

MASTER OF SCIENCE IN MANAGEMENT

RELIABILITY ENHANCEMENT OF THE NAVY METROLOGY AND CALIBRATION PROGRAM

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Three quarters of the Naval Air Systems Command Metrology and Calibration (METCAL) budget is spent on Support Equipment with calibration intervals that are 12 months or less. These intervals are based on End-of-Period (EOP) operational reliability targets of 72% for non-critical General Purpose Test Equipment (GPTE) and 85% for critical Special Purpose Test Equipment (SPTE). Over one-third of all Support Equipment are performing above their reliability targets, but are unnecessarily being inducted into calibration facilities due to maximum interval restrictions. With continued budget constraints, the Navy will be forced to adopt innovative measures to save costs, while not sacrificing readiness or safety. Based on analysis, it was concluded that by increasing the reliability targets, and interval restrictions, the Navy will save over \$1.2 million per year with a concomitant increase in the reliability of 46% of Naval Aviation's TAMS by 9.71%.

KEYWORDS: Metrology, Calibration, Reliability

DoD KEY TECHNOLOGY AREAS: Air Vehicles, Electronics

THE EFFECTS OF FINANCIAL CONTROLS ON ACTIVITY OPERATIONS

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The Quadrennial Defense Review underscored the importance of reevaluating the operation of the Department of Defense. The Department of the Navy Organization Management and Infrastructure Team is charged with generating analysis to arrive at recommendations for change that will improve decision-makers information and incentives. Through the use of survey research and sorting techniques, this thesis identifies the need for budget flexibility during the execution phase for commanders to address emergent issues at the local level, especially at Recruiting, Supply and Support Commands. Financial controls such as fences, floors, ceilings and thresholds erode the commander's ability to manage the organization effectively. The financial controls and reduced funding combine to cause difficulties in command operations. The result is a hierarchy of funding. The mission first, quality of life second and facilities last. A model program, exercising budget flexibility during the budget execution phase, is recommended to provide further concrete evidence.

KEYWORDS: Budget Execution, Financial Controls, Comptrollership, Ceilings, Fences, Floors, Thresholds, Mission, Quality of Life, and Facilities

DoD KEY TECHNOLOGY AREA: Other (Financial Controls)

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THE POST COLD WAR CIVIL ENGINEER CORPS: WHAT HAS CHANGED AND WHY?

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With the end of the Cold War, the military services have experienced significant cuts in endstrength. Within the Navy, the Civil Engineer Corps (CEC) has also experienced some reductions. This thesis sought to determine how CEC endstrength is derived and whether it declined commensurate with overall naval officer endstrength. The command and billet structures for the CEC in 1986 and 1996 were used to represent the Cold War and Post Cold War respectively. The thesis determined how the CEC has changed and compared these changes to those that occurred in the larger naval officer community. One major finding is that CEC endstrength is indirectly affected by Naval officer endstrength and directly affected by the size of the infrastructure. Downsizing the military without downsizing infrastructure results in minor reductions in CEC endstrength. The CEC has experienced a 17 percent reduction in endstrength over the period, with more than 50 percent attributed to the closure of commands. Another finding is that these reductions have not changed the missions of the CEC, construction contract management, facilities maintenance, and advanced base construction.

KEYWORDS: Civil Engineer Corps, Seabees, Military Downsizing

DoD KEY TECHNOLOGY AREA: Manpower, Personnel, and Training

COST/BENEFIT ANALYSIS OF LEASING VERSUS PURCHASING COMPUTERS

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The purpose of this thesis was to present a cost/benefit analysis of leasing versus purchasing computers. This analysis was performed to provide a decision making model for the acquisition of computer assets. It is additionally intended to serve as a framework to compare the costs and benefits of leasing over purchasing.

To address this issue, a capital budgeting model was developed and net present value analysis performed. In constructing this model, several factors were considered, including: the purchase cost of computer equipment, annual lease payments, depreciation costs, the opportunity cost of purchasing, tax revenue implications and various leasing terms. Data for this thesis was collected using historical records, literature reviews, and interviews.

This research found that it is more cost effective for the Naval Postgraduate School and other Naval Shore-based commands to purchase equipment rather than lease.

KEYWORDS: Cost/Benefit Analysis, Leasing, Computer Acquisitions, Purchasing

DoD KEY TECHNOLOGY AREA: Other (Computer Technology)

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IMPROVING AVIATION DEPOT LEVEL REPAIRABLE (AVDLR) INVENTORY AND REPAIR MANAGEMENT

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The processes by which the Navy manages the inventory and repair of Aviation Depot Level Repairables (AVDLRs) are complex and not well described in a single document. The purpose of this thesis is to document and provide an analysis of those processes as a basis for future research. Research was conducted on the process of returning not ready for issue (NRFI) units from the end user to the depot for repair and return to the supply system. Additionally, research was conducted to document the management process for determining repair requirements at the Naval Inventory Control Point Philadelphia and how those requirements are accepted and scheduled at NADEP North Island. These processes were described and analyzed, and six areas were identified that offer potential for reducing repair cycle time and improving AVDLR management.

KEYWORDS: Aviation Depot Level Repairable (AVDLR) Inventory and Repair Management

DoD TECHNOLOGY AREA: Other (Inventory Management)

IMPROVING ENGINEER RECONNAISSANCE IN FIRST MARINE DIVISION

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This thesis explores alternative organizational designs to improve 1st Marine Division's engineer reconnaissance capability. It defines engineer reconnaissance as a complementary component of the divisions decentralized reconnaissance function, and addresses the evolution of engineer reconnaissance and its relevance to current and future maneuver commanders. This thesis expands on current deficiencies in training, organization, and coordination to define the engineer reconnaissance deficiency in terms of an organizational design problem. Four alternative solutions are proposed to develop and maintain an improved engineer reconnaissance core competency involving both structural and training changes. This thesis evaluates each alternative by three cost criteria (personnel, training, and lateral coordination requirements), and four benefit criteria (quality, acceptability, applicability, and maintainability) using an additive weighting and ranking method of analysis to determine an optimal course of action. Results of this analysis suggest that creating an engineer reconnaissance section at 1st Combat Engineer Battalion will provide the greatest engineer reconnaissance benefit to the division at the lowest cost.

KEYWORDS: Organizational Design, Engineer Reconnaissance, Cost/Benefit Analysis

DoD TECHNOLOGY AREA: Manpower, Personnel, and Training

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AN ASSESSMENT OF THE IMPLEMENTATION OF THE SINGLE PROCESS INITIATIVE BY THE DEPARTMENT OF DEFENSE

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One tenet of acquisition reform is to reduce the number of military specifications and standards contained in Department of Defense (DoD) contracts and to allow contractors the opportunity to use their own best practices to satisfy contractual requirements. The Single Process Initiative (SPI) is DoD's effort to incorporate this policy into existing contracts, via a streamlined process. The SPI process supports the elimination or replacement of existing military specifications and standards with industry-wide practices and promotes the use of single manufacturing and management processes within a contractor facility.

This thesis uses the results from 43 surveys of Government and industry participants in SPI to examine the extent to which SPI has been successful in promoting the use of single manufacturing and management processes at contractor facilities.

KEYWORDS: Single Process Initiative, Acquisition Reform

DoD KEY TECHNOLOGY AREA: Other (Acquisition and Contracting)

ARMY INVENTORY POLICY, THE NEED FOR STRATEGIC CHANGE: AN EXAMINATION OF READINESS BASED SPARING FOR RETAIL REPAIR PARTS SUPPLY SUPPORT

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Army Vision 2010 and Focused Logistics has recognized the need for a Revolution in Military Logistics to support the Revolution in Military Affairs in the information age. As well, readiness needs are increasingly having to be balanced with fiscal realities. Readiness Based Sparing inventory models can give commanders the tools necessary to make these critical resource allocation decisions.

The potential value of implementing a Readiness Based Sparing policy for Army retail level, repair parts inventory management was explored. Questions were answered about the effectiveness, implementation and potential barriers to implementation. In doing so, a description and analysis of current policy, its effects and consequences was offered. An introduction was presented to the Readiness Based Sparing methods, their evolution in military applications, successful implementations and lessons learned. The performance was compared with Authorized Stockage Lists determined using Readiness Based Sparing with those under current policy. Issues addressed include cost, supply performance, mobility, manpower, and transition to war, among others.

From this analysis, it was concluded that Readiness-Based Sparing methodology is superior to current methods of stockage determination and it was recommended that the Army embrace it as the preferred retail inventory policy. Suggestions for means of implementation and areas for further research are given.

KEYWORDS: Inventory Management, Readiness-Based Sparing, Army Retail Inventory Policy, Logistics Management

DoD KEY TECHNOLOGY AREA: Materials, Processes, and Structures

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BUSINESS PROCESS REENGINEERING: A PRIMER FOR THE MARINE CORPS' PROCESS OWNER

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As the defense establishment downsizes, it has turned to the private sector to model its methods for improved productivity. Business Process Reengineering (BPR) is a technique used by the private sector to achieve order of magnitude improvements in organizational performance by leveraging information technology to enable the holistic redesign of business processes. This thesis provides a guide to the methods and tools used during BPR, and presents a practical way for Marine Corps' leaders to establish and direct a reengineering effort. Instruction is provided on the basics of how to establish a strategic direction, organize the reengineering team, and analyze business processes through the use of process-maps, flowcharts, Integrated Definition for Function (IDEFO) models, Activity-Based Costing (ABC), and value-added assessment. Approaches and principles useful during the development of the new process are discussed, as well as benchmarking and the factors leading to process implementation and organizational change. Recommendations are made for further reading.

KEYWORDS: Business Process Reengineering, BPR, Process Innovation, Process Improvement, Process Maps, Flowcharts, Integrated Definition for Function Modeling, IDEFO, Activity Based Costing, ABC, Organizational Change

DoD KEY TECHNOLOGY AREA: Other (Management)

DECISION SUPPORT REQUIREMENTS FOR THE AVIATION MAINTENANCE MATERIAL CONTROL OFFICER

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This thesis evaluates NALCOMIS based upon maintenance management information requirements and highlights how NALCOMIS does not support the maintenance material control officer (MMCO) as an information system.

