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MBA PROFESSIONAL REPORT

Analysis of Horizontal Integration Within the Program Executive Office, Integrated Warfare Systems

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September 2006

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PEO IWS was stood-up in October of 2002. Since then, the organization has had to change the way it delivered warfare systems to the Fleet. This re-organization could be compared to a merger or major transition in the private sector. The organization is still in a state of change.

The purpose of this MBA project is to describe PEO IWS and analyze its implementation of organizational change. The issues that stem from how the change was approached are identified and compared to leading organizational change theories.

Conceivably, PEO IWS must coordinate and communicate within themselves to field these warfare systems. The term for this is Horizontal Integration and it can be defined as integrating multiple warfare systems within and across platforms to achieve maximum warfighting capability through enterprise program management, systems engineering, performance measurement, lifecycle management, and processes as related to acquisition, contracts, financial requirements allocation, systems development and integration, test, and certification.

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ANALYSIS OF HORIZONTAL INTEGRATION WITHIN THE PROGRAM EXECUTIVE OFFICE FOR INTEGRATED WARFARE SYSTEMS

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Submitted in partial fulfillment of the requirements for the degree of

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ABSTRACT

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[1] PEO IWS Horizontal Integration Board brief, March 17, 2006.

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I would like to thank Dr. Ken Euske and Dr. Mary Malina for their guidance and patience during the writing of this project. I would also like to thank the Program Executive Office for Integrated Warfare Systems for allowing me to conduct this project. I would not have been able to write it without their help.

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EXECUTIVE SUMMARY

The change initiated by Secretary Young in October 2002 presented challenges to PEO IWS and its stakeholders. This research presents three possible change models that lend insight into how PEO IWS could have managed the organizational change more efficiently. Portions of each of the three change models are identified in the PEO IWS change process. Had the leadership incorporated more of the change theories' ideas, it is possible that some of the challenges with horizontal integration might have been mitigated. Horizontal integration in PEO IWS suffers because there are little or no processes in place to coordinate the interactions of each entity that contributes to fielding a warfare system onto a platform.

To help adjudicate issues that would standardize horizontal integration and the integrated warfare system engineering processes across the PEO IWS organization, PEO IWS has recently stood-up an executive level panel called the Horizontal Integration Board (HIB). The purpose of the HIB is to guide and oversee the integration of warfare systems across PEO IWS. The HIB's role is to coordinate the integration of multiple warfare systems within and across ship classes to achieve maximum war fighting capability while minimizing total ownership cost.[2] The HIB is a step in unifying PEO IWS and has the potential to make a major command and Enterprise-wide contribution. The intent of the HIB is to neck down baselines within individual PARMs and concentrate on cross functional disciplines when necking down system baselines.

There are many processes that are being updated to accommodate the organizational change occurring in PEO IWS. How effective the standing up of PEO IWS will not be surely realized for a few years. But for those that were involved in standing up PEO IWS it is likely to be remembered as the right thing to do and much harder than anticipated.

2 PEO IWS Horizontal Integration Board brief, March 17, 2006.

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I. INTRODUCTION

A. BACKGROUND

The Program Executive Office for Integrated Warfare Systems (PEO IWS) is responsible for the design, acquisition, and life cycle support of all surface ship combat systems. The goal of PEO IWS is to reduce the number of warfare system configurations and to minimize acquisition and life-cycle support costs while promoting commonality of warfare system components across Air Craft Carriers, Amphibious Ships, Command Ships, Surface Combatants, and Submarines.[3]

PEO IWS was stood-up in November of 2002. Since then, the organization has had to change to adapt to a new way of delivering warfare systems to the Fleet. This re-organization could be compared to a merger or major transition in the private sector. The organization is still in a state of flux.

Conceivably, PEO IWS must coordinate and communicate within itself to field these warfare systems. The term for this is Horizontal Integration and it can be defined as integrating multiple warfare systems within and across platforms to achieve maximum warfighting capability through enterprise program management, systems engineering, performance measurement, lifecycle management, and processes as related to acquisition, contracts, financial requirements allocation, systems development and integration, test, and certification.[4]

B. OBJECTIVE AND PROBLEM IDENTIFICATION

The purpose of this MBA project is to describe PEO IWS and analyze its implementation of Horizontal Integration. The issues that stem from how the change was approached are identified and compared to leading organizational change theories.

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[3] PEO IWS Command Overview brief V2, September 6, 2005.

[4] PEO IWS Horizontal Integration Board brief, March 17, 2006.

C. SCOPE AND LIMITATIONS

This project is limited to PEO IWS its partners and key stakeholders. Many factors can contribute to the successes and/or failures of integration outside the influence of PEO IWS. However, the effort of this project concentrates exclusively on the occurrences within PEO IWS, its partners and key stakeholders.

The responsibility for "integrating" the warfare systems that PEO IWS produces resides within PEO IWS 1.0 (Integrated Combat Systems). Those who are responsible for the integration are called Warfare Systems Engineers (WSE) and are divided into platform responsibility: DDG/CG Warfare Systems (1A1A), Future Warfare Systems (1A3), CVN Warfare Systems (1A4), Amphibious/Coast Guard Warfare Systems (1A5), and LCS Warfare Systems (1A6).

D. METHODOLOGY

Interviews and written communication with members of PEO IWS 1.0 were used to gather information on how the process of Horizontal Integration occurs within PEO IWS. Several PowerPoint briefs were used as resources and background information. Email was used to stay informed and to get clarification on the most current issues occurring within PEO IWS. Some are referenced in this project others were used as background information and for further understanding. Applicable change theories were used to analyze how PEO IWS implemented its change. Additionally, the author of this report was a member of the organization from July 2003 through December 2005.

E. ORGANIZATION OF THESIS

Following this introduction, Chapter II reviews the background of PEO IWS. Chapter III examines applicable research in the field of organizational change. An analysis of Horizontal Integration within PEO IWS is offered in Chapter IV. Chapter V presents the summary.

II. PEO IWS BACKGROUND

PEO IWS has three major responsibilities. First, it is responsible for combat and ship self-defense system functionality and the acquisition and life cycle support of integrated warfare systems for the Navy. Second, PEO IWS is responsible for life cycle sustainment of the warfare systems including planning, programming, and budgeting for system upgrades, modifications and installations. Third, PEO IWS is responsible for ensuring that the products delivered meet the requirements at an affordable cost.

