

MASTER OF SCIENCE IN MANAGEMENT

AN ANALYSIS OF THE EFFECT OF PRIOR-ENLISTED SERVICE ON NAVY OFFICER PERFORMANCE

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Master of Science in Management-June 1998

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This thesis compares commissioned officers who have prior-enlisted service with those who have no prior-enlisted service on the basis of selected measures of performance. The primary source of information is the Bowman-Mehay database, which is used to analyze the effects of prior service on promotions through lieutenant commander. The study also looks at the gender and ethnic background of officers with prior-enlisted service and the total naval force. Two measures of performance were examined for officers whose promotion board to lieutenant commander occurred between fiscal years 1985 and 1995: whether the officer received a Recommendation For Accelerated Promotion (RAP) and whether the officer was promoted to lieutenant commander.

The results of the study show that prior-enlisted officers generally are not Rapped as often as non-prior-enlisted officers but are promoted to lieutenant commander about equally. The results also suggest that the Navy lags in its attempt to have an officer corps that resembles the ethnic and gender composition of the enlisted force. This is noteworthy, since almost one-third of minority and female officers tend to come from the enlisted ranks. Several recommendations are offered for future research regarding prior-enlisted officers in the Navy.

DoD KEY TECHNOLOGY AREA: Manpower, Personnel, and Training

KEYWORDS: Prior-Enlisted, Officer, Performance

PLANNING, PROGRAMMING, AND BUDGETING SYSTEM IN THE INDONESIAN NAVY: COMPARING THE BUDGETING PHASE OF THE INDONESIAN NAVY'S SYSTEM TO THE U.S. NAVY'S SYSTEM

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This research evaluated the functionality of the Planning, Programming and Budgeting System (PPBS) in the Indonesian Navy. Specifically, the objective was to determine the feasibility of improving the Indonesian Navy PPBS using the U.S. Navy model as a reference, with emphasis on the budgeting phase. The research included conducting a review of the current processes in both systems. Several recommendations for improving the Indonesian Navy's system were made, including separating the programming and budgeting phases, establishing a team of dedicated budget analysts, and developing a budget review and reclaim process similar to the one used in the U.S. Navy. Additional recommendations regarding the

MASTER OF SCIENCE IN MANAGEMENT

need for further evaluation of the organizational structure, culture and political influences that affect the budgeting phase in the Indonesian Navy were made for improving the Indonesian Navy's budgeting phase.

DoD KEY TECHNOLOGY AREA: Other (Planning, Programming, and Budgeting)

KEYWORDS: PPBS, Indonesian Navy, Budgeting

EVALUATION OF THE MILITARY SPECIFICATION COATING, ALIPHATIC POLYURETHANE, CHEMICAL AGENT RESISTANT (CARC) — MIL-C-46168

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An evaluation of the military specification coating, aliphatic polyurethane, chemical agent resistant (CARC) - MIL-C-46168, the mandated paint system for all United States Army tactical equipment, reveals the system is not expected to meet its primary intended purpose. The Army implemented the CARC system in FY85, based upon the overriding requirement to limit absorption of NBC contaminants and facilitates decontamination. However, tests indicate that CARC itself represents a significant residual chemical agent vapor hazard, even after decontamination. The analysis also examined the CARC system's impact from a total systems perspective. CARC is determined to cause a significant negative impact regarding issues of logistics, environment, safety, and life-cycle-costs. Various paint systems were also reviewed and compared to the CARC system, indicating other viable paint system options regarding substrate protection and life-cycle-costs.

DoD KEY TECHNOLOGY AREA: Chemical and Biological Defense

KEYWORDS: CARC, Paint Systems, Decontamination, Contaminates

AN ANALYSIS OF THE DEVELOPMENT OF THE CHAIRMAN, JOINT CHIEFS OF STAFF PROGRAM ASSESSMENT (CPA) AND THE CHAIRMAN'S PROGRAM RECOMMENDATION (CPR)

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The Goldwater-Nichols Defense Reorganization Act of 1986 redefined the role of the Chairman, Joint Chiefs of Staff (Chairman). The Chairman now assumes many additional roles and responsibilities including the development of the Department of Defense (DoD) budget submission to the President. Two critical elements of this development are the Chairman's Program Assessment (CPA) and the Chairman's Program Recommendation (CPR).

This thesis analyzes the CPA and CPR development process. The modern military of today must engage in a complex game mixing requirements, capabilities, mission identification, threat, and politics to field the world's premier military force. The introduction of the Joint Warfighting Capability Assessment (JWCA) process improved the process of service requirement analysis. The Chairman combines these assessments and recommendations into the CPA and CPR.

Extensive research was conducted into the historical role of the Chairman relating to the requirements generation and resource allocation processes within the DoD. Numerous interviews of current Joint Staff and Navy Staff personnel familiar with the CPA and CPR were also conducted.

MASTER OF SCIENCE IN MANAGEMENT

Findings show the CPA and CPR are closely held documents considered personal correspondence between the Chairman and the Secretary of Defense. This situation creates the potential to dramatically alter Service and Agency POM submissions.

DoD KEY TECHNOLOGY AREA: Other (Resource Allocation Processes)

KEYWORDS: Resource Allocation, CJCS, PPBS

AN HISTORICAL ANALYSIS AND COMPARISON OF THE MILITARY RETIREMENT SYSTEM AND THE FEDERAL EMPLOYEE RETIREMENT SYSTEM

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The most significant change to private as well as civil service employee retirement systems over the past 15 years has been the transition from defined benefit to defined contribution retirement plans. This trend has shifted a significant portion of the risk involved in funding retirement from corporations and the federal government to employees. This thesis examines the military retirement system and the Civil Service Retirement System/Federal Employee Retirement System, from their introduction to present day, addressing the reasons for major changes during their evolution. Government studies, private studies, periodicals and Internet resources were consulted to identify significant developments and legislation affecting the military retirement system and Federal Employee Retirement System (FERS). While the retirement system for federal employees has transitioned from a strict defined benefit system to a system with a defined contribution element, the military retirement system has not yet incorporated a defined contribution component. The trend of persistent legislative attention towards the military retirement system implies that the 1980 and 1986 reductions didn't cut deep enough and future reductions are possible. The success of FERS suggests that the application of a defined contribution element to the current military retirement system is very likely in the future.