The Automated Maintenance Environment (AME) initiative currently in development will be capable of providing the MMCO with the information needed to improve maintenance management decisions. The overall result will be reduced aircraft lifecycle costs and improved operational availability. A concept of operations at the organizational maintenance level is presented to illustrate the AME concept.

The full implementation of AME will have a profound effect on Naval aviation maintenance processes. Recommendations for further research are presented.

KEYWORDS: NALCOMIS, Automated Maintenance Environment, Aviation Maintenance

DoD KEY TECHNOLOGY AREAS: Computing and Software, Other (Aviation Maintenance)

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A CONCEPTUAL FRAMEWORK FOR PROVIDING REQUISITE VARIETY IN THE FUTURE OPERATIONAL FORCES OF THE UNITED STATES ARMY

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The future forces of the U.S. Army face a great variety of threats with unprecedented complexities. The American public demands a quick, decisive victory with minimal casualties. In order to accomplish this, the Army must have the capability to totally dominate and control the enemy. Requisite Variety is essential to this mission. This research shows that in order to totally dominate the battlefield, the variety of options available to the friendly commander must be greater than or equal to that of the enemy. However, concurrent with the dramatic changes in the global environment, the U.S. has significantly decreased defense spending. The competition for these dwindling defense dollars has increased the Army's risk of misallocating its scarce resources to a few "brilliant" systems without regard to the factor of variety. This research provides a conceptual framework that innovates the Requirements Determination process by utilizing variety as a factor. It reveals concrete ways to provide the commander with the necessary variety to dominate the battlefield: through regulation, information, and variety catalysts. By applying the framework to the concepts of Force XXI operations, the researcher develops the Time-Information Differential. This suggests that given the current budgetary constraints, the Army should focus its short-term material acquisitions on C³I and mobility assets. However, to achieve synergistic results, the Army should concurrently research other types of weapons systems using the framework as a guide.

KEYWORDS: Resource Allocation, Requisite Variety, Requirements Determination, Force XXI Operations

DoD KEY TECHNOLOGY AREAS: Air Vehicles, Battlespace Environments, Manpower, Personnel, and Training, Sensors, Ground Vehicles

CAUSES OF REJECTED PAYMENT REQUESTS IN THE PREVALIDATION SYSTEM OF THE MARINE CORPS' ACCOUNTING SYSTEM AND RECOMMENDATIONS FOR THEIR ELIMINATION

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On July 1, 1995, Defense Finance and Accounting Service, Kansas City fielded the On-line Prevalidation System for processing vendor payment requests. Its purpose was to prevent new Negative Unliquidated Obligations and Unmatched Disbursements by comparing disbursement requests to obligations prior to payment. The objectives of this thesis were to determine the causes of rejected payment requests by analyzing sample data drawn from Marine Corps Forces, Atlantic's Operations and Maintenance appropriation and to recommend ways to improve the prevalidation process so that obligation validation is more efficient and effective. Research included an investigation into the background of the prevalidation system and an analysis of UMDs and NULOs before and after the implementation of the OPV System. Seven causes of rejected payment requests were identified, along with the penalty interest charged as a result of document numbers remaining on the Rejected Payment Authorization Request Report. It was observed that the formation of new UMDs and NULOs has decreased as a result of the OPV's implementation. While the disbursements that are prevalidated generally do not result in problem disbursements, only a portion of all disbursements is prevalidated. Lowering thresholds at which dis-

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bursements must be prevalidated and expanding the types of payments that are subject to prevalidation will improve the credibility of DoD financial management and further decrease problem disbursement levels.

KEYWORDS: Prevalidation, NULO, UMD

DoD KEY TECHNOLOGY AREA: Other (Financial Management)

THE ROLE OF MEDIATION IN RESOLVING CONTRACT DISPUTES

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Mediation has emerged as a preferred ADR method among commercial organizations involved in contract disputes. However, its use by the Navy has been rare. Mediation has shown to provide benefits to its commercial users such as: improved business relations, time and cost savings, flexibility and adaptability and superior control over outcomes. This thesis provides information on mediation and examines the differences and similarities between how commercial organizations and the Navy use mediation. The goal is to improve the Navy's use of mediation to resolve contract disputes. This research found, through survey results and the literature review, that as commercial organizations increase their use of mediation, they become familiar with the process and tend to reach higher levels of process and outcome satisfaction, making them more likely to continue its use. In order for the Navy to improve its use of mediation, it should use outside agencies to provide training, use contract clauses requiring its use and selecting mediators with adequate technical and legal background.

KEYWORDS: Mediation, Alternative Dispute Resolution (ADR), Contract Disputes

DoD KEY TECHNOLOGY AREA: Other (Acquisition and Contracting)

A CASE STUDY ON THE RELATIONSHIP BETWEEN OPM-CRUSADER, UDLP, AND TACOM-ARDEC IN THE DEVELOPMENT OF THE CRUSADER ARMAMENT

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The purpose of this research paper is to analyze the relationships between the Office of the Project Manager-Crusader (OPM-Crusader), the U.S. Army Armaments Research, Development, and Engineering Center (a component of the U.S. Army Tank-Automotive and Armaments Command, abbreviated TACOM-ARDEC), and United Defense Limited Partnership (UDLP) in the development and delivery of the Crusader Armament System. These relationships are unique because, although the armament system is being developed by TACOM-ARDEC and manufactured by Watervliet Arsenal, it is not being supplied to UDLP as Government-Furnished Property (GFP). Rather, a teaming relationship has been developed directly between TACOM-ARDEC and UDLP. OPM-Crusader transfers funding to TACOM-ARDEC which performs the work under the technical and programmatic direction of UDLP. TACOM-ARDEC's role is similar to that of a subcontractor. This research paper examines the relationships between the organizations, and contrasts them to the relationships that

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are found in traditional GFP situations. The research showed that these relationships should result in a better-designed howitzer at a lower cost to the Government.

KEYWORDS: Government-Contractor Teaming, Government-Furnished Property, Artillery Development, Crusader

DoD KEY TECHNOLOGY AREAS: Conventional Weapons, Ground Vehicles

THE MOST IMMEDIATE AND COST EFFECTIVE WAY TO ADDRESS VEHICLE CORROSION IN HAWAII

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In the late 1980s the Marine Corps procured the M900 series 5-ton truck. Within four years of this acquisition, a serious corrosion problem developed with the M900 series truck. Efforts to control this corrosion have proven to be unsuccessful. The current maintenance budget does not adequately fund the corrosion program nor are the facilities and procedures able to handle the workload. The objective of this thesis was to identify the most immediate and cost-effective way to handle corrosion control in Hawaii by analyzing the environment in which the Marine Corps units in Hawaii operate and recommend the most reasonable solution given the constraints. Research included an analysis of the background of Marine Corps equipment in service in Hawaii, as well as an identification of alternative measures of corrosion control management. Four alternatives were identified and evaluated in terms of the associated costs, manpower requirements, vehicle turn-around time, throughput capacity, and USMC controls. It was determined that the current corrosion control process is not adequate, and if left unchanged, the Marine Corps will face an overwhelming amount of deadlined vehicles before the replacements are available. The analysis concludes that the current method of corrosion management is inefficient. Alternative recommendations are then provided for more efficient use of the resources.

KEYWORDS: Corrosion Control, Maintenance, Outsourcing

DoD KEY TECHNOLOGY AREA: Other (Financial Management)

REPAIR CYCLE TIME REDUCTION AT NAVAL AVIATION DEPOTS VIA REDUCED LOGISTICS DELAY TIME

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This thesis is a study of an alternative acquisition program for piece parts that support readiness degrader aviation components. Components with outstanding piece parts with an acquisition lead times of greater than 45 days migrate to an awaiting parts status termed a supply condition code G. The U.S. Navy currently has more than 500 million dollars worth of components in G condition with more than 76 million dollars worth of piece parts outstanding. The current average time components at the Naval Aviation Depot North Island (NADEP-NI), California spends in G condition is 190 days. The major focus of the thesis is the development of an alternative acquisition system to investigate the effect of reduced acquisition lead times on repair cycle times and component inventory levels. The alternative acquisition system would reduce the acquisition lead time on all piece parts that are directly attributable to more than 20% of the applicable G condition components from an average of 199 days to only 60 days. This proposed change would reduce Logistics Delay Time (LDT) for the *steady state* components an average 32.4%, the average Repair Turnaround Time (RTAT) would be reduced an average

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14.5% and the inventory levels would be reduced by 53 units or 4.42 million dollars. The comparison of the costs of the priority purchase system to the benefits indicates that for every one dollar invested in priority purchasing would result in 28 dollars in savings through reduced inventory levels.

KEYWORDS: Acquisition, Aviation, Components, Degraded, Inventory, NADEP, Readiness

DoD KEY TECHNOLOGY AREA: Other (Inventory Management)

AN EXAMINATION OF THE MARINE OPERATING AND SUPPORT INFORMATION SYSTEM (MOSIS) AS A MECHANISM FOR LINKING RESOURCES TO READINESS FOR MARINE OPERATING FORCES

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Continued downsizing efforts have imposed increasingly stringent restrictions on Department of Defense budgetary resources. Program and activity managers are expected to justify their budgets based on well-defined quantitative measures of performance, activity level and readiness. This thesis examines the resources-to-readiness issues in DoD, specifically focusing on Marine Corps Operating Forces. Additionally, this thesis evaluates the Visibility and Management of Operating and Support Costs (VAMOSC) program as a mechanism for analyzing detailed operating and support cost data in order to relate resources to readiness.

DoD's VAMOSC program as a whole as well as the individual Service's VAMOSC systems are described. The Marine Operating and Support Information System (MOSIS), which incorporates Marine ground combat systems into Navy VAMOSC, is evaluated with regards to its contribution to cost analysis. Currently, the MOSIS database is limited in the number of weapon systems on which it collects data and the O&S cost categories it covers. In addition, it lacks critical operating tempo data needed to conduct useful cost analysis. This makes it extremely difficult to currently develop cost factors that can be effective in the formulation and justification of budgets. Ongoing efforts to expand MOSIS have the potential to enhance analysis of resources-to-readiness issues.