A. THE ORIGIN OF PEO IWS

The Assistant Secretary of the Navy for Research, Development and Acquisition (ASN RD&A), The Honorable John J. Young, Jr. reorganized the structure and function of the Navy's office for research, development and acquisition in a naval message dated 11 October 2002. In that message, the Program Executive Office for Integrated Warfare Systems (PEO IWS) was created to transition the Navy's warfare system acquisition from a platform-centered focus to an integrated, cross-Navy approach. Hi-lights of the message are below:

> …The intent of these changes is to ensure that the Acquisition Community is aligned to address the challenges of the Navy and Marine Corps of the 21st Century. We must change from an approach that is optimized by program and platform to one that can solve the challenges of integrated systems that cross many platforms and functions. We must also take a stronger business focus across multiple platforms and systems to maximize the efficiency and buying power of the multi-billion dollar enterprise that is DON Acquisition.
>
> …We will create a new PEO for Integrated Warfare Systems in order to provide the required discipline and coordination of the architecture and overarching interface principles to which our systems will be developed. This PEO will be responsible for all surface ship and submarine combat systems, missiles (except Trident and Tomahawk), radars, launchers (except Trident), EW, and gun systems.
>
> …This realignment changes our focus from the current platform centered approach to a more integrated approach across all combat systems. As the

> Navy moves to open systems architecture and highly integrated systems of systems, it is critical that those efforts have a strong, consistent focus.

This message disestablished PEO Theater Surface Combatants and PEO Expeditionary Warfare among other organizations. The responsibility for all combat system programs were realigned to PEO IWS. It also established PEO C4I to ensure all Command, Control, Communications, Computers and Intelligence systems, including those related to combat or platform systems, were developed as part of a coherent architecture. Furthermore, it established PEO Ships bringing commonality across ship classes, established PEO Littoral and Mine Warfare (PEO LMW) whose responsibilities include; Mine Warfare, Explosive Ordnance Disposal (EOD) and Special Warfare, Integrated Undersea Surveillance System (IUSS), Potential Assault Vehicles, Developing and fielding all subsurface and surface unmanned vehicles, and integrating all Unmanned Aerial Vehicles.

B. ORGANIZATION OF PEO IWS

PEO IWS is charged to oversee efforts to design, build, and buy warfare systems that are integrated, interoperable, and ride on an open systems computing architecture. This includes all ship and submarine warfare systems designed for "the Navy Enterprise." Taking an enterprise approach is intended to maximize the allocation of scarce resources. The re-organization was designed to consolidate management functions thereby reducing overhead and allowing for adoption of consistent management systems and merging support functions.[5]

Serving as the Program Executive Officer for Integrated Warfare Systems is a Navy Rear Admiral with a civilian Senior Executive Service member as his Executive Director. In order to align itself to ASN RD&A's message, PEO IWS organized itself into seven Major Program Managers (MPM):

- PEO IWS 1.0 manages the Navy's Integrated Combat Systems. Its mission is to develop, manage, integrate, test and certify all Surface Domain

[5] Warfare Systems Acquisitions Strategy brief, August 25, 2005.

Combat Systems to meet current new construction and ship class modernization schedules.

- PEO IWS 2.0 manages the Navy's surface ship above water sensors – radars and electronic warfare systems.
- PEO IWS 3.0 manages the surface navy's weapons and launchers (except Tomahawk).
- PEO IWS 4.0 is the lead directorate for coordination of international activities within PEO IWS.
- PEO IWS 5.0 is the lead for the navy's surface ship undersea systems.
- PEO IWS 6.0 manages the surface navy's command and control as well as displays and processors.
- PEO IWS 7.0 is responsible for the Enterprise Navy's management of Open Architecture.

Each Major Program Manager is a US Navy Captain (0-6) or member of the Civilian Senior Executive Service (SES) and has an organization that oversees budgets ranging from $287 million to $1.3 billion dollars of total obligational authority (TOA). In PEO IWS there are a total of 104 programs including three ACAT ID programs, three ACAT 1C programs, seven ACAT II programs, twelve ACAT III and IV programs.[6] Figure 3 in the appendix shows the description and decision authority for ACAT I – III programs.

C. WHY CREATE PEO IWS?

Before PEO IWS was created, the Navy's surface ship acquisition community was centered on acquiring systems based on a particular platform. The Assistant Secretary of the Navy for Research, Development & Acquisition (ASN RD&A) argued that this "platform-centric view" was not the most efficient way to acquire the Navy's

6 PEO IWS Command Overview brief Version 2, September 6, 2005.

surface ship warfare systems. His naval message dated 11 October, 2002 changed the acquisition process to be more "systems-centric" by re-organizing the PEOs and establishing PEO IWS. [7]

In the past, equipment was developed specifically for a ship platform. This practice made sense because that individual ship had the best equipment at that time. However, the downside of this practice is that each ship was created differently. Additionally, there were several variants of each system on a ship class. Each variant needed to be developed, fielded and supported for its lifetime in the fleet. The intent of standing up PEO IWS was to change the management of the combat systems acquisition process and eliminate the rising lifecycle costs of supporting multiple systems. By focusing on the system instead of the ship, more insight into this process is achieved.

[7] ASN RD&A Naval Message Date Time Group 112123Z OCT 02.

III. LITERATURE REVIEW

Three approaches to the management of change in organizations were used to compare with the change process in PEO IWS; Quy Nguyen Huy's change interventions, John Kotter's eight-stage process and a GAO study on mergers and transitions in public entities.

A. TIME AND FOUR IDEAL TYPES OF CHANGE INTERVENTION

Huy establishes four types of planned change approaches that he labels: commanding (to change formal structures), engineering (to change work processes), teaching (to change beliefs), and socializing (to change social relationships).

1. Commanding

In the commanding approach, prescient and comprehensive planning before radical change is assumed to be possible. Leadership of change belongs to one small group of people, typically located at the top of the formal hierarchy – the top team aided by external consultants. The faster the lower levels of the organization can align themselves with the top's directives, the faster the desired economic performance is assumed to be realized. Thus the lower levels of the organization are assumed to be very tightly coupled, like a mechanical clock. The pacing of the commanding type tends to be abrupt and rapid to prevent resistance to change form gathering momentum inside the organization. At best, this intervention can be used to order a change in tangible entities, such as people or formal structures and systems. It is unlikely that a lasting qualitative change in basic beliefs or values can be achieved. Agents applying the commanding intervention should hold a quantitative time perspective that favors the near term. Huy argues that the commanding type is relatively more effective at making changes in formal structures than the teaching, engineering, and socializing types. He then goes on to state that change in formal structures can be, and usually should be, preceded or combined with other types that make the commanding approach more acceptable to change recipients .

2. Engineering

In the engineering intervention, changing the work processes is the focus. It refers to change agents' actions of analyzing, understanding, and then redesigning work processes to improve the speed and quality of production. It is focused on improving the completion of work assigned. Departmentalized, fragmented tasks become multidimensional, integrated and adapted to local requirements. This takes time. It is likely to be used when the change agents' purpose is to produce improvement in the firm's performance through process change. The time perspective is quantitative and favors the medium term.[8]

3. Teaching

The teaching intervention refers to an analytical and guided learning approach in which change targets participate in their own re-education through the active involvement of change agents. Once the target of change understands the change process and reason, the individual may be able to learn freely. This enhances the organizations ability to innovate and adapt to uncertain environments. Huy argues, the teaching intervention approach is likely to be effective at changing beliefs. Changing beliefs is a personal decision and accomplished based on ones personal qualitative time schedule. The time perspective that favors such change is the moderately long term.[9]

Inner qualitative time differs from quantitative time discussed in the commanding and engineering approach in that it is subjective. Accommodating inner time requires change agents to be patient and avoid generating too much personal distress by 'rushing' events. This mode entails a moderately long time period involving a gradual and voluntary process that can rarely be imposed by pure power.[10]

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[8] Q.N. Huy, (2001), p 607. Time, temporal capability, and planned change. *Academy of Management Review*. Vol 26, No. 4. 601-623.

