

# MASTER OF SCIENCE IN MANAGEMENT

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## IMPLICATIONS OF THE MEDICAL SAVINGS ACCOUNT PROVISION OF THE BALANCED BUDGET ACT OF 1997

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**Master of Science in Management-December 1998**

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While addressing the Medicare financing problem, Congress wrestled with rising health care costs in the private sector and the need to balance the budget. Between 1994 and 1998 Medical Savings Accounts (MSAs) emerged as a controversial policy option. This thesis examines the evolution of MSAs from their inception to legislation introducing them to the private sector and then to Medicare. Data was obtained from congressional reports, periodicals and telephone conversations with a Health Care and Finance Administration (HCFA) analyst. The thesis explains how MSAs became available as an option to Medicare beneficiaries via the Balanced Budget Act of 1997. It details the legislative history of Medicare MSAs, identifies the key players involved and explains their incentives. The primary findings were that MSAs are supported by Congressional Republicans as a way to reduce Medicare costs by allowing beneficiaries to manage their own health care, financed by a fixed annual contribution from Medicare. The President and many Congressional Democrats opposed them because of lost tax revenues and possible damage to the existing health care system. The critical first step to Medicare MSAs was Congressional approval of tax free MSAs for small employers via a four year demonstration project in the Health Insurance Portability and Accountability Act of 1996. Medicare MSAs were delayed because insurers failed to file applications to provide them in time. In 1998, MSA supporters failed in their attempt to extend the small employer MSA demonstration and to expand MSAs to the Federal Employees Health Benefits Program.

**DoD KEY TECHNOLOGY AREA:** Other (Health Care Financing)

**KEYWORDS:** Medical Savings Accounts

## BENCHMARKING AND PERFORMANCE METRICS FOR A DEFENSE DISTRIBUTION DEPOT

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Department of Defense logistics activities are under increasing pressure to reduce their cost of operations. Defense Logistics Agency's response to this challenge is to reduce costs through competition--16 of 22 Defense Distribution Depots will be competed in the near future. Defense Distribution Depot San Diego (DDDC), facing this competition, must assess its relative competitiveness with respect to commercial industry. However, DDDC lacks performance metrics and measurement methods necessary to effectively measure its performance for comparison.

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The purpose of our thesis is threefold: to identify performance measures, measurement methods, and uses of performance measures by leaders in the physical distribution industry; to determine the depot's competitive position by quantifying the gap in performance using the performance metrics identified; and to identify the qualitative factors contributing to the gap in performance between the depot and commercial firms. Benchmarking methodology is employed to argue that there is a significant gap in performance between DDDC and commercial distribution firms. The gap is quantified and the qualitative factors contributing to it are discussed. Recommended productivity performance indicators for implementation at DDDC are included.

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

**KEYWORDS:** Benchmarking, Productivity, A-76, Defense Distribution Depots, DLA

### DECISION ANALYSIS OF THE RELOCATION OF MCAS FUTENMA

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This thesis analyzes the decision to relocate Marine Corps Air Station Futenma (MCAS Futenma) from its current location in the central region of the Okinawa, Japan to a Sea Based Facility (SBF) in the waters off the coast of the island. The analysis is completed by applying three decision making models: (1) the Rational Model; (2) the Model of "Muddling Through"; (3) and the Political Model. Data for the case and analysis were gathered from archives, participant interviews, and academic research.

The governments of Japan and the United States formed a bilateral committee, the Special Action Committee on Okinawa (SACO), to study ways of reducing the burden of the U.S. military on the people of Okinawa in response to the rape of a twelve-year old Okinawan girl by three U.S. servicemen. Led by Prefectural Governor Masahide Ota, local Okinawans called for the expulsion of all U.S. military from the island. The decision to relocate MCAS Futenma to the SBF was a product of this committee.

This thesis concludes that the "Political Model" of decision making was used in the selection of the SBF alternative for the relocation of MCAS Futenma. Recommendations are offered to help military officials recognize and deal with future decisions made in an environment of power and politics.

**DoD KEY TECHNOLOGY AREA:** Other (Decision Analysis)

**KEYWORDS:** MCAS Futenma, Okinawa Japan, United States Marine Corps, Sea Based Facility, Decision Making

### EVALUATING FORECASTING METHODS FOR CASH MANAGEMENT IN THE NAVY WORKING CAPITAL FUND

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**John E. Mutty, Department of Systems Management**

This thesis researches business forecasting models and methodologies for application in the management of cash in the Navy Working Capital Fund (NWCF). The recent dissolution of the Defense Business Operations Fund (DBOF) and establishment of the service Working Capital Funds has resulted in an increased emphasis on effective cash management practices at the service level. Unpredicted outlays in an era of severely declining budgets have caused further scrutiny of cash management practices in the NWCF, which generates nearly \$20 billion annually in revenues and expenditures. Forecasting models within the NWCF and outside the Department of Defense were evaluated for potential application at the Assistant Secretary of the Navy (Financial Management & Comptroller) (ASN (FM&C) and Supply Management Activity Group (NWCF-SM) level of the NWCF. Specifically, the NWCF-SM expenditures forecasting model was analyzed and evaluated for possible implementation across all

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NWCF business activities. Additionally, a developmental cash management system was analyzed and recommendations were made for improvement. Finally, several forecasting methodologies and private sector forecasting benchmarks were discussed to illustrate techniques that may be applicable in NWCF cash management. Cash collection and disbursement data were collected at ASN (FM&C) and NWCF-SM and evaluated for forecasting possibilities in the aforementioned models and methodologies. A simple probabilistic model was presented for application in NWCF cash management.

**DoD KEY TECHNOLOGY AREA:** Other (Financial Management, Revolving Funds)

**KEYWORDS:** Financial Management, Navy Working Capital Fund, Forecasting, Modeling, Cash Management

### **A MARINE CORPS ENLISTED INVENTORY PROJECTION MODEL USING YEARS OF SERVICE AND PAY GRADE**

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Currently, the United States Marine Corps is required by Congress to maintain its end strength between one-half percent below and one percent above 174,000. The main method of meeting this requirement is through careful accessions planning by the manpower planners at Headquarters, U.S. Marine Corps (HQMC). This thesis created an enlisted inventory projection model that forecasts required accessions using years of service (YOS) and pay grade as variables, whereas the current projection model in use at HQMC has only the YOS dimension. It is expected that by adding the pay grade variable, the model can more accurately calculate attrition, demotion, and promotion rates within each combination of pay grade-YOS category. This Excel-based model has been constructed using forecasting techniques where attrition, promotion, and demotion rates are based on either a straight average, one specific fiscal year, a two year weighted average, or a three year weighted average. This model is an easy-to-use tool with flexibility to perform quick calculations of several scenarios for analysis, ultimately providing efficiency and accuracy in manpower planning. The model also has the potential to enable manpower planners to do more detailed end strength analyses.

**DoD KEY TECHNOLOGY AREAS:** Manpower, Personnel, and Training, Other (Accessions Modeling)

**KEYWORDS:** Accessions Model, Manpower Modeling, Marine Corps, Spreadsheet

### **TIME SERIES ANALYSIS OF RECRUIT TRAINING COMMAND (RTC) GREAT LAKES RECRUIT GRADUATE DATA**

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This thesis formulates predictions for Recruit Training Command (RTC) Great Lakes' recruit graduation rates based on two econometric approaches. The Navy's recruit graduation rates exhibit pronounced seasonal and long-term behaviors, which tends to cause logistical problems at RTC. The modeling and subsequent forecast of RTC graduation rates is therefore an important management tool which could facilitate future planning for both RTC Great Lakes and the US Navy.

First the multiplicative decomposition method is employed to produce a model. As an alternative the autoregressive integrated moving average (ARIMA) process is used to describe the data. In both instances, satisfactory forecasting results are attained.

**DoD KEY TECHNOLOGY AREAS:** Modeling and Simulation, Manpower, Personnel, and Training

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**KEYWORDS:** Time Series Analysis, Econometrics, Modeling, Recruit Training Command, Recruits

**EVALUATING SECURITY ASSISTANCE PROGRAMS: PERFORMANCE  
EVALUATION AND THE EXPANDED INTERNATIONAL MILITARY  
EDUCATION AND TRAINING (E-IMET) PROGRAM**

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In 1991 the International Military Education and Training (IMET) program was expanded to include training programs focusing on civilian control over the military, respect for human rights, and responsible defense resource management. In 1993 Congress institutionalized the federal government's commitment to performance measurement by signing into law the Government Performance and Results Act (GPRA). GPRA requires the Departments of State and Defense to *demonstrate* the results achieved by programs such as Expanded IMET (E-IMET). The purpose of this study is to address how the Defense Security Cooperation Agency (DSCA) can tackle the challenge of measuring the effectiveness of the E-IMET program. A spectrum of approaches exists to evaluate public programs and is anchored on one end by the "technically rational paradigm" and on the opposite end by the "politically rational paradigm." By organizing the security assistance objectives of key E-IMET stakeholders into a Global Hierarchy the researcher was able to link the E-IMET program to national level goals, creating an objective baseline from which to measure the performance of the program. Individual objectives hierarchies were then created for each E-IMET objective and performance indices were proposed to meet the requirements of the GPRA mandate.