KEYWORDS: Budgeting, Budget Justification, Cost Analysis, Marine Corps Operating Forces, MOSIS, Operating and Support Cost, Operating Tempo, OPTEMPO, OSMIS, Readiness, Resources-to-Readiness, USMC, Visibility and Management of Operating and Support Costs, VAMOSC

DoD KEY TECHNOLOGY AREA: Other (Management Information Systems)

MARINE GROUND INTELLIGENCE REFORM: HOW TO REDESIGN GROUND INTELLIGENCE FOR THE THREATS OF THE 21ST CENTURY

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Present-day Marine ground intelligence is configured for attrition warfighting and the predictable conventional adversaries of the past. Designed during WWII, it has undergone little change; what has changed is the threat environment. Modern-day threats are less centralized and regimented. They think on their own and they adapt quickly. This thesis analyzes the current configuration of Marine ground intelligence and compares it with two major threats of the next century: asymmetric military threats and non-conventional threats. To counter these smart adversaries, Marine ground intelligence will need to be

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configured differently. Sophisticated sensors and rote intelligence work are no longer enough to identify and track these powerful threats. The performance of Marine intelligence during the Gulf War demonstrates that having failed against the Iraqi army, intelligence is very likely to fail again. Indeed, Marine intelligence faces a serious dilemma: it can either reform or face ever-decreasing relevance and effectiveness. Having presented the rationale for urgent reform, this work recommends an intelligence enterprise centered on the leveraging of human intellect. It suggests the network as the design change that best leverages intellect and optimally configures ground intelligence for operating successfully against the threats of the next century.

KEYWORDS: Ground Intelligence, Intelligence Reform, Maneuver Warfare, Attrition Warfare, The Gulf War, Operation Restore Hope, UNOSOM II, Asymmetric Military Threats, Emerging, Non-Conventional Threats, Network Intelligence, Virtual Intelligence

DoD KEY TECHNOLOGY AREAS: Battlespace Environments, Command, Control and Communications, Human Systems Interface, Materials, Processes and Structures

PRESCRIBED LOAD LIST CONSOLIDATION INTO THE FORWARD SUPPORT BATTALIONS ASSIGNED STOCKAGE LIST

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The Army has millions of dollars tied up in Class XI inventories at the company level. We describe the costs and benefits of consolidating these inventories within the Forward Support Battalion's (FSB) Assigned Stockage List (ASL). We show that consolidating at the FSB reduces the overall variance in demand for many of the inventory lines and allows the brigade to stock lower quantities of these lines, while maintaining essentially the same service levels. Potential savings to the Army exceed one and a half million dollars for the 3rd Brigade Combat Team alone.

KEYWORDS: Prescribed Load List, Authorized Stockage List, Inventory Consolidation

DoD KEY TECHNOLOGY AREA: Other (Inventory Management)

ACTIVITY-BASED COSTING OF THE PRESIDIO OF MONTEREY'S FEDERAL POLICE DEPARTMENT

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The Army's current activity-based costing model, called Service-Based Costing, focuses on costing Major Commands (MACOMS) and large installations. The Army has yet to develop an activity-based costing model for smaller organizations. This thesis develops an activity-based costing model for a small army organization, the Presidio of Monterey's Law Enforcement Command (LEC). This study arrived at the model by analyzing the LEC to determine the LEC's products, processes/activities needed to produce those products, and the resources consumed by processes/activities while producing products. The model identifies seven major products produced by the LEC and their associated costs. These products are

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Police Information, Police Patrol Service, Investigations, Crime Prevention Education, Crime Watch Hot-line, Physical Security Inspections, and Magistrate Support.

KEYWORDS: Activity-Based Costing, Police Departments, Law Enforcement, Army, Service-Based Costing

KEY DoD TECHNOLOGY AREA: Other (Resource Management)

AN ANALYSIS OF SELECTED DEPARTMENT OF DEFENSE REPROCUREMENT PROGRAMS FOR ACQUISITION OF LEGACY SYSTEM SPARE PARTS VIA SMALL MANUFACTURERS

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The life-cycle extension of weapons systems has created problems for sustaining spare parts procurement. This study analyzes selected DoD reprocurement initiatives for securing responsive manufacturing capacity of small manufacturing companies to overcome these problems. Interviews were also conducted with Government and industry representatives and managers of small manufacturing shops to identify possible barriers to the application of the DoD initiatives. The findings reveal that the DoD initiatives and their associated technologies could dramatically reduce costly lead time delays by enabling the electronic exchange of technical product data between a geographically dispersed set of qualified machine shops and DoD supply centers. However, unless DoD efforts are directed at unifying the components necessary for procuring legacy weapons system spare parts, the barriers will remain as significant obstacles.

KEYWORDS: On-Demand Manufacturing, Reprourement, Virtual Parts Supply Base, STEP, RAMP, Flexible Manufacturing, CALS

DoD KEY TECHNOLOGY AREA: Manufacturing Science and Technology (MS&T)

DISESTABLISHMENT OF MARINE CORPS MEDICAL LOGISTICS COMPANIES THROUGH FULL IMPLEMENTATION OF THE DEPARTMENT OF DEFENSE PRIME VENDOR PROGRAM

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The purpose of this thesis is to analyze the possibility of eliminating the Marine Corps Medical Logistics (MedLog) Companies through full implementation of the Department of Defense's Prime Vendor Program. The MedLog Company is tasked with the maintenance and storage of Marine Corps Authorized Medical/Dental Allowance Lists (AMALs/ADALs) to support a Marine Expeditionary Force in theater for 45 days. More than 2300 individual items compose these AMALs/ADALs. AMALs/ADALs are classified as Prepositioned War Reserve (PWR) materials, stored primarily for contingency operations. The first 15 days of supply are required to be immediately available for combat support, and are in modularized form to facilitate deployment. The additional 30 days of supply are maintained in warehouses in bulk form. Due to recent reductions in manpower and money, the task of maintaining these supplies has become nearly impossible under current practices. Complete implementation of Prime Vendor (PV) could eliminate the need to stock a majority of the bulk supplies and eliminate the labor-intensive management of those stocks. In addition, use of PV will improve readiness as longer shelf

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life could be guaranteed on order for perishable items, and long procurement lead times would be a thing of the past. Losses due to expiration would be virtually eliminated. This thesis analyzes the logistical benefits that can be achieved by extending the current PV Program to include Medical/Surgical items. Use of PV will allow the Navy and Marine Corps team to better utilize manpower and reduce inventory footprint. Analysis shows that a \$17.3 million inventory could be reduced to approximately \$8.8 million, and that it could then be managed by the individual medical units who are the current customers of the MedLog Companies.

KEYWORDS: Prime Vendor, Medical Logistics, AMALs/ADALs, MedLog

DoD KEY TECHNOLOGY AREAS: Manpower, Personnel, and Training, Materials, Processes, and Structures

**FISCAL POLICY IMPLICATIONS OF THE 1988
MEDICARE CATASTROPHIC COVERAGE ACT**
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Master of Science in Management-December 1997
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William R. Gates, Department of Systems Management

Congress passed the 1988 Medicare Catastrophic Coverage Act (MCCA) in an effort to provide seniors with protection from catastrophic medical costs. The MCCA marked a turning point in Medicare policy. It sought to expand Medicare by requiring the beneficiaries themselves to fund the added benefits to the program through increased premiums and linking the size of the increase to beneficiary income. The MCCA was largely financed by middle and upper income beneficiaries. Enacted on July 1, 1988, the MCCA was repealed 17 months later on November 22, 1989, due to controversy and opposition from senior citizens concerned about its financing and lack of long-term care benefits. This thesis examines the fiscal and political environment that led to the genesis, evolution, passage, and repeal of the MCCA. The legislative process and the financing mechanisms of the MCCA are examined within a political context dominated by the need to reduce spending and balance the budget. Data was obtained from congressional documents, periodicals, journals, and Office of Management and Budget, Congressional Budget Office, and Health Care Financing Administration documentation. The MCCA failed because of strong opposition from senior citizens and lobby groups regarding its means-tested financing and lack of long-term care. The complexity of the MCCA caused public misunderstanding and permitted opposition groups to promote misinformation concerning the bill and the Medicare program.

KEYWORDS: Medicare, Finance, Budget, Healthcare, Public Policy

DoD KEY TECHNOLOGY AREA: Other (Public Policy Analysis)

**MEASURING SATISFACTION IN THE PROGRAM MANAGER-PROCURING
CONTRACTING OFFICER RELATIONSHIP**
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Master of Science in Management-December 1997
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Jeffrey Cuskey, Department of Systems Management

When Executive Order 12862 was signed on September 11, 1993, Federal agencies were directed to analyze the extent to which their customers were satisfied with the agency's products/services. To comply with this Executive Order, Navy contracting offices require an effective methodology for developing an instrument to measure the satisfaction of their customers, Navy Program Managers. The purpose of this thesis was to develop and provide a methodology to Procuring Contracting Officers for measuring an individual Program Manager's level of satisfaction with the contracting services

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provided him. The approach utilized in this methodology has two components: to identify the dimensions and attributes which influence an individual Program Manager's satisfaction formation construct; and to translate these dimensions and attributes into measurable behaviors or activities. The measurement instrument developed through this research furnishes a Navy contracting office with useful information concerning their customers' needs and perceptions, and provides a means of evaluating the effectiveness of the Procuring Contracting Officer as measured by the satisfaction of the Program Manager. This thesis provides detailed instructions for implementing this methodology, instructions for performing the data collection process, and two illustrative customer satisfaction measurement instrument.