DoD KEY TECHNOLOGY AREA: Manpower, Personnel, and Training

KEYWORDS: Retirement, Compensation, Pension, Federal Employee Retirement System, Civil Service Retirement System

THE FAMILY OF MEDIUM TACTICAL VEHICLES: ANALYSIS OF A NON-DEVELOPMENTAL ITEM ACQUISITION PROGRAM

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The Government has a unique opportunity to acquire state-of-the-art technology faster and cheaper through non-developmental item (NDI) acquisition than to develop new systems. The reduced acquisition time and cost savings present significant benefits to the DoD. One such weapon system that used a non-developmental item acquisition strategy is the U.S. Army's Family of Medium Tactical Vehicles (FMTV). This thesis examines the NDI acquisition process and through comparison with the NDI model describes how FMTV leveraged this process. Following conclusions drawn from this comparison, this thesis examines the FMTV program for lessons-learned that can be used by other programs to effectively manage future NDI programs.

MASTER OF SCIENCE IN MANAGEMENT

The researcher draws several conclusions from the analysis of the FMTV program. One of these conclusions is that the Army realized several significant advantages from the FMTV shorter acquisition cycle, increased defense industrial base, and state-of-the-art truck technology.

One lesson-learned from the FMTV program is that the Army did not anticipate the complexity of integrating NDI components into a fully functional NDI system and therefore did not program adequate engineering manufacturing and development resources (acquisition phase II) to allow the system to mature.

The researcher makes several recommendations for improving the NDI acquisition process. One of the recommendations is that NDI programs should have EMD resources appropriate for the program's level of complexity.

DoD KEY TECHNOLOGY AREA: Ground Vehicles

KEYWORDS: Non-developmental Items (NDI), Family of Medium Tactical Vehicles (FMTV), Lessons-Learned, Commercial Items (CI), Acquisition Program Management

THE UTILITY OF THE ADVANCED SEAL DELIVERY SYSTEM (ASDS) (U)

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The United States Special Operations Command (USSOCOM) is in the process of procuring the Advanced SEAL Delivery System (ASDS), a mini-submersible, to be used by Naval Special Warfare (NSW) forces to conduct maritime special operations. During the development of the ASDS, costs have more than doubled. Consequently, USSOCOM is reevaluating the future of ASDS. This thesis assesses the utility of the ASDS by viewing the ASDS as a part of an "infiltration system" and analyzing the linkages and fit of ASDS within the strategic framework in which it is intended to operate. Modeling the primary factors that define ASDS as a viable special operations platform in high, medium, and low threat environments does this. The output of the model is the capability of ASDS expressed in terms of "mission success." The estimated annual cost of ASDS is also calculated using the current acquisition strategy. In order to compare against current capabilities and their respective costs, this process is repeated for four alternative NSW infiltration systems. Although the ASDS has the highest cost, it is the only system that presents an acceptable probability of mission success in high and medium threat environments. Given NSW's strategic framework, the ASDS has a high utility.

DoD KEY TECHNOLOGY AREAS: Surface/Undersurface Vehicles-Ships and Watercraft, Modeling and Simulation

KEYWORDS: Advanced SEAL Delivery System, Mini-Submersible, ASDS, NSW, USSOCOM, Mission Success

A PROPOSAL TO CONDUCT GOVERNMENT CONTRACTING ON THE INTERNET

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The primary purpose of this thesis is to examine the legal ramifications of conducting Government Agency contracting on the Internet. The author proposes that the Internet is a suitable medium on which to process and conduct all aspects of Government contracting. The thesis examines the current legal issues surrounding contract formation across the open architecture of the Internet. The thesis then examines the latest cryptological schemes for both encryption and decryption and the logistical challenge of passing keys between participants. The thesis discusses current Federal agencies and current

MASTER OF SCIENCE IN MANAGEMENT

Federal policies regarding encryption and its suitability for Government contracting. The thesis also examines the latest efforts among State legislatures and commercial legal ramifications for contracting on the Internet.

DoD KEY TECHNOLOGY AREA: Other (Contracting)

KEYWORDS: Internet, Cryptology, Public Key Encryption, Rules of Evidence, Digital Signatures, Uniform Commercial Code, Public Key Infrastructure, Authentication, Attribution

SHAPING FUTURE AFRICAN PEACEKEEPING FORCES: ORGANIZATION DESIGN AND CIVIL-MILITARY RELATIONS LESSONS LEARNED FROM THE WEST AFRICAN PEACE FORCE IN LIBERIA

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The Economic Community of West African States (ECOWAS) established in 1990, a peace forces the ECOWAS Monitoring Group (ECOMOG), to help resolve the Liberian civil war. This force is considered as a model for future African peacekeeping forces, the idea of which has significantly evolved during the first half of the 1990s, and is supported by the international community. The effectiveness of such forces, based on the ECOMOG experience, is thought to be dependent on the availability of resources and on training.

This thesis discusses organization design and civil-military relation's considerations to take into account when shaping future African peacekeeping forces. It makes recommendations toward improving effectiveness.