**DoD KEY TECHNOLOGY AREA:** Other (Security Assistance)

**KEYWORDS:** Security Assistance, Performance, Evaluation, Measurement

**A SECURITY STUDY OF U.S. GOVERNMENT EMPLOYEES' NET WORTH IN  
RELATION TO THEIR HOUSEHOLD GROSS REALIZED INCOME AND  
PERTINENT PERSONAL CHARACTERISTICS**

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This thesis examines and analyzes U.S. Government employees' household net worth in relation to their gross realized income and personal characteristics. Persons hostile to American interests use financial incentives to recruit Americans into committing illegal acts against national security, economic competitiveness, and law enforcement. This thesis provides security investigators two empiric tools by which to screen and evaluate U.S. Government employees' household financial circumstances to determine if they warrant follow-on investigation as a possible security risk. The first investigative tool is a regression model equation that predicts an individual's household net worth based on their income level and personal characteristics. Individuals, whose actual household net worth is significantly above or below their predicted level, could be considered for follow-on investigation. The second investigative tool is financial data distribution profiles, generated from measures of central tendency from this thesis' sample. This may be used to compare an individual's household financial circumstances with that of other U.S. Government employees. Individuals whose financial profile significantly deviates from that of their peers, could be considered for follow-on investigation.

**DoD KEY TECHNOLOGY AREA:** Other (Counterespionage or Counterintelligence)

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**KEYWORDS:** Counterespionage, Security Investigation, Financial Incentive, Financial Evaluation, Wealth Prediction, Financial Responsibility, Counterintelligence

### **A CASE STUDY OF THE ADVANCED AMPHIBIOUS ASSAULT VEHICLE (AAAV) PROGRAM FROM A CONTRACTING PERSPECTIVE**

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This research effort focused on the contracting history of the U.S. Marine Corps Advanced Amphibious Assault Vehicle (AAAV) Program. The research answered the primary question of what were the critical contracting decisions that have been made during the program and how would an analysis of these contracting decisions affect the future of the AAAV program. Interviews were conducted with personnel from the AAAV Program Office and other Government agencies as well as with contractor employees. Additionally, program documents and other relevant literature were reviewed. The key findings of the research effort conclude that the unique collocation arrangement of the AAAV Program Office and the contractor should be emulated by other Major Defense Acquisition Programs (MDAPs); Integrated Product Teams (IPTs) and the Integrated Product and Process Development (IPPD) concept is effective in improving communications between the Government and the contractor; and unique contract clauses used in the Concept Demonstration and Validation contract were effective in incentivizing the contractor. The unique contract clauses examined were: mandatory geographic location of the contractor's facility, collocation of the AAAV Program Office with the contractor, a Special Design Decision Provision, and contractor cost sharing. The research effort presents recommendations on how these aspects of the AAAV program can be applied to other MDAPs.

**DoD KEY TECHNOLOGY AREAS:** Conventional Weapons, Ground Vehicles, Manufacturing Science and Technology, Other (Acquisition)

**KEYWORDS:** Marine Corps, Advanced Amphibious Assault Vehicle Program, Contracting, Major Defense Acquisition Programs, Integrated Product Teams, Integrated Product and Process Development, Cost Sharing

### **SURGICAL DEMAND FORECASTING, STANDARDIZATION, AND CAPITATED SUPPLY CONTRACTING AT DOD MEDICAL TREATMENT FACILITIES**

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

This thesis evaluates whether DoD can successfully predict surgical demand based on historical operating room usage and catchment area populations at Medical Treatment Facilities. Using sophisticated software, it applies statistical tools to develop surgical incidence rates and projects future year incidence rates based on projected population changes. This thesis focuses on medical logistics regionalization efforts underway throughout DoD and questions if outsourcing is the future of DoD medical logistics.

This thesis further delineates a disposable product, surgical, and clinical standardization program that DoD can immediately adopt to generate substantial savings in inventory investment. This thesis develops the idea that prepack surgical supplies can generate substantial savings following standardization. This thesis further develops the standardization structure, committee membership, subcommittee membership, and product review criteria for evaluating potential product standardization candidates. Capitated contracting for these prepack surgical kits along with future organization-wide disposable supplies, should be established along the same regions as the existing Tricare Lead Agents.

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This thesis recommends additional areas of further research to include outsourcing medical logistics functions within DoD, defining supply-side determinants, and analyzing their impact on surgical output at MTFs, and capitated supply contracting.

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

**KEYWORDS:** Surgical Demand Forecasting, Regionalization, Standardization, Outsourcing, Capitated Supply Contracting, Monte Carlo Simulation, Crystal Ball Analysis, Incidence Rates

### **FUEL INVENTORY MANAGER - DEVELOPMENT OF SPREADSHEET MODELS FOR EVALUATING AND FORECASTING INVENTORY POSITIONS AND NET INVENTORIES OF FUEL FOR NAVY FUEL FARMS**

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**Master of Science in Management-December 1998**

**Advisors: Jane N. Feitler, Department of Systems Management**

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

This thesis addresses the non-standardization of manual Navy fuel farm recordskeeping inventory procedures. It also addresses the errors in calculations and the man-hours required with current procedures. The errors in calculations lead to inventory inaccuracies which increase the possibility of the following: running out of fuel, spills due to overfilling or not being able to detect fuel loss due to leakage in a timely manner. A computerized spreadsheet using Microsoft Excel™ has been developed that will incorporate the formulas and tables used in these calculations in order to eliminate errors. A Users Guide was developed to familiarize the user with the versatility of Microsoft Excel™ to keep track of fuel inventories. This guide provides step-by-step instructions on how to construct the databases and models as discussed in the thesis. In summary, this thesis provides a quick accurate fuel inventory system. This system warrants the possibility of standardization throughout the Navy without an increase in government spending. Also, this system is simple, user-friendly and saves time. By reducing man-hours and labor, it also saves the government money. Information can be downloaded and e-mailed to higher commands as needed for strategic planning and allocation usage.

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

**KEYWORDS:** Inventory, Fuel, Spreadsheet

### **EVALUATION OF DIRECTLY SUBSIDIZING COMMERCIAL SUPERMARKET DISCOUNTS AS AN ALTERNATIVE TO PROVIDING CONUS COMMISSARIES**

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Congress over the years has debated the merits of having the Defense Commissary Agency (DeCA) operate commissaries. In 1997, the Congressional Budget Office (CBO) produced a study that evaluated the costs and benefits of retail activities, exchanges and commissaries, at military bases and recommended four alternatives for Department of Defense (DoD) to consider for improving operation of its retail activities. This thesis examines the feasibility of an additional alternative: to replace Continental United States (CONUS) commissaries by subsidizing commercial supermarkets for discounts provided to eligible service-members. To evaluate the feasibility of this alternative, the potential funding available was compared to the potential costs. The potential funding would come from the reduction in DeCA's annual appropriation resulting from eliminating CONUS commissaries. The potential costs include the cost of subsidization. Estimates of subsidization costs were based on data for grocery expenditures, range of family sizes, amount of discount offered to eligible service-members, and the portion of the discount

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subsidized by the government. The analysis reveals that the feasibility of this alternative depends significantly on the subsidy policies DoD may choose to adopt.

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

**KEYWORDS:** Financial Management, Defense Commissary Agency, Commercial Supermarket Subsidization Alternative, Commissary

### THE SIMULATION-BASED ACQUISITION RESEARCH LABORATORY

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This thesis examines the theoretical and practical aspects of simulation-based acquisition (SBA). SBA may provide the Defense acquisition community with a means to improve the acquisition process by reducing both cost and acquisition cycle-time, as well as leading to better system performance. In the past, the acquisition community applied computer models and simulations in a less-than-optimal manner. Recent use of computer models and simulations produced encouraging resource savings. However, the acquisition community has not yet fully realized the potential benefits of applying models and simulations to the acquisition process. This thesis also discusses lessons learned from application of SBA to commercial ventures that may help the Department of Defense develop an integrated set of computer models and simulations to improve weapon system acquisition across functional disciplines. Finally, this thesis discusses the need for an acquisition research laboratory and proposes a SBA laboratory environment as a means of further developing and implementing SBA.

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

**KEYWORDS:** Acquisition Program Management, Modeling and Simulation

### SUPPORTING THE MARINE EXPEDITIONARY UNIT

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**Second Reader: James E. Suchan, Department of System Management**

The United States Marine Corps concept for the projection of naval power ashore is Operational Maneuver From the Sea (OMFTS). In order to carry out the concept in OMFTS the Marine Expeditionary Unit is a force to project power. To ensure the MEU is successful it requires logistics support back to the sources of supply. The objective of this thesis is to introduce the current methods of supporting the MEU and provides recommendations for improvements. It focuses on the support organizations, Traffic Management Office (TMO), Deployed Support Unit (DSU), MEU Service Support Group (MSSG), Preservation, Packing, Packaging (PP&P), and the expeditor concept. Additionally, it also examines the existing technology in the Global Transportation Network (GTN) using In-Transit Visibility (ITV) to track shipments.