KEYWORDS: Metrics, Performance Measurement, Customer Satisfaction, Contracting, Program Management

DoD KEY TECHNOLOGY AREA: Other (Customer Satisfaction)

COST EFFECTIVENESS ANALYSIS OF CONVERTING A CLASSROOM COURSE TO A NETWORK-BASED INSTRUCTION MODULE

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Master of Science in Management-December 1997

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The Superintendent of the Naval Postgraduate School (NPS) presented a State-of-the-School address that profiled the university of the future. This futuristic university included Network Based Learning (NBL) to provide training to a dispersed audience. Through a Jackson Foundation Grant, the NPS Institute for Defense Education and Analysis (IDEA) is funding two contractors to convert two Executive Management Education (EME) classes into NBL modules. This thesis performs a cost effectiveness analysis converting the two modules and discusses the intangible costs and benefits associated with converting traditional classroom courses. Using data collected from IDEA and the Bureau of Medicine and Surgery, this thesis compares the total cost per student as a greater number of courses are converted to a traditional EME conference with no NBL modules. The findings revealed that converting only two modules is by no means cost effective in the short term. However, cost savings can be realized by converting more modules. As the same modules are used repeatedly, the high start-up costs eventually become cost effective. The many intangible benefits of NBL also add to the effectiveness of this endeavor.

KEYWORDS: Cost Effectiveness Analysis, Executive Management

DoD KEY TECHNOLOGY AREA: Other (Case Study)

A METRIC EVALUATION APPROACH FOR THE DEFENSE ACQUISITION WORKFORCE IMPROVEMENT ACT

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Master of Science in Management-December 1997

Advisor: Walter E. Owen, Department of Systems Management

Second Reader: Shu S. Liao, Department of Systems Management

The Defense Acquisition Workforce Improvement Act (DAWIA) was enacted in 1990 to improve the quality and professionalism of the Department of Defense acquisition workforce. To assess the effectiveness of DAWIA, actual outcomes of the law must be compared to its original objectives. A particular difficulty in evaluating public policies is that they usually cannot be measured in terms of output, such as dollars, hours, or physical units. The primary objective of this study was to find and introduce a performance measurement approach suitable for identifying effective metrics. A second objective was to establish a link between metrics and outcomes. Using the performance measurement approach as a tool, an analysis

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attempted to link acquisition workforce metrics with specific outcomes. To explore this issue, a literature review of relevant organizational and management texts on public policy analysis, performance measurement and program evaluation was conducted. Four suitable frameworks for performance measurement were found and evaluated. The preferred approach for evaluating DAWIA was determined to be a combination of two performance measurement approaches. The new approach is called Metric Assessment and Measurement Approach. It includes valuable features of the two approaches, and a newly developed metric template for evaluating metrics.

KEY WORDS: Performance Measurement, Metrics, DAWIA

DoD KEY TECHNOLOGY AREA: Other (Metrics)

**ASSESSMENT OF THE FISCAL YEAR 1997 DEPARTMENT OF DEFENSE
BUDGET AND PROGRAM ACTIVITIES FOR DOMESTIC DEFENSE
AGAINST WEAPONS OF MASS DESTRUCTION
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Master of Science in Management-December 1997
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Gordon E. Schacher, Department of Physics**

This thesis examines Department of Defense involvement in U.S. preparedness to manage the consequences of a nuclear, radiological, biological, or chemical terrorist attack against its cities. It analyzes the establishment and implementation of the Defense Against Weapons of Mass Destruction Act of 1996 which directed the Department of Defense to assist in the training of state and local emergency response agencies involved in consequence management activities. The historical analysis focuses on the proliferation of weapons of mass destruction since the dissolution of the Soviet Union, major terrorist incidents since 1993, international standards, and legislative and executive efforts undertaken to combat terrorism up to 1996. The \$150 million Nunn-Lugar-Domenici amendment to the FY-97 National Defense Authorization Bill is examined in detail from introduction on the Senate floor to eventual passage and enactment. Problems and policy issues associated with resourcing and implementing the resulting Domestic Preparedness Program are treated. Although the DoD was given responsibility for implementing city training, an interagency effort ensued involving the Public Health Service, Environmental Protection Agency, Federal Bureau of Investigation, Federal Emergency Management Agency, Department of Energy, and others. Potential weaknesses may materialize due to several characteristics of the Domestic Preparedness Program, including its novelty and uniqueness, the unorthodox legislative process by which it was established, and its complex organizational structure and temporary nature.

KEYWORDS: NBC Defense, Domestic Preparedness, Terrorism, Weapons of Mass Destruction, Department of Defense Budget

DoD KEY TECHNOLOGY AREA: Chemical and Biological Defense

**DEVELOPMENT OF A NAVY RECRUITING VEHICLE BUDGET MODEL
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Master of Science in Management-December 1997
Advisors: Stephen L. Mehay, Department of Systems Management
Shu S. Liao, Department of Systems Management**

This thesis attempts to develop a predicting model for the Commander, Navy Recruiting Command, (CNRC) and Recruiting District. The thesis attempts to identify the relevant data on vehicle activity and vehicle costs across four Navy Recruiting Areas and 31 Navy Recruiting Districts that will be useful in developing a model to predict the demand for vehicles.

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The data file consists of pooled, cross-sectional time-series data covering three fiscal years, 1995, 1996, and 1997, and 31 Recruiting Districts. This data file is used to estimate regression models of vehicle demand using ordinary least squares techniques. The candidate independent variables whose values are statistically significant are used as the explanatory (predictor) variables to explain the variation in the number of vehicles across Districts. The thesis concludes that there is a strong relationship between the number of enlisted production recruiters and total vehicle mileage in explaining the number of recruiting vehicles. Using these relationships a simple model is developed that can be used to predict future vehicle demand by District and assist decision-makers in making vehicle distribution decisions.

KEYWORDS: Navy Recruiting, Vehicle Management, Vehicle Budgets

DoD KEY TECHNOLOGY AREA: Ground Vehicles

THE IMPACT OF PREMIUM TRANSPORTATION ON USMC LOGISTICS PROCESSES

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Master of Science in Management-December 1997

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Lieutenant Colonel Timothy Phillips, United States Marine Corps Representative

The purpose of this thesis is to use simulation models to evaluate the benefits and costs of premium transportation on inventory levels at I MEF, Camp Pendleton, CA. The core of the research focuses on studying the impact that 100% premium transportation has on Order Ship Time (OST) and requisitioning objective inventory levels at I MEF. Although premium transportation is expensive, the savings in inventory costs provide an opportunity to offset transportation costs, decrease OST, and improve overall customer service. The research results show that the benefits generally outweigh the costs when premium transportation is used for consumable items. Premium resupply from the New Cumberland/Mechanicsburg Depot resulted in significant OST reductions while incurring an additional cost of only \$400 per month. Premium resupply from the Sharpe/Tracy Depot is available at no cost because the depot has unused premium transportation capacity readily available. Repairable items, however, do not appear to support the use of premium transportation due to their high weight, and thus high transportation cost.

KEYWORDS: Precision Logistics, Order Ship Time, Requisitioning Objective, Simulation, Model

DoD KEY TECHNOLOGY AREAS: Materials, Processes, and Structures, Modeling and Simulation

APPLICATION OF THE WENGER TAXONOMY FOR CLASSIFYING GOODS PROCURED BY THE FEDERAL GOVERNMENT TO COMMERCIAL OFF-THE-SHELF COMPUTER HARDWARE EQUIPMENT

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The Wenger Taxonomic Model provides a means to classify goods procured by the Federal Government so as to provide procurement professionals with strategic buying insight. Several aspects of the model have been explored by various researchers. These researchers have found that the model is both valid and useful. This study focuses on application of the Wenger Taxonomic Model to Commercial Off-the-Shelf computer hardware equipment procured by a specific buying activity. It proposes a slightly different version of the Wenger Taxonomic Model. It also proposes five areas where the model would help procurement professionals make smarter Information Technology investments. These areas are: cost-

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benefit analysis, source selection evaluation, warranty purchases, contingency contracting, and evaluating the organizational impact of Information Technology acquisitions.

KEYWORDS: Taxonomy, Classification, Commercial Off-the-Shelf, Computers

DoD KEY TECHNOLOGY AREA: Other (Taxonomic Classification)

DEFENSE INDUSTRY MERGERS AND MONOPOLY POWER: ANALYSIS OF ABNORMAL EARNINGS USING THE EDWARDS-BELL-OHLSON MODEL

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Recent defense industry consolidation has created several large defense firms. As a result of merger activity with their suppliers and competitors, these firms account for an increasing percentage of sales to the Department of Defense. This thesis investigated seven large defense industry mergers, involving 12 defense firms, to assess the effect of the mergers on the firms. Changes in a firm's anticipated abnormal earnings both premerger and post-merger were analyzed to determine whether the defense firms exhibit monopoly power.

The merger process was divided into five stages. The Edwards-Bell-Ohlson (EBO) valuation model was used to create measures of firms' expected abnormal earnings at each stage. Each firm's resulting abnormal rates of return on equity were observed and analyzed between stages to track changes in assessments of expected abnormal earnings as the merger process proceeded.

Major findings indicate that post-merger abnormal rates of return increased from premerger levels for all firms. These findings are consistent with defense firm earnings power and monopoly position increasing due to merger activity.

KEYWORDS: Defense, Defense Industry, Mergers, Monopoly, Accounting Models

DoD KEY TECHNOLOGY AREA: Other (Financial Management)

A CAUSAL BASED INVENTORY FORECASTING MODEL FOR AN ELECTRONICS CAPITAL EQUIPMENT MANUFACTURER

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Master of Science in Management-December 1997

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Second Reader: Shu S. Liao, Department of Systems Management

With declining budgets for making inventory decisions throughout the business sector, the Navy, and the Department of Defense, the need for accurate inventory demand forecasting is becoming an increasingly important issue. The need for accurate forecasts and adequate inventory models is integral to cost savings, attaining customer service levels, and to the climate of both for-profit and public sector organizations.

This thesis develops a forecasting model for a high-technology firm that attempts to predict future demand by considering several *causal-factors* that might reflect future demand for items. Our results suggest that the model is no better than the

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current demand-based model, either because our factors did not contain sufficient predictive power, or perhaps because no such factors exist.

