

# MASTER OF SCIENCE IN MANAGEMENT

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## **AN ANALYSIS OF THE EXPRESS PURCHASE (XP) PROGRAM**

**Dennis A. Alba-Lieutenant, United States Navy**

**B.S., University of Maryland, 1992**

**Master of Science in Management-December 1999**

**Advisors: Kenneth J. Euske, Department of Systems Management**

**William R. Gates, Department of Systems Management**

An automated reconciliation program is a valuable tool in facilitating Department of the Navy (DoN) purchase card operations. The Express Purchase (XP) Program was designated as an interim solution to meet DoN's needs for automating the Purchase Card Program. The Naval Postgraduate School (NPS) at Monterey, California was chosen as one of many beta-test sites to assess XP. Funding for the XP program was terminated, but NPS pursued with the implementation of the system. This thesis analyzes the purchase card process at NPS and NMC San Diego; analyzes the payment methods deployed at each facility; and compares the payment histories of DoN, NPS, and NMC San Diego. Data were obtained by conducting personal interviews, examining Department of Defense (DoD) policies, and reviewing historical payment statistics at NPS, NMC San Diego, and Naval Supply Systems Command (NAVSUP). Fully compatible with XP and in compliance with DoD regulations, NPS employed the transactional payment method, streamlining many of the critical tasks in the program. The XP system proved to be a highly efficient and labor saving tool, resulting in reduced payment delinquencies and expedited payment processing.

**DoD KEY TECHNOLOGY AREA:** Materials, Processes, and Structures

**KEYWORDS:** Government Credit Card, Automated Reconciliation System, Purchase Card

## **AN ANALYTICAL COMPARISON OF HUMAN FACTOR MAINTENANCE RELATED PART FAILURES FOR NAVAL RESERVE FLEET LOGISTICS SUPPORT WING**

**Daniel L. Allen-Lieutenant Commander, United States Navy**

**B.A., Wittenberg University, 1985**

**Master of Science in Management-December 1999**

**Advisors: CDR Kevin J. Maher, USN, Department of Operations Research**

**CDR John K. Schmidt, USN, School of Aviation Safety**

**Second Reader: Donald R. Eaton, Department of Systems Management**

Naval Aviation has experienced extensive change in recent years. Financial constraints, force reductions, and increasing operation tempo have impacted not only the material condition of Naval aircraft, but also the personnel who maintain them. The Naval Aviation Community has extensively studied the role of human factors in aviation mishaps. However, the need to study the impact of human factors in maintenance on part failures remains. As replacement parts for aircraft continue to rise in price, the need to mitigate the unnecessary failure/destruction of piece parts is an ever increasing priority. This study examines the relationship between part failures and human factors by comparing incident rates between VR Wing with the rest of Naval Aviation. Five hundred safety incident reports are analyzed; fiscal year totals are determined, and an incident per flying hour rate is computed. Regression results indicate an increasing trend in human factors related parts incidents; VR compares no different from the rest of Naval Aviation.

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**DoD KEY TECHNOLOGY AREAS:** Air Vehicles, Human Systems Interface

**KEYWORDS:** Aviation Mishaps, Material Failures, Hazard, Human Factors, Human Error, Accident Classification, Maintenance Mishaps, Regression Analysis

### **DEVELOPING AND MAINTAINING A USEFUL FINANCIAL MANAGEMENT HANDBOOK FOR DEPARTMENT OF DEFENSE FINANCIAL MANAGERS**

**Marie Bambao-Lieutenant, United States Navy**

**B.S., University of Nevada, 1992**

**B.S., Southern Illinois University, 1991**

**Master of Science in Management-December 1999**

**Advisor: CDR Ted Hleba, USN, Department of Systems Management**

**Second Reader: Richard B. Doyle, Department of Systems Management**

The 13-week *Financial Management in the Armed Forces* and the two-week *Practical Comptrollership* are two classes offered at the Naval Postgraduate School, Monterey, California. The primary instructional material used for these two courses is the *Practical Comptrollership* handbook. As new financial management directives and guidance from the Office of Management and Budget (OMB), the Department of Defense (DoD), and the Department of the Navy (DoN) are implemented, financial management in the DoN is modified. The purpose of this research was to update the material contained in the *Practical Comptrollership* handbook to reflect changes in financial management policies and practices. This research investigated legislation, OMB, DoD, and DoN directives and budget guidance to incorporate the latest financial management information and processes. This research provides the most up-to-date information currently available to financial managers to assist them in improving the efficiency of financial systems and reduce costs.

**DoD KEY TECHNOLOGY AREA:** Other (Finance)

**KEY WORDS:** Planning, Programming, and Budgeting System (PPBS), Integrated Warfare Architecture (IWAR), Defense Property Accountability System (DPAS), and Program Budget Accounting System (PBAS)

### **IMPLEMENTING NEW WORK PROCESSES AT THE ROYAL NORWEGIAN NAVY MATERIAL COMMAND (RNONMC)**

**Per Morten Birkelund-Lieutenant Commander, Royal Norwegian Navy**

**Candidatus Magisterii, University of Tromsø, Norway, 1991**

**Masters of Science in Management-December 1999**

**Advisors: Roger D. Evered, Department of Systems Management**

**Eric Jansen, Department of Systems Management**

This thesis focuses on key factors that increase organizational effectiveness at RNoNMC. These factors include implementing work processes throughout the whole organization, implementing information technologies that support work processes, and the use of teamwork across functional areas to solve organizational and technical problems.

Using integrated teams, matched technologies, and tailored work processes in several material programs, RNoNMC observed an increase in quality in the form of quicker results with fewer revisions. Teamwork methods emphasize a systems view towards organizational and technical solutions that integrate the human needs, the technology and the organization.

The RNoNMC can further increase its organizational effectiveness by implementing similar principles to the whole organization. Members of the organization should actively participate in designing and implementing work processes with technologies that support individual, program, and organizational needs. Routine tasks can be automated and time can be more effectively used on solving complex problems. Integrating all parts of the organization in problem solving processes creates an environment of continuous learning.

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The recommendations presented derive from a study of change processes in previous programs, socio-technical systems theory, and the expected benefits of information technologies in the work place.

**DoD KEY TECHNOLOGY AREA:** Other (Organizational Change, Information Technology, Systems Engineering)

**KEYWORDS:** Organizational Change, Organizational Effectiveness, Information Technology, Systems Engineering, Teams, Work Processes

### **SURVEY OF DOD PROFIT POLICY AND FURTHER ANALYSIS OF THE ESTIMATION THEORY**

**Gregory L. Boll-Captain, United States Marine Corps  
B.A., Miami University of Ohio, 1991**

**Master of Science in Management-December 1999**

**Advisors: Gregory G. Hildebrandt, Department of Systems Management  
Shu S. Liao, Department of Systems Management**

The current weighted guidelines profit policy within the Department of Defense (DOD) has been the subject of numerous studies over the past four decades to determine its effectiveness within DOD. Many of the studies offer differing results as to the effectiveness of this policy and the measurements used for analysis. The central objective of this study was to conduct a survey of the weighted guidelines profit policy and use event analysis to estimate the size of prizes awarded to defense contractors. To address this issue, a survey of the weighted guidelines profit policy was completed with consideration of an economic approach to the weighted guidelines policy. Analysis of four missile defense systems was conducted to measure the size of prizes awarded for missile contract awards. Findings of the study are limited. The present profit policy within DOD can be improved upon with an economic approach to the weighted guidelines profit policy. However, conclusive findings were not observed for analysis of economic profit within the defense missile industry. This was due to the limited number of contests analyzed in this study.