**DoD KEY TECHNOLOGY AREA:** Global Transportation Network (GTN)

**KEYWORDS:** Marine Expeditionary Unit (MEU), MEU Service Support Group (MSSG), Traffic Management Office (TMO), Logistics, Combat Service Support (CSS), In-Transit Visibility (ITV)

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### **DOD DEPOT-LEVEL MAINTENANCE: FACTORS TO CONSIDER IN PUBLIC/PRIVATE COMPETITION**

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Government arsenals and depots have traditionally provided DoD with a controlled source of depot-level maintenance capability. With the Cold War over and a shift in national priorities, DoD looks for cost savings and improved efficiency to save its shrinking budget dollars. As it looks for new ways of doing business, DoD looks to outsourcing as an option for depot-level maintenance, but is limited by statutory restrictions on such outsourcing. Both the policy and procedures remain hotly contested issues. When conducting the study to compete public and private capability, several factors and options should be considered throughout the overall process from the requirements determination to the final source selection. An important finding of this research is that particularly for new weapons systems, is that the Services are often rushing to outsource without considering life-cycle costs and other key factors. Recommendations to improve the process are to: establish a better definition of core, enforce life-cycle determination, make use of in-house excess capacity, maximize the use of partnering, improve training for those involved in preparing the in-house MEO estimate, outsource A-76 support, and continue to improve upon Government accounting procedures.

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

**KEYWORDS:** Depot-Level Maintenance, Depot Maintenance, Depots, Arsenals, Outsourcing, Privatization, A-76, Public/Private Competition, Government/Industry Competition

### **HOW THE IMPLEMENTATION OF PERFORMANCE BASED CONTRACTING HAS AFFECTED PROGRAM MANAGEMENT WITHIN THE DEPARTMENT OF DEFENSE**

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The objective of this research is to investigate the impact that performance based contracting (PBC) can have on program management in the Department of Defense. Interviews are utilized to gather information from Army, Navy, and Marine Corps Program Management Offices involved in the acquisition process. The study identifies how program management has been affected by the implementation of PBC and describes its use in three DoD acquisition programs. The advantages, disadvantages, and risks associated with PBC are analyzed to determine potential areas for improvement of the process, and the study develops guidelines that future program managers can use in the setup of PBC acquisitions. Based on key findings and conclusions, the study recommends the Government determine metrics for measurement of the effectiveness and efficiency of PBC, evaluate the waiver process associated with this initiative, and increase the training opportunities for the acquisition workforce. The study further recommends that DoD establish a marketing plan to foster positive cultural change towards PBC and outlines a number of areas for further research.

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

**KEYWORDS:** Program Management, Performance, Contracting

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### AN ANALYSIS OF NAVAL AIRCRAFT ENGINE CONTAINER MANAGEMENT

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Reusable aircraft engine and engine component containers serve a critical yet unglamorous role in the naval aviation logistics pipeline. Paradoxically, these items which provide shipping and storage protection to the most expensive aviation parts receive the least management attention and lowest budgetary prioritization. This thesis focuses on current funding and inventory management practices of those containers. The research revealed that container procurement and repair is chronically underfunded resulting in low supply availability and increasing wait times. Additionally, inventory management and budgetary decisions are complicated by poor asset visibility and accountability. The full impact of container shortages is obscured, as current logistics information gathering practices do not track this variable. The thesis identifies some alternative policies that could improve existing engine container support.

**DoD KEY TECHNOLOGY AREA:** Aerospace Propulsion and Power

**KEYWORDS:** Engine Container, Reusable Container, Packaging, Aviation Material Packaging, Appropriation Purchased Account, Working Capital Fund

### IMPLEMENTATION OF COST AS AN INDEPENDENT VARIABLE: AN AIM-9X CASE STUDY

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This research is a single case study of the implementation of Department of Defense (DoD) Cost as an Independent Variable (CAIV) into the AIM-9X Sidewinder air-to-air missile program to determine if CAIV has the attributes of a strategic management control system. Environmental forces—budgetary pressures, modernization requirements, and military performance requirements—have imposed upon DoD a need to change the way it conducts business, and implement an affordable “best value” acquisition strategy through implementation of policies such as CAIV. However, there does not exist a managerial framework to assist the program manager in how to implement CAIV. There exist too many definitions of CAIV and priorities differ about what is the most important CAIV objective. This research uses DoD publications, memorandums, Internet websites, and published academic books and papers to review CAIV objectives, and the use of management control systems in commercial industry and DoD. After studying how the AIM-9X program implemented CAIV, this thesis analyzes and discusses CAIV in terms of a strategic management control system. When control is used in the sense of implementing strategy, CAIV has the attributes of a strategic management control system. CAIV has the capability to control individual behavior and incentives that lead to decisions affecting higher costs. Viewing CAIV in this managerial framework may assist DoD in implementing its affordability strategy.

**DoD KEY TECHNOLOGY AREA:** Conventional Weapons

**KEYWORDS:** AIM-9X Sidewinder, CAIV, Strategic Management Control System, Acquisition Reform

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### THE MARINE CORPS FLYING HOUR PROGRAM AT MARFORLANT

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The goal of this thesis is to determine the best way to manage the Flying Hour Program (FHP) from the perspective of the U.S. Marine Forces Atlantic (MARFORLANT) Aviation Budget Officer. The thesis has two main objectives. The first objective is to describe the organization and current financial management issues related to the FHP at the Department of the Navy (DoN) and MARFORLANT levels. An historical overview of the FHP, an analysis of federal and defense budgeting dynamics, and an impact analysis of the Marine Aviation Campaign Plan are provided. The second objective is to conduct quantitative analysis of selected MARFORLANT data to better understand FHP cost behavior. Regression results are compared with previous DoN research to determine the suitability of Cost Per Hour as the most reliable FHP metric. Analysis confirmed that there is a direct relationship between fuel and flight hours, but showed virtually no correlation between flight hours and aviation maintenance costs. These findings indicate that regression models show too much variability for them to be used to displace the DoN OP-20 model as the primary means for budget forecasting for the FHP. The thesis concludes that the Aviation Budget Officer must continue to rely on qualitative budgeting skills to maximize the financial condition of MARFORLANT Aviation.

**DoD KEY TECHNOLOGY AREA:** Other (Flying Hour Program)

**KEYWORDS:** Flying Hour Program, Marine Corps Aviation, Marine Aviation Campaign Plan, Federal Budget Process, Cost Analysis, Budget Analysis, Management Planning and Control Systems

### SURFACE COMBATANT PLANNING SINCE THE END OF THE COLD WAR

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Master of Science in Management-December 1998

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U.S. Navy surface combatant requirements progressively dropped from 238 in 1988 to 116 in 1998. This reduction was part of the U.S. military transformation in the post-Cold War period. This thesis examined the major factors that influenced the change in surface combatant planning since 1990, i.e., budget agreements, naval doctrine, OPNAV reorganization, and Defense reviews. Data sources included books, periodicals, major force structure reviews, naval strategy papers, budgetary reports, and interviews. The major conclusion is that constrained fiscal resources had the most dramatic effect on the surface combatant fleet. To adapt to the drop in O&M and procurement funding, the Navy has reduced costs by decommissioning older ships, slowing shipbuilding rates, shifting to multiyear contracts, and focusing on life cycle expenses. The next scheduled surface combatant program, DD-21, will compete against other shipbuilding programs due to projections of relatively flat Defense budgets. The shift to littoral warfare has also shaped the surface combatant force, changing doctrine and weapon system emphasis.

**DoD KEY TECHNOLOGY AREAS:** Conventional Weapons, Surface/Under Surface Vehicles – Ships and Watercraft

**KEYWORDS:** Surface Combatants, Defense Budget, Ships, Shipbuilding, Surface Warfare

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### AN ANALYSIS OF FEDERAL BUDGET INFORMATION ON THE WORLD WIDE WEB

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The evolution of the Internet has progressed significantly, encouraging organizations to improve the quality of information in websites. This phenomenon has impacted sources of information available on the federal budget. This thesis examines this development by documenting the scope of federal budget information on the Internet. Literature on the federal budget process and the World Wide Web was reviewed. More than 120 executive, legislative, and private interest group websites were sampled. Websites were characterized using the criteria of timeliness of data, accessibility to data, and ideological orientation. The thesis concludes that significant federal budget information is available on the Internet. In terms of web-publishing federal budget data, Congress and proprietary sites were the most timely. Accessibility varied with the significance to the website sponsor of federal budget policies. An ideological range within the websites sampled was depicted, from the ostensibly neutral to the obviously partisan. The thesis provides a discussion and examples of websites sponsored by many federal and private organizations. Web users interested in the federal budget can benefit from this information to guide their use of the Internet.