KEYWORDS: Inventory, Forecasting, Causal

DoD KEY TECHNOLOGY AREA: Other (Inventory Management)

RISK ASSESSMENT AND ANALYSIS OF THE M109 FAMILY OF VEHICLES FLEET MANAGEMENT PILOT PROGRAM

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Master of Science in Management-December 1997

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The purpose of this thesis is to conduct a risk assessment and analysis for the M109 155mm Self Propelled Howitzer (SPH) Fleet Management Pilot Program. The objective of this program is to reengineer the fleet's logistical support system by outsourcing those functions which make sense and that can be performed more efficiently by private industry. This innovative approach places one contractor, or Fleet manager, in charge of sustaining the entire fleet. The researcher used the Concept of Operations (CONOPS) Document for the program as the primary tool to conduct the risk assessment and analysis. Using the CONOPS Document as a preliminary work Breakdown Structure, the researcher developed two surveys to identify and assess the risks associated with the program. These surveys enabled the researcher to develop a Risk Watchlist that identifies and prioritizes the most severe cost and performance risks. The researcher utilized this watchlist to develop Risk Charts to analyze the potential impact of these risk events. The Risk Charts graphically display both the risk events identified in the program and where they might occur. Developing similar Risk Watchlists and Risk Charts can assist DoD Project Managers in controlling and mitigating the risks associated with their programs.

KEYWORDS: Risk Assessment and Analysis, Fleet Management

DoD KEY TECHNOLOGY AREA: Other (Acquisition Outsourcing and Logistics)

USING "OTHER TRANSACTIONS" AS AN EFFECTIVE RESEARCH AND DEVELOPMENT (R&D) CONTRACTUAL VEHICLE

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The Federal Government is no longer the preeminent market for high technology. With billions of dollars being spent in the commercial sector on Research and Development (R&D), the uniformed services cannot afford to be a non-participant in state-of-the-art technology due to the cumbersome and prescriptive practices of the standard procurement system. This thesis establishes the rationale for using "Other Transactions" (OT) authority as a contractual mechanism in the R&D arena. Background into the Defense Advanced Research Projects Agency's (DARPA) use of OTs is the main thrust of this thesis as they have been the predominant and most experienced user of this contractual vehicle since its creation in 1989. This thesis also presents the legislation that created OT authority and the background that established the need for it. Additionally, the analysis focuses on important elements that are fundamental in embracing the use of OTs. If increased utilization of this

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contractual vehicle by the Services can be achieved, it will facilitate current technology insertion into military systems and attract more resources for future high technology endeavors.

KEYWORDS: Other Transactions, OT, Other Transaction Authority, OTA, Defense Advanced Research Projects Agency, DARPA, 10 U.S.C. 2371, Section 845 Authority, Prototyping, High Technology Acquisition

DoD KEY TECHNOLOGY AREA: Other (Management)

**ASSESSMENT OF LOGISTICS IMPROVEMENTS MADE BY
DEPARTMENT OF DEFENSE REINVENTION LABORATORIES**

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Second Reader: Jerry L. McCaffery, Department of Systems Management

This thesis examines the logistics accomplishments of Reinvention Laboratories in attempting to improve business practices within the Department of Defense. It documents five cases in which over \$342 million in annual savings were achieved to show the potential of continuous improvement. It also provides recommendations for further research and for investment of resources to permit DoD logistics organizations to obtain greater savings.

This thesis provides a tool and a knowledge base useful to existing and new Reinvention Labs. Through review of the lessons learned and study of the barriers to success, it is hoped that avoidance of the many pitfalls encountered with implementing change can be avoided.

Through business process reengineering (BPR) and the entrepreneurial spirit, DoD can transform its large and inefficient logistics organizations into more flexible, effective, streamlined institutions capable of rapidly adapting to the changing needs of the Armed Services. This thesis illustrates how DoD, through the resource savings in reengineering and reinvention, can generate funding to invest in modernization to prepare for the missions identified in the DoD's template for the future—Joint Vision 2101.

KEYWORDS: Logistics, Business Process Reengineering (BPR), Entrepreneurial Spirit, Restructuring, Reengineering, Reinvention, Realignment, and Rethinking

DoD KEY TECHNOLOGY AREA: Materials, Processes, and Structures

**A RELIABILITY CENTERED MAINTENANCE ANALYSIS OF
AIRCRAFT CONTROL BEARINGS USED IN THE NAVY'S S-3 AIRCRAFT**

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This thesis uses the Naval Air Systems Command Integrated Reliability Centered Maintenance Program software (IRCMS) to analyze the performance of aircraft control bearings used in the flight control system of the Navy's S-3 aircraft. The IRCMS is used to determine whether changes can be made in preventative maintenance procedures, or if redesign of the system is warranted. We show in our analysis that each bearing should be redesigned.

In our research, we analyzed and established a historical bearing failure data baseline of current reliability and maintenance costs. We developed a mathematical model to determine the effects of using improved bearings, currently available from commercial manufacturers, on bearing reliability and life cycle costs. We show that failure rates can be reduced by 50

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percent, and maintenance costs can be reduced by 48 percent, which represents \$16,000 in annual savings over the remaining life of the aircraft.

We show that an increase in bearing and flight control system reliability is important from the aspect of aircrew safety, and reduces the exposure of aircrews to the potential of in-flight failures.

KEYWORDS: Reliability Centered Maintenance

DoD KEY TECHNOLOGY AREA: Air Vehicles

PARTNERING DEFENSE DEPOTS WITH INDUSTRY FOR THE PERFORMANCE OF DEPOT-LEVEL MAINTANANCE: A CASE ANALYSIS OF THE AIM XXI PROGRAM

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David F. Matthews, Department of Systems Management

Partnering the public and private sector for the performance of depot-level maintenance and repair is a relatively new concept. While partnering arrangements offer tremendous opportunities to increase the efficiency of the industrial base; to be successful, these arrangements are complicated by their reliance upon full and open communication, plus their dependency on the total commitment of senior leadership from all involved organizations. Phase I of the Abrams Integrated Management for the Twenty-First Century (AIM XXI) program, a partnering arrangement between General Dynamics Land Systems (GDLS) and Anniston Army Depot (ANAD), which called for the complete rebuild and modernization of 17 M1A1s, offers valuable insight to acquisition professionals who are considering establishing a partnering arrangement. A principal finding of this research is the necessity for partnering arrangements to have the long-term commitment of senior management, and be thoroughly disseminated throughout the involved organizations, particularly to the mid-level managers who are responsible for executing the arrangement. Open and honest communication is the key to the success of partnering arrangements. Partnering is more than a new buzz-word brought about by Acquisition Reform (AR). It is a new dimension to the relationship between the public and private sectors. Acquisition officials must ensure that the parties fully understand this, and the groundwork for this environment is established prior to approving requests to partner.

KEYWORDS: Partnering, AIM XXI, Depot-Level Maintenance and Repair, Outsourcing, M1A1 Abrams MBT

DoD KEY TECHNOLOGY AREA: Other (Systems Acquisition and Contract Management)

DETERMINANTS OF NONPARTICIPATION IN THE UNITED STATES ARMY RESERVE

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The end of the Cold War generated military budget constraints and downsizing that resulted in the active force having to rely on Reserve component support. Enlisted losses in the USAR, however, have been increasing. For FY97, approximately 23% of enlisted losses were due to unsatisfactory participation. These losses equate to lost training dollars and decreased force readiness. The objectives of this thesis are to identify the factors that lead to unsatisfactory participation within U.S. Army Reserve units, and recommend changes which should lead to increased participation and force readiness. This study has used a methodology that involved talking to reservists, who left their units, to discuss the reasons and timing of their decisions to depart. An integrated model has been developed as a framework to study the Reserve organizational socialization process. Many identified unmet expectations in training and leadership areas, and many exited because they

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were unable to resolve these dissatisfactions. Unit leadership exacerbated these problems through little or ineffective attempts to rectify the reservists' problems, as well as inadequate efforts to influence the reservist to return to the unit. Recommendations include: providing new reservists realistic job previews; emphasizing the importance of the first training weekend and the sponsorship program in leadership training; expanding the unit retention sergeant's duties to cover the entire scope of the retention process; and publicizing and rewarding "best practices."

KEYWORDS: Army Reserve, Turnover, Nonparticipation, Personnel Readiness

DoD KEY TECHNOLOGY AREA: Manpower, Personnel, and Training

THE FISCAL, MARITIME, AND NATIONAL SECURITY FACTORS INFLUENCING THE DEVELOPMENT OF THE MARITIME SECURITY ACT OF 1996 (MSA)

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VADM Philip M. Quast, USN (ret.), Admiral Michael J. Boorda Chair of Management and Analysis

The Merchant Marine Act of 1936 established the federal government's policy of developing and maintaining a commercial merchant marine capable of carrying a substantial portion of the Nation's waterborne commerce and performing as a military auxiliary in time of war. Today the merchant marine continues to serve the Nation in commerce and provides sustainment sealift assets and skilled seafaring crews to help meet DoD strategic mobility requirements. To maintain such a fleet, a highly regulated system of subsidy payments was provided to shipowners to offset the higher costs associated with the U.S. registry. Despite the outlay of over \$14 billion in aid, the U.S. merchant marine has continually declined both in numbers of ships and the percentage of U.S. trade carried. This study examines the development of the Maritime Security Act of 1996 (MSA), and the policy decision to continue financial assistance in support of maintaining the merchant marine. To analyze the implications of this policy a comprehensive examination of congressional documents and industry publications was conducted. DoD and DoN mobility planners can benefit from this study, as the condition of the merchant marine impacts both national security and mobility readiness. The study concluded that the MSA. was a compromise reflecting many interests, reducing federal investment in the program and requiring recipients of payments to make available their entire transportation infrastructures to support DoD mobility requirements in times of crisis.

KEYWORDS: Sustainment Sealift, Merchant Marine, Public Policy, Fiscal, National Security

DoD KEY TECHNOLOGY AREA: Other (Public Policy Analysis)

FORECAST MODELING FOR ESTIMATING BASE REALIGNMENT AND CLOSURE (BRAC) ENVIRONMENTAL RESTORATION COSTS

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The U.S. military has faced imposing force structure reductions during the last decade. Complementing the force structure reductions, four rounds of Base Realignment and Closure (BRAC) have been authorized to reduce surplus infrastructure. However, as the BRAC process unfolds, environmental cost issues are being placed under ever increasing scrutiny. Military environmental restoration costs have risen sharply (and above expectations) in recent years, with the unanticipated cost growth occurring most visibly for bases on the BRAC lists.