**DoD KEY TECHNOLOGY AREA:** Other (DoD Profit Policy)

**KEYWORDS:** Economic Profit Policy

### **FRAMEWORK FOR FINANCIAL RATIO ANALYSIS OF AUDITED FEDERAL FINANCIAL REPORTS**

**Richard T. Brady-Captain, United States Marine Corps  
B.S., Saint Louis University, 1993**

**Master of Science in Management-December 1999**

**Advisors: O. Douglas Moses, Department of Systems Management  
Lawrence R. Jones, Department of Systems Management**

Federal agencies have traditionally prepared financial reports to monitor and report the obligation and expenditure of federal funding. With the passage of the Chief Financial Officers Act of 1990, Congress called for the production of financial statements that fully disclose a federal entity's financial position and results of operations. The disclosure of this type of information, it was believed, would enable decision-makers to understand the financial implications of budgetary, policy and program issues and provide an analytical tool for obtaining a deeper understanding of a federal agency's financial condition and operations. The objective of this thesis was to develop a framework for financial ratio analysis of audited federal financial reports to assist in analyzing federal agencies. To accomplish the objective, this thesis identified the theoretical and historical basis of financial ratio analysis, identified the existing financial reporting models and ratio analysis frameworks in other sectors of the economy, and identified the financial accounting and reporting environment unique to the federal government. Based upon this archival research, this thesis developed a framework for financial ratio analysis of audited federal financial reports framed around the users and objectives of federal financial reporting. The users of audited federal financial

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reports can use this framework to assist in agency analysis, assist in decision-making processes, and assist in achieving the objectives of federal financial reporting.

**DoD KEY TECHNOLOGY AREA:** Other (Financial Management)

**KEYWORDS:** Ratios, Financial Ratios, Financial Ratio Analysis, Financial Statements, Financial Statement Analysis, Federal Financial Reports, Financial Reporting, Chief Financial Officers Act

### **AN ANALYSIS OF THE CREDIT CARD PROGRAM USING PROCESS INNOVATION**

**Ronald C. Braney-Captain, United States Marine Corps**

**B.A., University of Rochester, 1990**

**Master of Science in Management-December 1999**

**Advisors: Mark E. Nissen, Department of Systems Management**

**CDR Jeffrey R. Cuskey, USN, Department of Systems Management**

Since the early 1990s, acquisition reform has been the focus of DoD acquisition and has affected nearly every process in the acquisition cycle. The implementation of the Federal Acquisition and Streamlining Act has placed more emphasis on allowing contracting officers to apply sound business judgment instead of blindly following detailed regulations and procedures. This goes a long way toward improving and streamlining the contracting process.

One of the key reform initiatives in streamlining the process is the implementation of the Government-wide credit card program. The focus of this thesis is to look at the benefits the Marine Corps has observed since the implementation of the credit card, examine the savings and determine if the process has met its objective of making the acquisition cycle more efficient. The thesis also looks at current processes and develops three redesign alternatives that offer good potential to further streamline the process. The thesis also suggests mechanisms for implementing these process redesigns and generalizes as to how they can be applied to other DoD organizations.

**DoD KEY TECHNOLOGY AREA:** Other (Contracting)

**KEYWORDS:** Purchase Card Program, Process Innovation, Micropurchases

### **MEDICARE SUBVENTION: A CASE ANALYSIS OF REIMBURSEMENT ISSUES AFFECTING TRICARE SENIOR PRIME AT NAVAL MEDICAL CENTER, SAN DIEGO**

**David N. Breier-Lieutenant, United States Navy**

**B.B.A., University of Toledo, 1984**

**Master of Science in Management-December 1999**

**Advisors: Richard B. Doyle, Department of Systems Management**

**CAPT James A. Scaramozzino, USN, Institute for Defense Education Analysis**

Medicare-eligible military beneficiaries have experienced difficulty accessing the Military Health System. To help alleviate this problem, a three-year demonstration project known as Medicare Subvention has been implemented, creating a Department of Defense Health Maintenance Organization called TRICARE Senior Prime (TSP). This research determined the financial impact of TSP at Naval Medical Center, San Diego (NMCS D). The financial analysis includes an examination of inpatient and outpatient costs and revenues for Fiscal Year (FY) 1999. The results of this research show that TSP indirectly caused a net reduction in operating costs at NMCS D in FY 1999 of \$1.5 million or one percent of the operating budget. The program caused revenues to decline by causing a 20 percent reduction in admissions for non-TSP beneficiaries with other health insurance. Proportionally larger cost reductions resulted from this decrease in non-TSP admissions that outweighed increases in TSP admissions.

**DoD KEY TECHNOLOGY AREA:** Other (Healthcare)

**KEYWORDS:** Medicare Subvention, TRICARE Senior Prime

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### **HOW THE NAVAL AVIATION MAINTENANCE PROGRAM (NAMP) AT THE INTERMEDIATE LEVEL CAN BECOME ISO 9000 QUALITY MANAGEMENT SYSTEM COMPLIANT**

**Stephen Kurt Brennehan-Lieutenant, United States Navy  
B.S., Indiana University, 1993**

**Master of Science in Management-December 1999**

**Advisors: Donald R. Eaton, Department of Systems Management**

**Kenneth J. Euske, Department of Systems Management**

This thesis examines the similarities and differences between the Naval Aviation Maintenance Program (NAMP) and International Standards Organization (ISO) 9000 Quality Management Systems (QMS), and what changes must be done to bring the NAMP to ISO 9000 standards. The NAMP is naval aviation's overall guiding document that outlines command, administrative, and management relationships, and assigns maintenance policy and procedure responsibilities to the respective individuals for management. ISO 9000 is a series of international standards establishing requirements and guidelines for maintaining an organization's quality system, which focuses on prevention rather than detection. This thesis will first examine ISO 9000 QMS aspects in relation to organizational and intermediate maintenance actions. Next, a plan for implementing the ISO 9000 QMS in naval aviation's organizational and intermediate maintenance activities is developed. Specifically, process maps are described for QM documentation, policies, and procedures under both the NAMP and ISO 9000, and then compared and contrasted. Then, a sample ISO 9000 quality manual for the Tool Control Program (TCP) on an intermediate maintenance activity, including how this manual can satisfy the 20 tenets of the ISO 9000 QMS is developed. Finally, recommended changes to NAMP QM procedures, processes, and policies are provided along with expected benefits naval aviation will receive if ISO 9000 is implemented.

**DoD KEY TECHNOLOGY AREA:** Other (Material Logistics Support Management)

**KEYWORDS:** Quality Management Systems, Change Implementation, DoD Reform Initiatives, ISO 9000 Certification Process, Naval Aviation Maintenance

**AN ANALYSIS OF THE NATO PROCUREMENT SYSTEM**  
**Kenneth J. Broomer-Lieutenant Commander, United States Navy**  
**B. A. Virginia Polytechnic Institute and State University, 1986**  
**Master of Science in Management-December 1999**  
**Advisors: William R. Gates, Department of Systems Management**  
**CDR David A. Smith, USN, Department of Systems Management**

Since the end of the "Cold War" and the disintegration of the Warsaw Pact, NATO alliances have collectively had to change their procurement philosophies. NATO procurement (as it applies to the 19 nations) has met with decreased military funding due to changes in the military environment. Much of the emphasis on procurement today revolves around multinational efforts and is marked by global standardization. However, NATO's organizational procuring entities have changed very little since the end of the Cold War. By assessing the practices of three of the procuring entities, recommendations can be made regarding procurement policies and procedures and principal problem areas.

**DoD KEY TECHNOLOGY AREA:** Other (Acquisition and Contracting)

**KEYWORDS:** NATO, ACE, NC3A, NAMSA

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### **CASE STUDY OF THE UNITED STATES MARINE CORPS ADVANCED AMPHIBIOUS ASSAULT VEHICLE (AAAV) PROGRAM TEST AND EVALUATION STRATEGY**

**Brian K. Buckles-Major, United States Marine Corps**

**B.S., University of Idaho, 1987**

**Master of Science in Management-December 1999**

**Advisors: Thomas H. Hoivik, Department of Operations Research**

**Orin E. Marvel, Command, Control, Communications, Computers, and**

**Intelligence Academic Group**

This thesis examined the evolution of the direct reporting program manager-advanced amphibious assault's test and evaluation strategy from milestone 0 to the present. The research effort involved reviewing the evolution of amphibious doctrine and amphibious vehicles, reviewing the DoD acquisition process and the role of T&E in that acquisition process, and analyzing three DRPM-AAA test and evaluation master plans. Interviews were conducted with personnel from the DRPM-AAA Office and General Dynamics Amphibious Systems. Additionally, program documents and acquisition literature were reviewed. An analysis of test and evaluation issues facing the program management office, a determination of the effects those issues had on the program's test strategy, and applicable lessons learned are documented for use by other major defense acquisition programs. Key research findings conclude: that the DRPM-AAA's T&E strategy remained stable and consistent from milestone 0 to the present as a result of the continuity of the AAAV's key performance parameters; that the DRPM's decision to develop a working relationship that "actively engages" both oversight and external agencies early in the test planning process serves in achieving test resource efficiencies; and that the IPT decision-making process differs significantly from the more formal "staff planning process" used by most military organizations.