**DoD KEY TECHNOLOGY AREA:** Other (Federal Budget Information on the World Wide Web)

**KEYWORDS:** Appropriation, Authorization, Federal Budget, Internet, World Wide Web, Websites, Webpages

### CAUSES OF EA-6B CANNIBALIZATIONS

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Cannibalizations cause dramatic reductions in system maintainability and reliability. Cannibalization of any system is defined as replacing a defective part of one system with an in-use part from another system. Cannibalizations are a part of high tempo operations where aircraft and weapon systems must be repaired on the spot and immediately re-deployed. There has been an every increasing reliance on cannibalizations in some communities and units over the past five years. Cannibalizations have several undesirable affects on readiness for several reasons. First, they double the work of maintenance personnel, due to switching parts with another aircraft. In essence repairing both aircraft to complete a single maintenance action. Second, removing parts multiple times between aircraft while conducting cannibalizations reduces the reliability of parts. Third, improper or lack of documentation of cannibalizations, under reports the severity of the problem, which hides maintenance inefficiencies. Incentives to increase documentation of cannibalizations are needed to justify the need for increased funding and to find solutions to reduce the number of cannibalizations that occur.

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

**KEYWORDS:** EA-6B, Cannibalizations, Acquisition Logistics Support, Supportability

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## MASTER OF SCIENCE IN MANAGEMENT

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### ANALYSIS OF CONTRACTING METHODS EMPLOYED IN THE ADVANCED CONCEPT TECHNOLOGY DEMONSTRATION PROGRAM

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The Advanced Concept Technology Demonstration (ACTD) Program, initiated by DoD as a joint acquisition and warfighting community effort, is intended to exploit mature and maturing technologies to assist in solving identified military needs. The focus of the research is to examine the ACTD Program, its three classes and the contracting methods employed in each class. The objective of this research is to determine if contracting methodology is a critical decision element in the ACTD process and provide recommendations for Government contracting personnel in contracting for future ACTDs. This study compares and contrasts procurements through the formal acquisition process to those via the ACTD Program. Additionally, major ACTD outcomes, issues, challenges and lessons learned are analyzed to assess how they may impact the contracting process. Due to the highly diverse nature of ACTD systems, the choice or prescription of a particular contract method was not found to be a critical process element. The ACTD process should remain flexible to achieve the objectives for which it was established. Contracting officials should be encouraged to tailor the acquisition process to the needs of the particular programs, minimize cost, schedule and performance risks and incentivize contractor performance to the maximum extent possible.

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

**KEYWORDS:** Advanced Concept Technology Demonstrations, Acquisition Reform, Contracting Methodology, and Contract Types

### OUTSOURCING: AN EXAMINATION OF THE MARINE FORCES PACIFIC COST REDUCTION INITIATIVE

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**LtCol Timothy L. Phillips, United States Marine Corps Representative**

The Department of Defense (DoD) has begun the revolution in business affairs by renewing initiatives for outsourcing as a means to meet an estimated \$60 billion shortfall for force modernization. The Marine Corps has projected outsourcing to achieve \$110 million in annual savings by FY 2004. The Commander, Marine Forces Pacific (MARFORPAC) has designed and is implementing a Cost Reduction Initiative (CRI) to save approximately \$38 million annually by FY 2004. OMB Circular A-76 provides guidance for outsourcing commercial activities. This thesis examines previous DoD experience with outsourcing and the MARFORPAC CRI to determine the lessons learned that may be integrated during implementation of the CRI. This study analyzed outsourcing efforts of other services and developed criteria that may be applied to contracting out services throughout the Marine Corps. Lessons learned include the development of an accurate performance work statement; the use of multifunction studies to provide increased savings compared to several single function studies; the use of best value criteria and a performance-based contract to increase the probability for successful contract awards; command commitment to outsourcing is a key ingredient at the local level; and to keep employees well informed about potential outcomes during the outsourcing process.

**DoD KEY TECHNOLOGY AREA:** Other (Outsourcing, Contracting Out)

**KEYWORDS:** Outsourcing, Contracting Out, OMB Circular A-76

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## MASTER OF SCIENCE IN MANAGEMENT

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### **CONTRACT LOGISTICS SUPPORT (CLS) IN THE TWENTY FIRST CENTURY: A COMPARATIVE ANALYSIS OF CLS IN THE T-45 PROGRAM USING NAMP/4790 PROCEDURES VICE COMMERCIAL BEST PRACTICES**

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This thesis evaluates the current United States Navy (USN) Contract Logistics Support (CLS) arrangement on the T - 45TS program and compares it to commercial best practices. The objective was accomplished by evaluating the existing system and using technical, functional, and operational analyses to determine the feasibility of improving USN practice in contract methodology and language for future CLS implementations in general and on the T - 45TS program in particular. Using archival research, interviews, and site visits, this study identifies the current system and state of the art commercial best practices in service contracts and contracting/quality control over sight applicable to USN CLS implementation. Broad findings include: competitively bidding a contract without owning the engineering data rights may be costly in the long run; and infusion of best commercial practices and international quality standards vice strict compliance with government practices provides an opportunity to decrease life cycle costs through reduced oversight and state-of-the-art management techniques and processes. Further findings and recommendations on the T - 45TS program are included in the areas of: improving contract practices, personnel qualifications, and training.

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

**KEYWORDS:** Commercial Logistics Support, Best Practices, Contracting, Quality Control, Contractor Oversight

### **POSITIONING FOR SUCCESS: THE INNOVATION OF VIRTUAL TEAMS**

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The competitive, global nature of business and the development of robust telecommunication network technology has led organizations to design new business processes for organizing work to maintain a competitive advantage. Specifically, organizations have begun using virtual teams as a solution to optimizing dispersed resources. Virtual teams are geographically dispersed groups of people linked together by a common purpose and advanced computer and telecommunication technologies. This organizational design provides optimum teaming of world-class competencies by linking together employees who might not otherwise be available to work together. This research studies American Management System's use of virtual teams to identify design factors and alignments that are crucial for virtual team success. The study reveals four basic components for virtual team success: 1) selecting the right team members, 2) identifying a clear and common purpose, 3) building a high-performance technical infrastructure, and 4) sustaining an organizational culture that supports information sharing. Findings from the AMS case study determine seven lessons learned for the successful implementation of virtual teams. These findings also demonstrate the potential applicability of virtual teams within the DoD/DoN environment in the context of specialized functions.

**DoD KEY TECHNOLOGY AREA:** Other (Virtual Teams)

**KEYWORDS:** Virtual Teams, Virtual Organizations, Distributed Teams, Distance Learning, American Management Systems

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## MASTER OF SCIENCE IN MANAGEMENT

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### DECISION MODEL FOR USING OTHER TRANSACTIONS AT DOD BUYING COMMANDS

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Department of Defense (DoD) is operating in an environment characterized by unknown adversaries, rapid technological change and a flat defense budget. To maintain technical superiority over its potential adversaries and do it affordably, DoD must further exploit the commercial industrial base. The use of "other transactions" (OT) provides one solution. This study was conducted to develop a decision model on when to use other transactions at DoD buying commands. The intent of this OT decision model is to provide the decision-maker with a framework that identifies key factors that should be considered in determining if an OT is appropriate. Depending on what the buying command is trying to achieve will determine which factors will be pertinent in the decision process. The researcher concludes that the business decision is central to the OT decision. The other principal criteria in the OT decision process are nature of the product, non-traditional defense firms, dual-use technology, cost-share arrangement, and risk analysis.

**DoD KEY TECHNOLOGY AREA:** Other (Other Transaction Decision Model)

**KEYWORDS:** Other Transaction Decision Model

### THE EFFECTS OF THE U.S. FOREIGN MILITARY SALES (FMS) PROGRAM IN PRESERVING THE DEFENSE INDUSTRIAL BASE

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The objective of this research is to investigate the impact that Foreign Military Sales (FMS) policy can have on the preservation of the Defense Industrial Base. A survey is utilized to gather information from five of the top ten defense contractors. This study concludes that FMS policy will continue to be shaped by U.S. foreign policy. The study identifies how the defense industry has been affected by recent drawdowns and it describes arms transfers as an instrument of foreign policy based on United States national security interests. Additionally, offset agreements are analyzed as a contributory factor to the globalization of the arms industry. The study also identifies strategies the Government and the defense industry should use to facilitate the preservation of the Defense Industrial Base. The study recommends the Government review, streamline and liberalize arms transfer procedures. The Government can maintain the Defense Industrial Base by actively and aggressively supporting industry in the arms transfer process.

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

**KEYWORDS:** Foreign Military Sales, Downsizing, Security Assistance, Offset Agreements, Defense Industrial Base

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## MASTER OF SCIENCE IN MANAGEMENT

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### A FINANCIAL ANALYSIS OF RESOURCE SHARING AGREEMENTS AS PART OF THE TRICARE MANAGED CARE SUPPORT CONTRACTS

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Escalating health care costs and base closures have forced the DoD to improve access to health care while maintaining quality, controlling costs, and increasing medical readiness. The response is a Tri-service managed care system called TRICARE. One mechanism utilized within the TRICARE Managed Care Support Contracts (MCSCs) is Resource Sharing. Resource sharing is a system to reduce health care costs to the government by recapturing the TRICARE workload. This thesis was designed to determine if Resource Sharing Agreements (RSAs) are cost-effective and how they are being monitored and evaluated by the Lead Agent and MTFs. After conducting a literature review, interviews and performing data analysis, this thesis examined the reported cost analysis, retrospective analysis, and workload of RSAs in Health Services Region 10 as they are used under the MCSC for that region. A case study of RSAs, comparing forecasted and reported savings, was also conducted in order to provide an understanding of RSAs and their role in controlling military health care costs. The analysis found that the RSAs are performing the objective of savings to the government but not at the predicted rate. This case study found that only 67 percent of the estimated government savings were realized. Decreasing workload is a key factor explaining this shortfall.