DoD KEY TECHNOLOGY AREA: Other (Peacekeeping)

KEYWORDS: ECOMOG, ECOWAS, African Peacekeeping Forces

IMPACT OF THE SUPREME COURT DECISION *ADARAND VS. PENA* ON THE FEDERAL CONTRACTING PROCESS

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One of the most controversial topics that has been debated in the last two decades is affirmative action. In 1989 Adarand Constructors offered the lowest bid to subcontract guardrails on a Department of Transportation highway contract, but was not awarded the contract. The award instead went to a minority firm so the prime contractor could receive monetary incentives from the Government for subcontracting with minorities. Adarand sued the Government on the basis that the affirmative action policy violated its constitutional rights of equal protection and due process. In 1995, the U.S. Supreme Court reviewed the case and held that the level of scrutiny applied in future applications of affirmative action implementing Federal socioeconomic policy would be raised from intermediate to strict. This thesis studied the need for such programs. The history of socioeconomic policy in Federal contracting, previous Supreme Court cases challenging affirmative action, the changes resulting from the Court's *Adarand* decision on the Federal contracting process, and interview results exploring reaction to the decision in the small business community. The methodology provided could be used for further research and to assist agencies in making decisions about their continued use of affirmative action.

MASTER OF SCIENCE IN MANAGEMENT

DoD KEY TECHNOLOGY AREA: Other (Contracting)

KEYWORDS: Adarand, Affirmative Action, Contracting, Socioeconomic

RDT&E LABORATORY CAPACITY UTILIZATION AND PRODUCTIVITY MEASUREMENT METHODS FOR FINANCIAL DECISION-MAKING WITHIN DON

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This thesis identifies capacity utilization and productivity measures applicable to Department of the Navy (DoN) Research, Development, and Test and Evaluation (RDT&E) laboratories. The recent emphasis on efficiency and sound business practices from financial management perspective mandates that the Navy evaluate and incorporate appropriate laboratory performance measures. Industry capacity utilization and productivity measurement techniques and models were evaluated for their potential application to the Naval Air Warfare Center Aircraft Division (NAWCAD) RDT&E organization. The CAM-I capacity model was selected from the twelve industry models reviewed as a measure of capacity utilization. Additionally, laboratory productivity was examined in terms of revenue and full cost with measures of return on operations, operating margin, and operating margin per square foot. Productivity data were collected from NAWCAD accounting records. Observations, interviews, and a questionnaire were used to gather laboratory operating characteristics and capacity utilization data. The data were input to the selected measures and the results were analyzed. This analysis found that the measures identified provide a financial basis for responsible RDT&E resource decision-making and have potential application to all Department of Defense (DoD) RDT&E laboratory activities.

DoD KEY TECHNOLOGY AREA: Other (Financial Management)

KEYWORDS: Financial Management, RDT&E Laboratories, Productivity, Capacity Utilization, Performance Measures

THE COSTS AND BENEFITS OF MAINTAINING THE BUY AMERICAN ACT

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This thesis explores the costs and benefits of the Buy American Act (BAA). The BAA requires a domestic preference for all Federal Government purchases. The thesis uses accepted economic analysis on the gains from international trade to show that the costs of maintaining such protectionist legislation are potentially high relative to the uncertain benefits of maintaining excess industrial surge capacity. Moreover, surge capacity did not appear to be an issue in the debate over passage of the BAA in 1933. Passed at the trough of the depression, the Act appears to have been motivated by the mistaken belief that it would on net save U.S. jobs. In light of the declining real procurement budget for the Department of Defense, a relaxation of the BAA seems called for. This thesis concludes by recommending that the scope of the Buy American Act be narrowed.

DoD KEY TECHNOLOGY AREA: Other (Procurement Policy)

KEYWORDS: Buy American Act, Free Trade Agreements, and Federal Procurement Policy

MASTER OF SCIENCE IN MANAGEMENT

THEORETICAL ECONOMICS STUDY OF THE FORMATION OF DEFENSE ALLIANCES

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This thesis is a theoretical economics study on the formation of defense alliance. It discusses the probability that countries, which are characterized by both their perceptions about benefits and risks of alliance membership and the gross domestic product, form an alliance.

Primarily, an alliance model was created with and without risk perceptions based on the joint product model and the self-protection model. Next, the behavior was examined of countries in the model. Finally, the implications of the results were considered. The characteristics of the countries may influence the alliance burden sharing and productivity of defense were considered expenditure whose effects on the country's utility influences the alliance formation.

DoD KEY TECHNOLOGY AREA: Other (Alliance)

KEYWORDS: Defense, Alliance, Economics

ASSESSMENT AND SELECTION OF PERSONNEL FOR THE TURKISH SPECIAL FORCES COMMAND

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The objective of this study is to develop a model for the assessment and selection of personnel for the Turkish Special Forces Command based on procedures applied by the United States Army Special Forces. The study assumes a high degree of similarity between the United States and the Turkish Special Forces in terms of organizational structure and mission statement. A survey was conducted of members of the Turkish Special Forces to obtain their views regarding the most critical personal attributes in the Turkish Special Forces Command. Assessments of these attributes were then compared with those specified for personnel in the United States Special Forces. The results of the survey indicate that the most critical personal attributes of the United States and the Turkish Special Forces are generally similar with some slight differences. The study concludes that a standardized personal selection program such as the United States Special Forces Assessment and Selection process can be used in the Turkish Special Forces with some modifications that account for differences in culture and organizational missions.

DoD KEY TECHNOLOGY AREA: Manpower, Personnel, Training

KEYWORDS: Special Forces, Personnel Assessment and Selection, Personal Attributes

MASTER OF SCIENCE IN MANAGEMENT

A LOGISTIC LIFE CYCLE COST-BENEFIT ANALYSIS OF POWER QUALITY MANAGEMENT IN THE AVIONICS REPAIR FACILITY

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The objective of this research is to investigate the impact that power quality management can have on the intermediate level of maintenance. Power quality management is a preventative process that focuses on identifying and correcting problems that cause bad power. Using cost-benefit analysis the effects of implementing a power quality management program at AIMD Lemoore and AIMD Fallon was compared. The implementation of power quality management can result in wide scale logistical support changes in regards to the life cycle costs of maintaining the DoD's current inventory of sensitive electronic equipment. Power quality management provides logisticians the opportunity to reduce maintenance costs, reduce maintenance cycle times, and improve fleet operational availability.