**DoD KEY TECHNOLOGY AREAS:** Ground Vehicles, Other (Amphibious Warfare, Test and Evaluation)

**KEYWORDS:** United States Marine Corps, AAAV, Advanced Amphibious Assault Vehicle, DRPM-AAA, Major Defense Acquisition Program, Test and Evaluation, Developmental Testing, Operational Testing

### **EVALUATION OF THE SPACE AND NAVAL WARFARE SYSTEMS COMMAND (SPAWAR) COST AND PERFORMANCE MEASUREMENT**

**Timothy E. Dorwin-Lieutenant, United States Naval Reserve**

**B.B.A., Grand Valley State University, 1989**

**Master of Science in Management-December 1999**

**and**

**Drew G. Flavell-Lieutenant Commander, United States Naval Reserve**

**B.A., Central Connecticut State University, 1986**

**Master of Science in Management-June 2000**

**Advisors: Lawrence R. Jones, Department of Systems Management**

**Jerry L. McCaffery, Department of Systems Management**

This thesis examines the Cost and Performance Measurements within four Program Directorates at the Space and Naval Warfare Systems Command (SPAWAR). SPAWAR is the Navy's full-spectrum research, development, test and evaluation, engineering and fleet support center for Command, Control and Communications Systems, Ocean Surveillance Systems and the integration of those systems that overarch multiplatforms. In the era of lean military budgets, public and congressional demands for improved performance within government and performance based budgeting, Commands must justify their budgets and resource allocation relating to costs and outputs. How can commands determine the efficiency of their organizations without accurate cost and output measurement? The primary focus of this thesis is to describe the cost and performance measurement systems applied in the SPAWAR Program Directorates to determine what types of cost, scheduling and performance information they provide for the command. The components of the Program Directorates, the Program Manager Warfare, use a wide variety of locally

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designed computer programs and tracking systems to measure cost, scheduling and performance. This thesis forms a foundation for further analysis on cost and performance measurement in SPAWAR.

**DoD KEY TECHNOLOGY AREA:** Other (Performance Measurement, Cost Measurement)

**KEYWORDS:** Performance Measurement, Cost Measurement, Acquisition Program Measurement

### COMPARISON OF THE DEFENSE ACQUISITION SYSTEMS OF CANADA AND THE UNITED STATES OF AMERICA

**Jose J. Fernandez-Lieutenant Commander, United States Navy**

**B.S., University of West Florida, 1987**

**Master of Science in Management-December 1999**

**Advisors: Ira Lewis, Department of Systems Management**

**CDR David A. Smith, USN, Department of Systems Management**

Both Canada and the U.S. have comprehensive internal organizational structures devoted to carrying out federal acquisition in support of their defense departments. This study was conducted as a macro-level comparison to identify policies and procedures that contribute to the effectiveness of the respective acquisition systems. The researcher found many similarities and differences in political and legal influences, objectives and goals, organizational structures, and selected acquisition processes of the two countries. The differences in acquisition processes were partially attributed to distinct political and legal influences, variations in federal acquisition objectives and goals, and the relative differences in size of the two country's defense departments. Recommendations for Canada included: publication of a revised federal acquisition vision and associated goals, review of published acquisition procedures, and increased federal leadership in acquisition reform.

**DoD KEY TECHNOLOGY AREA:** Other (Acquisition)

**KEYWORDS:** Defense Acquisition, Canada, Federal Acquisition Process, Acquisition Reform, Contracting, Procurement

### INNOVATING THE STANDARD PROCUREMENT SYSTEM WITH INTELLIGENT AGENT TECHNOLOGIES

**David N. Fowler-Lieutenant Commander, United States Navy**

**B.A., University of California, 1987**

**Master of Science in Management-December 1999**

**Advisors: Mark E. Nissen, Department of Systems Management**

**CDR David A. Smith, USN, Department of Systems Management**

This thesis analyzes the innovation of the Department of Defense (DoD) standard acquisition process with intelligent agent (IA) technologies. Information technology (IT) developments are enabling DoD to seek high levels of improvement in key processes, such as acquisition, because of constrained resources, high costs and long cycle times. One such process, DoD's paperless contracting initiative, is developed to increase efficiency through automation and standardization, using the Standard Procurement System (SPS). However, benefits to date from implementing SPS have been marginal, because it has been accomplished without first redesigning the existing inefficient process. This research builds upon prior work with procurement, process innovation and intelligent software agents. Following Davenport's process-innovation methodology, the Federal acquisition process (FAP) is compared with SPS functions to identify functions for possible IT innovation with IA. A four-step scheme for evaluating agent potential is developed and employed to assess the SPS-supported FAP, resulting in the identification of nine process steps offering high potential for IA automation. Two redesign prototypes are developed to incorporate these IA candidates. This work leads to a number of conclusions, recommendations and an agenda for further research that should be an interest to the acquisition manager as well as the information system designer.

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**DoD KEY TECHNOLOGY AREA:** Other (Procurement)

**KEYWORDS:** Innovation, Standard Procurement System, Intelligent Agent Technologies

### **PARETO OPTIMUM IMPROVEMENT IN GOVERNMENT CONTRACTING**

**Eric L. Glaser-Lieutenant Commander, United States Navy**

**B.S., University of Idaho, 1987**

**Masters of Science in Management-December 1999**

**Advisors: David R. Henderson, Department of Systems Management**

**CDR Jeffrey R. Cuskey, USN, Department of Systems Management**

The Federal Government engages in regulatory efforts in its procurement activities for two reasons: to correct perceived market failure and to implement socio-economic policies. This research analyzes three major areas of Government acquisition for potential Pareto improvement: Small Business Programs, Cost Accounting Standards (CAS), and Certified Cost or Pricing Data. In cases where the Government seeks to implement socio-economic policy, as in the Small Business Programs, Pareto improvement cannot be achieved. However, in cases of market failure, Pareto improvement (making one party better off without making the other worse off) can be achieved. Pareto improvement can be realized by moving the CAS waiver authority to agency level, by eliminating specific CAS standards, and by increasing the CAS threshold to \$100 million. It can also be effected by implementing Price-Based Acquisition in specific contractual situations and by increasing the use of parametric cost estimating.

**DoD KEY TECHNOLOGY AREA:** Other (Acquisition and Contracting)

**KEYWORDS:** Pareto Improvement

### **A CAPACITY AND COST ANALYSIS OF THE KOREAN FLAG SHIPPING PROGRAM**

**Robert S. Gordon-Major, United States Marine Corps**

**B.S., Auburn University, 1987**

**Master of Science in Management-December 1999**

**Advisors: Keebom Kang, Department of Systems Management**

**Ira Lewis, Department of Systems Management**

South Korea's location forms the intersection of four world powers: Russia, China, Japan, and the United States. As such, the United States maintains political, economic, and military relations and agreements with the South Korean government for the national security of both nations. One such agreement is the Memorandum of Agreement (MOA), dated 25 March 1981, which established the Korean Flag Shipping (KFS) program. The KFS program (consisting of 59 ships) establishes the procedures and conditions upon which South Korean-flag vessels transfer operational control to Military Sealift Command (MSC) and carry United States military cargo in support of the South Korean defense. However, even with the addition of the 59 South Korean ships, MSC cannot meet the operational requirements for the Korean Peninsula Operation Plan. This thesis analyzes the KFS program in terms of ship capacities and South Korean cost considerations, and then recommends viable strategic sealift options that can enhance and/or supplement the KFS program.