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The complexity of the environmental clean-up enterprise, the numerous and varied regulatory requirements, and the uniqueness of individual installations have led to tremendous difficulty in effective budgeting. In today's austere budgetary environment, a reliable expenditure model is essential to accurately demonstrate the resource requirements necessary to complete suitable environmental restoration and subsequent transfer/reuse of BRAC lands.

To meet the need for an accurate and functional forecast model, thesis research developed and validated a tenable Department of the Navy (DoN) BRAC environmental restoration cost forecast model. The developed model utilized a comprehensive and inclusive multiple regression data analysis to arrive at the most statistically significant set of installation restoration parameters. A spreadsheet-based forecast model implementation procedure, incorporating empirically determined "rules of thumb" for estimating the parametric effects of BRAC initiation, serves as the culminating product of the research effort.

KEYWORDS: Base Realignment and Closure (BRAC), Environmental Restoration, Multiple Regression Analysis

DoD KEY TECHNOLOGY AREA: Other (Financial Management)

THE USE OF FINANCIAL DATA IN EVALUATING ACQUISITION PROGRAMS: THE ADVANCED FIELD ARTILLERY TACTICAL DATA SYSTEM (AFATDS) CASE

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As Department of Defense budgets decline, acquisition programs will be scrutinized by a number of stakeholder agencies within and outside of the Department of Defense. This study identifies the stakeholder agencies that can influence defense acquisition programs and evaluates the role that financial management information plays in shaping their objectives and interactions. A case study of the Advanced Field Artillery Tactical Data System (AFATDS) Program was used to test the relevance of financial data by the stakeholder groups.

The relevance of financial data varies between stakeholder groups. The quantifiable nature of financial data leads to its precedence over user's requirements during debate over program direction. The selective presentation of financial data influenced the way it was interpreted.

KEYWORDS: Acquisition, AFATDS, Financial Management, Program Evaluation, Stakeholders

DoD KEY TECHNOLOGY AREAS: Command, Control, and Communications, Other (Financial Management)

CANNIBALIZATION AT THE PACIFIC FLEET F/A-18 TRAINING SQUADRONS

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Master of Science in Management-December 1997

and

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This thesis analyzes cannibalization as it affects the Pacific Fleet Navy and Marine Corps F/A-18 Fleet Replacement Squadrons. This thesis researches the supply/support posture of the F/A-18, identifies its shortcomings, analyzes the can-

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nibalizations performed by the squadrons and determines the impact and usefulness of cannibalizations. An increase in cannibalizations increases component failure rates. Cannibalization doubles maintenance man-hours and depletes valuable resources. The data showed no clear linear relationship between cannibalizations and mission capable rate, flight hours completed, sorties completed or direct maintenance man-hours. There were many inconsistencies between different data sources. Cannibalizations should be kept to a minimum. More specific guidance is needed for cannibalization. A better tracking system is needed to capture all cannibalization data. Incentives should be incorporated to encourage truth and accuracy in reporting.

KEYWORDS: Cannibalization, Maintenance, Supply, Spare Parts

DoD KEY TECHNOLOGY AREA: Materials, Processes, and Structures

**PRIVATIZATION OF WATER IN GOVERNMENT
OWNED HOUSING: A FORECASTING MODEL**
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B.S., United States Naval Academy, 1986
Master of Science in Management-December 1997
Advisors: Shu S. Liao, Department of Systems Management
John E. Mutty, Department of Systems Management

This thesis examines the option of privatizing water utilities, requiring residents of Government Owned Housing (GOH) to pay for all consumption. To assist in the payment, a Water Allowance (WA) would be provided to residents based on the average consumption of local Private Sector Housing (PSH) residents. The goal of this thesis is to determine if implementing a WA would reduce the overall water consumption in GOH. Specifically, it determines the historical usage of water in the Naval Postgraduate School's La Mesa Housing Village (LMV) area and the local PSH areas. It then develops forecasting models for both areas to predict the future consumption of water, sets a baseline consumption rate for LMV residents, and identifies the savings that would be generated from implementing the WA program.

After validating the forecasting models and comparing costs under the WA concept, this study concludes that the WA concept would save approximately \$18,355 annually at LMV alone. Although, the WA concept does not meet the Navy's goal of identifying and implementing by 2005 all life cycle cost-effective water conservation measures with a payback period of less than 10 years, it does recoup the initial metering cost of \$237,200 in 12.7 years. By implementing a WA concept, the projected savings in LMV alone are approximately 6.1% per person per day. Although the study focuses on LMV, it is assumed that similar water consumption inefficiencies are being demonstrated in other GOH areas.

KEYWORDS: Utilities, Government Owned Housing, Privatization, Water Utilities, Modeling and Simulation

DoD KEY TECHNOLOGY AREAS: Modeling and Simulation, Other (Water Utilities)

**GUIDANCE FOR THE IMPLEMENTATION OF MARKET RESEARCH FUNDAMENTALS
AT A DEPARTMENT OF DEFENSE FIELD CONTRACTING ACTIVITY**
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As a federally mandated requirement, market research within the federal acquisition arena has made little progress since its inception well over a decade ago. It is the researcher's belief that the slow progress realized in the area of market research is due to Department of Defense Field Contracting Activities not really understanding how to incorporate the process into their existing routine and what skills are required of their personnel in order to effectively conduct market research. Fur-

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thermore, it is my belief that provided the proper guidance, or blueprint, field contracting managers will be less reluctant to incorporate a formalized market research process into their existing routine, and will realize greater success in doing so.

This thesis will investigate, analyze and promulgate the means by which a Department of Defense Field Contracting Activity can evolve from an organization totally absent of any market research capabilities, to an activity which performs effective market research. This research provides managers of Department of Defense Field Contracting Activities a blueprint for the implementation and maintenance of an effective market research process within their organizations and the metrics necessary to gauge the level of effectiveness being achieved as a result.

KEYWORDS: Market Research, Purchasing Research, Market Survey, Market Investigation, Acquisition Reform

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

ANALYSIS OF ENLISTED RECRUITING PATTERNS WITHIN THE DEPARTMENT OF THE NAVY

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Master of Science in Management-December 1997

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In order to improve business practices within the Department of the Navy, an analysis of the advantages and disadvantages of optimizing the schoolhouse and its effects upon recruiting, recruit training, and the fleet is currently underway. As part of this analysis, this thesis examines if there is an optimal recruiting pattern within both the Navy and the Marine Corps based upon historical data. With a database consisting of 23,590 enlistment records, standard statistical and quantitative methods are used to analyze DEP attrition, first-term attrition, and reenlistment rates. Additionally, the monthly cost per recruit is analyzed for four functional cost areas for the Navy area and Marine Corps district recruiting levels.

Major findings are: the longer a poolee remains in the DEP, the more likely the poolee will attrit from the DEP. Poolees who survive the DEP, however, are more likely to complete their first-term of enlistment as their time in-DEP increases. As time in-DEP increases, a Navy poolee is less likely to reenlist; in the Marine Corps, a poolee is more likely to reenlist. For both the Navy and Marine Corps, the highest quality shippers, per contract cost, occur during July, August, and January.

KEYWORDS: Delayed Entry Program, DEP, First-term Attrition, Reenlistment, Cost per Recruit, Optimal Recruiting Pattern

DoD KEY TECHNOLOGY AREA: Manpower, Personnel, and Training

FINANCIAL ANALYSIS OF OUTSOURCING THE HELICOPTER COMBAT SUPPORT MISSION ABOARD MILITARY SEALIFT COMMAND SHIPS.

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Department of Defense leaders plan to use outsourcing to reduce operations and maintenance spending and enable them to increase procurement and research and development spending. Even functions once labeled inherently governmental are now being evaluated for outsourcing in the quest to reduce spending. One such function is the Helicopter Combat Support (HC) Mission aboard Military Sealift Command (MSC) ships.

This thesis evaluates service contract cost escalation rates and compares them to in-house cost escalation rates. Three Navy service contracts were evaluated, two aircraft maintenance contracts and one aircraft simulator maintenance contract.

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The purpose was to determine if the escalation rates differed enough to significantly affect DoD's ability to reduce spending through outsourcing. This thesis also determines the total in-house cost to perform the HC mission aboard MSC ships and evaluates commercial alternatives. The purpose is to establish the contract cost at which outsourcing this mission will result in long-term cost reduction.

This thesis found that service contract costs escalate faster than in-house costs in certain industries. This difference reduces or eliminates anticipated cost savings from outsourcing. The total in-house performance cost of the HC MSC mission was determined for two different options currently under consideration.

KEYWORDS: Outsourcing, Helicopter Combat Support, Military Sealift Command, Cost Benefit Analysis, Combat Logistic Force

DoD KEY TECHNOLOGY AREA: Other (Financial Management)

IMPROVED AVIATION READINESS AND INVENTORY REDUCTIONS THROUGH REPAIR CYCLE TIME REDUCTIONS USING MODELING AND SIMULATION

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and

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This thesis research focuses on improved aviation readiness and reductions in pipeline inventory investment through repair Turn Around Time reductions related to the component repair processes internal to the Naval Aviation Depot (NADEP). Specific emphasis was given to the repair flow of a specific component from induction into the depot for repair to the ultimate availability for sale to customers in a ready-for-issue status. The research models the current NADEP repair process flow and simulates enhancements to the process flow. These enhancements identify savings of over \$52,000 in repair pipeline inventory investment for the candidate item. Our model and associated simulations provide NADEP with graphical and quantitative feedback which demonstrates the impact of process flow enhancements on repair turn-around-time and work-in-process inventory efficiency.

KEYWORDS: Repair Turn-Around Time, Pipeline Inventory Reduction, Operational Availability

DoD KEY TECHNOLOGY AREA: Modeling and Simulation

THE MINI-TRIAL: A VALUABLE ALTERNATIVE DISPUTE RESOLUTION TOOL FOR THE UNITED STATES NAVY

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In order to avoid unnecessary, time consuming, and costly litigation, the Department of Defense and more specifically the United States Navy, has adopted the use of alternative dispute resolution (ADR) to resolve contract disputes. One of the less-used, but highly successful ADR techniques is known as the mini-trial.