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

**KEYWORDS:** Resource Sharing, Managed Care Support Contract, TRICARE, Military Health System

### PREPARING FOR THE 21<sup>ST</sup> CENTURY: INCORPORATING INTEGRATED MECHANICAL DIAGNOSTICS SYSTEMS ONTO MARINE CORPS LIGHT/ATTACK HELICOPTERS

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Integrated Mechanical Diagnostics (IMD) systems (also known as Health and Usage Monitoring Systems (HUMS)) are considered one of the greatest advances in aviation maintenance and safety technology due to their ability to detect faults before they cause mechanical or structural failure. Presently, there are two Department of Defense programs focusing on implementing an IMD/HUMS solution for all rotary-wing aircraft. Additionally, the Chief of Naval Operations has issued two policies that rely directly on IMD/HUMS technology.

As the United States Marine Corps (USMC) prepares to enter the 21<sup>st</sup> century, one of its top priorities is the H-1 Upgrade Program. This program encompasses the re-manufacture of all light/attack helicopters in order to extend their service-life to the year 2020. The re-manufacturing process provides the optimum opportunity to implement IMD/HUMS technology.

This thesis examines the benefits and problems associated with IMD/HUMS and its potential effect on military rotary-wing aircraft, specifically the fleet of USMC H-1 helicopters.

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

**KEYWORDS:** Integrated Mechanical Diagnostics (IMD), Health and Usage Monitoring Systems (HUMS), H-1 Upgrade

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## MASTER OF SCIENCE IN MANAGEMENT

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### EXAMINATION OF THE FLYING HOUR PROGRAM (FHP) BUDGETING PROCESS AND AN ANALYSIS OF COMMANDER NAVAL AIR FORCES PACIFIC (CNAP) FHP UNDERFUNDING

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**and**

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This thesis examines the Commander Naval Air Forces Pacific (CNAP) Flying Hour Program (FHP) budget process and analyzes the issues causing underfunding in that program. The Department of the Navy Flying Hour Program (FHP) is used to fund requirements and justify the resources required to train aviation crews and maintain Navy/Marine Corps aircraft. The thesis begins with a comprehensive overview of the FHP, including how flying hour requirements are determined and how the funding process operates. It then analyzes the major factors contributing to CNAP perennial FHP underfunding and resource variability. Information to explain FHP underfunding is widely distributed. The thesis provides a single source reference to help CNAP FHP managers and budget personnel better understand the FHP budgeting process, including historical and current causes of program underfunding.

This research concludes that key causes of CNAP FHP underfunding and related problems are: 1) Budget process dynamics, including limited resources and competing priorities, 2) Unplanned and unfunded requirements, 3) Deficiencies in FHP forecasting methodology, particularly the failure to incorporate the cost of previous year program funding shortfalls, 4) Poor AVDLR component reliability, 5) Integrated Logistics Support (ILS) deficiencies, and 6) Variability in AVDLR pricing methodology and NWCF surcharges.

The final chapter provides conclusions to address CNAP FHP underfunding and related problems. It also includes analysis of alternative budget reform concepts intended to minimize defense resource variability and increase budgeting efficiency. Finally, it suggests areas for further research.

**DoD KEY TECHNOLOGY AREA:** Other (Flying Hour Program)

**KEYWORDS:** Flying Hour Program, DoD Budgeting and Execution, Planning Programming and Budgeting System, Naval Aviation Supply and Maintenance

### USE OF AVAILABILITY-BASED SPARING IN SUPPORT OF DEPLOYING U.S. MARINE CORPS UNITS

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The U.S. Marine Corps realizes its goal of being ready to fight in any location primarily through the Marine Expeditionary Unit (MEU). An important component of the MEU's readiness is the availability of critical equipment repair parts when they are needed. We test with three sets of past MEU data an availability based sparing model that builds repair parts blocks and show that the model outperforms the current methodology in every case.

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

**KEYWORDS:** Marine Expeditionary Unit (MEU), Inventory Management, Availability Based Sparing, Inventory Models, MEU Service Support Group (MSSG) Supply Block

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## MASTER OF SCIENCE IN MANAGEMENT

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### UTILIZING AUTOMATION TO RE-ENGINEER PHARMACY OUTPATIENT OPERATIONS

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The use of automation to re-engineer Navy pharmacy outpatient operations is examined. A review of commercially available automated dispensing systems, the structure and composition of Navy pharmacy, and the Total Health Care Support Readiness Requirement (THCSRR) model's impact upon Navy pharmacy are provided. The purpose is to determine whether automated dispensing technology can assist Navy pharmacy in meeting the personnel requirements for its wartime and day-to-day operational support missions while still maintaining the services required by its health-benefit mission. The thesis concludes that automated dispensing technology can assist Navy pharmacy in meeting its personnel requirements and health-benefit mission. Automated dispensing systems offer the potential for a cost-effective alternative to outsourcing under a fully implemented THCSRR while allowing Navy pharmacies to maintain the services required by its health-benefit mission. However, automated dispensing systems will not offset all THCSRR mandated reductions in medical end strength. The greatest benefit of automated dispensing systems may be increased accuracy and efficiency in dispensing, as well as freeing up pharmacy staff for delivering direct patient care.

**DoD KEY TECHNOLOGY AREA:** Other (Pharmacy Automated Dispensing Systems)

**KEYWORDS:** Navy Pharmacy, Automated Dispensing Systems, Pharmacy Robotics, Pharmacy Automation, Total Health Care Support Readiness Requirements

### MULTIYEAR PROCUREMENT: AN ANALYSIS OF THE RELATIONSHIP BETWEEN CONGRESS AND THE DEPARTMENT OF DEFENSE IN AN ACQUISITION REFORM ENVIRONMENT

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The purpose of this thesis is to examine the relationship between Congress and the Department of Defense (DoD) with respect to Multiyear Procurement (MYP) within the 1990s environment of decreasing fiscal budgets. Sub-issues include analysis of MYP cancellation risk, levels of Congressional control over the DoD MYP Process and the Congressional MYP approval/rejection decisions.

The data for this research were gathered through a literature review on the internet, LEXIS/NEXIS, and various libraries. Interviews were conducted with personnel on the Secretary of Defense Staff, Senate Armed Services Committee Staff and numerous DoD program offices.

This thesis concludes that multiyear cancellation risk is not as high as it is generally perceived. It also concludes that MYP legislation has not fully evolved consistent with recent acquisition reform initiatives. The final conclusion is that Congress' rationale for MYP approval/rejection is often not clear. Finally, this thesis presents two recommendations to improve the MYP process.

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

**KEYWORDS:** Multiyear Procurement, Acquisition

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## MASTER OF SCIENCE IN MANAGEMENT

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### AN ANALYSIS OF DEFENSE CONTRACT MANAGEMENT COMMAND (DCMC) SPRINGFIELD'S VENDOR BASE

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Defense Contract Management Commands (DCMC) are responsible for the administration of the contracts let by the Department of Defense (DoD). DoD has the largest acquisition budget in the Federal Government. As such, DCMCs are extremely busy. With an increasing workload and a decreasing defense budget, more is asked of the Government employee at a DCMC than ever before. The backlog of work and the host of changes in the way DoD is re-engineering its practices make it very difficult for a contract administrator to determine whom he or she is dealing with in the commercial sector. This analysis was designed to find what improvements to our business relationship could be found by studying the demographics of the customer. Two hundred six contractors chose to participate in the study, which provided a glimpse into the characteristics of one DCMC region.

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

**KEYWORDS:** Industrial Base, Defense Contract Management Command, Small Business, Contract Administration

### THE LINE ITEM VETO AFTER TWO YEARS: A CASE STUDY

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The primary purpose of this thesis is to determine the political and fiscal impact of the Line Item Veto on the budgeting process. It examines the history of the line item veto prior to the congressional elections of 1994, and then considers the legislative history of the Line Item Veto Act during the 104<sup>th</sup> Congress (1995-96). It explains the various arguments surrounding the requirement for a line item veto, and explores the methods that supporters employed to provide this power to the President. It also considers the various legal challenges to the Line Item Veto Act, culminating with the 1998 Supreme Court ruling that the Act was unconstitutional. The chief finding of the thesis is that, in the Act's only year of employment, it failed to have a significant impact on the budgeting process. President Clinton primarily used the measure to trim items from appropriations bills, most of which came on the Military Construction Appropriations Act. Congress and the federal courts overturned nearly half of his 1997 cancellations prior to the Supreme Court's ruling that the Act was unconstitutional. While it introduced a new dynamic into the budgeting process, it did not represent a significant shift in budgetary powers from Congress to the President, as many critics had feared.