**DoD KEY TECHNOLOGY AREA:** Other (Logistics, Transportation)

**KEYWORDS:** Strategic Sealift, Korean Flag Shipping (KFS) Program, Military Sealift Command (MSC), Maritime Policy, Logistics, Transportation

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### **PROCESS MAPPING AND RE-ENGINEERING FOR IMPROVED RECEIVING AT A DEFENSE DISTRIBUTION DEPOT**

**Charles K. Head-Lieutenant Commander, United States Navy  
B.S., United States Naval Academy, 1988  
Master of Science in Management-December 1999**

**and**

**Vaughn L. Stocker-Lieutenant Commander, United States Navy  
B.S., Kearney State College, 1988  
Master of Science in Management-December 1999**

**Advisors: Kevin R. Gue, Department of Systems Management  
Ira Lewis, Department of Systems Management**

The Defense Distribution Depot San Diego (DDDC) is the primary Department of Defense (DoD) physical distribution agency in southern California. DDDC management is striving to improve DDDC's competitive posture by identifying and eliminating inefficient practices in receiving, order picking, and shipping. Receiving processes are investigated by constructing a detailed process map that shows how material and information move through the depot. The map is used to identify redundant material handling practices and to suggest ways to reduce material receipt-to-stow times. Results suggest that DDDC can improve receipt processing times and reduce labor costs.

**DoD KEY TECHNOLOGY AREA:** Other (Logistics)

**KEYWORDS:** Re-Engineering, Process Mapping, Defense Distribution Depot, Defense Logistics Agency

### **REDUX AND READINESS: CONGRESS, THE DEFENSE BUDGET, AND MILITARY RETIREMENT IN 1999**

**Michael W. Howell-Lieutenant, United States Navy  
B.A., North Carolina State University, 1992  
Master of Science in Management-December 1999**

**Advisors: Richard B. Doyle, Department of Systems Management  
John E. Mutty, Department of Systems Management**

In 1999, the 106<sup>th</sup> Congress enacted military retirement reform for personnel entering the military after 31 July 1986. This thesis examines the process by which this reform was enacted and its impact on defense spending. To conduct the analysis, a review of articles, journals, government reports, and legislation related to retirement reform was completed. The estimated cost of reform was \$796 million for FY 2000 and totaled nearly \$6 billion by FY 2004. Congress modified military retirement by offering members the choice of remaining under Redux and receiving a \$30,000 bonus or retiring under the High Three Plan. The 1999 Emergency Supplemental appropriated \$10.9 billion dollars to improve military readiness, including funds for retirement reform assuming that it would improve retention and readiness. Congress approved the changes in the 2000 Authorization Act. Reform was facilitated by the designation of the funds as an emergent requirement to improve readiness and the emergence of an on-budget surplus of \$14 billion for FY 2000.

**DoD KEY TECHNOLOGY AREA:** Other (Military Retirement)

**KEYWORDS:** Military Retirement, Military Retirement Benefits, Military Retirement Reform, Redux, Emergency Supplemental Spending, Budget Enforcement Act of 1990, Readiness

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### **EVALUATING POLICY ALTERNATIVES FOR THE RE-ENGINEERING OF THE DEPARTMENT OF DEFENSE PERSONAL PROPERTY SHIPMENT AND STORAGE PROGRAM - A STAKEHOLDER APPROACH**

**Michael D. Lepson-Captain, United States Marine Corps**

**B.A., The American University, 1988**

**Master of Science in Management-December 1999**

**Advisors: Nancy C. Roberts, Department of Systems Management**

**Cary A. Simon, Department of Systems Management**

The Military Traffic Management Command (MTMC) is currently re-engineering the DOD Personal Property Shipment and Storage Program. DOD is conducting three pilot projects in support of this effort. Each pilot project represents a policy alternative for improving moving services for military families. The Deputy Under Secretary of Defense (Logistics) tasked United States Transportation Command (USTRANSCOM) to evaluate the personal property pilot programs as part of Management Reform Memorandum # 6. This thesis evaluates the policy alternatives for reengineering the DOD personal property program using a stakeholder approach.

The study develops a model and establishes criteria for evaluating the three policy alternatives. Values are determined for the criteria by interviewing a sample of stakeholders from business, government, and customers. Policy alternatives are then analyzed from each stakeholder perspective. Finally, a policy alternative is identified that best satisfies the criteria for each stakeholder as well as the aggregate of stakeholders.

**DoD KEY TECHNOLOGY AREA:** Other (Policy Analysis, Transportation)

**KEYWORDS:** Transportation, Personal Property, Policy Analysis, Stakeholder Approach

### **ANALYSIS OF CONTRACT DISPUTES RESOLVED BY THE ARMED SERVICES BOARD OF CONTRACT APPEALS (ASBCA) BETWEEN JANUARY 1998 AND JUNE 1999**

**Roger D. Lord-Lieutenant Commander, United States Navy**

**B.S., Southern Illinois University, 1987**

**A.S., Mohegan Community College, 1986**

**Master of Science in Management-December 1999**

**Advisor: CDR David A. Smith, USN, Department of Systems Management**

**Second Reader: William R. Gates, Department of Systems Management**

The primary purpose of this thesis is to analyze recent Armed Services Board of Contract Appeals (ASBCA) decisions relating to disputes in United States Government supply, services, and construction contracts in order to identify potential weaknesses in both Government and contractor organizations. In particular, the researcher is interested in Department of Defense (DoD) contracting norms and execution practices. This thesis identifies categories of contract disputes, as well as patterns of contract administration weaknesses, of both the Government and the contractor. The aim is to bring these dispute categories and contracting weaknesses to the attention of the acquisition professional in order to promote better administration of contracts in the future, with the potential effect of reducing the number of litigated contract disputes between the Government and commercial supply, services, and construction providers. Finally, this research effort offers recommendations to Contracting Officers and contracting activities to help provide for more effective and efficient contract execution and administration within the Government and, in particular, the Department of Defense.

**DoD KEY TECHNOLOGY AREA:** Other (Contract Disputes)

**KEYWORDS:** Contract Disputes, Supply, Service, Construction Contracts

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### **THE COST AND BENEFITS OF THE NAVY NURSE CORPS ACCESSION SOURCES**

**Tamara K. Maeder-Lieutenant, United States Navy  
B.S.B.A., University of Nebraska at Omaha, 1988  
B.S.N., Creighton University, 1992**

**Master of Science in Management-December 1999**

**Advisor: William R. Gates, Department of Systems Management**

**William D. Hatch, Department of Systems Management**

The study analyzes the various Navy Nurse Corps accession sources' costs and benefits. The study also uses a logistic regression to model "success." Success is defined as the ability to retain past initial obligation or the five-year point. Specific accession sources examined are the Naval Reserve Officer Training Corps (NROTC), Nurse Commissioning Program (NCP), Medical Enlisted Commissioning Program (MECP), direct procurement, and previous programs such as the Health services Commissioning Program (HSCP), Baccalaureate Degree Completion Program (BDCP), and Full-Time Out-Service Training (FTOST). Cohort files for FY 1992, 1993, and 1994 were developed from Navy Officer Master Files maintained at the Defense Manpower Data Center (DMDC), and the Naval Medical Information Management Center's (NMIMC) Bureau of Medical Information System (BUMIS) database. The findings indicate that both males and individuals that entered the NC through the MECP were more likely to retain. The NROTC program costs \$86,000, the most expensive source, and has the lowest retention rate, 47.1 percent. The MECP costs \$74,781 and has the best retention rate, 90.2 percent. The NCP costs \$30,045 and has a 61.2 percent retention rate.

**DoD KEY TECHNOLOGY AREA:** Manpower, Personnel, and Training

**KEYWORDS:** Manpower Supply, Retention, Recruiting, Accession Sources, Nursing

### **INNOVATING THE STANDARD PROCUREMENT SYSTEM THROUGH ELECTRONIC COMMERCE TECHNOLOGIES**

**Stephen P. Mangum-Captain, United States Marine Corps  
B.S., University of Utah, 1991**

**Master of Science in Management-December 1999**

**Advisors: Mark Nissen, Department of Systems Management**

**CDR Jeffrey R. Cuskey, USN, Department of Systems Management**

The Standard Procurement System (SPS) is the next generation of procurement application software designed to link acquisition reform and common DoD procurement business processes with commercial best practices and advances in electronic commerce. When fully implemented, it will serve more than 1,100 sites worldwide and be employed by over 44,000 professionals. This research examines the SPS and emerging electronic commerce technologies that are revolutionizing the business industry today. Through a literature review and interview process, an analysis of the SPS along with Ariba Inc., a commercial paperless contracting venture, and leading intelligent agent software applications in e-commerce, is presented. Innovation analysis is applied to the data gathered from the research to develop a new process design. As analysts predict that by 2003, business to business e-commerce will grow to \$1.3 trillion and 95% of business industry is going to go to paperless procurement, only an aggressive implementation of innovative technologies today will prepare SPS for the procurement needs of tomorrow. It is to this end that this research is conducted, with the intent of fostering innovative change in the SPS.