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The primary goals of this thesis are to provide contracting professionals and attorneys with a better understanding of the mini-trial, explore how the Navy might make better use the technique, and outline the steps the Navy should take to further implement its use. The thesis provides information on the technique's background, factors for use, advantages and disadvantages, format, and roles of participants. The researcher found that there are a number of issues surrounding the mini-trial including; problems with neutrals and principals, and the perception that the Navy has been reluctant to use the technique. Principal findings from the research revealed that there are key measures of success for the mini-trial, that barriers exist to convince contractors to participate, that there are certain conditions for its use, and that the Navy will increase its use of the technique in the future. Principal recommendations are that the Navy should not second guess its principles, ensure settlement funds are paid promptly, establish an agency ombudsman to answer ADR questions, and conduct face-to-face discussions with contractors to convince them that the mini-trial and ADR are in both parties' best interest.

KEYWORDS: Mini-Trial, Alternative Dispute Resolution (ADR), Contract Disputes

DoD KEY TECHNOLOGY AREA: Other (Legal Issues, Alternative Dispute Resolution)

MITIGATING THE INEQUITY OF THE MILITARY RETIREMENT SYSTEM BY CHANGING THE RULES GOVERNING INDIVIDUAL RETIREMENT ACCOUNTS FOR SERVICE MEMBERS

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This thesis provides a summary of the military retirement system's history, structure, and purpose, demonstrating that its all-or-nothing structure is unfair to the majority of service members. It reviews the structure of Individual Retirement Accounts (IRA) and the Employee Income Retirement Security Act, which governs private-sector retirement plans and their treatment by the Internal Revenue Code. It demonstrates that the inequity of the military retirement system is compounded by the fact that although the system does not comply with the minimum standards required of private-sector retirement plans, it is treated identically in determining whether the employee is eligible to deduct his IRA contributions from taxes. The thesis reviews the extensive economic literature on the IRAs' effectiveness in increasing private saving and concludes that IRAs do lead to additional saving. The thesis proposes allowing all service members to deduct their IRA contributions from taxes regardless of income, and estimates the effect of doing so on government debt and national savings. It concludes that the cost is so small—at most \$30 million annually—that cost is no obstacle to the proposal.

KEYWORDS: Military Retirement, Individual Retirement Account, Internal Revenue Code, Saving Incentive

DoD KEY TECHNOLOGY AREA: Other (Military Retirement)

MANAGEMENT IN THE JAPAN MARITIME SELF DEFENSE FORCE: THE EFFECTS OF JAPANESE VALUES AND BELIEFS

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Roger D. Evered, Department of Systems Management**

This thesis examines the organization and management of Japan Maritime Self-Defense Force (JMSDF) and its similarities and common features with Japanese corporate management, a common style grounded in culture and more specifically in the Japanese educational system. In nearly one hundred years organizational theory, practices, and systems were mostly

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transplanted from the United States and European countries. However, these systems evolved to fit the environment and culture of the Japanese people. This study investigates features and relationships among the Japanese environment, culture, educational systems, and management style. Japanese society and culture deeply effect the education system, and this system in turn socializes people in basic beliefs and values (e.g., harmony and loyalty) foundational to Japanese corporate practices (e.g., group decision making and lifetime employment). This study seeks to advance our understanding of how JMSDF participates in the same culture, is grounded in the same beliefs, and engages in similar practices as other Japanese organizations.

KEYWORDS: Management in the Japan Maritime Self-Defense Force, Effects of Japanese Values and Beliefs

DoD KEY TECHNOLOGY AREA: Manpower, Personnel, and Training

**DECISION SUPPORT MODEL FOR EVALUATING MK16 MINE
COUNTERMEASURE SYSTEM READINESS IMPROVEMENTS**
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Master of Science in Management-December 1997
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Donald R. Eaton, Department Systems Management

We have developed a decision support model to evaluate potential alternatives for improving MK 16 Mine Countermeasure (MCM) system mission readiness. Explosive ordnance disposal (EOD) resource managers are expected to maximize readiness in the face of increasing operational commitments and declining budgets. In order to remain effective in this environment, managers must take a more aggressive approach toward cost efficiency. This can be accomplished by reducing the potential variability associated with resource allocation decisions. We find we can reduce uncertainty through the use of decision support models and the application of sensitivity analysis. We will apply our model to reduce the uncertainty associated with the alternatives for improving MK 16 MCM system mission readiness.

KEYWORDS: Decision Support Model, Mission Readiness

DoD KEY TECHNOLOGY AREA: Other (Logistics Management)

**THE FUTURE OF THE CHILEAN SHIPBUILDING AND DOCKING
COMPANY-ASMAR: A STRATEGIC MANAGEMENT MODEL ANALYSIS**
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This study describes and defines five different management models applied to major naval or government shipyards. The study also addresses the importance of the shipyard industry to the national interest of a nation. The study analyzes the shipyard industries of the North Hemisphere in the United States, Great Britain, Germany, France, and Spain and in the Southern Hemisphere of Argentina, Brazil, Colombia, Peru, Venezuela, and Chile. Although the study concludes that the shipyard industry in the world is in crisis, it also shows that each country has unique problems, which require unique solutions depending on the country or region. The study includes a summary of the political environment and economic trends of each country. The shipyard industry is a highly competitive market. For the North Hemisphere countries, the solution has been management model changes and cooperative work among the shipyards. For South American countries the solution is unique to each nation. In these nations the solution consists primarily of government actions establishing new

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maritime policy. These policies result usually in management model changes. The study also examines the managerial evolution of some major naval shipyards as a way to capitalize on this experience in the light of the South American defense development trends and the realities of Chilean defense. At the present time Chile does not have an explicit defense policy. The study concludes with the recommendation that the most appropriate management model for the future of ASMAR-Shipbuilding and Docking Company is the Government Owned, Navy Managed Model. This assumes, of course, the current defense norms.

KEYWORDS: Shipyard Management, Strategic Management, Chile, South America, ASMAR

DoD KEY TECHNOLOGY AREA: Other (Strategic Management)

AN ANALYSIS OF REASONS COMMERCIAL ENTITIES PREFER NOT TO PARTICIPATE IN DEFENSE BUSINESS

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In 1987, Dr. David V. Lamm conducted a study to identify the extent to which firms have taken the position of refusing to participate in Department of Defense (DoD) business and the principal reasons for their refusal. Since his study, major changes have occurred in the acquisition environment resulting from the collapse of the Soviet Union and subsequent Defense budget reductions. Such changes include passage of acquisition reform legislation that has prompted initiatives focused on streamlining the procurement process. The purpose of this study is to identify the extent to which companies prefer to not do business with DoD and the associated reasons for that preference in today's acquisition environment. A survey was sent to 1,300 companies in various industries. Analysis of the responses indicated that 42% of the respondents (primarily small businesses) refused to conduct business with the DoD, twice the proportion of 1987. Four of the five top concerns for not participating in Defense business in 1997 replicated the 1987 study's most serious concerns: burdensome paperwork, Government bidding methods, more attractive commercial ventures and low profits. This study analyzes industry's concerns and the implications for small and large businesses, subcontractors and prime contractors, and major industries.

KEYWORDS: Defense Industrial Base, Participation in Defense Business

DoD KEY TECHNOLOGY AREA: Other (Defense Procurement Policies and Procedures)

MARINE LEADERSHIP OF CIVILIAN PERSONNEL: AN ANALYSIS OF MARINE CONTRACTING OFFICERS' MANAGEMENT OF CIVILIAN PURCHASING AND CONTRACTING PERSONNEL

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The Marine Corps currently has 18 regional contracting offices located throughout the continental U.S. and one office in Okinawa, Japan. Ten out of the 18 regional contracting offices are headed by military contracting officers. The majority of the personnel that make up the workforce in these offices are civilians. The military side of the workforce continues to get smaller not only because of downsizing but in part as a result of the Defense Acquisition Workforce Improvement Act (DAWIA). DAWIA requires the Department of Defense to increase the ratio of civilian personnel to military personnel in the acquisition workforce each year, a move toward civilianization of this profession. As more and more civilians take over acquisition and contracting positions the real challenge will be for those military officers that must head these newly formed

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organizations which rely heavily on civilian workforce. The major challenge that any military officer will be facing in this environment is how to manage civilians effectively.

This thesis identifies the issues associated with the management of civilian purchasing and contracting (P&C) personnel in a USMC regional contracting Office. A survey and interviews of USMC military contracting officers and civilian P&C personnel were conducted by the researcher and the results were used to develop conclusions and recommendations to enhance to management skills of Marine Corps Officers.

KEYWORDS: Civilian Personnel Management, USMC Regional Contracting Offices

DoD KEY TECHNOLOGY AREA: Manpower, Personnel, and Training

A COMPREHENSIVE STUDY OF FACTORS IMPACTING THE FUTURE SIZE AND SCOPE OF MILITARY GRADUATE MEDICAL EDUCATION

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Graduate medical education (GME) is the postgraduate medical education required for all medical school graduates pursuing licensure. Since World War II, the military medical services have undertaken full time inservice GME missions to ensure a supply of quality physicians and surgeons for both the military's wartime readiness and peacetime health benefit missions. However, determining the number of active duty physicians and surgeons, and the specialties which they practice, has been a complex and controversial issue within military medicine, particularly since the end of the Cold War. This thesis examines the factors impacting the future size and scope of military GME. A comprehensive history of military GME is provided. Detailed events and issues impacting GME which surfaced following the Cold War are also discussed. The current Department of Defense GME policy and funding issues are examined, as well as the operational GME implementation model developed by the United States Navy. This thesis found that GME has historically been a valuable tool for recruiting, training, and retaining quality physicians and surgeons. Post-Cold War budget constraints and readiness policies and private sector changes in GME are likely to force changes in military GME programs, decreasing both the number of doctors and specialties.

KEY WORDS: GME, Residency, Medicare, Rightsizing, Readiness

DoD KEY TECHNOLOGY AREA: Other (Defense Health Care Policy)

ANALYSIS OF FIRST PRICE SEALED BIDDING (FPSB) USING GAME THEORY

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This thesis analyzes the First Price Sealed Bidding (FPSB) procurement method using computer simulations. The First Price Sealed Bidding is a static Bayesian Game with incomplete information. These games have a well-defined Bayesian Nash equilibrium. Using this theory, this study found the bidders' equilibrium strategies. The equilibrium strategy is the strategy that maximizes bidders' profit simultaneously. Some assumptions have been made to be able to construct a model for the FPSB. Then, the model was transformed into computer simulation code using Visual Basic programming language.