[9] Q.N. Huy, (2001), p 608. Time, temporal capability, and planned change. *Academy of Management Review*. Vol 26, No. 4. 601-623.

[10] R.H Chenhall & K.J Euske. (2006). *The Role of Management Control Systems in Planned Organizational Change: An Analysis of Two Organizations.*

4. Socializing

The socializing intervention refers to change agents' actions to enhance the quality of the social relationships among organizational members to realize organizational tasks. Socialization involves individual emotions as well as concerns about power and politics. It is assumed that change in behavioral interactions among individuals will lead to change in beliefs and organizational culture. This contrasts with teaching interventions, in which changes in beliefs will lead to changes in behavior. Change agents using the socializing approach are often self-motivated employees who are distributed throughout all levels of the organization. They have bought the necessity for change and seek to develop synergy among various groups. Change thus occurs through personalized, open and imaginative conversations. In Huy terms, the socializing intervention approach is likely to be effective at changing social relationships and behaviors. Change occurs at the basis of qualitative social time. This time perspective favors the long term.[11]

Change is difficult, therefore it is likely to require more than one intervention approach be applied. None of the four types is likely, by itself, to lead to large scale change throughout an organization.

B. KOTTER'S EIGHT-STAGES OF SUCCESSFUL LARGE SCALE CHANGE

According to John Kotter's research on large scale change in organizations, there is an eight stage process that, if followed, will facilitate the transition the organizational change. In *Leading Change,* Kotter examines how the process of large-scale organizational change must work if it is to have both short-term and long-term sustainability.

Kotter's eight stages of successful large-scale change are: establish a sense of urgency, create the guiding coalition, develop a vision and strategy, communicate the

[11] Q.N. Huy, (2001), p 609. Time, temporal capability, and planned change. *Academy of Management Review*. Vol 26, No. 4. 601-623.

change vision, empower broad based action, generate short-term wins, consolidate gains and produce more change, and anchor new approaches in the culture.

The eight stages can be applied to the change in PEO IWS to attempt to see if the effects of the change influenced Horizontal Integration.

1. Establish a Sense of Urgency

The first step for successful large scale change is to increase the urgency among relevant people for the need to change. A sense of urgency gets people motivated to make a move and not be complacent.

2. Create the Guiding Coalition

The second of the eight steps is to gather a team with the credibility, skills, connections, reputations, and formal authority required to provide change leadership. Due to the difficulty of accomplishing major change, a powerful force is required to sustain the process. It is almost impossible for one person to shoulder the load and carry an organization to change. Kotter suggests, the team members be representatives of the organization in title and duties.

3. Develop a Vision and Strategy

The next step is for the change team to create a vision and a set of strategies. This vision must be sensible in the atmosphere of the organization, have buy-in with the guiding coalition, and move the organization in the desired direction. Kotter states;[12]

> Vision refers to a picture of the future with some implicit or explicit commentary on why people should strive to create that future. In a change process, a good vision serves three important purposes. First, it simplifies hundreds or thousands of more detailed decisions, second, it motivates people to take action in the right direction, and third, it helps coordinate the actions of different people in a remarkably fast and efficient way.

[12] J. P. Kotter (1996). P 68. *Leading Change*. Boston, MA: Harvard Business School Press.

4. Communicate the Change Vision

The fourth step is that the vision needs to be communicated via the guiding change team in a way that is easily understandable and creates gut-level commitment throughout the organization. In this step, actions speak louder than words and repetition is required for the vision to sink in. In order to unleash the power of the vision, most of those involved in the organization need to have a common understanding of its goals and direction.[13] Failures in the first three phases of a transformation effort often contribute to problems here.

There are multiple lines of thinking about the failure to communicate the vision. One is that the employees are unable to understand it, either because the vision is too complicated and not phrased well. Another reason is that there is a general human resistance to change, and, hence, to acceptance of information about change. This also lends some credence to the difficulties inherent to the process. In order to demand focus, the vision must be re-stated over and over.

5. Empower Broad-Based Action & Eliminate Barriers

The purpose of this stage is to empower a broad base of people to take action by removing as many barriers to the implementation of the change vision as possible. After communicating the vision, obstacles that interfere with acting on the vision must be removed. Some likely candidates are structures, skills, systems, and supervisors. Once these barriers are removed, people can begin to proceed toward achieving the vision.

6. Generate Short Term Wins

To provide credibility, resources, and momentum, short-term wins are critical. These short-term wins drive the cynics and skeptics away and allow for the change to take hold. Major change takes time, accordingly to keep the momentum of the transformation, progress needs to be shown so that the non-believers and those not committed to the change see the merit in the new way.

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[13] J. P. Kotter (1996). P 85. *Leading Change*. Boston, MA: Harvard Business School Press.

7. Consolidate Gains and Produce More Change

Once the short-term wins start to accumulate, momentum builds and change continues to occur. It is important to keep this momentum and not quit the change process too soon or the whole organization will get bogged down and end up settling for less than the goal.

Few things move easy when changing organizations. Nearly every element is connected to many other elements.[14] Changing highly interdependent settings is extremely difficult because you have to change nearly everything. Because of the interconnections, you can rarely move just one element by itself. You have to move dozens or hundreds or thousands of elements, which is difficult, time consuming and can rarely if ever be accomplished by just a few people.[15] This is the step where the guiding coalition tackles additional, bigger change projects.

8. Anchor New Approaches in the Culture

The final step is for the change leaders to nurture the new culture. This new culture is developed through the consistency of successful action over a sufficient time period. In this phase, the employees' emotions are very important. New employee orientation and appropriate promotions will shape the culture of the organization into the future.

Culture is not something that you manipulate easily. Culture changes only after you have successfully altered people's actions. It changes after the new behavior produces a group benefit and after people see the connection between the new action and the performance improvement.[16]

C. GAO STUDY ON MERGERS AND TRANSITION STEPS

The U.S. Government Accountability Office (GAO) concluded that there are steps that should be followed to have a successful transformation in the public workplace. In

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[14] J. P. Kotter (1996). P 135. *Leading Change*. Boston, MA: Harvard Business School Press.

[15] J. P. Kotter (1996). P 136. *Leading Change*. Boston, MA: Harvard Business School Press.

[16] J. P. Kotter (1996). P 156. *Leading Change*. Boston, MA: Harvard Business School Press.

the 2003 GAO document (GAO-03-669), "Results-Oriented Cultures: *Implementing Steps to Assist Mergers and Organizational Transformations*," the GAO defined nine key practices that are central to successful mergers, acquisitions, and transformations in the public and private sector. The report was done to help federal agencies implement successful transformations of their cultures. These steps are similar to John Kotter's steps. The nine key practices are:

1. Ensure Top Leadership Drives the Transformation

Leadership must set the direction, pace, tone and provide a clear, consistent rationale that brings everyone together behind a single mission. Leadership that is personally involved in the transformation gives the change process stability. The leaders provide an identifiable source for employees to rally upon during tumultuous times. The report comments that successful major change can often take 5-7 years and frequent leadership turnover make it difficult to obtain the sustained and inspired attention to make the needed changes.