**DoD KEY TECHNOLOGY AREA:** Other (Contracting)

**KEYWORDS:** Standard Procurement System, PD2, Ariba Inc., Intelligent Agents

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### **THE MISSING PIECE OF ACQUISITION REFORM: ECONOMIC INCENTIVES**

**Marshall L. Mason, III, Lieutenant Commander, United States Navy**

**B.S., Texas A&M University, 1986**

**Master of Science in Management-December 1999**

**Advisors: David R. Henderson, Department of Systems Management**

**Shu S. Liao, Department of Systems Management**

This thesis explores the role of economic incentives in the Federal bureaucracy and the impact these incentives have on achieving and sustaining acquisition reform initiatives. The thesis uses economic theory to demonstrate that Government bureaucrats act in their own self-interest to maximize their agencies' budgets, and have little or no incentive to reduce costs. Previous DoD acquisition reform efforts minimized or ignored the overarching importance of these incentives while attempting to treat the symptomatic problems. The National Performance Review has attempted to incorporate incentive structures by decentralizing decision-making authority and fostering initiative and innovation in the Federal workforce. The NPR's politically expedient focus on cost savings and personnel reductions, however, has undermined its ability to gain support among Government employees who perceive no tangible economic gain from embracing these reforms. New Zealand has implemented a comprehensive public sector reform program that emphasizes and incorporates economic incentives in the organizational structure, including decentralized resource allocation authority and accountability. Though the United States' political and bureaucratic systems create significant obstacles to adopting a comparable program, it is in the Country's best interest to incorporate economic incentive structures and accountability features within existing strategic management programs.

**DoD KEY TECHNOLOGY AREA:** Other (Acquisition and Contracting)

**KEYWORDS:** Acquisition Reform, Acquisition Policy and Strategy

### **UNITED STATES MARINE CORPS (USMC) KC-130J TANKER REPLACEMENT REQUIREMENTS AND COST/BENEFIT ANALYSIS**

**Mitchell J. McCarthy-Major, United States Marine Corps**

**B.B.A., Texas A&M University, 1987**

**Master of Science in Management-December 1999**

**Advisors: William R. Gates, Department of Systems Management**

**Associate Advisor: Keebom Kang, Department of Systems Management**

NAVAIR funded a research project to answer the question: how many KC-130Js Aerial Refueling Tankers will the U.S. Marine Corps (USMC) need to meet their future wartime requirements? This thesis supports that study. Thesis results were incorporated into the recently completed Marine KC-130 Requirements Study, by Professors Gates, Kwon, Washburn, and Anderson.

Specifically, the thesis focuses on the tradeoffs the USMC faces between requirements, performance, and life-cycle costs. The KC-130J aerial refueling requirement must support expected USMC fixed-wing refueling demand during two nearly simultaneous major theater wars. Furthermore, refueling capacity must keep the average time an aircraft waits in the aerial refueling queue ( $CT_q$ ) below five minutes. To define the tradeoff between the KC-130J requirement and system performance (waiting time), the thesis develops a Simulation Model using the ARENA© simulation language. The simulation model highlights the impact of capacity failures (refueling drogues and hoses) and overlaps between KC-130J sorties, two potentially significant factors that can't be explored with standard static queuing theory models. Next, the thesis develops a Life Cycle Cost (LCC) Model that incorporates cost variability using the Crystal Ball EXCEL© spreadsheet add-on. The model defines the tradeoffs between LCC and KC-130J fleet size. The resulting analysis and conclusions specify a base-case KC-130J requirement and discuss the tradeoffs between the requirement, life cycle cost and system performance.

**DoD KEY TECHNOLOGY AREAS:** Air Vehicles, Modeling and Simulation

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**KEYWORDS:** Queuing Theory, Modeling and Simulation, Life Cycle Cost (LCC) Spreadsheet Model, KC-130J, Drogue, Probe, Cost/Benefit Analysis

**THE PROGRAMMING AND BUDGETING PROCESSES OF THE UNITED STATES  
MARINE CORPS: AN INVESTIGATION INTO THEIR EFFICIENCY**

**Carl W. Miller, III-Captain, United States Marine Corps**

**B.B.A., Memphis State University, 1994**

**Master of Science in Management-December 1999**

**Advisors: CDR Ted Hleba, USN, Department of Systems Management**

**James M. Fremgen, Department of Systems Management**

The current Planning, Programming and Budgeting System (PPBS) consists of complex, overlapping phases that require a great deal of time and manpower to complete. More efficient PPBS processes could possibly reduce the time and manpower needed to complete these phases. The purpose of this thesis was to determine if the programming and budgeting processes of the United States Marine Corps could be more efficient. This issue was addressed in three steps. First the programming and budgeting processes were reviewed in detailed. Second, the legal requirements for each process were determined. Finally, each process was analyzed for duplication, value added, and timing of the elements of the process. The research resulted in two recommendations that could possibly increase the efficiency of the Marine Corps Programming Process. One, the Commandant's Initial Programming Guidance should be issued each year to provide the intent of the senior leader of the Marine Corps for program development. Second, the Marine Corps should consider combining the Assistant Commandant of the Marine Corps Committee brief with the brief to the Commandant to save time and effort. The research revealed that the requirement for the President to submit his budget to Congress by the first Monday in February drives the budgeting process. This requirement severely inhibits the ability to change the current process.

**DoD KEY TECHNOLOGY AREA:** Other (Financial Management)

**KEYWORDS:** Planning, Programming, and Budgeting System, PPBS, Program Budgeting, Defense

**AN ANALYSIS OF THE CIVILIAN EMPLOYEE REWARD SYSTEM IN USE AT NAVAL AIR  
WARFARE CENTER, AIRCRAFT DIVISION, PATUXENT RIVER, MARYLAND**

**John F. Montgomery-Lieutenant, United States Navy**

**B.S., University of Arizona, 1993**

**Master of Science in Management-December 1999**

**Advisors: Kenneth J. Euske, Department of Systems Management**

**Susan P. Hocevar, Department of Systems Management**

An incentive system should motivate employees to increase productivity and find innovative ways to control costs. In 1998, Naval Air Warfare Center, Aircraft Division, (NAWCAD) instituted a new reward system. At the request of the NAWCAD, this thesis sought to evaluate the effectiveness of the new reward system from the perspective of the employees affected by the system. The thesis examined current literature on motivation theory with emphasis on expectancy and equity theories. Focus groups and interviews with employees at Lakehurst, NJ and Patuxent River, MD were conducted. Information from the literature review, focus groups, and interviews was used to inform a questionnaire survey which was distributed to 700 employees. Analysis of the survey returns showed NAWCAD's reward system does not fully meet its potential as an effective motivational tool. For example, results suggest that increasing the average number of monetary rewards given per employee during a fiscal year, without increasing the total budget for monetary rewards, could raise employees' sense of reward system effectiveness. Increasing the number of monetary rewards given might make the system more useful for developing employee expectancy levels, developing line-of-sight between performance and reward, as well as promoting a greater sense of equity.

**DoD KEY TECHNOLOGY AREA:** Manpower, Personnel, and Training

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**KEYWORDS:** Civilian Employees, Rewards, Awards, Expectancy, Equity, Hygiene, Line-of-Sight, Incentives, Productivity

**A COMPARATIVE STUDY OF DOD AND NON-DOD ETHICS POLICIES AND PRACTICES  
IN INDUSTRY AS APPLIED TO THE NATIONAL INDUSTRIAL BASE**

**Michael B. Murphy-Lieutenant Commander, United States Navy**

**B.A., Colorado State University, 1987**

**Masters of Science in Management-December 1999**

**Advisors: CDR Jeffrey R. Cuskey, USN, Department of Systems Management**

**David V. Lamm, Department of Systems Management**

DoD is moving from industrial sectors for defense and commercial products to a common, integrated national industrial base. One of the principal objectives of DoD's acquisition reform is to open the defense market to commercial companies and technology. The purpose of this study is to examine the current ethics culture within industry and the perception of the ethical practices within the companies surveyed as well as in the industry. Specifically, this thesis focuses on the similarities and differences in the ethical environments of the Defense and the non-Defense industries. A survey was utilized to identify trends in the ethical behavior of the industry and a thorough review was conducted of the ethics policies provided by the responding companies. The research identifies significant differences and trends in the ethical environments between these two diverse industries and makes recommendations to the DoD acquisition professional to ensure an ethical environment exists when dealing with businesses not familiar with the ethical standards of DoD acquisition.