The research identifies potential savings of \$1.5 million from reduced test bench maintenance costs and productivity increases, and recommends the DoD institutionalize the use of power quality management.

DoD KEY TECHNOLOGY AREA: Other (Life Cycle Management)

KEYWORDS: Cost-Benefit Analysis, Power Quality Management, Logistics

COMPETING GOALS OF THE GOVERNMENT WIDE PURCHASE CARD PROGRAM: CUSTOMER SATISFACTION, VENDOR ROTATION, FAIR AND REASONABLE PRICING

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The rapidly developing Government Wide Commercial Purchase Card (GCPC) Program primarily affects commercial procurements valued at \$2,500 or less, which comprise more than 90 percent of all acquisition transactions. It is considered a major contributor to streamlining the procurement process. The program is efficient, but little research has been done on its effectiveness. This thesis analyzed the Navy/Marine Corps Purchase Card Program by modeling the purchasing process, then determining if the program goals of customer satisfaction, rotating orders among vendors, and obtaining products and services at a fair and reasonable price were effectively achieved or whether goal conflicts in any way hindered full implementation of the program. Specifically, measurements were collected on goal achievement and goal congruence at the installation level using the Naval Postgraduate School (NPS) as an example. The NPS program was effective in achieving strategic goals. While end-users anticipated a potential problem meeting the goal of vendor rotation while also achieving customer satisfaction and a fair and reasonable price, there was actually no significant problem found in achieving all three goals. There was fundamental goal congruence. The methodology presented could be used for further research, potentially streamlining the program for other installations by determining the effectiveness of goal achievement.

DoD KEY TECHNOLOGY AREA: Other (Financial Management, Contracting)

KEYWORDS: Government Wide Purchase Card Program

MASTER OF SCIENCE IN MANAGEMENT

INCENTIVE CONTRACTS: TAKING THE GUESS WORK OUT OF SETTING FLEET AVIATION CONSOLIDATED ALLOWANCES (AVCAL)

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Over the years in an attempt to create cost savings, the Navy has changed its ways of determining parts allowances. Originally, the Navy used Demand Based Allowancing, in which parts allowances were assigned based upon Original Equipment Manufacturer recommendations, and fleet demand. In the late 1980's, the Navy changed its parts allowancing to Readiness Based Sparing.

During this same time, the parts managers at the Navy Inventory Control Points (ICPs) have received reduced funding for parts support. As a result, parts have been transferred from one deploying unit to the next deploying unit.

This thesis studied the possibility of using incentive contract types in an attempt to ensure the allowances provided to the fleet are accurate and meaningful. Additionally, the use of an incentive-type contract can be used to ensure the parts required to fill the assigned allowances are available to the fleet at Material Support Date (MSD).

This study conducted a comparative analysis of past (post MSD) and present (at MSD) weapon systems to identify costs and benefits associated with the use of incentive-type contracts. Lastly, this study identified a system that has not reached MSD (future) which could possibly benefit from an incentive-type contract.

DoD KEY TECHNOLOGY AREA: Other (Contracting)

KEYWORDS: Incentive Contracts, Supply Logistics Support, Supply Parts Allowancing

THE IMPLICATIONS OF THE EBC SCORECARD ON THE SKILLS, ROLES, AND TOOLS OF NAVY MTF COMPTROLLERS

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The United States Health Care System and the Military Health System (MHS) have long been faced with escalating health care cost. Implementing a managed care strategy, a system designed to integrate financing and delivery of appropriate health care services, has been viewed as the answer. As a result of implementing managed care, the MHS has transitioned from a workload-based financing methodology to a capitation methodology. Initially, the MHS implemented "modified capitation" financing. Effective FY-1998, the MHS began phasing-in the latest version of capitation, enrollment-based capitation (EBC). Under EBC, military treatment facility (MTF) Commanders' performance will be tracked and scored on an EBC Scorecard.

The purpose of this thesis is to present a baseline assessment, describing new skills, roles and tools which comptrollers of Navy MTF are adopting to improve their MTF's performance under the indices of the EBC Scorecard. To address this issue, MTF Comptrollers from four medium-sized Navy MTFs were asked to participate in a survey. The survey instrument was designed based on indices of the EBC Scorecard; strategies and initiatives available to improve performance on the EBC Scorecard; and skills and tools available to MTF Comptrollers. The results from this research indicates that MTF comptrollers are not involved in the implementation of EBC; nor are they aware of strategies and initiatives being implemented by private sector managed care organizations and the MHS; nor are they using some of the tools and skills which could improve their performance. MTF Comptrollers need to understand the implications of EBC on their future budgets.

MASTER OF SCIENCE IN MANAGEMENT

DoD TECHNOLOGY AREA: Other (Financial Management)

KEYWORDS: Managed Care, Enrollment-Based Capitation, Medical Treatment Facility

INDONESIA: THE ECONOMIC CRISIS 1997-1998
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This paper provides a short study of Indonesia's economic performance before July 1997 and an early diagnosis of the economic crisis in Indonesia, which occurred from July 1997 to March 1998. After achieving a remarkable economic development success over the past several decades, Indonesia unavoidably had to face economic difficulties. What are the causes of economic crisis? To answer this question is the purpose of this paper. The paper finds that the combination of several factors contributed to the creation of the economic crisis, the factors are: Thailand's economic crisis; contagion/spillover effects; Indonesia's structural weakness, debt and crisis of confidence; globalization and integration within the financial/capital market; investors and panic-stricken lenders; speculative attacks; socio-political factors, drought, and forest fires; and foreign exchange rate regimes.