**DoD KEY TECHNOLOGY AREA:** Other (Federal Budget)

**KEYWORDS:** Line Item Veto, Enhanced Rescission Authority, Military Construction Appropriations Act

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## MASTER OF SCIENCE IN MANAGEMENT

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### INNOVATING THE STANDARD PROCUREMENT PROCESS

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**Master of Science in Management-December 1998**

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The Davenport Process Innovation Framework is used to analyze the standard procurement process for innovation. Constrained resources and rapid advancements in Information Technology have caused DoD to seek high levels of improvement in key processes, such as procurement, because of the high costs and long cycle times associated with contracting activities. The SPS is intended to increase efficiency by automating the process. However, simply automating the process may not bring about the quantum level of benefits sought by DoD. Following Davenport's methodology, the standard procurement process flow is described, problems with the baseline process are assessed and a redesigned process alternative is presented that addresses these shortcomings. Measurements of the redesigned process show it to be a significant improvement over the existing process and to offer good potential for cycle time reduction. Costs required to support this initiative may prove to be a formidable constraint, however, and the risk exists that DoD may not be able to financially support full SPS implementation in the standard procurement process. Therefore, continued innovation is recommended. Further study is also required to investigate other innovation methodologies and ideas that may be suited for the standard procurement process.

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

**KEYWORDS:** Innovation, Standard Procurement Process, Standard Procurement System

### HOW WAIVERS TO THE TRUTH IN NEGOTIATIONS ACT MAY IMPROVE

#### NAVAL AVIATION ACQUISITION PROCESSES

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The Truth in Negotiations Act (TINA) requires that Government contractors provide cost or pricing data for procurements equal to or exceeding \$500,000 and certify that such data are accurate, current, and complete upon agreement of a contract's price. However, preparation, provision, and examination of these data is tedious, time-consuming, and costly for the contractor and the Government. The objective of this research was to determine how Department of Defense experience with TINA Waivers could be used to improve Naval Aviation acquisition processes. The thesis examines acquisitions made by three aviation procurement organizations using these waivers. The methodology included gathering waiver-related information to assess the overall use, policy and guidance, methodologies, effects, and the opinions related to waivers. The findings illustrate that waivers can offer considerable benefits of time and cost savings. However, barriers exist precluding them from regular use. These include approval limitations, a lack of waiver guidance and a limited diversity of their use. From these findings, recommendations are made to remove restrictive waiver policies and procedures, reduce the level of approval authority for waivers, increase waiver guidance and approve "blanket" or "class" waivers.

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

**KEYWORDS:** TINA Waivers, Acquisition Streamlining, Cost and Pricing Data

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## MASTER OF SCIENCE IN MANAGEMENT

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### ANALYSIS OF THE OPERATING COSTS FOR LIGHT ARMORED VEHICLES IN THE UNITED STATES MARINE CORPS

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With continued erosion of the DoD budgetary strength, it is imperative that commanders become knowledgeable about the cost to operate major weapon systems. This thesis examines the cost to operate the Light Armored Vehicle (LAV) per mile driven. The central objective of this study was to establish a framework for analyzing the applicable LAV cost drivers so as to derive a total operational cost per mile driven. To address this issue, research of relevant cost data as well as field research and interviews were conducted. The research and interviews obtained information about major cost categories associated with LAV operations, whether those cost categories should be estimated as direct or indirect costs and the proper allocation method for indirect costs. The major findings resulted in two alternative costing models which estimate the operational cost for the LAV family of vehicles as well as for the individual LAV variants based on a full costing approach and a material costing approach. Once defined, direct cost categories were allocated based on miles driven and indirect costs categories were allocated based on the percentage of vehicles by variant as compared to the LAV totals.

**DoD KEY TECHNOLOGY AREA:** Ground Vehicles

**KEYWORDS:** Operating Costs, Marine Corps, Light Armored Vehicles

### NAVY CAPABILITIES AND MOBILIZATION PLAN (NCMP) ANNEX Q-HEALTH SERVICES SUPPORT: RESOURCE AND END STRENGTH IMPLICATIONS

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Medical end strength and medical readiness policies have been impacted by post-Cold War operations and downsizing of the Department of Defense (DoD). This study reviews Navy medicine's re-engineering efforts intended to address these policies, focusing on the revision of the medical annex of the Navy Capabilities and Mobilization Plan (NCMP), used in support of DoD operational planning. It details the revision process, explaining the factors influencing the process, including the changes in medical doctrine, and the organizations involved. Data were obtained through interviews with key Navy planning and medical personnel and a review of DoD and Navy orders, publications and directives. The update of the medical annex has diminished the medical material supply support needed for the Casualty Receiving and Treatment Ships (CRTS), reducing weight and cargo space requirements, and producing some small budget savings as well. The update also provides a substantial reduction in the bed space capacity and medical personnel augment package supporting the new capabilities.

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

**KEYWORDS:** Navy Capabilities and Mobilization Plan

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## MASTER OF SCIENCE IN MANAGEMENT

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### SMART GATOR: AN ANALYSIS OF THE IMPACT OF REDUCED MANNING ON THE MISSION READINESS OF U.S. NAVAL AMPHIBIOUS SHIPS

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The increasing cost of manpower in the United States Navy and the decline of the defense budget generated a new initiative called the Smart Ship Program. Smart Ship, using a combination of technology and nontraditional policies and procedures to reduce manning on U.S. naval vessels, was first implemented on the USS Yorktown (CG 48). However, some of the technology and concepts were not readily transferable to other ship classes. The USS Rushmore (LSD 47) was chosen to implement and evaluate Smart Ship concepts on an amphibious ship through the Smart Gator Program. This thesis evaluated the impact of Smart Gator on the mission readiness of the Rushmore by conducting interviews with key Smart Gator Program personnel, reviewing pertinent data and analyzing the Rushmore's Engineering Certification Report of October 1998. This study shows that the initial reduction in manpower, combined with increased training required on new equipment, produced an increase in the crew's workload and negatively impacted mission readiness. Additionally, the interviews indicate that Navy research and development funds should be dedicated to this effort in order to properly execute the Smart Gator Program.

**DoD KEY TECHNOLOGY AREAS:** Human Systems Interface, Command, Control, and Communications, Manpower, Personnel, and Training, Other (Surface Vehicles)

**KEYWORDS:** Smart Ship, Smart Gator, Amphibious Ships, Readiness, Reduced Manning, Surface Warfare, Amphibious Warfare, Littoral Warfare

### ANALYSIS OF PRICING TECHNIQUES IN DETERMINING A FAIR AND REASONABLE PRICE

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The purpose of this thesis is to identify the principal techniques used by firms in pricing products for sale to the Government and to examine and analyze the conditions contributing to a firm's pricing strategy. A review of writings in marketing, acquisition, and Micro Economics provided the background information necessary to examine how the theories of pricing and profit work together with recent Federal acquisition reforms to influence a firm's pricing strategy. Interviews were conducted with Government procurement professionals as well as representatives of industry and academia concerning the methodology used in formulating pricing decisions. It was found that pricing strategies are classified into two categories – cost-based and market-based. These categories include eleven specific pricing strategies. The researcher concluded that recent changes brought about by Federal acquisition reform have accomplished their goal of more closely aligning Federal procurement practices with those of the commercial sector. The changes, however, have presented new challenges to Contracting Officers in determining that the Government pays a fair and reasonable price. Recommendations to improve the Contracting Officers' transition to more commercially based procurement practices include continued training of the Federal procurement workforce and the improved documentation of savings realized by acquisition reform measures.

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

**KEYWORDS:** Materials, Processes, and Structures

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## MASTER OF SCIENCE IN MANAGEMENT

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### **INCENTIVE MEASURES FOR NAVY WORKING CAPITAL FUND CIVILIAN EMPLOYEES AT NAVAL AIR WARFARE CENTER, AIRCRAFT DIVISION, PATUXENT RIVER, MARYLAND**

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**Master of Science in Management-December 1998**

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This thesis sought to identify an alternative incentive system and determine if it is feasible to implement it at the Naval Air Warfare Center, Aircraft Division, (NAWCAD) Patuxent River, Maryland. The goal for the incentive system would be to help stimulate an increase in productivity. This thesis also sought to determine the structural and accounting barriers to the implementation of such an incentive system. The thesis examined the current pay and incentive structure at the NAWCAD and examined three alternative incentive systems: individual, group, and organizational. Given that public employees may be motivated differently from private sector employees, this thesis recommended conducting a survey of the NAWCAD employees to determine motivation factors and then implementing a group incentive system on a trial basis in test work-centers.