Leadership should move quickly to show commitment to the change and to deliver early successes. Top leadership must provide a clear and consistent rationale to help employees and customers and stakeholders understand the expected outcomes of the transformation. This rationale must stimulate the customer's and stakeholder's cooperation with, and ownership of, the outcomes - helping to build morale and commitment to the new vision.

2. Establish a Coherent Mission and Integrated Strategic Goals to Guide the Transformation

The mission and goals become the focus of the transformation, define the culture and serve as the vehicle for employees to unite and rally around. They must be clearly stated to all stakeholders – including employees. These goals and mission must be constantly re-enforced to give employees a sense of what the organization intends to accomplish.

3. Focus on a Key Set of Principles and Priorities at the Outset of the Transformation

A clear set of principles and priorities serves as a framework to help the organization create a new culture and drive employee behaviors. Principles can serve as an anchor that remains valid and enduring while an organizations personnel, programs, and processes may change. Core values should be embedded in every aspect of the organization to reinforce the new culture. They represent the institutional beliefs and boundaries that are essential to building a new culture for the organization.

4. Set Implementation Goals and a Timeline to Build Momentum and Show Progress from Day One

Goals and a timeline are essential because the transformation could take years to complete and must be carefully managed. By demonstrating progress towards established transformation goals, the organization builds momentum and demonstrates that real progress is being made. Public sector transformations can be harder because they must deal with transparent issues that are not as common in the private sector. People and cultural issues must be monitored throughout the change process.

The authors of the GAO study claim that the demand for transparency and accountability is a fact that needs to be accepted in any public sector transformation. Many stakeholders and interested parties are concerned with the results to be achieved, and the processes are to be used to achieve those results. By demonstrating progress towards these goals, the organization builds momentum and keeps employees excited about the opportunities change brings and thereby helps to ensure the transformation's successful completion.

Change of culture is the basis of a successful transformation. Therefore, it must be addressed in the beginning and throughout the change process. Culture encompasses the values and behaviors that characterize the work environment. The new organization must hire and attract key talent who demonstrate the competencies that make the transformation succeed and achieve its goals. Part of cultivating the culture is to make

employees aware that sharing expertise and experience is important to the future of success of the organization and is valued in the new organization.

5. Dedicate an Implementation Team to Manage the Transformation Process

A strong and stable team is important to ensure that the transformation receives the needed attention to be sustained and successful. The implementation team is important to ensuring that various change initiatives are sequenced and implemented in a coherent and integrated way. The team must have the necessary authority and resources to set priorities, make timely decisions, and move quickly to implement top leadership's decisions regarding the transformation. The composition of the team is important because of how it communicates the intent of the new organization. The report recommends a "cadre of champions" make up the implementation team. This will help ensure that changes are thoroughly implemented and sustained over time. The qualification of the team members also communicates leadership's commitment to the transition. They should be selected for their ability to drive results in a fast-paced and changing environment and should comprehensively understand the ultimate goal of creating a more successful organization.

6. Use the Performance Management System to Define Responsibility and Assure Accountability for Change

The performance management system can help manage and direct the transformation process if it shows how a team, unit and individual's performance can contribute to overall organizational results. Leaders who demonstrate change management, cultural sensitivity, teamwork, collaboration, and information sharing should be rewarded for their success in contributing to the achievement of the transformation process. Leading organizations have validated performance management systems that help contribute to the organization's overall successful implantation of the change.

7. Establish a Communication Strategy to Create Shared Expectations and Report Related Progress

The strategy must reach out to employees, customers, and stakeholders and engage them in a two-way exchange. A successful communication strategy can build trust at all levels among employees and other stakeholders. Frequent and timely communication cultivates a strong relationship with management and helps gain employee ownership for the transformation. Rather than obtaining information outside of the organization, employees receiving information first see it as a courtesy. This gives them an opportunity to ask questions or voice concerns to leadership. Successful communication will likely require twice the time and effort first planned. The message must also be consistent to alleviate uncertainties generated during unsettling times. Two-way communication is central to forming the effective internal and external partnerships that are vital to the success of the transformation. Feedback allows employees to feel that their experiences are acknowledged and important to management. Customers and stakeholders should also be a top priority. They are just as essential to forming partnerships needed to develop and implement the organization's strategies. Two-way communication gives customers and stakeholders a greater understanding of how the transformation will affect them. Inaccurate information needs to be dispelled as quickly as possible.

8. Involve Employees to Obtain Their Ideas and Gain Their Ownership for the Transformation

Employee involvement strengthens the process and allows them to share their experiences and shape policies. It helps create the opportunity to establish new networks and break down existing organizational silos, increase employees' understanding and acceptance of organizational goals and objectives, and gain ownership for new policies and procedures.

There tends to be a small group of employees in every organization that resist any meaningful change and will not and cannot buy into the transformation no matter how compelling the case for change may be. This group may try to "wait out" the transformation and think that it will pass without taking hold. Eventually, these

employees must either accept the changes or be helped to move elsewhere within or outside the organization.

The GAO report suggests creating opportunities for employees to interact so that they can learn more about each other. This helps to establish new networks and to break down organizational silos. Teams that have members from a cross-section of the organization assist in integrating different perspectives, flattening organizational structure and streamlining operations. Employees should be involved in planning and sharing performance information. This allows the employee to see where the organization is headed and its progress toward the change goal. Feedback should be incorporated into the new policies and procedures. This allows for management and employees to work collaboratively to gain ownership in the change.

9. Build a World-Class Organization

Building on a vision of improved performance, the organization adopts the most efficient, effective, and economical personnel, system, and process changes. The organization continually seeks to implement best practices.

Leaders should determine the essential systems and process that will need to be consistent across the organization and those that can differ across the organization. This sends a powerful message about the seriousness of the effort to create a coherent organization and the speed at which that effort will take place. These processes and procedures should be selected from existing “best practices.” Using these systems and procedures are widely recognized for contributing to performance improvements in many areas.

The GAO report identified implementation steps that would help federal agencies implement successful transformations. It outlines key practices to assist mergers and organizational transformations. It can be modified to fit the circumstances and conditions that are relevant to any agency. Collectively, these key practices and implementation steps can help agencies transform their cultures so that the federal government has the capacity to deliver its promises, meet current and emerging needs, maximize its performance, and ensure accountability.

D. CHAPTER SUMMARY

Each of the approaches to organizational change described above give a model for an organization to follow to induce successful organizational change. Huy's four types of planned change interventions deal with organizational structures, processes, beliefs, and social relationships. Kotter's change stages give a straight-forward, step-by-step process for organizations to manage change, and the GAO report outlines key practices to assist in organizational transformations.