DoD KEY TECHNOLOGY AREA: Other (International Macroeconomic Policy)

KEYWORDS: Financial Crisis

IMPLEMENTATION OF INFORMATION TECHNOLOGY
IN THE FREE TRADE ERA FOR INDONESIA
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During the 1990s and early in the twenty-first century, the management of information technology in enterprises will undergo a revolutionary change in Indonesia. Previous changes were evolutionary and largely driven by the advancement in technology such as: the introduction of the operating systems in the 1960s, the introduction of the minicomputer in the 1970s, and the introduction of personal computers in the 1980s. Now, both technology and business directions are driving information technology management to a fundamentally new paradigm.

Information technology is no longer exclusive for the information systems specialists. Line business managers increasingly have taken responsibility for information technology decisions, as computing and telecommunication is becoming more and more universal.

By understanding all the changes that may transform management and information systems, managers can anticipate possible weaknesses in their organization. Given this phenomenon, managers need detailed information and a substantial source of references they can utilize to make decisions.

This thesis explores a new paradigm of information system management from the Indonesian's management perspective. Alternative approaches to solve a number of major problems that may help foreign investors understand the business environment and culture will encourage Indonesian and foreign enterprises to invest in information technology.

While this thesis is proposed for Indonesian future managers, it is also structured a reference for decisions making of information technology outsourcing based on the Indonesian culture, and possibly other Asian cultures.

MASTER OF SCIENCE IN MANAGEMENT

DoD KEY TECHNOLOGY AREA: Other (Outsourcing Information Technology)

KEYWORDS: Information Technology Implementation

**THE IMPACT OF SUBSISTENCE PRIME VENDOR ON
NAVY AFLOAT FOOD SERVICE OPERATIONS**
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The Subsistence Prime Vendor (SPV) program represents a significant deviation from DoD's traditional subsistence inventory management system. The traditional subsistence distribution system involved storing food items in DoD owned depots and warehouses and relied upon DoD transportation assets to make deliveries to the end users. This system was determined to be overly costly and inefficient as it did not take advantage of best business practices. The SPV system relies upon commercial distributors to deliver food items directly to end users, bypassing the DoD depots and warehouse facilities. The commercial distributors use just-in-time inventory management philosophy and other best business practices to procure and distribute subsistence items much more efficiently and effectively than DoD had done previous to SPV. A concern is the prime vendor program's ability to meet the surge and sustainment of full scale military mobilization. Recommendations to reduce the risk of the Navy's surge requirements, as well as other contractual and administrative remedies are presented in this thesis. Customer, administrator, and contractor feedback are also addressed.

DoD KEY TECHNOLOGY AREA: Clothing, Textiles, and Food

KEYWORDS: Prime Vendor

**SUITABILITY OF MRP II TO MATERIAL PLANNING FOR
COMPONENT REPAIR AT NAVAL AVIATION DEPOT, NORTH ISLAND**
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Manufacturing Resource Planning (MRP II) is being implemented at Naval Aviation Depot, North Island (NADEP NI) to combat chronic material deficiencies. MRP II is a planning tool designed for scheduling manufacturing activities with known demand. NADEP NI is a job shop component repair facility with component forecast error ranging up to 800 percent, making the suitability of MRP II questionable. This research studies material planning at NADEP NI to identify forecast error, probability of part replacement error, and material lead-time variability in order to make recommendations for improved success with MRP. Fifteen percent of requisitions for work-in-process components are between one and two years old. If lead-times are reduced to a maximum of one year, the planning horizon can be reduced. Work-in-process inventories can also be reduced by \$2.3 million based on 26 components sampled from the top revenue generators. Currently material is ordered five weeks prior to the repair quarter. Ordering material when the forecast is generated can reduce work-in-process inventories by \$6.2 million for the sample components.

DoD KEY TECHNOLOGY AREA: Materials, Processes, and Structures

KEYWORDS: MRP II, Component Repair, Forecasting

MASTER OF SCIENCE IN MANAGEMENT

AN ANALYSIS OF THE INITIAL DECISION PROCESS OF ORGANIZING THE NAVY MEDICAL DEPARTMENT'S EXECUTIVE MANAGEMENT EDUCATION MODULE CONVERSION TO NETWORK-BASED INSTRUCTION

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This thesis examines the initial decision process of organizing to convert a course module from the Navy Medical Department Executive Management Education. The objective is to track and model the process used to integrate Network-Based Instruction technology into an existing traditional classroom course of instruction. This research includes survey of Network-Based Instruction literature, and an assessment of the decision process involved. The goal is to capture the context of the key decisions made during the preliminary stage of an actual conversion project, analyze the effectiveness of the approach and if possible generate a model for future efforts.

DoD KEY TECHNOLOGY AREA: Manpower, Personnel, and Training

KEYWORDS: Executive Management Education (EME), Network-Based Instruction (NBI)

AN ANALYSIS OF BEST VALUE PROTESTS OF 1997

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Best value is the driving theme in the newly approved rewrite of the FAR Part 15. Best value is now the goal of all negotiated Government procurements. One measure of contracting officer effectiveness is to examine protest decisions handed down by the General Accounting Office (GAO). This thesis examines all protest decisions of best value awards from 1997. The research reveals a sustainment (success) rate of 19.44 percent for 1997. GAO's published sustainment rate for all protests is 12 percent for the same year.

Best value sustainments (21 total) are first categorized in this thesis by agency improprieties in the evaluation of a tradeoff element (e.g., past performance, technical merit, cost/price, or labor qualifications) or improper pre- or post-award changes. The sustainments are then thoroughly analyzed to reveal pitfalls which contracting officers must avoid to preclude protest sustainment.

These pitfalls are then incorporated into a final analysis where they are merged with the contracting process (acquisition planning, solicitation, source evaluation/selection, negotiation, and award resulted in sustainment in 1997 are uncertainty of requirements, poorly crafted solicitations, failure to follow solicitations, failure to use all relevant facts, failure to evaluate total cost/price, improper cost/price realism analyses, pre-award solicitation changes without modification, failure to hold meaningful discussions when required, failure to support contract award with narrative, out-of-scope post award changes, and contract administrative improprieties.