**DoD KEY TECHNOLOGY AREA:** Other (Acquisition)

**KEYWORDS:** Ethics, Acquisition, Contract Management, National Industrial Base, Defense Industrial Base

**AN ANALYSIS OF OUTSOURCING OF INSTALLATION SERVICES UNDER OFFICE  
OF MANAGEMENT AND BUDGET (OMB) CIRCULAR A-76**

**Richard J. Rochelle-Captain, United States Marine Corps**

**B.A., Central Washington University, 1990**

**Master of Science in Management-December 1999**

**Advisors: Lawrence R. Jones, Department of Systems Management**

**CDR Jeffrey R. Cuskey, USN, Department of Systems Management**

Office of Management and Budget (OMB) Circular A-76 details the process by which Government organizations manage and conduct commercial activity competitions. This research examined the requirements of OMB A-76 in terms of competitions within the Services of the Department of Defense. This research looked at the application of OMB A-76 by commands during the period FY 1994 to present. Through a survey of contracting commands within the Army, Navy, and Air Force, the researcher looked at the nature of services that were being competitively sourced. Additionally, lessons learned were collected from the commands, augmenting published lessons learned from each of the Services. Risk identification and management within the A-76 process was also examined in the survey. The goal in conducting the research was to aid Marine Corps Contracting Officers in identifying a common family of services capable of being competitively sourced. A secondary goal was the identification of significant issues that contracting officers will face when implementing OMB A-76.

**DoD KEY TECHNOLOGY AREA:** Other (Contracting)

**KEYWORDS:** Competitive Sourcing, Outsourcing, OMB A-76, Contracting

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### **AN ANALYSIS OF OPERATIONAL AVAILABILITY OF BRAZILIAN NAVY AND ARGENTINE AIR FORCE A-4 FLEETS USING SIMULATION MODELING**

**Marcelo B. Rodrigues-Lieutenant Commander, Brazilian Navy**

**B.S., Brazilian Naval Academy, 1983**

**Master of Science in Management-December 1999**

**and**

**Mario Karpowicz-Major, Argentine Air Force**

**B.S., Escuela de Ingeniería Aeronáutica, 1982**

**Master of Science in Management-March 2000**

**Advisors: Keebom Kang, Department of Systems Management**

**Donald R. Eaton, Department of Systems Management**

This thesis analyzes the impact of reducing transportation cycle time and consolidating aviation electronic component inventory management on the operational availability of the Brazilian Navy and Argentine Air Force A-4 fleets. The research is based on a scenario where the Brazilian Navy operates twenty A-4 aircraft, while the Argentine Air Force operates thirty A-4s, and both countries rely on manufacturers in the United States for depot-level maintenance. The transportation turn-around-time is extremely long and the cost of some inventory items is very high. A simulation model was developed representing the repair process of a selected group of A-4 critical electronic components. This particular model provides an effective managerial resource for long-term decision making to improve the readiness of aircraft fleet for both countries. We also developed a multiple regression analysis model (metamodel) to find the relationship between spare inventory levels and the operational availability. These results were applied to a linear programming model to find optimal spare levels for these critical components by minimizing the total cost while maintaining the desirable military readiness. Through a cost-effectiveness analysis, we compared the two situations, optimal spare levels with reduced transportation time and actual spare level with current transportation time. The research concludes that both Armed Forces will improve readiness, while achieving significant savings, if they reduce the transportation time for the aviation electronic components sent to the United States for depot-level maintenance, and collaborate on the inventory management of their A-4 fleets.

**DoD KEY TECHNOLOGY AREA:** Other (Logistics)

**KEYWORDS:** Inventory Management, Operational Availability, Simulation Modeling, Transportation Costs, Aviation Depot-Level Maintenance

### **TOTAL OWNERSHIP COSTS FOR THE MARINE CORPS PROCUREMENT PROGRAMS**

**Gary D. Rotsch-Captain, United States Marine Corps**

**B.A., University of Missouri, 1993**

**Masters of Science in Management-December 1999**

**Advisors: Joseph G. San Miguel, Department of Systems Management**

**James M. Fremgen, Department of Systems Management**

This thesis responds to Marine Corps Systems Command (MARCORSYSCOM) Program Managers' desire to track Total Ownership Costs (TOC) for the procurement programs in the Marine Corps. DoD has adopted TOC as a means of reducing costs to generate the necessary resources for critical modernization and recapitalization. TOC serves as a strategic goal that focuses the efforts of the acquisition community on understanding Life Cycle Cost (LCC) and the support infrastructure for existing and future weapon programs. This study examined the budget process, funding flow and appropriations along with major appropriation categories, and tracking TOC in the major appropriations. Data was collected from historical accounting records, Budget Estimate Submission (BES) to Congress, and other supporting systems. The major finding of this study is that TOC may be tracked in the major appropriation categories of RDT&E and procurement with limited administrative accounting modifications. Personnel and funding restrictions prevent actual cost for the military personnel appropriations from being attained, but estimates can be used with a reasonable degree of certainty. The operations and maintenance appropriations will continue to be

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the most difficult to track for TOC. However, the introduction of new accounting and supply systems, plus awareness, will improve the ability to track TOC in this appropriation.

**DoD KEY TECHNOLOGY AREA:** Other (Finance)

**KEYWORDS:** Total Ownership Costs, Marine Corps

**AN ANALYSIS OF THE PLANNING, PROGRAMMING AND BUDGETING SYSTEM (PPBS)  
PROCESSES OF THE MILITARY SERVICES WITHIN THE DEPARTMENT OF DEFENSE**

**Joseph S. Snook-Lieutenant Commander, United States Navy Reserve**

**B.S., Texas A&M University, 1986**

**Master of Science in Management-December 1999**

**Advisor: CDR Ted Hleba, USN, Department of System Management**

**James M. Fremgen, Department of System Management**

This thesis analyzes the current Planning, Programming and Budgeting System (PPBS) processes used in the military services. It will provide an updated basis for further study of PPBS. The thesis provides an overview of the PPBS at the Department of Defense level and describes the practices in place for the services. In each chapter there is an examination of the PPBS organization or corporate structure for the respective service. Additionally, each chapter examines the planning phase processes to develop the programming guidance. Next is a description of the Program Objectives Memorandum (POM) development and Budget Estimate Submission (BES) formulation. Following descriptions of the practices for each of the services, there is a comparison. The comparison revealed two different methods being used by the services. The Army uses a decentralized approach for all inputs to the different processes. The Navy uses a decentralized approach for only the BES inputs and the Air Force uses a decentralized approach for only the POM inputs. The Marine Corps uses a centralized approach for all inputs. A centralized approach for review is used by all services, but at differing levels.

**DoD KEY TECHNOLOGY AREA:** Other (Finance)

**KEYWORDS:** Planning, Programming and Budgeting System, PPBS, Program Budgeting, Defense

**FEASIBILITY OF STANDARDIZING AUTOMATED LABORATORY ANALYZERS  
ON-BOARD U.S. NAVAL SHIPS**

**Debra R. Soyk-Lieutenant, United States Navy**

**B.S., Austin Peay State University, 1986**

**Master of Science in Management-December 1999**

**Advisors: LTC Brad Naegle, USA, Department of Systems Management**

**Keith F. Snider, Department of Systems Management**

There are 75 Naval ships that have a medical laboratory aboard and laboratory technicians assigned (HM 8506-Advance Medical Laboratory Technicians) to perform testing. The purpose and function of laboratory technicians are to assist health care providers in: 1) confirming or rejecting a diagnosis, 2) providing guidelines in patient management, 3) establishing a prognosis, 4) detecting disease through case finding or screening, and 5) monitoring follow-up therapy. Currently, no shipboard laboratory is configured quite the same. Even though the testing requirements are similar, the type of instrumentation and methodology used to accomplish testing varies from ship to ship. This research provides insight into the feasibility, effects, and benefits of standardizing automated laboratory analyzers aboard Navy ships. The author examined the current doctrine, selection, procurement and provisioning of shipboard laboratories and their impacts on training and fleet medical support. The findings show the overall effect of standardizing laboratory analyzers is improved combat readiness. The concerns of medical departments that led to non-standard analyzer procurement will be alleviated with fielding of the standardized equipment. Scarce resources, including funding, shipboard warehousing and laboratory space, and training resources are maximized.