The approaches to organizational change differ in emphasis from the author's perspective. One large difference between Kotter's change stages and the GAO report's steps is that the GAO report focuses more on the people aspect of the organization. A good example of this is that the GAO devotes a step specifically to "involving employees to obtain their ideas and gain their ownership for the transformation." Kotter's steps are more focused toward the change team being successful at communicating the vision to the people. The GAO report heavily relies on the employees in the organization to carry the transformation where Kotter's stages rely on the success of the Change Team. Huy's change approaches look at change differently than Kotter and the writers of the GAO report. He does not present a step process however, he emphasizes that time is a significant influence to decision makers choices related to transformation and organizational change. He states that large scale change involves many organizational elements that require a combination of two or more of his change intervention approaches.

IV. HORIZONTAL INTEGRATION IN PEO IWS

This chapter compares the information gathered to the literature introduced in the previous chapter. Comments are based upon the authors experience as a participant observer of the change and on the data gathered from multiple sources. If only one source is used for a comment, it will be cited.

A. HORIZONTAL INTEGRATION DEFINED

Horizontal Integration can be defined as integrating multiple warfare systems within and across ship platforms to achieve maximum warfighting capability through enterprise program management, performance measures, and processes related to acquisition/contracts/financial, requirements allocation, systems development and integration, test, and certification.[17]

PEO IWS was founded to oversee design, construction, and maintenance of all surface ship and submarine combat systems. The stated intent of this re-organization was to shift from a platform-centered approach to a more integrated consistent approach across all combat systems. PEO IWS is the entity charged with coordinating the integration of warfare systems into a single, functioning system of systems that can then be integrated onto any platform. Integration of the warfare system and the ship itself requires harmonization and communication between and across PEO IWS and its stakeholders.[18] PEO IWS's mission is, "to provide the Fleet with technically superior warfighting capability to take the fight to the enemy and win."[19] One way to visualize the difference between looking at integration in a horizontal across-the-enterprise perspective verses a vertical or across-the-platform perspective is depicted in Figure 1. The columns represent a platform centered approach, or vertically integrated, and the rows represent the horizontally integrated approach to warfare system acquisition. An example of an

17 PEO IWS Strategic Initiatives Horizontal Integration Team Decision Brief, June 17, 2005.

18 PEO IWS 1.0 Manager Interview, May 22, 2005.

19 PEO IWS Objectives for FY06/07 May 2006.

enterprise warfare system solution that is horizontally integrated is the Close In Weapons System (CIWS). CIWS' is a gun system whose primary mission is terminal defense against anti-ship cruise missiles and high speed aircraft penetrating outer fleer defense envelopes.[20] It was developed to be compatible with a variety of platforms. This figure does not represent every intricacy of the complications of fielding a warfare system; however, it does show how horizontal and vertical integration are related in the context of this research.

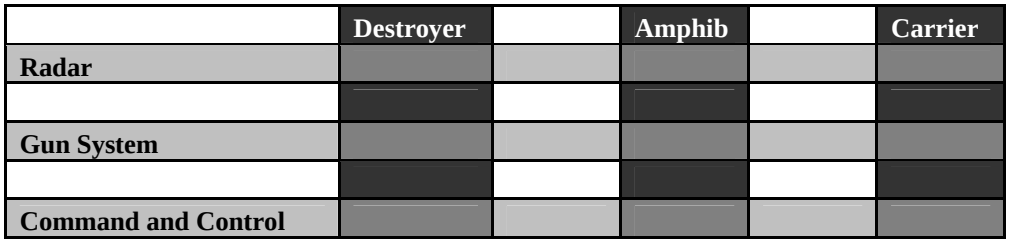

Figure 1. Horizontal Vs. Vertical Integration In PEO IWS

In the past, it can be argued that the PEOs were organized in a vertical way. Due to the increasing costs related to a variety of systems performing similar functions, the PEOs were re-arranged so that the focus would be on commonality of systems leading to a necked-down, or minimal, family of warfare systems leading to fewer variants of similarly functional systems.

B. APPLICATION OF ORGANIZATIONAL CHANGE THEORIES

Some PEOs were disbanded and others had their combat systems responsibilities re-aligned to PEO IWS to facilitate this shift. This movement became a major organizational change. An analysis of the change in PEO IWS follows using Huy's change interventions, Kotter's eight stages of successful large scale change, and the authors of the GAO report's transition steps.

[20] PEO IWS Close in Weapon System (CIWS) Staffer brief February 13, 2006.

1. Huy's Change Interventions

The commanding approach is most similar to the way in which PEO IWS went about its change. In PEO IWS, the change agents applied directive and forceful action to their change targets to exact compliance with their proposed change goals. As explained below, the leadership has done little of the engineering intervention, and even less of the teaching and socializing interventions. As the change process matures, these interventions may be used to help the change progress.

a. Commanding Intervention

As a military organization with Navy personnel as well as career civil servants, the commanding intervention could be argued as a logical first approach to the change process. A power-coercive style was used to ensure compliance with the changes with the expectation that the sense of urgency for the organizational changes would be easily understood and embraced. The change in the organization was rapidly paced which attempted to prevent resistance.[21] The downside of using this intervention on its own is that long-term changes are unlikely in the organizations beliefs and values.

The initial change effort (ASN RD&A's re-organization message) was a total organization-wide commanding intervention. Huy's theory of planned change stresses the importance of effective implementation of combining and sequencing different intervention models. Had the IWS leadership complemented the commanding intervention with another intervention, the organizational change may have been more widely understood and accepted within the new organization. But, as Huy predicts, using just the commanding mode was not effective in implementing the organization's change initiative.

It is evident that even though you can mandate a change from very senior levels and expect in a military and DoD workforce for everyone to quickly fall in line, the fact is that cultural resistance and in many cases the desire to return to the "good ole days," make significant organizational changes take time – possibly more time than the

21 ASN RD&A Naval Message Date Time Group 112123Z OCT 02.

leadership expects. According to the data colleted, the senior leadership understood the compelling need for change; however, the workforce did not see this same urgency for change.

A compounding factor in getting change to last, especially in militarily lead organizations, is the rate of turnover in key leadership positions and the fact many newcomers may not have the same commitment or understanding of *why* the change was needed in the first place. Most of the senior leadership in PEO IWS are naval officers and therefore rotate positions every two to three years. The newcomers usually want to get on with the change and quickly tire of hearing about the way things used to get done. Changing culture requires the persistence to make the change become the new culture of the workforce. In some cases, the personnel turnover can be helpful, as new people come in who were not part of the old culture. However, the sense of urgency and commitment to change must continue from the senior leadership.

b. Engineering Intervention

PEO IWS leadership could have applied the engineering intervention in the earlier stages of the change process. Had they explored the effects of the change on processes and procedures, they would have discovered the widespread void in documented working relationships.[22] Memorandums of Agreement (MOA) and Memorandums of Understanding (MOU) could have been signed that would outline the working relationships between PEO IWS and its stakeholders. These agreements now exist; however, some were agreed to as recently as March of 2005. The working out of the details of the agreements took time to ensure that all areas were thoroughly covered. Had the documents been identified earlier, working relationships would have been much more efficient and effective.[23]

c. Teaching Intervention

Combining the commanding intervention with the teaching intervention might apply to the change effort at PEO IWS. To try to apply Hue's teaching intervention, the change leaders could have outlined or trained the workforce in the new

[22] Author as Participant Observer.