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

**KEYWORDS:** Civilian Employees, Incentives, Productivity

### **PROCESS INNOVATION THROUGH ALPHA CONTRACTING: AN ANALYSIS OF DEPARTMENT OF DEFENSE SERVICE CONTRACTS**

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**Master of Science in Management-December 1998**

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The focus of acquisition reform is not only to obtain a better product for the Department of Defense (DoD), but also to improve or innovate the actual process of acquiring defense systems and services. This thesis critically analyzes the DoD service contracting process with a focus on innovation through alpha contracting as a redesign enabler. Service contracting is increasingly important as the DoD shifts to contractor support with the many unique characteristics requiring special attention that service contracting entails. Data gathered from field research and interviews are employed to support comparative process analysis of eight service contracting process flows. Innovation analysis of these eight processes is employed to redesign the service contracting process through alpha contracting. Both positive implications and potential inhibitors to alpha contracting are discussed, as well as mechanisms to overcome the inhibitors. To generalize the results of this research, a decision model is developed to assist acquisition managers in assessing the likelihood of alpha contracting success.

The thesis concludes that alpha contracting can innovate the service contracting process and offers suggestions for future research along these lines.

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

**KEYWORDS:** Alpha Contracting, Process Innovation, Service Contracting

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## MASTER OF SCIENCE IN MANAGEMENT

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### HEALTH PROMOTION PROGRAMS WITHIN THE NAVY ENVIRONMENTAL HEALTH CENTER: EVOLUTION AND IMPACT

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In 1986, DoD established a formal health promotion policy, but it was not until 1992 that DoN components began to comply and implement health promotion programs. In 1994, Navy Medicine appointed the Navy Environmental Health Center (NEHC) as the Health Promotion Program Manager. In 1998, due primarily to their population-based approach to health care delivery, NEHC was appointed the Program Manager for the Clinical Epidemiology Program (CEP). This study examines the resource and programmatic role that NEHC has played in implementing health promotion programs in Navy Medicine, particularly the CEP. Interviews and a review of the literature on health promotion and clinical epidemiology were undertaken to ascertain the significance and implications of health promotion programs in relation to the overall health care strategy of Navy Medicine. This thesis concludes that several problems affect implementation of health promotion, including the inability to capture the total cost of the program and identify cost savings and cost avoidance; the absence of a reliable benchmark of the health status of selected populations; and the absence of data to measure the efficacy of the program. Continued implementation and support of the CEP may permit Navy Medicine to document the significance of health promotion in enhancing population health and identify cost savings and cost avoidance directly related to health promotion efforts.

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

**KEYWORDS:** Health Promotion, Wellness, Prevention, Navy Environmental Health Center

### OPTIMIZING THE PRIVATIZATION OF MILITARY FAMILY HOUSING

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Master of Science in Management-December 1998

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Keebom Kang, Department of Systems Management

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This thesis optimizes the privatization of military housing in the Monterey Bay area. Two spreadsheet models were developed of the Monterey Bay Military Housing (MBMH) project to revitalize 2200 military family housing units. These models were used to evaluate several proposed privatization strategies, identify the optimal privatization strategy, develop performance estimates for each strategy, and estimate performance tradeoffs.

It was concluded that privatizing military housing in the Monterey Bay area can quickly resolve many housing issues. The optimal privatization strategy is to acquire additional land, build new housing, and sell existing housing land. This strategy replaces the entire housing inventory with new homes in three years. Alternatively, the optimal strategy without selling any land is to replace one third of the existing housing units with new homes and renovate the remainder in nine years.

These models can easily be adapted to support housing privatizations at other Department of Defense installations. The models can verify a project's feasibility and develop financial estimates. They can also assist decision-makers assess the benefits of privatization strategies and estimate tradeoffs between strategies. The model's performance metrics can also be used to evaluate contractor proposals. Most importantly, the models facilitate "what if" analysis throughout the privatization process.

**DoD KEY TECHNOLOGY AREAS:** Modeling and Simulation, Other (Installation Management)

**KEYWORDS:** Military Family Housing, Privatization, Modeling, Optimization

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## MASTER OF SCIENCE IN MANAGEMENT

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### A STUDY OF THE STATE OF BUDGETARY FINANCIAL REPORTING IN NAVY MEDICINE

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Master of Science in Management-December 1998

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Navy medicine is currently in a state of change in the methods it employs to report on its stewardship over the budget authority it annually receives and executes. The Bureau of Medicine and Surgery (BUMED) is responsible for accurately reporting on budget execution for Navy medicine. BUMED must comply with financial reporting reform mandates from Congress and other federal agencies, while simultaneously optimizing the use of its financial systems to improve financial management processes. This thesis describes and examines the effectiveness of budgetary financial reporting in Navy medicine. The thesis investigates the Defense Finance and Accounting Service (DFAS) and BUMED accounting systems that produce the financial reports, and additionally evaluates the BUMED official accounting reports that roll up into Department of the Navy (DoN) and Department of Defense (DoD) audited financial statements. Criteria established in the Department of Defense Financial Management Regulation (DoD FMR) and BUMED's Command Evaluation (CE) are analyzed to evaluate the effectiveness of the financial systems and reports. The analysis shows that BUMED has made considerable strides in contributing to financial reporting reforms by increasing efficiencies of its systems through consolidation and integration. Additionally, BUMED has complied with financial management reporting guidance set forth by federal regulatory agencies.

**DoD KEY TECHNOLOGY AREA:** Other (Navy Medicine Financing)

**KEYWORDS:** Budgetary Financial Accounting

### IMPLEMENTING READINESS BASED SPARING IN THE UNITED STATES MARINE CORPS BY ANALYZING THE UNITED STATES ARMY'S IMPLEMENTATION PROCESS

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In 1985, the Secretary of Defense directed the services to adopt a weapons management inventory concept that allows readiness and cost to be incorporated into setting inventory levels. The plan is laid out in the Department of Defense's Secondary Item weapon Systems Management Concept. The key to the concept is increasing weapon system readiness at lower costs. Today, this weapons system management concept is known as Readiness Based Sparing (RBS) and has been implemented in all of the services with the exception of the Marine Corps.

The Marine Corps has started to progress to RBS by chartering studies by the Center for Naval Analysis (CNA) including a review of RBS requirements and the situation of the present state of logistics systems and data collection. CNA's conclusions suggest a difficult road in implementing RBS due to inaccurate data collection. It is recommended that the Marine Corps examine the Army's implementation process due to weapon system commonality and similar problems encountered in implementing RBS and develop their own implementation plan spearhead by Precision Logistics. Once RBS is established as the inventory management model, the Marine Corps will realize sufficient cost savings and increase in weapon systems readiness.

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

**KEYWORDS:** Inventory Management, Readiness Based Sparing, USMC Inventory Policy, Precision Logistics

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## MASTER OF SCIENCE IN MANAGEMENT

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### LOGISTICS SIMULATIONS METAMODEL FOR F404-GE-400 ENGINE MAINTENANCE

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Master of Science in Management-December 1998

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This thesis presents a simulation metamodel that is used to determine initial rotatable pool inventories for F404-GE-400 engine modules onboard a deployed aircraft carrier. Millions of dollars can be saved annually by following the metamodel recommendations for changes and reductions in inventories, while at the same time maximizing F/A-18 squadron operational availability. Managers and leaders in the naval aviation and supply communities should use the metamodel as a tool to modify F404 engine module inventory allowance requirements. The metamodel is valid and provides a real means to address the problem of optimizing module inventory levels with operational availability that before would have been overwhelming and impossible to tackle fully. With the power of today's personal computers, combined with sophisticated simulation programs, simulating the F404 engine module repair process at the afloat Aviation Intermediate Maintenance Depot (AIMD) level is accomplishable. The simulation model is developed from real maintenance and usage data and provides a detailed and accurate representation of the repair process. The results of this thesis can be generalized and applied to a wide family of weapon systems. As military leaders struggle more and more with balancing readiness and limited funds, the metamodel presented in this thesis offers a visible decision-support tool.

**DoD KEY TECHNOLOGY AREAS:** Air Vehicles, Modeling and Simulation, Other (Aviation Logistics, Inventory)

**KEYWORDS:** F/A-18, F404-GE-400 Engine, Aviation Logistics

### ISO-9000: EFFECTS ON THE GLOBAL MARKETPLACE AND CONTRACT RELATIONS WITH THE U.S. DEPARTMENT OF DEFENSE

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Master of Science in Management-December 1998

Advisor: M.W. Boudreau, Department of Systems Management

Second Reader: Mark Stone, Department of Systems Management

The purpose of this study is to determine how the direction toward standardizing quality control systems worldwide, specifically ISO-9000 criteria, is affecting business procedures both internally (operations) and externally (global marketing). A methodology for determining current opinions and business practices concerning ISO-9000 certification was developed by reviewing the most current literature available and through personal interviews with various quality systems managers of ISO-9000 certified companies. Areas of focus throughout the research were: ISO-9000 capabilities for company certification, current U.S. Government initiatives concerning standardization and contracting, the cost-benefit objectives of certification, real-time perceptions of certified companies and the effects that ISO-9000 has had on global marketing of products. The range of data were analyzed and conclusions drawn in respect to current international conditions of standardization and how Government contract actions incorporate non-MILSPEC quality systems. Recommendations include: immediate update of the FAR to incorporate the guidance issued by the Secretary of Defense concerning use of commercial quality assurance systems in Government contract actions and follow-on studies on the continued effects of international standardization as the IOS proceeds into the next century.