DoD KEY TECHNOLOGY AREA: Other (Procurement)

KEYWORDS: Best Value Contracting, Best Value Protests

MASTER OF SCIENCE IN MANAGEMENT

AN ANALYSIS OF THE FEASIBILITY OF OUTSOURCING CONTRACT ADMINISTRATION FUNCTIONS WITHIN THE DEFENSE CONTRACT MANAGEMENT COMMAND

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Secretary of Defense William Cohen announced on November 10, 1997 the Defense Reform Initiative (DPI) which essentially outlines a plan to mirror those business practices that American industry has successfully used to become leaner, more flexible and more competitive. The DPI calls for a reduction in DoD infrastructure by means of subjecting the positions of 120,000 civil-service personnel performing non-inherently Governmental functions to the competitive A-76 process with private firms and other Government agencies during the next five years.

The Defense Contract Management Command (DCMC) which provides central contract administration services to DoD customers, has not historically pursued outsourcing as a means to reduce costs. This thesis examines outsourcing through the A76 process, its advantages, disadvantages and its feasibility, applicability and current use at DCMC.

DoD KEY TECHNOLOGY AREA: Other (Contract Administration)

KEYWORDS: Outsourcing, Privatization, Inherently Governmental, Infrastructure, Contractor Self-Oversight, DCMC

A COMPARATIVE ANALYSIS OF THE EFFICIENCY AND EFFECTIVENESS OF THE F-14 TOMCAT OVERHAUL PROCESS

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The objective of this thesis is to examine the process and managerial policies used for the F-14 Standard Depot Level Maintenance (SDLM) and compare it to the processes and managerial policies for overhaul of the F/A-18 and for the United Airlines 737. Efficiencies discovered in the F/A-18 and 737 overhaul processes that can be applied to reduce the F-14 SDLM Turn Around Time (TAT) are identified. The F-14 community faces the possibility of having insufficient numbers of aircraft to satisfy fleet requirements due to excessive SDLM TAT. A 50% reduction in TAT would yield an increase of 10 to 11 aircraft available for use per year. A TAT reduction of 10% is required by the fourth quarter of Fiscal Year 1998 in order to alleviate the premature retirement of approximately 10% of the inventory (21 F-14 aircraft). This research identifies areas for potential F-14 SDLM TAT improvement pertaining to planning, pre-induction requirements, and the component management policies at NADEP Jacksonville, Florida.

DoD KEY TECHNOLOGY AREA: Other (Depot Level Maintenance)

KEYWORDS: Cycle Time Reduction, Logistics

MASTER OF SCIENCE IN MANAGEMENT

AN ANALYSIS OF EXPANDING THE DEFENSE INDUSTRIAL BASE THROUGH CIVIL-MILITARY INTEGRATION

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Master of Science in Management-June 1998

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This thesis examines expanding the defense industrial base through civil-military integration. The reduction in the procurement budget and subsequent consolidation of the major defense contractors are described as well as the difference between the commercial and defense markets. This thesis identifies three strategies to promote civil-military integration: conversion, diversification, and dual-use initiatives. The researcher found dual-use initiatives to be the most promising strategy to implement civil-military integration.

Current initiatives to promote civil-military integration such as dual-use science and technology, the commercial operations and support initiative and commercial technological insertion project are described. An evaluation of the costs and benefits of civil-military integration is provided.

This thesis also reviews the barriers to implementing civil-military integration. The researcher's analysis concludes that the existing regulatory barriers to civil-military integration prevent it from becoming a viable policy option for expanding the defense industrial base.

DoD KEY TECHNOLOGY AREA: Other (Defense Industrial Base)

KEYWORDS: Industrial Base, Civil-Military Integration

BARRIERS TO MORE ACTIVE CONTRACTOR PARTICIPATION IN THE DEPARTMENT OF DEFENSE VALUE ENGINEERING PROGRAM

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The purpose of this thesis is to determine the barriers to more active contractor participation in the DoD Value Engineering (VE) program. A review of professional literature such as DoD Inspector General, General Accounting Office, and other research reports provide the background information necessary to explain potential barriers to more active contractor participation in the DoD VE program. Thirty telephone surveys were conducted with Government and contractor personnel to solicit the opinions of these acquisition professionals concerning barriers to more active contractor participation in the DoD VE Program. The results and analysis of the interviews are reported. It was concluded that there are four significant barriers preventing more active contractor participation in the DoD VE program. The four significant barriers to more active contractor participation in the DoD VE program are insufficient funding, the VECP submission and approval process, a low level of VE awareness among acquisition professionals, and a lack of support for the VE program among top-level DoD management. Recommendations to improve contractor participation in VE are establishment of a centrally managed VE fund, a streamlined VECP process, improved VE training, increased VE personnel resources, enforcement of VE savings goals, and greater top-level management support.

DoD KEY TECHNOLOGY AREA: Other (Logistics, Contracting)

KEYWORDS: Value Engineering, VECP, Contractor Participation

MASTER OF SCIENCE IN MANAGEMENT

SOFTWARE METRICS: A CASE ANALYSIS OF THE U.S. ARMY BRADLEY FIGHTING VEHICLE A3 PROGRAM

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Software development efforts have become the highest-risk element of modern program management. One way that we can mitigate this risk is through the use of metrics. Software metrics can give us insight about the progress, quality, and expected completion of a software development effort. In earlier software development efforts, programming was viewed as a “black art” and, consequently, software metrics were not commonly used. Today, it is generally accepted that a software development effort should be properly planned and that software metrics should be used to control the project. Program managers are no longer concerned about whether or not to use metrics, but are more concerned with which metrics to use and whether or not the ones chosen will be effective. The Bradley Fighting Vehicle A3 Program provides valuable insight into the use of metrics. A principal finding of this research is that implementing an effective metrics program is extremely difficult, especially when the contractor is not experienced in developing software-intensive systems. Because this situation often exists, future and current program managers must assess their own knowledge of software development and plan to mitigate the effects of other factors they cannot influence. They must educate themselves on software issues and metrics and solicit assistance from independent agencies that specialize in software development.