[23] Author as Participant Observer.

way of thinking by explaining the shift from systems thinking across platforms verses the platform as an integrated system.

d. Socializing Intervention

It is possible that the PEO IWS leadership could have combined the commanding intervention with the socializing intervention to achieve greater long- term success. The socializing intervention stresses the importance of "buy-in" and describes how it is a necessity for change. By establishing "buy-in" from multiple levels of the organization, synergy among various groups could have been developed. Based on the concept that leaders behave and others model their behavior. When the leaders act in the way that the change is designed to achieve, others will follow their lead. In time, the grounds for the change are understood by those observing the leader. The socializing intervention is likely to be effective at changing social relationships which favors the long-term. Since the commanding intervention does not deal with the social aspect, combining it with the social intervention could balance the change initiative and set it up for long-term and short-term results. You can mandate change, but it still takes time to make it part of the culture for it to be internalized by the members of the organization.

2. Kotter's Eight Stages

There was a sense of urgency to change the overall strategy of how defense systems were being acquired above the PEO level. The DoD was under pressure from Congress to control the costs of defense systems. ASN RD&A saw that the former PEO structure was creating "stove pipes"[24] in programs throughout the acquisition community and saw this change as an opportunity to remove them.

a. Establish a Sense of Urgency

Kotter stresses that establishing a sense of urgency is crucial to gaining needed cooperation. He argues that the most successful change occurs when the sense of urgency comes from external factors and is recognizable to the workforce. The PEO changes directed by ASN RD&A, although arguably the right thing for the Navy Enterprise did not carry, based on the data collected, the compelling degree of urgency

[24] The term "stove pipe" can be defined as parts of an organization not integrating important specialties with other parts of the same organization.

that resonated to a workforce both internal and external to PEO IWS. Moreover, the compelling need for change was not fully embraced or accepted by all partners and stakeholders.[25] Some stakeholders lost part of their organization when PEO IWS was established.

One of the underlying motivations for the re-alignment of the PEO's and NAVSEA was to optimize spending on manpower. There were external pressures to realize the effects of and personnel efficiencies resulting from the change before they came to fruition. Re-shuffling the organization was projected to yield a 20-25 percent savings in manpower as well as a significant savings in other funding. The structure of the new PEOs resulted in some roles in each program office becoming redundant. The leadership in PEO IWS argued that the efficiencies gained from the re-organization would yield more than the predicted 25 percent personnel cut and determined that a 50 percent decrease in personnel was an achievable goal.

The transition to the organization envisioned in Secretary Young's message implied major change. Implementation of the envisioned change required management from people with the proper skills. Some skilled individuals were re-aligned prior to the change causing turmoil within PEO IWS.[26] While the organization was changing, there was a need for employees to help in the transition, and they were not there – meaning the leadership cut the staff before the new processes were designed and fully understood by the workforce.[27] The new organization needed people to make the necessary changes. When the personnel efficiencies were realized, there simply were less people around to conduct the same amount of work and implement changes. Establishing processes and procedures and other organizational change items fell through the cracks as some individuals were reverting to the "old way" of doing things.

According to a PEO IWS Manager, the urgency for change was lost in the distraction caused by the parallel initiative of executing the personnel efficiencies and

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[25] PEO IWS Manager interview, June 6, 2006.

[26] PEO IWS Manager interview, June 6, 2006.

[27] PEO IWS Manager interview, June 6, 2006.

cuts that were taken in anticipation of a more effective PEO IWS. The personnel cuts (military personnel, civilian personnel, and professional support staff) were a key issue that stifled the sense of urgency for change. The feeling that it was better before and the fact that a majority of the personnel did not perceive the need to change, created a strong cultural resistance towards the need for organizational change.[28] Many key personnel found jobs in other organizations. People were reluctant to seek employment in PEO IWS because of the change and sense of uncertainty.[29] The effects of not being able to create a sense of urgency for change affected the whole change process. Since the first step was not fully accomplished, it affected the rest of the steps.

b. Create the Guiding Coalition

Kotter emphasizes the importance of creating a guiding coalition. PEO IWS's change team was not officially established as outlined by Kotter. One can argue the PEO IWS's guiding change team was its top leadership. Kotter states that a good team is comprised of an equal balance of leaders and managers, which represents different levels of the organization. These members should have certain characteristics: position power, expertise, credibility, and leadership. One view is that Kotter's idea of a guiding coalition was not required for this transition. However, senior leadership understood the change that was required but did not incorporate focused change-management leadership into the daily operations of the workforce. For a more successful change, it is possible that a more representative group of members from all areas could have been chosen.

c. Develop a Vision and Strategy

PEO IWS's vision was established through the re-organization message and was transitioned into the "PEO IWS Charter:"

> PEO IWS was established in November 2002 and is responsible for all surface ships and submarine combat systems, missiles (except Trident and Tomahawk), radars, launchers (except Trident), Electronic Warfare and gun systems. PEO IWS will combine the combat systems software programs for all ships and submarines and is responsible for coordinating all Anti Submarine Warfare (ASW) area projects across PEOs including

[28] PEO IWS Manager interview, June 6, 2006.

[29] PEO IWS Manager interview, June 6, 2006.

> ASW software development and the annual Submarine Combat Systems Software Update. Finally, PEO IWS oversees the building and buying of Integrated Warfare Systems for Navy platforms.[30]

This charter describes the role that PEO IWS plays in the Navy acquisitions world. From the author's perspective, it does not inspire change. This lack inhibits the development of a clear strategy. It is also not communicable or flexible – two important characteristics of an effective vision according to Kotter.

d. Communicate the Change Vision

In one manager's view, due to the weak vision and strategy for change and the lack of a critical sense of urgency, the change vision was not communicated to the Major Program Offices in a forceful manner.[31] He stated there seemed to be more of a collective understanding that this organizational change was a fact of life and that there was not much that could be done about it. Consequently, PEO IWS's stakeholders and partners wanted more understanding and justification for the organizational change from platform focused to system focused acquisition.

e. Empower Broad-Based Action & Break Down Barriers

The majority of the major programs that were part of the re-organization of PEO IWS were physically located in the Washington Navy Yard. The only one that was not was IWS 3.0 – Surface Ship Weapons and Launchers. This program office was located in Crystal City, which was about five miles from the Navy Yard. This separation was recognized by the leadership in PEO IWS as a significant interference to the desired cohesiveness and alignment of the PEO. Several attempts failed to move this directorate from Crystal City to the Navy Yard. The main reason the request was denied was because foreign nationals were an integral part of the program office that supported, developed, and managed some of the weapon systems in PEO IWS 3.0. Naval Sea Systems Command (the senior command in the Navy Yard) cited that security concerns were too great to allow foreign nationals to work in the Navy Yard.