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**DoD KEY TECHNOLOGY AREAS:** Biomedical, Other (Logistics)

**KEYWORDS:** Standardizing Laboratory Equipment, Automated Analyzers

### **AN ECONOMIC ANALYSIS OF THE AEROMEDICAL EVACUATION, PATIENT MOVEMENT ITEMS PROGRAM**

**Scott M. Spratt-Lieutenant, United States Navy  
B.S., Park College, 1989**

**M.H.A, Chapman University, 1995**

**Master of Science in Management-December 1999**

**Advisors: William R. Gates, Department of Systems Management**

**Kevin R. Gue, Department of Systems Management**

This research examines the Air Force Aeromedical Evacuation, Patient Movement Items (PMI) Program. This thesis analyzes the primary question of cost savings or equipment deferral based on projected casualty rates. It uses a simple linear program, focused on minimizing beginning inventory, and maps an optimal order plan based on manufacturer capacity and lead time. This thesis suggests updating demand requirements for variability from projected demand using an exponentially weighted moving average calculation. This thesis illustrates that initial deferral can generate substantial savings. This thesis recommends increasing readiness capabilities and cost avoidance by implementing the deferral plan.

This thesis recommends additional areas of further research to include consolidating patient movement and inventory tracking systems and utilizing advanced simulation software to determine medical requirements in theaters of operation. These initiatives, if analyzed more thoroughly, could provide DoD policy makers clearer insight for potential system-wide savings.

**DoD KEY TECHNOLOGY AREA:** Biomedical

**KEYWORDS:** Aeromedical Evacuation Patient Movement Items

### **METRICS FOR MONITORING SECTION 845 "OTHER TRANSACTIONS"**

**Peter G. Stamatopoulos-Lieutenant Commander, United States Navy  
B.B.A., University of San Diego, 1988**

**Masters of Science in Systems Management-December 1999**

**Advisors: CDR David A. Smith, USN, Department of Systems Management**

**William R. Gates, Department of Systems Management**

Recognizing the need to enhance flexibility and reduce the burden of Government-funded science and technology contracts, Congress crafted Section 845 Other Transaction Authority (OTA) to release Defense Advanced Research Projects Agency and the Services from complying with statutes and regulations in the FAR/DFARS procurement process. This greater flexibility was intended to attract commercial firms that normally would not do business with the Government, thus expanding the defense technology and industrial base. This study was conducted to identify and develop appraisal metrics that could be used to measure both the use and value of Section 845 OTs. The thesis also presents a survey of standard contract management metrics used by various buying organizations. The researcher found survey respondents rated 13 standard contract metrics to be appropriate for Section 845 OTs; and, recommends establishing four measures to serve as a core set of metrics applicable to all Section 845 OTs.

**DoD KEY TECHNOLOGY AREA:** Other (Acquisition, Contracting)

**KEYWORDS:** Section 845, Other Transactions, Contract Metrics, Metrics

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### **SIMULATION OF KOREAN FLAG SHIPPING (KFS) IN SUPPORT OF ASSAULT FOLLOW-ON ECHELONS AND FOLLOW-UP SHIPPING**

**Richard G. Steele-Captain, United States Marine Corps**  
**B.S., University of Texas, 1991**  
**Master of Science in Management-December 1999**  
**Advisors: Keebom Kang, Department of Systems Management**  
**Ira Lewis, Department of Systems Management**

Sealift is essential in the defense of the Korean peninsula. Military Sealift Command (MSC) has established a Memorandum of Agreement (MOA) with the Republic of Korea (ROK) in which Korean merchant vessels could be utilized in the movement of military cargo from the U.S. and the Pacific region to Korea. The complexity involved in activating, assigning ships and ensuring adequate sealift, merits analysis to better understand this MOA.

This thesis focuses on the activation and assignment of Korean vessels enrolled in the Korean Flag Shipping (KFS) program. A baseline analysis of the ship data was conducted in order to determine which inputs were available to model. A simulation model based on ship routes, capacities, speed, and location was developed to provide a decision framework for MSC. Hypothetical unit data was created with the intent of demonstrating how shipping response times can be generated based on known probabilities from the baseline. Unit closure times are also predicted. We did not use actual operation plan data in the development of this simulation. However, the substitution of actual unit movement data was anticipated and the model was verified to ensure that it could accommodate this requirement.

This research provides a foundation for future simulation of the KFS program. Results indicate that the response times are longer than those currently used. The variability found in both the response times and unit closure times is sensitive not only to the size of the unit to be moved but also to the location of the ship, travel distances and the allocation of the ships.

**DoD KEY TECHNOLOGY AREA:** Modeling and Simulation

**KEYWORDS:** Simulation, Korean Flag Shipping, OPLANS, Agreements, Marine Transportation, Military Sealift Command, Logistics

### **FORECASTING MV-22 AERIAL REFUELING TRAINING MISSIONS FOR 2D MARINE AIRCRAFT WING**

**Robert J. Stevenson-Major, United States Marine Corps**  
**B.A., Villanova University, 1985**  
**Master of Science in Management-December 1999**  
**Advisors: William R. Gates, Department of Systems Management**  
**Shu S. Liao, Department of Systems Management**

The MV-22 "Osprey" was designed as a "medium-lift" replacement for the Marine Corps CH-46E "Sea Knight" and CH-53D "Sea Stallion" helicopters. The MV-22's tilt-rotor technology will allow it to exploit the operational envelopes of both helicopters and turbo-prop aircraft. This expanded performance envelope, along with the capability to conduct aerial refueling, will allow a MV-22 lifted force to influence future operations through an increase in range and speed.

This thesis quantifies the impact that fielding the MV-22 within the 2nd Marine Aircraft Wing (MAW) will have on its KC-130 squadrons. This impact arises from the MV-22's capability to receive fuel in-flight (aerial refuel). Since the CH-46E and CH-53D could not aerial refuel, their pilots did not have a need to conduct aerial refueling training, and thus they had no demand for "tanker" support from the KC-130 squadrons. Now that the MV-22 pilots will be required to train for aerial refueling operations, KC-130 squadrons will be required to provide "tanker" support for them.

This research quantifies the future increase in demand in terms of aerial refueling missions and offers recommendations to reduce it. For 2nd MAW, this increase will peak in FY02 with 164 missions being "scheduled."

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**DoD KEY TECHNOLOGY AREA:** Air Vehicles

**KEYWORDS:** Aircraft, MV-22, Aerial Refueling, KC-130

### **THE USE OF ADVANCED WARFIGHTING EXPERIMENTS TO SUPPORT ACQUISITION DECISIONS**

**Kenneth W. Strayer-Captain, U.S. Army**

**B.S., University of Dayton, 1990**

**Master of Science in Management-December 1999**

**Advisors: Thomas H. Hoivik, Department of Operations Research**

**Susan P. Hocevar, Department of Systems Management**

This research effort focused on the use of Advanced Warfighting Experiments (AWEs) to support acquisition decisions. Specifically, the thesis evaluated the effectiveness of the Army Task Force XXI AWE in providing information to support investment decisions and refinement of requirements for information age technologies. A detailed analysis of the 1997 Operational Test and Evaluation Command (OPTEC) Live Experiment Assessment Report identified program developmental recommendations. Data were collected from appropriate program offices and user representatives to determine the perceived utility of the recommendations and level of implementation. Qualitative data detailing why specific recommendations were or were not implemented were used to determine the contributing factors to a program's ability to benefit from participation in the experiment. Overall, fifty-two percent of the OPTEC recommendations were reported as either fully or mostly implemented. Other potential benefits of AWE participation were identified to include: (1) marketing and exposure of program, (2) refinement of user requirements, and (3) information on integration, interfaces, and interoperability. Risks from participation in the AWE included: (1) a poor return on investment, (2) potential negative exposure, and (3) extensive changes in requirements. Recommendations to enhance the value of participation in AWEs are included.