DoD KEY TECHNOLOGY AREAS: Computing and Software, Ground Vehicles Command, Control, and Communications

KEYWORDS: Software Development, Software Metrics, Bradley Fighting Vehicle A3, MICOM Software Engineering Directorate

COST BENEFIT ANALYSIS OF DISTANCE LEARNING ALTERNATIVES FOR DOD UNIFORMED PERSONNEL AND CIVILIAN EMPLOYEES

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This thesis supports the evaluation of standard classroom course conversion to distance learning alternatives for disseminating advanced education at the Naval Postgraduate School (NPS). Distance learning is widely used throughout business, military, and academic organizations. Distance learning is convenient and gaining significant interest and importance to military personnel in assignments which hinder standard classroom attendance. This study focused on developing methodologies that could properly support a cost comparison for conversion of standard classroom instruction to distance learning. This study involved personal interviews with both military and civilian professors and other academic experts in distance learning design and implementation as well as a review of the literature. This thesis recommends NPS conduct further research to design a database to collect reliable and relevant cost data to support future cost studies. NPS should also compare equivalent existing distance learning courses for content currently offered at various institutions other than NPS for consideration as possible substitutes for NPS classroom instruction.

DoD TECHNOLOGY AREA: Other (Financial Management)

KEYWORDS: Distance Learning Alternatives, Course Content Comparison, Cost/Benefits Analysis

MASTER OF SCIENCE IN MANAGEMENT

IMPLEMENTATION OF “MARGINALISM” IN DAY-TO-DAY LIFE

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Economics, and especially the theory of Marginalism, can be very useful in “day-to-day” life, but for many reasons people do not really use it. This work tries to explain the “economic way of thinking” basically by verbally explaining the main idea, by providing examples from day-to-day life with minimum needed mathematics, and exploring the most important steps in the decision-making process. Hopefully, this work will encourage people to adopt and use the economic way of thinking and, as a result, gain its benefits.

DoD TECHNOLOGY AREA: Other (Economics)

KEYWORDS: Economics, Marginalism, Decision-Making

OTHER TRANSACTIONS FOR PROTOTYPES AS USED IN THE COMMERCIAL OPERATIONS AND SUPPORT SAVINGS INITIATIVE 1997: CONTRACTORS’ PERSPECTIVE

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The Commercial Operations and Support Savings Initiative (COSSI) is a Government effort to reduce Operations and Support (O&S) costs by inserting commercial products and processes into fielded military systems. This initiative utilizes Other Transactions for Prototypes, also known as Section 845 Agreements, to attract non-traditional Government contractors and to speed the development of prototype kits for insertion. This thesis examines the benefits and limitations, from the contractors’ perspective, of using Section 845 Agreements, as applied in COSSI 97.

The researcher concludes that the participants found the agreements to be effective tools that fostered improved relations with the Government. The agreement also resulted in an expanded vendor base; six of the 30 participants are non-traditional contractors and would not have participated, had an agreement not been used.

The researcher concludes that the participants identified the Government’s inexperience with the agreement as a major limitation. The research also shows that innovative, trained Agreements Officers who are knowledgeable of the program’s objectives can only achieve the full potential of the authority. The researcher makes several recommendations for an agency using or preparing to use the authority; one of which is to provide follow-on training for nontraditional contractors.

DoD KEY TECHNOLOGY AREA: Other (Contracting)

KEYWORDS: Commercial Operations and Support Savings Initiative, Other Transactions, Section 845 Authority

MASTER OF SCIENCE IN MANAGEMENT

COSTS AND BENEFITS OF NETWORK BASED INSTRUCTION AT THE NAVAL POSTGRADUATE SCHOOL

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The Naval Postgraduate School's (NPS) Strategic Plan for 1998 addresses the significance of distant education in NPS's future. Network Based Instruction (NBI) utilizes new technology and the Internet to provide education at a distance. This thesis provides a framework which identifies the costs and benefits associated with converting, administering and maintaining a traditionally taught course using Network Based Instruction.

Conversion, hardware, administration and maintenance costs to provide an NBI course are examined in the cost analysis section. The benefit analysis examines benefits of reduced NPS residency, a career learning continuum, on-line reference, and short course savings in addition to other intangible benefits.

This study finds NBI to be a viable option for future learning at NPS. It is recommended that NPS proceed with conversion of courses into an NBI format. Knowledge gained during conversion of initial courses will be instrumental in the subsequent design of efficient and effective distant education programs.

DoD KEY TECHNOLOGY AREAS: Computing and Software, Manpower, Personnel, and Training

KEYWORDS: Cost-Benefit Analysis

THE FAR PART 15 REWRITE POLICY AND ITS IMPACT ON FULL AND OPEN COMPETITION

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In 1997, the FAR Part 15 Contracting by Negotiation underwent a comprehensive rewrite. This thesis analyzed the major policies and influences that gave rise to these new rules, and determined the legislative and executive intent concerning its implementation. The key issues created or remaining unanswered by the new policy were identified and analyzed to determine their likely affect on competition in the competitive negotiation process. Similarly, the advantages and disadvantages of the rewrite at the working level for both Government and industry were discussed. From the research, it was determined that competition is unlikely to suffer from the new policy, and in fact, is expected to increase due to lower Bid and Proposal (B&P) costs and more commercial-like processes that will lower barriers to entry. The Federal procurement process will benefit not only from lower prices and reduced acquisition costs, but should also enjoy dramatically reduced procurement cycle time. In terms of possible negative affects, industry is somewhat uncertain about the fair and equitable application of the new rules. The ability to reduce the competitive range for efficiency and "communications" are seen as actions demanding a high degree of contracting officer judgment and fairness. The research methodology could be used to analyze the impact of other legislative or executive policy on implementation at the working level.

