

MASTER OF SCIENCE IN PRODUCT DEVELOPMENT

KNOWLEDGE MANAGEMENT IN NAVAL SEA SYSTEMS COMMAND: A STRUCTURE FOR PERFORMANCE DRIVEN KNOWLEDGE MANAGEMENT INITIATIVE

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Knowledge Management (KM) has been promoted as a method to leverage an enterprise “core competence” to gain an advantage in the market place. The objective is to make the enterprise more competitive and nimble. The ultimate objective of KM is to increase the performance of knowledge-work processes. This research reports on an in-depth evaluation of a DoD organization and the subsequent process redesign to improve knowledge Management (KM) capabilities at a Naval Sea Systems Command (NAVSEA) field activity. The entity initially targeted for the initiative is the Submarine Electromagnetic Department of NAVSEA Newport, Undersea Warfare Center Division, but the thesis results are expected to generalize to the NAVSEA enterprise as a whole and possibly well beyond the Navy. Strategy is formulated and the processes of the organization are redesigned to enhance performance through KM. An action research method is employed to understand the culture, people, processes and products of the targeted organization in order to design a KM system that fits the entity. The initial goal is to enable the entity to gain a competitive advantage in its areas of excellence with the long-term goal of expanding the KM initiative across the entire NAVSEA enterprise to maximize NAVSEA’s contributions to the fleet.

KEYWORDS: Knowledge Management, Performance Driven Organization, Information Technology, Workflow, Knowledge Flow, Knowledge Management Models

EVOLUTIONARY EARNED VALUE IN PROGRAM MANAGEMENT, A CASE STUDY: TRACKING THE THINGS THAT MATTER

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The Earned Value Management System (EVMS) is a management tool promoted by Department of Defense guidance for use in certain research and development, test, and evaluation contracts, subcontracts, other transaction agreements, and intra-government work agreements. The method requires pre-planning of project tasks and tracking of progress or earned value so that a program manager can monitor cost and schedule variances and the overall health of his program. In practice, EVMS is a useful tool that falls short of its potential. Several program offices within the Department of Defense have modified EVMS reporting to better capture program risk and improve the usefulness of the EVMS reports. These modifications improve the reflection of program risk in the EVMS reporting. The usefulness of EVMS is also hampered by the perception that re-baselining (re-planning the Project Management Baseline) is to be avoided and that the event indicates a program is in trouble. This thesis examines two of these techniques and evaluates an ongoing program managed under EVMS to determine the shortfalls of the methodology.

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KEYWORDS: Earned Value Management System, EVMS, Risk, Program Management, Integrated Baseline Review, IBR, Contract Reporting, Technical Performance Measures, TPM

A STUDY OF THE HANDLING OF LESSONS PROCESSING IN LESSONS LEARNED SYSTEMS AND APPLICATION TO LESSONS LEARNED SYSTEM DESIGN

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A properly operated Lessons Learned System supports Knowledge Management and Organizational Learning. The method of handling lessons has an effect on successful operation of a Lessons Learned System.

This research evaluates a sample of Lessons Learned Systems for their method of handling lessons. It provides a coding that allows a Lessons Learned System to be characterized over the spectrum of possible handling methods. It relates this coding to its effect on the three tasks of a Lessons Learned System: collecting lessons, insuring quality of lessons for dissemination and dissemination of the lessons such that implementation occurs.

This method allows for Lessons Learned System evaluation and design with respect to the handling of lessons.

KEYWORDS: Lessons Learned System, Knowledge Management, Organizational Learning, Lessons Learned Handling, Design, Architecture

A SOCIAL NETWORK ANALYSIS OF THE NATIONAL MATERIALS COMPETENCY AT NAVAL AIR SYSTEMS COMMAND

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This thesis presents a social network analysis for the Naval Air Systems Command National Materials Competency. This geographically dispersed organization is responsible for conducting full-spectrum materials science and engineering across the full lifecycle of NAVAIR weapons systems. A Social Network Analysis (SNA) software tool was used to identify and diagnose the flow of knowledge and expertise across the enterprise. The SNA analysis is particularly important for the National Materials Competency because of a pressing need to provide advanced materials technologies and critical safety-related engineering solutions to the warfighter. For this research, the leaders of the National Materials Competency provided input regarding work interactions, communications and knowledge flows. The SNA software generated graphic visualizations that were used to analyze existing flow patterns. Analysis of the visualizations led to the identification of network topologies, structural holes, one- and two-way communication flows, and levels of cohesion within groups and sites. Based on the findings, recommendations for improved organizational performance include enhancements to network connectivity and cohesion, social capital, organizational processes and policies, information technology and knowledge management.

KEYWORDS: Social Network Analysis, Knowledge Flow, Organization, Networks, Survey, Materials

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THE EVOLUTION AND APPLICATION OF TECHNICAL RISK MANAGEMENT WITHIN THE UNITED STATES NAVY

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This research examines how technical risk management has evolved throughout the Department of the Navy (DoN) and to what extent acquisition programs have implemented best practice methods and techniques. A sample of DoN program managers, risk managers, and other acquisition professionals was surveyed to determine attitudes on technical risk management and what fundamental methods are being applied. Survey data was also collected to determine what impact Department of Defense (DoD) and DoN technical risk guidance has had on the acquisition community and what guidance documents are being used. For cases where best-in-class technical risk management methods and techniques have not been applied, this research offers some potential solutions.

KEYWORDS: Technical Risk Management, Risk Management, Risk Assessment, Risk Analysis, Probabilistic Risk Assessment, Best Practices, Systems Engineering, Engineering Discipline, Process Rigor