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[30] PEO IWS Objectives for FY06/07 brief, May 26, 2006.

[31] PEO IWS Manager interview, June 6, 2006.

Throughout the transition process, MOAs and MOUs were created, which established formal working relationships, agreements, and understandings between the PEOs and systems commands. One of the MOUs involved PEO IWS and PEO Ships. This document became the only written agreement of this type between these PEOs for nearly two years. By design, this document became a reference for the rest of the working relationships in PEO IWS and PEO Ships. Currently, there are additional MOAs and MOUs that address working relationship between IWS and other entities. However, the change process would have flowed smoother had these documents been scrutinized much earlier in the change process.

f. Anchoring New Approaches in the Culture

Throughout the transition, PEO IWS's organizational chart changed. There were multiple renditions that showed, on paper, how the organization functioned. This was an attempt to give a visual account of the functional lines of communication of the organization and eliminate some of the potential obstacles of the change process. Even though this was an attempt to outline the functional relationships within PEO IWS, it did not outline the flow of interactions between each entity within PEO IWS.

Major change takes time. The change felt within PEO IWS was significant and very unsettling for IWS personnel. Kotter argues to keep the momentum of the change, progress needs to be shown so that the non-believers and those who have not bought-in to the change see that there is merit in doing things the new way. PEO IWS showed its progress toward the new way of doing business by recognizing the achievements of some of the program offices within PEO IWS. The Program Executive Officer held "all hands calls" and presented the organization with "PEO IWS Accomplishments" many times. He informed everyone of the status of the change and created a PEO IWS Excellence Award. By presenting the entire command with a list of accomplishments, he showed the non-believers that, not only was the organization changing, but it was excelling during the changes.

3. GAO STUDY on Mergers and Transition Steps

The GAO study defined nine key practices that are central to successful mergers, acquisitions, and transformations in the public and private sector. Unlike Kotter's stages

and Huy's change initiatives, these steps occur at the very beginning of the change transition. The data gathered showed that PEO IWS followed the intent of some of these practices.

a. Ensure Top Leadership Drives the Transformation

The first step in the GAO study is relatively easy to follow in a military organization. In the case of PEO IWS, there was no doubt about top leadership driving the transformation. They showed commitment to change and to deliver early successes. The rationale for transformation was presented to employees, customers, and stakeholders. However, the sense of what the organization intended to accomplish was not clear to the people who were actually implementing the change.[32]

b. Establish a Coherent Mission and Integrated Strategic Goals

The mission and strategic goals for the transition were understood by the leadership; however, they were not clearly articulated to the employees. An example is the personnel re-alignments and reductions. This caused a large amount of uncertainty in the organization's goals and direction. Not knowing the goals of the changed organization combined with the stress of downsizing sent mixed signals.

c. Set Implementation Goals and a Timeline

The GAO report also discusses the importance of setting timelines for change goals to be achieved and establishing a communication strategy to create shared expectations. These steps were not achieved.[33] Had the change leadership established change goals and timelines to follow, then the change could have been easier to track and manage.

d. Dedicate an Implementation Team

The implementation team, as discussed earlier, was made up of the top leadership and was not made up of a "cadre of champions" like the GAO report authors suggest. A change team comprised of different members might have better facilitated the change process.

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[32] Author as Participant Observer.

[33] PEO IWS Manager interview, June 6, 2006.

e. Involve Employees to Obtain Their Ideas and Gain Their Ownership for the Transformation

The study recommends involving employees' ideas and inputs into the change. This creates an opportunity for a sense of ownership of the organizations goals and objectives. The data indicate that there was little employee involvement in the change process. Nearly one year after the change was initiated, there were groups of employees in PEO IWS that did not see the need for change and consequently were un-accepting or resistant to change. In the GAO report, such groups are an example of limited employee involvement. The data indicate that groups existed who had no intention to change and intended to "wait out" the transformation.[34] Attempts were made by the leadership to inform these personnel that the necessary organizational change was going forward with, or without them, and they were encouraged to "get on the bus."

f. Build a World Class Organization

The leadership of PEO IWS did attempt to use "best practices" as the GAO study recommends. An "offsite" meeting was scheduled that was attended by the leaders of each of the major programs in PEO IWS. Key stakeholders and a change consultant were invited to discuss their working relations and interactions with PEO IWS. The stakeholders were encouraged to speak candidly and give genuine feedback about their likes and dislikes with PEO IWS. The offsite meetings sent a powerful message to the organization about the seriousness of the effort to successfully implement the required transition. One outcome of this offsite was the establishment of the Horizontal Integration Board (HIB). This is a PEO IWS effort to look into the issues that contribute to the difficulties in Horizontal Integration.

C. CHAPTER SUMMARY

The organizational change in PEO IWS to some degree followed the approaches of Huy, Kotter, and the authors of the GAO study. There are many processes that are being updated to accommodate the organizational change occurring in PEO IWS. Each approach lends insight into how PEO IWS could have managed the organizational change

[34] PEO IWS Manager interview, June 6, 2006.

more effectively. It seems as though the change leaders used some parts of each approach. Had they incorporated more of the ideas from the three approaches to change, it is possible that some of the challenges with horizontal integration could have been mitigated.

V. REMAINING CHALLENGES OF TRANSFORMATION

When implementing the change from platform centric (vertical) acquisition to systems level (horizontal) acquisition, all functions and organizational relationships within PEO IWS were affected to some degree. Had the leadership of PEO IWS followed the approaches of Huy, Kotter, or the authors of the GAO study, it is possible that the difficulties of horizontal integration may have been mitigated. Most importantly, personnel acceptance and "buy-in" that change is necessary might also been achieved.

PEO IWS continues to face challenges with horizontal integration. The following items were identified through interviews with members of PEO IWS. They reflect that the organization is continuing to catch up with the challenges of horizontal integration.

A. FLOW OF FUNDS

Horizontal integration would be significantly improved if the money marked for the warfare system in the Shipbuilding and Conversion, Navy (SCN) account came directly to PEO IWS. The control of warfare systems development, procurement, and integration funds currently are not managed by PEO IWS. This inhibits the development of overarching warfare systems and the reduction of baselines.[35] Presently, SCN is appropriated to procure a complete ship and it is directed to the ship funding line – either PEO Aircraft Carriers or PEO Ships. PEO IWS executes the Warfare System portion of the ship's procurement.