**DoD KEY TECHNOLOGY AREA:** Other (Acquisition)

**KEYWORDS:** Advanced Warfighting Experiments, Task Force XXI, Joint Venture, Army Digitization, Acquisition Management

### **A MODEL OF CONTRACT ADMINISTRATION FOR THE ARMED FORCES OF THE PHILIPPINES (AFP) MODERNIZATION PROGRAM**

**Caesar C. Taccad-Lieutenant Commander, Philippine Navy**

**B.S., Philippine Military Academy, 1982**

**Master of Science in Management-December 1999**

**Advisors: David V. Lamm, Department of Systems Management**

**CDR David A. Smith, USN, Department of Systems Management**

The purpose of this thesis is to determine and develop the appropriate system for the implementation and administration of contracts formulated under the Armed Forces of the Philippines (AFP) Modernization Program. In 1995, the Philippine Congress mandated the modernization of the AFP through a 15-year program under Republic Act (RA) 7898. Subsequently, the Department of National Defense (DND) issued Circular No. 29 to implement the Act. The Circular provided adequate guidance for the conduct of major system contracting, but it did not elaborate on the post-award implementation and administration of AFP contracts. Contract administration is a vital process in government acquisitions; it ensures the successful completion of the contract according to the satisfaction of the parties involved. Without a functioning contract administration system, the AFP risks failure in its Modernization Program. The study identified 12 post-award issues that would affect the successful administration of AFP contracts. Most of the issues are typical of any contracting agency, but some like countertrade, technology transfer, the Bids, Awards and Negotiation Committee (BANC) and the Project Management Teams (PMT), and lack of oversight skills and resources are unique to the AFP context. Using the AFP post-award issues, the prevailing contract administration practices and trends, and other concerns unique to the AFP, the study developed a model of

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contract administration that incorporates the elements and characteristics essential for its application in the AFP acquisition and contracting environment.

**DoD KEY TECHNOLOGY AREA:** Materials, Processes, and Structures

**KEYWORDS:** Contract Administration, AFP Modernization Program

### **ANALYSIS OF HOW THE WORK BREAKDOWN STRUCTURE CAN FACILITATE ACQUISITION REFORM INITIATIVES**

**Robert L. Thomas-DoD Civilian**

**B.S., Marietta College, 1984**

**Master of Science in Management-December 1999**

**Advisors: David F. Matthews, Department of Systems Management**

**Keith F. Snider, Department of Systems Management**

Program Managers (PMs) need insight into the high-risk and high-cost elements of their programs to effectively manage them. The Department of Defense (DoD) has adopted several acquisition reform initiatives in order to become a smarter, more efficient, and more responsive buyer of goods and services that meet our warfighter's needs. DoD 5000.2-R Regulation requires PMs to tailor a work breakdown structure (WBS) for each program using the guidance in Military-Handbook-881 (MIL-HDBK-881), "DoD Handbook - Work Breakdown Structure." This research concludes that a WBS structured in accordance with MIL-HDB-881 can significantly impede implementation of DoD acquisition reform initiatives. It does not adequately identify the key products and processes essential for program success. An alternate method of constructing a WBS was developed which better identifies and differentiates key products and processes. This research concludes that the alternate WBS has the potential to significantly facilitate implementation of recent DoD acquisition reform initiatives, as well as the potential to provide PMs greater visibility and early identification of cost, schedule, performance, and risk issues using an Earned Value Management System (EVSM).

**DoD KEY TECHNOLOGY AREA:** Other (Acquisition Management)

**KEY WORDS:** Acquisition Reform, Program Management, Work Breakdown Structure (WBS), Acquisition Process, Systems Acquisition, Integrate Product and Process Development, Integrated Product Teams (IPT), Earned Value Management System (EVMS)

### **RIGHTSIZING DOD INVENTORY: A CRITICAL LOOK AT EXCESSES, INCENTIVES AND CULTURAL CHANGE**

**Steven C. Thorne-Lieutenant Commander, United States Navy**

**B.S., United States Naval Academy, 1988**

**Master of Science in Management-December 1999**

**Advisors: Donald R. Eaton, Department of Systems Management**

**Ira Lewis, Department of Systems Management**

In its report "Major Management Challenges and Program Risks: Department of Defense," (GAO/OCG-99-4, January 1999), the Government Accounting Office (GAO) reported that half of the Department of Defense's (DOD) \$69.9 billion in inventory was either obsolete or rarely used. GAO then asserted that DOD would be able to reduce its inventory of secondary items and develop a culture of economic and efficient inventory management if DOD inventory management personnel were trained in modern commercial logistics practices. This thesis presents the position that high inventory levels can be the result of outdated performance measures and reward systems that often encourage holding high levels of inventory. Included is a description of performance measures used for Item Managers, Inventory Managers and unit commanders and their staffs as well as a discussion of other systemic factors that impact inventory levels and may result in excess inventories. In addition, this thesis suggests that some modern commercial

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logistics practices have been successfully implemented by DOD for certain commodities, while for others, it may not make sense to do so.

**DoD KEY TECHNOLOGY AREA:** Other (Logistics)

**KEYWORDS:** Logistics, Inventory, Performance Measures

**THE ASHORE INFRASTRUCTURE REQUIREMENTS NEEDED TO SUPPORT MOBILE MAINTENANCE FACILITIES (MMF) FOR INTERMEDIATE MAINTENANCE ON THE NEXT GENERATION AIRCRAFT CARRIER (CVNX)**

**Michael R. Watt-Lieutenant Commander, United States Navy**

**B.S., United States Naval Academy, 1987**

**Masters of Science in Management -December 1999**

**Advisors: Ira Lewis, Department of Systems Management**

**Donald R. Eaton, Department of Systems Management**

Intermediate Level Aviation Mobile Maintenance is currently conducted by the United States Marine Corps (USMC), Marine Aviation Logistics Squadrons (MALS) and also the USMC and United States Navy (USN) Electronic Warfare Community using a type of Mobile Facility (MF). The system is designed to be flexible and adaptable to changing mission requirements. This thesis investigates whether the same type of system could be utilized on the next generation aircraft carrier (CVNX).

The shipboard and ashore locations for the MF are investigated and the appropriate time to move them ashore as well. The proposed system is examined from an ashore perspective, and the infrastructure required to support the MF when offloaded from the aircraft carrier identified. The responsibility, transportation, site plan, complexing, power requirements, and manning issues are each addressed for the proposed system.

The analysis of the proposed system reveals that the costs associated with: procurement, configuration, transportation, ancillary gear, and maintenance to implement the proposed system are quite large. Also, the manning at both the shipboard and ashore commands would need to adjust as well. The changes required to execute the proposed system would require extensive investment and the return on this investment would not be realized until all aircraft carriers had implemented the proposed system.

**DoD KEY TECHNOLOGY AREA:** Other (Aviation Intermediate Mobile Maintenance)

**KEYWORDS:** Mobile Facility, Intermediate Maintenance, CASS, Modularization, CVNX

**BUSINESS STRATEGIC MANAGEMENT AND THE U.S. MARINE CORPS: AN ANALYSIS OF THE APPLICABILITY OF SELECTED CONCEPTS**

**Robert H. Willis, Jr.-Captain, United States Marine Corps**

**B.A., University of Illinois, 1993**

**Master of Science in Management-December 1999**

**Advisors: Nancy C. Roberts, Department of Systems Management**

**Cary A. Simon, Department of Systems Management**

This thesis discusses the applicability of three selected business strategic management concepts within the United States Marine Corps at the battalion level of command. The study includes a review of forty strategic management concepts, the identification of fifteen recent developments, and the rational behind the selection of the three concepts used in this study. The three concepts are: Core Competence Leadership, Scenario Planning and Strategic Intent. Field research consisted of telephone interviews with twelve Marine Corps leaders to discuss applicability of these three concepts at the battalion level of command. The Marine leaders interviewed are not identified in the thesis, but their comments are recorded in the raw data appendix. Overall, of the three concepts, only Core Competence Leadership was found to be applicable at the battalion level of command. In general, the Marine leaders interviewed felt the three concepts were either a higher headquarters function, or already covered under current Marine Corps

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leadership practices. Further research to examine the potential benefits of a Core Competence approach to leadership within the Marine Corps is recommended.

**DoD KEY TECHNOLOGY AREA:** Other (Strategic Management)

**KEYWORDS:** Strategic Management, Planning, Core Competence