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Two different simulation programs used to experiment with several scenarios under uniform and triangular production cost distributions. The simulation showed the bidders' behavior and identified factors affecting the bidders' decision while preparing their bids. The most influential factors found to be production cost distributions and number of bidders. Concluding observations concerning both buyers and bidders present the results derived from the analysis of experiments.

KEYWORDS: First Price Sealed Bidding, Game Simulation, Game Theory, Static Games with Incomplete Information

DoD KEY TECHNOLOGY AREA: Other (Acquisition and Contracting)

THE EVOLUTION OF THE FLEET HOSPITAL PROGRAM: FROM THE COLD WAR ERA TO THE NAVAL EXPEDITIONARY MEDICAL SUPPORT SYSTEM

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The global security environment has changed significantly since the original concept of fleet hospitals was developed. This thesis examines the process used to plan and budget for fleet hospitals, and examines the events that shaped the configuration and billet structure of fleet hospitals. Evidence for this thesis was taken from reports from DoD, GAO and Congress, congressional testimony, studies conducted by the Center for Naval Analyses, journal articles, after action reports and pertinent DoD directives and manuals. Additional data were obtained through interviews with key officials involved in resourcing and managing the Fleet Hospital Program and training personnel assigned to augment fleet hospital platforms. The thesis concludes that planning and budgeting for fleet hospitals is dependent on the structure of the THCSRR model. The establishment of Single Sourcing Hospitals to deploy as fleet hospital units is intended to enhance fleet hospital operational performance by capitalizing on working relations developed delivering the peace time benefit. As the Cold War ended and more accurate methods for estimating casualty rates emerged, the requirement for fleet hospitals decreased from 17 to 10. Shifts in Navy and Marine Corps doctrine to lighter, faster and more flexible maneuvers have led to the development of NEMSS.

KEYWORDS: Fleet Hospital Program, Naval Expeditionary Medical-Surgical Suite

DoD KEY TECHNOLOGY AREA: Manpower, Personnel, and Training

PROCESS REDESIGN OF THE NORWEGIAN NAVY MATERIEL COMMAND'S REPLENISHMENT OF INVENTORY ITEMS

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The Norwegian Navy Materiel Command must keep inventory in order to serve its customers. Service level is established as a measure of effectiveness on delivery from inventory. Long replenishment lead-time, with variability in both lead-time itself and lead-time demand, make it hard to achieve the desired service level. The lead-time becomes costly, both in form of holding cost of safety stock and in form of stock-outs.

Current inventory control policy used at the Materiel Command is presented, and compared to theoretical inventory control models. Computer simulation is used to measure current administrative lead-time at the Norwegian Navy Materiel

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Command. Two proposals for redesign of existing replenishment process are built as simulation models, and the effect on administrative lead-time and associated variability is measured. The first proposal is to consolidate two separate procurement offices into one. The second proposal is to introduce, and use electronic commerce in the replenishment process.

It is concluded that both redesign proposals will reduce administrative lead-time, variability and hence cost. Benefits from an introduction of electronic commerce will yield a yearly cost saving of a least 4,500,00 Norwegian Kroner, which is more than four times the savings of consolidation.

KEYWORDS: Inventory Control, Inventory Models, Business Process Reengineering, Electronic Commerce, Internet, Computer Simulation, Norwegian Navy Materiel Command

DoD KEY TECHNOLOGY AREAS: Computing and Software, Modeling and Simulation

AN EVALUATION OF THE PRODUCTION RECRUITING INCENTIVE MODEL VERSUS QUOTA-BASED RECRUITING USING MONTE CARLO SIMULATION

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In recent years, the United States Navy has actively sought new and better ways of making the recruiting process more efficient. Towards this end, the Production Recruiting Incentive Model (PRIME) was developed at the Naval Postgraduate School.

This thesis evaluates recruiter production and incentives in the Navy's quota-based recruiting system against the PRIME system using Monte Carlo simulation techniques in two spreadsheet models. The first spreadsheet model compares three distinct quota scenarios against PRIME in three separate recruit market conditions. The second model evaluates the two systems as the variance of the recruit market changes.

This study produces two main findings: First, in all cases, PRIME proves to be a superior recruiting system than its quota-based rival; Second, the simulation quantitatively illustrates the inherent flaws of quota-based recruiting. The author recommends that the Navy replace the current quota-based system with the more efficient PRIME system.

KEYWORDS: Recruiting, Quota-Based Recruiting, Recruiting Incentives PRIME, Monte Carlo Simulation

DoD KEY TECHNOLOGY AREA: Other (Recruiting)

ANALYSIS OF DISPUTES RELATIVE TO DEPARTMENT OF THE NAVY (DoN) SERVICE AND SUPPORT CONTRACTS

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The primary purpose of this thesis is to analyze recent court decisions relating to disputes in Department of the Navy service and support contracts as a means to identify potential weaknesses in Department of the Navy contracting norms and execution practices. This thesis identifies patterns in the formation and administration of those contracts that can be avoided, with the potential effect of reducing the number of litigated service and support contract disputes between the Department of the

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Navy and commercial service providers. Finally, this thesis offers recommendations to Navy Contracting Officers and contracting activities to help provide for more effective and efficient service and support contracting services within the Department of the Navy.

KEYWORDS: Contract Disputes, Service and Support Contracts

DoD KEY TECHNOLOGY AREA: Other (Acquisition and Contracting)

CHALLENGES AND ISSUES FOR U.S. PORTS: IMPACT OF THE NEXT GENERATION CONTAINERSHIPS AND CARRIER ALLIANCES ON COMMERCIAL PORTS AND MILITARY OPERATIONS

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The emergence of the next generation containerships (mega ships) and global shipping line alliances will bring about fundamental changes in the operational framework and infrastructure of many U.S. ports. By all indications the end result will be more a streamlined and competitive container industry where ocean carriers will operate with load center and feeder port configurations. For many ports, this new environment will dictate addressing the problems of inefficiencies in productivity, landside access congestion, and dredging in order to remain competitive. From the military perspective, the changing environment and problems facing the ports may limit accessibility and availability at the nation's strategic seaports.

This thesis examines the issues of the changing port environment and impact on military throughput. It also explores the automation and technological concepts available or being developed which can improve military efficiency.

KEYWORDS: Defense Transportation System, Deployment, Logistics, Mobilization

DoD KEY TECHNOLOGY AREA: Other (Military Port Operations)

FACTORS AFFECTING NEGOTIATOR ORIENTATION

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Selected negotiation process models are presented through this conceptual work, which proposes to detect and identify those behaviors, processes, and structures affecting the dynamics of the negotiation process. The factors identified in this work have been drawn primarily from similar studies examining the forces which promote either competitive or cooperative orientations in negotiators. This study reports the results of an extensive survey of the literature and interviews of experts in deciding which of these factors also engender position-based and interest-based orientations in negotiators. The researcher proposes an original model which shows that in this dynamic: (1) a specific pattern of cyclical transactions characterizes the negotiator's orientation, and (2) the parties to a conflict can be seen as shifting between a position-based orientation and an interest-based orientation as certain conditions emerge. Additionally, the researcher's model suggests

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that negotiation can be defined as a cyclical process of transactional exchanges among a set of parties seeking to fulfill their sets of needs through social influence. Studies in management, psychology, organizational behavior, conflict resolution, and systems dynamics provide the theoretical underpinnings of the model.

KEYWORDS: Negotiation, Interest-Based Bargaining, Conflict Management

DoD TECHNOLOGY AREA: Other (Negotiation)

THE GOVERNMENT PURCHASE CARD UNDER THE FEDERAL ACQUISITION STREAMLINING ACT (FASA) OF 1994: A SMALL BUSINESS PERSPECTIVE

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Katsuaki L. Terasawa, Department of Systems Management

This thesis examines the effect of recent government acquisition reform initiatives on the small business establishment. Specifically, this thesis investigates the consequences of the Federal Acquisition Streamlining Act of 1994 and the use of the Government Purchase Card on government contracting using Simplified Acquisition Procedures to the small business concern. It analyzes micro-purchase and small business set-aside transactions to understand the significant factors influencing the awarding of the government contract from a small business perspective. The thesis identifies and recommends business strategies that a small business concern can implement to improve its opportunities for conducting business with the federal government.

KEYWORDS: Government Purchase Card, Federal Acquisition Streamlining Act (FASA), Small Business Concern

DoD KEY TECHNOLOGY AREA: Other (Acquisition)

NAVAL RESERVE FORCE: COST AND BENEFIT ANALYSIS OF REDUCING THE NUMBER OF NAVAL SURFACE RESERVE FORCE OPERATING BUDGET HOLDERS

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Second Reader: James L. Kerber, Department of Systems Management

The Quadrennial Defense Review 1997 recommended reductions of civilian and military personnel associated with infrastructure. The Naval Reserve Force is aggressively pursuing options to reduce excess infrastructure within the Navy. This thesis examines one of Commander Naval Surface Reserve Force's initiatives for reducing the current number of Operating Budget Holder's Comptroller Departments without sacrificing efficiency and effectiveness of operations. The central objective of this research was to determine whether excess capacity existed in these Comptroller Departments. To address this issue, interviews were conducted with key financial personnel assigned to the Naval Reserve Force. Additionally, a questionnaire was distributed to fifty percent (5 of 10) of the Comptrollers to obtain information on manpower require-

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ments, department operating procedures, and department task requirements. The primary finding is that Naval Surface Reserve Force Operating Budget Holder's comptroller organizations could be reduced from ten to seven and continue to operate efficiently and effectively. The analysis concluded that enough excess capacity exists in the comptroller organizations to manage nine additional Naval Reserve Centers.

KEYWORDS: Operating Budget Holders, Comptroller, Infrastructure Reductions, Naval Reserve Force

DoD KEY TECHNOLOGY AREA: Manpower, Personnel, and Training