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

**KEYWORDS:** ISO-9000, Global Marketplace, Contracts

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## MASTER OF SCIENCE IN MANAGEMENT

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### AN ASSESSMENT OF THE NATIONAL DUAL-USE POLICY AND ITS IMPACT ON THE PROGRAM OFFICE

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Master of Science in Management-December 1998

Advisors: Michael W. Boudreau, Department of Systems Management

Jerry McCafferey, Department of Systems Management

This thesis examines the current trends within the United States to move towards greater dependence on the commercial sector for military defense. Dual-use technologies impact the Defense acquisition process. It will discuss the risks associated with the migration of a defense industrial base to one of a national industrial base. Research will include conducting a thorough literature search, review of historical dual-use issues as well as defense and commercial initiatives in this area. Dual-use technologies can come in the form of CI or NDI. These items have the potential to save the program manager quite a bit of money, especially in the development costs. However, some would argue that these items might not be able to satisfy the peculiar environment required by the military. Others contend this to be the best method of procurement during this dwindling budget era. As DoD continues to rely on dual-use items, commercial sector initiatives gain momentum, particularly in the form of best practices. The program manager faces numerous challenges in employing dual-use technology.

**DoD KEY TECHNOLOGY AREA:** Other ( Dual Use Technology)

**KEYWORDS:** Dual Use Technology, Commercial Items, Non-developmental Items

### ANALYSIS OF THE COSTS FOR PROCESSING A CLAIM AT THE NAVAL AIR SYSTEMS COMMAND

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Master of Science in Management-December 1998

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John E. Muty, Department of Systems Management

This thesis examines the claims resolution process and procedures and determines the costs associated with the processing of a claim at the Naval Air Systems Command (NAVAIR). With these costs identified, once a contractor entitlement has been determined, it will be possible to perform a cost-benefit analysis to determine if it would be cheaper to settle a claim up front or to continue with the claims resolution process. Data were obtained from surveys, telephone conversations, and literature. The research also identified patterns in the amount of time it takes to settle a claim. The most significant finding was that 92 percent of the total claim cases settled since 1996 were settled for less than the contractor's requested amount including the cost of processing the claim. Therefore, it makes good business sense for NAVAIR to continue with their claims resolution process. The findings also indicate that 57 percent of the total active NAVAIR claims that are either in litigation or not in litigation are associated with lapsed appropriations. In that these claims must be payed with current year funding, any improvements to the claims process that will lessen the time to final resolution will have a positive effect on current year program stability.

**DoD KEY TECHNOLOGY AREA:** Other (Cost for Processing Claims)

**KEYWORD:** Claims

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## MASTER OF SCIENCE IN MANAGEMENT

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### COMPARISON OF THE ACQUISITION SYSTEMS OF THE FEDERAL REPUBLIC OF GERMANY AND THE UNITED STATES GOVERNMENTS

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Master of Science in Management-December 1998

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Since the end of the “Cold War” and the dismantling of the Soviet Union, significant transformations in the military, political, and industrial state of affairs have occurred – force reductions, declining budgets, taking advantage of the “peace-dividend,” consolidations, commercialization, and globalization. These changes have forced the Department of Defense of the United States and the Ministry of Defense of the Federal Republic of Germany to develop more innovative and efficient methods for developing and procuring fewer, more technically sophisticated systems with less money and personnel. By assessing and comparing the procurement systems of the United States and the Federal Republic of Germany, one makes conclusions regarding challenges faced by the Government officials and the advantages and disadvantages associated with each system. This leads to inferences about future trends and solutions for each country.

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

**KEYWORDS:** Acquisition Requirements, Industry Changes, Procurement Restrictions, Procurement Facilitators, Acquisition Hierarchy, Acquisition Systems, Acquisition Strategy and Planning, Solicitation Process, Source Evaluation, Negotiations, Contract Award

### PROPOSAL FOR A STANDING MEDITERRANEAN AMPHIBIOUS FORCE FOR THE NORTH ATLANTIC TREATY ORGANIZATION

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Master of Science in Management-December 1998

Advisors: Richard J. Hoffman, Department of National Security Affairs

Brad R. Naegle, Department of Systems Management

This thesis examines the need for a Standing Amphibious Force in the Mediterranean (STAPHIBFORMED) and proposes a combined European maritime force, under NATO auspices, to compliment U.S. presence in the Mediterranean and, when necessary, to act as a substitute. The United States looks to simultaneously share some of the European regional security responsibility with its Allies while still maintaining its influence with European security matters. Concurrently, European nations have reduced their defense budgets and, in the spirit of Maastricht, look to rely on multinational defense organizations for both economic and political reasons.

The STAPHIBFORMED concept is a mechanism for crisis response and peacekeeping operations that facilitates resource-sharing and permits Europeans to undertake some missions without direct US involvement. Such a force promotes a distinct European Security and Defense Identity, reflects the NATO Strategic Concept, and helps to satisfy the American desire to share more of the European regional security burden with Europe.

**DoD KEY TECHNOLOGY AREA:** Other (Political-Military)

**KEYWORDS:** European Security and Defense Identity, Amphibious, Expeditionary, Amphibious Ready Group, Maastricht, Combined Joint Task Force, Western European Union, European Union, North Atlantic Treaty Organization, United States Marine Corps

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## MASTER OF SCIENCE IN MANAGEMENT

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### HOW INNOVATIVE IS NAVAL SUPPLY SYSTEMS COMMAND?

**Carl F. Weiss-Lieutenant Commander, United States Navy**

**B.S., Louisiana State University, 1988**

**Master of Science in Management-December 1998**

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**Second Reader: Erik Jansen, Department of Systems Management**

The purpose of this thesis is to assess the Navy supply system's movement toward an innovative organization. It compares the Navy's supply system to innovative organizations in the private sector. The purpose is to help DoD organizations gauge where they are now, note how far they have progressed, and plan where they have to go in the future to be innovative organizations. The Fleet and Industrial Supply Centers (FISCs) were chosen to represent Naval Supply Systems Command (NAVSUP) as a whole. FISC Yokosuka, FISC Norfolk, FISC Jacksonville, FISC Puget Sound, FISC San Diego and FISC Pearl Harbor were the organizations in the study. They completed a survey to determine the degree of innovativeness that exists in NAVSUP. The study concluded that the Naval Supply Systems Command is neither as innovative as private companies that have received accolades for innovativeness, nor as innovative as private companies that can be characterized as less or non-innovative.

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

**KEYWORDS:** Innovation, Logistics, Naval Supply Systems Command, NAVSUP, Entrepreneur, Intrapreneur, Fleet and Industrial Supply Center (FISC)

### ANALYSIS OF THE DOD 5000.2R PROJECT MANAGEMENT PROCESS

**Robin E. Whitworth-DoD Civilian**

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**Master of Science in Management-December 1998**

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Acquisition of weapon systems for the Department of Defense is governed by the regulation DoD 5000.2R, "Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information System (MAIS) Acquisition Programs." During acquisition reform, this document was created as a simplified regulation to allow regulatory relief to acquisition project managers. It replaced two lengthy volumes providing requirements and guidance on acquisition procedures. This thesis analyzes the new regulation from a project process perspective. First, a requirements analysis is performed to identify project management requirements. Second, a functional analysis allocates these requirements to a timeline, creating a "Functional Architecture." The Functional Architecture provides the basis for evaluation of the DoD 5000.2R project management process. Finally, an evaluation is conducted from comparison with established communications models and management studies. Results of these analyses reveal over 3000 tasks are required of acquisition programs. This large number of requirements indicates extreme oversight of acquisition programs continues within acquisition reform. Recommendations are made for reevaluation of DoD policy on acquisition management and rewrite of DoD 5000.2R.

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

**KEYWORDS:** DoD 5000.2R, Defense Acquisition, Project Management, Systems Engineering, Government Communications

## **MASTER OF SCIENCE IN MANAGEMENT**

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### **A GUIDELINE FOR MARINE CORPS FINANCIAL MANAGERS**

**Anthone R. Wright-Major, United States Marine Corps  
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**Master of Science in Management-December 1998**

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

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

The purpose of this thesis is to examine the duties and responsibilities of Marine Corps Financial Managers at the major command level. The thesis involved a thorough review of Department of Defense (DoD), Department of the Navy (DoN), and Marine Corps orders, publications and directives to determine those key areas considered most essential to Marine Corps financial management specialists in the performance of their duties. The thesis provides a brief overview of the financial management occupational field. It then examines the roles and responsibilities of Marine Corps financial managers and concludes with a chapter on education and professional development opportunities available to Marine Corps financial managers as they progress in their careers. Based on the research, a set of guidelines was created to assist financial management specialists by serving as an initial source of information on major financial management functions such as: (1) Planning, Programming, Budgeting System (PPBS); (2) budget formulation and execution; (3) Marine Corps accounting procedures; and (4) Resource, Evaluation and Analysis. These guidelines are designed primarily for those officers (MOS 9644) who have had very limited experience in the financial management field outside of their graduate level educational training through the Naval Postgraduate School.

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

**KEYWORDS:** Marine Corps, Financial Managers, Core Competencies