The Ship Program Manager has control of the funding, so that individual can take absolute control of the weapons systems placed on the ship. The choices made regarding which warfare system to procure may not be the best one for the platform and may also run contrary to the direction of the Navy Enterprise. In contrast, Other Procurement, Navy (OPN), is appropriated directly to warfare systems programs in PEO IWS and that

35 Warfare Systems Acquisition Strategy brief, August 25, 2005.

works fairly well.[36] A recommended fix to the funding issue would be for Congress to allocate the warfare systems portion of the SCN account to PEO IWS and not through the SPM.[37]

Another recommendation would be to have the warfare system resources separately priced and managed by PEO IWS. That means the entire warfare system including subsystems from SPAWAR, NAVAIR, and USMC. "Pricing out" the warfare system as a single entity that has a single entry point into IWS allows the SPMs to manage and track the resources and the resultant tasks and deliverables for the warfare system.[38]

The flow of funds is a persistent indicator that the change presented by standing up PEO IWS may not be permanent. In fact, this may be the lingering issue that continues to cause friction. This is an obstacle to the success of PEO IWS and could be a short-term change.[39]

B. CONFLICTING ROLES AND RESPONSIBILITIES

Inconsistent approaches to warfare systems planning and execution between SPMs results in an unclear delineation of authority and responsibility. The data indicate that roles and responsibilities between PEOs are not clearly defined or documented. The MOAs between PEOs are inconsistent in how they address warfare system management and development. Some of the working relationships are acknowledged for specific functions between one PEO and another. However, the data indicate that they are personality dependant. PEO Carriers is reliant on PEO IWS for combat system selection and warfare system engineering and integration; nonetheless, they have retained control of funds. The decision process regarding what system is to be fitted on a particular platform is different for PEO Ships and PEO Carriers. For the LHA program, the

[36] PEO IWS Manager interview, April 25, 2006.

[37] PEO IWS Manager interview, April 24, 2006.

[38] PEO IWS Manager interview, April 25, 2006.

[39] PEO IWS Manager interview, May 22, 2006.

Program Manager in PEO Ships retains configuration control and effectively has PEO IWS as the purchasing agents for him. PEO Carriers asks PEO IWS to bring them a turn-key solution.[40]

There is an MOA between PEO IWS and PEO Ships. While the MOA was supposed to span ship programs, it focuses mostly on DD(X). In the MOA, little is applicable to other SPMs (e.g., LPD 17 class, LHA 6 class); therefore, their program offices act as though it does not pertain to them. Although there was a reference that described a working relationship between the two PEOs, it is not detailed or overarching and has little application to any program other than DD(X). This example is evidence that there was intent to lay out the working relationships between the organizations; however, it only addressed the DD(X) program.

Throughout the change process, there have been additional MOAs that outlined specific interactions between PEO IWS and other PEOs. In particular, the MOA between PEO Aircraft Carriers, PEO IWS, PEO C4I, and PEO Strike, is very detailed and describes each PEO's role in supporting PEO Aircraft Carriers and their mission of being responsible of for the design and construction of aircraft carriers and delivery of them to the fleet as war ready. In some cases, SPMs have been allowed to write contracts for the entire carrier warfare system. It is not clear how this practice supports horizontal integration and Navy Enterprise-wide management of warfare systems.

Another example of conflicting roles and responsibilities is that there are staffs that reside in the PEOs that are not properly aligned and tasked. As a result of the organizational change, some of the warfare systems engineering functions remained in PEOs other than PEO IWS, even though PEO IWS is assigned as the Warfare Systems Engineer. One example is that PEO Carriers transferred its combat system engineering to PEO IWS while PEO Ships maintained systems engineering proficiency through support contractors even though the lead warfare systems engineers are assigned by PEO IWS. Redundancy occurs when both staffs are doing the same thing. The stated intent of Secretary Young's re-organization was to get the warfare systems engineering process

[40] PEO IWS Manager interview, May 30, 2006.

into one PEO, which is PEO IWS. Because some PEOs retained the systems engineering function, the personnel actually responsible for that part of the integration, are not performing the required functions. This has resulted in the systems engineering function occurring more than once, which can become quite costly. In order to eliminate the problem, both sides must trust the validity of the work done by the other.[41]

C. OBLIGATIONAL PHASING PLANS (OPP)

Traditionally, OPPs represent the expenditure of funds per quarter over time, such as a year. Usually they are broken down into months in a quarter over multiple years. The prerequisite is a budget or a cost estimate in support of a budget. According to interviews with PEO IWS Managers, OPPs should show, over a period of time, when the funds are planned to be expended. Because more and more ship programs are getting incrementally funded, Ship Program Managers are asking for the additional granularity in time phasing the distribution of funds according to gathered data. For the most part, the issue over OPPs is one of standardization. The fundamental issue is there is not one form dubbed the "OPP" that participating managers are using. Each product area manager (PARM) is creating his or her own forms based on their perceived need. The lack of uniformity of forms across the command can lead to subtle misinterpretations on what is being said. A single form with the same or similar structure along with term usage would be a useful solution. In some cases PARMs are using the Cost Estimate Form NAVSEA FORM 7300.4, which is not intended to be used in this way. In these situations the 7300 form is being used for both the estimate and the phasing plan. Time phasing funds expenditures fall into the world of "execution" while cost estimating is a planning function. Form 7300.4 is intended for cost estimations only.[42]

An example of this problem is that sometimes the OPP does not match the cost estimate. Therefore, there are two sets of numbers being used leaving the recipient in the

41 PEO IWS Manager interview, May 30, 2006.

42 PEO IWS Manager interview, May 3, 2006.

position of asking which numbers or set of numbers is correct. To solve these issues sometimes an adjudication meeting is necessary to align the two number sets.[43]

D. ENGINEERING CHANGE PROPOSALS (ECP)

The burden for doing change control, coordination management, and platform warfare system engineering relies on the SPMs and the ShipMain process instead of PEO IWS.[44] Non-Aegis system engineering and change control was lost at the directorate level during the stand up of PEO IWS. Proper resourcing is needed to ensure success. Many proposed changes that were reaching the Ship Program Managers were uncoordinated and would cause other warfare system elements to not work. [45]

An example of uncoordinated ECPs can be seen when coordinating changes to the Warfare System Interface Diagrams (WSID). They depict all warfare system elements and their interconnectivities for each ship and are used to maintain ship warfare system configurations. In the past, requested WSID changes to aircraft carriers, amphibious, auxiliary, Coast Guard, and land-based test sites (LBTS) have often bypassed the PEO IWS Warfare System Engineers responsible for system engineering coordination for these platforms. These uncoordinated changes, when implemented aboard ships, have resulted in warfare systems having impaired operability. Fixing these unexpected integration problems consumes resources that are often unbudgeted.[46]

E. PARM REVIEWS

The PARM is the office responsible for offering a warfare system element to be installed into a platform; a radar or gun, for example. A PARM Review is a forum at which the Ship Program Managers acquires programmatic information on PARM procured Government Furnished Material (GFM) (Equipment and Information). The reviews, the forums themselves, are not uniformed and tend to be oriented to a specific

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[43] PEO IWS Manager interview, May 22, 2006.

[44] PEO IWS Manager interview, May 22, 2006.

[45] PEO IWS Manager interview, May 22, 2006.

[46] PEO IWS Manager interview, May 30, 2006.

ship type or ship class. For example, PMS 317 will host PARM Reviews for LPD 17 Class ships and exclude the likes of Carriers and other ship types. PMS 377 will do the same limiting the forum to their particular ship types. PEO Aircraft Carriers has similar forums and calls them Critical Program Reviews. Therefore, there are different names for the same forum. A recommendation would be to have one forum for a specific warfare system (example: radars), and address all ship types. