the answers provided in this survey should be consistent with the program described.

2. Is this program funded via General Fund or Working Capital Fund?

3. What was the FY10 actual Direct Hire US (DHUS) end strength (exclude reimbursable)?

4. What was the FY10 actual DHUS full-time equivalent (FTE) (exclude reimbursable)?

5. What was the FY10 actual reimbursable end strength?

6. What was the FY10 actual reimbursable FTE?

7. Of the reimbursable employees, how many split their time between more than one reimbursable document/customer?

8. What was the FY10 actual Foreign National employee end strength? (Please include both direct and indirect hires, but exclude Japanese MLC employees.)

9. What was the FY10 actual Foreign National employee FTE? (Please include both direct and indirect hires, but exclude Japanese MLC employees.)

10. How many UICs are tracked for civilian pay purposes?

11. Please provide a copy of the Commands OP-32/BOCS (FY10 data).

B. Payroll Reporting Systems

12. What systems or tools does the Command use to track payroll costs and hours? (Please list all that are used.)

12a. For systems or tools listed in question 9, please assign the Command's rating for accuracy to each (1 being very inaccurate; 10 being very accurate).

13. Which of these systems produces the management reporting used internally during the execution year by the command?

14. Which of these systems produces the management reports for external users or uses?

15. What is the frequency of payroll reconciliation between systems utilized for internal and/or external reporting? (List the most frequent; for example, biweekly would be listed rather than monthly if reports for both are prepared.)

C. Reconciliation of Payroll (Hours Spent)

16. Please estimate the hours spent per month in the tracking, reconciliation and reporting of payroll execution by completing this chart. The hours reported should only include typical monthly reports, such as CEI data and biweekly payroll. (At this time, do not include time spent on year-end actuals, midyear actuals, or any other non-regular reports.)

For any contractor hours, please also list the estimated average cost per contractor hour in the additional box provided.

17. Please estimate the hours spent per year in the tracking, reconciliation and reporting of payroll execution of atypical reports by completing this chart. The hours reported should only include non-monthly cyclical reports, such as year-end actuals, midyear actuals, etc.

For any contractor hours, please also list the estimated average cost per contractor hour in the additional box provided.

18. Please estimate the number of personnel that spend more than one hour per month (average for the year) on payroll tracking, reconciliation and reporting by completing this chart.

D. Internal Reports / Procedures.

19. Does the command maintain any standardized documentation related to payroll processing procedures. (Please enter Yes or No in each box provided.)

Process Maps

Standard Operating Procedures

Payroll reconciliation

WYPC reconciliation

WYPC adjustments

20. Please provide copies of the most frequently generated internal management reports used in civilian labor execution and payroll reconciliation (for example, biweekly payroll reconciliation or weekly management execution status).

20a. Please state the purpose of any reports provided (for example, used to brief upper management, manage biweekly WYPC reconciliation, etc.).

** With these reports, please exclude any data referencing PII or specific individual reporting.

APPENDIX A-2. DEMOGRAPHIC DATA

Command	NIC	CNP	FSA	NAVFAC	SPAWAR	OJAG	MSC
Program	Enterprise-wide	HQ	HQ	HQ	HQ	Command	Enterprise-wide
Fund	GF	GF	GF	GF	GF	GF	WCF
DHUS End Strength	12,422	197	26	144	1,251	332	6,500
DHUS FTE	12,136	205	26	143	1,180	336	8,330
Reimbursable End Strength	1,153	0	N/A	220	39	34	0
Reimbursable FTE	1,139	0	N/A	209	61	35	0
UIC	184	4	1	2	11	62	61
Payroll budget	1,224,570,000	25,411,000	3,123,000	11,969,000	171,195,000	29,751,000	665,341,924
Overall Budget	5,764,326,000	134,506,000	3,561,000	12,759,000	1,170,434,000	40,846,000	2,745,704,000

APPENDIX A-3. POM-12 PROGRAMMING RATES

GS Level	Pay Rate
GS-4	48,935
GS-5	54,374
GS-6	60,968
GS-7	67,402
GS-8	75,317
GS-9	81,401
GS-10	92,418
GS-11	99,905
GS-12	120,168
GS-13	141,178
GS-14	166,338
GS-15	197,844
SES (all levels)	249,593

APPENDIX B-1. STATISTICAL DATA

	NIC		CNP		FSA		MSC		NAVFAC		OJAG		SPAWAR	
First system	STARS	10	Budget Builder- STARS	9	STARS	8	WYPC	10	FIS	10	iBETS	9	Navy ERP (Hard)	10
Second system	WYPC	5	CARIS - STARS	9			FMS	10	STARS	10	STARS	7	Access (Easy)	10
Third system	Excel	4	DCPS	9					WYPC	10	WYPC	5	Monarch	10
Forth system			WYPC	7									Excel	10
Fifth system													WYPC	8
Internal User Report			Budget Builder		STARS		WYPC, FMS		FIS, WYPC		iBETS		Access Data Base	
External User Report			Budget Builder		STARS		WYPC, FMS		STARS WYPC		STARS		Navy ERP & WYPC	
Frequency of Payroll Reconciliation	Bi-weekly		Bi-weekly		Bi-weekly		Monthly		Bi-weekly		Bi-weekly		Bi-weekly	

APPENDIX B-2. MONTHLY PAYROLL EXECUTION COST

Command	GS-Level	Number of Hours Spent On Reports/Month	Projected Cost	Monthly Costs (Command)	Annual Projected Costs (Command)
NIC	GS-11	7	394		
	GS-12	1	68		
	GS-13	20	1,590		
	GS-14	15	1,405		
	Contractor	8	325		
				3,781	45,377
CNP/BUPERS	GS-9	36	1,650		
	GS-12	5	338		
	GS-14	1	94		
				2,082	24,984
FSA	GS-13	6	477		
				477	5,723
MSC	GS-12	10	677		
	GS-14	40	3,746		
				4,423	53,076
NAVFAC	GS-11	1	56		
	GS-12	33	2,233		
	GS-13	4	318		
				2,607	31,285
OJAG	GS-11	46	2,588		
	GS-13	3	238		
	GS-15	1	111		
				2,938	35,250
SPAWAR	GS-13	56	4,452		
	GS-15	10	1,114		
				5,566	66,787

APPENDIX B-3. ANNUAL PAYROLL EXECUTION COST

Command	GS-Level	Number of Hours Spent On Reports/Year	Projected Cost	Annual Projected Costs (Command)
NIC	GS-13	835	66,376	
	GS-14	940	88,039	
				154,415
CNP/BUPERS	GS-9	80	3,667	
	GS-12	140	9,473	
	GS-14	75	7,024	
				20,164
FSA	GS-13	16	607	
				607
MSC	GS-14	25	2,341	
				2,341
NAVFAC	GS-11	80	4,500	
	GS-13	80	6,359	
				10,860
OJAG	GS-11	528	29,701	
	GS-13	40	3,180	
	GS-15	8	891	
				33,772
SPAWAR	GS-13	60	4,770	
	GS-15	10	1,114	
				1,124

APPENDIX B-4. PAYROLL EXECUTION STAFFING

Command	GS-Level	Number of Personnel Associated with Payroll Reconciliation and Reporting
NIC	GS-11	4
	GS-12	1
	GS-13	3
	GS-14	1
	Contractor	1
	Total Personnel	10
CNP/BUPERS	GS-9	1
	GS-12	2
	GS-14	1
	Total Personnel	4
FSA	GS-13	1
	Total Personnel	1
MSC	GS-12	1
	GS-14	1
	Total Personnel	2
NAVFAC	GS-11	1
	GS-12	2
	GS-13	1
	Total Personnel	4
OJAG	GS-11	1
	GS-13	1
	GS-15	1
	Total Personnel	3
SPAWAR	GS-13	2
	GS-15	1
	Total Personnel	3

APPENDIX B-5. GENERAL FUND AND WORKING CAPITAL FUND RATIOS

	GF	WCF
Execution Hour/UIC	22.45	10.25
Execution Cost/UIC	\$1,630.11	\$908.48
Execution Hour/FTE	0.38	0.08
Execution Cost/FTE	\$27.82	\$6.65
Execution Hour/Payroll Budget	0.0000040	0.0000009
Execution Cost/Payroll Budget	0.03%	0.01%
Payroll Budget/Overall Budget	20.57%	24.23%

APPENDIX C-1. STANDARD DOCUMENTATION FOR PAYROLL PROCESSING

	NIC	CNP	FSA	NAVFAC	OJAG	SPAWAR	MSC
System Used	STARS	STARS	STARS	FIS	iBETS	ERP	WYPC
System Category	Navy-provided	Internally-developed	Navy-provided	Internally-developed	Internally-developed	Navy-provided	Navy-provided
Process Map	No	No	No	Yes	No	No	No
SOP	Yes	No	Yes	Yes	No	Yes	No
Payroll Reconciliation	Yes	No	Yes	Yes	No	Yes	Yes
WYPC Reconciliation	Yes	No	Yes	Yes	Yes	Yes	Yes
WYPC Adjustment	Yes	No	Yes	Yes	No	No	Yes

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LIST OF REFERENCES

1. 31 USC 3512, Executive agency accounting and other financial management reports
2. Department of Defense, Financial Management Regulation, 7000.14-R, Volume 8, Chapter 1
3. Department of Defense, Financial Management Regulation, 7000.14-R, Volume 8, Chapter 9
4. Department of Defense, Program Objective Memorandum-12 Programming Rate, Jan 2010
5. Office of Management and Budget Circular, A-76, 2003

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