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

KEYWORDS: Acquisition Policy, Acquisition Reform, Negotiated Procurement, Source Selection, Federal Acquisition Regulation

MASTER OF SCIENCE IN MANAGEMENT

ESTABLISHMENT OF A DOLLAR THRESHOLD TO PRECLUDE CREDIT CARD RECONCILIATION

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The government credit card program was instituted to streamline the federal acquisition process for material that costs less than \$2,500 (small purchases). However, the reconciliation procedures were not streamlined. All dollar value discrepancies between the bank's Statement of Account (SOA) and the cardholder's purchase order files had to be resolved.

Action by the cardholder to resolve discrepancies, regardless of dollar value, was required. The establishment of a minimum dollar threshold to preclude reconciliation action further streamlined the process and produced cost savings. The Department of Defense Financial Management Regulations did not prohibit the establishment of a threshold. However, Naval Supply Systems Command, card program manager for Department of Navy, required discrepancies to be reconciled to the penny (\$.01).

To identify savings, Notification of Invoice Adjustment forms were analyzed and interviews conducted with Naval Postgraduate School credit card personnel. The data were utilized to calculate labor costs. Establishment of a threshold resulted in labor savings of \$2,500 per year and a twenty-five percent reduction in labor hours. A reduction in labor hours might result in future savings, if the cardholders perform other non-reconciliation functions, and some positions are eliminated.

DoD KEY TECHNOLOGY AREA: Other (Government Credit Card Program)

KEYWORDS: Government Credit Card, Reconciliation of the Statement of Account, Department of Defense Financial Management Regulations

THE PEARL HARBOR NAVAL SHIPYARD AND INTERMEDIATE MAINTENANCE FACILITY CONSOLIDATION: A REVIEW OF PERFORMANCE MEASURES

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An important step in the Navy's Regional Maintenance Program is the consolidation of Pearl Harbor Naval Shipyard and the Naval Intermediate Maintenance Facility to improve maintenance operations. Final approval to continue operation as a consolidated organization is scheduled for FY 2000. To gain approval, the Navy must demonstrate to the Office of the Secretary of Defense (OSD) and the Congress that the consolidation has been successful in improving maintenance operations. This thesis evaluated five metrics proposed by the Naval Sea Systems Command (NAVSEA) and the Naval Audit Service (NAS) to measure performance of the consolidation. The process of developing a strategic plan and a performance measurement system (PMS) was explained. The "Balanced Scorecard" framework was used to present the five metrics in a comprehensive PMS. The five proposed metrics, "cost per unit of output," "quality," "production efficiency and resource utilization," "CSMI backlog," and "schedule adherence," were evaluated as useful measures of performance. Ten additional metrics were developed that provide managers further evaluation tools to measure improvements in maintenance operations. Of the ten, only "total asset turnover," the "days worked ratio," and "revenue/cost per employee," are recommended for inclusion with the original five metrics for OSD and Congressional review.

DoD KEY TECHNOLOGY AREA: Other (Maintenance Operations)

KEYWORDS: Performance Measurement, Regional Maintenance, Consolidation, Strategic Planning

MASTER OF SCIENCE IN MANAGEMENT

THE EFFECTS OF THE SINGLE PROCESS INITIATIVE ON AEROSPACE SUBCONTRACTORS

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The purpose of this study was to identify and discuss the difficulties aerospace subcontractors have faced since the implementation of the Single Process Initiative (SPI). In addition, the thesis provided recommendations to address these difficulties and promote greater industry participation in the SPI. The research determined that aerospace subcontractors have experienced increased costs and/or administrative burdens due to prime contractors utilizing the block change process.

The methodology used to identify the apparent inequities faced by the subcontractors was a review of current literature and 40 telephone interviews with representatives of aerospace prime contractors and subcontractors. The interview questions either complimented the information garnered from the literature or asked the respondents to provide personal opinions about the SPI. The questionnaires were compared to one another, analyzed and recommendations were generated.

Specifically, the recommendations included; continue to promote the use of the SPI, open lines of communications between prime contractors and subcontractors through teaming, the Management Council should identify the best possible practices in each proposal, more realism needed with Rough Order of Magnitude estimates, and the Government should better categorize SPI proposals and ensure more timely recommendations from key stakeholders during the proposal approval process.

DoD KEY TECHNOLOGY AREA: Other (Defense Acquisition Initiatives)

KEYWORDS: Single Process Initiative, Contracting, Acquisitions, Aerospace Subcontractors

A CASE STUDY OF THE NON-VIOLENT INMATE LABOR PROGRAM USED TO SUPPLEMENT OPERATING COSTS AT THE FLEET AND INDUSTRIAL SUPPLY CENTER OAKLAND, CALIFORNIA

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Shrinking budgets are forcing many DoD facilities to defer maintenance and reduce non-mission critical operations. This thesis provides a detailed presentation of the nonviolent inmate labor program utilized by the Fleet and Industrial Supply Center Oakland, California to reduce routine operating costs. The inmate labor program is examined to identify costs, benefits, obstacles, and potential for future use at other DoD installations. This thesis was accomplished through interviews of individuals familiar with the FTSC Oakland non-violent inmate labor program and the review of documents, correspondence and literature pertaining to the program. A chronology of events was constructed, key participants identified, and quantitative and qualitative evaluations of the inmate labor program are presented. The non-violent inmate labor program at FISC Oakland operated for over five years, providing nearly eight million dollars of supplementary labor to the facility, relieving a constrained operating budget.

DoD KEY TECHNOLOGY AREA: Other (Operating Costs)

KEYWORDS: Fleet and Industrial Supply Center Oakland California, Labor Costs, Inmate Labor

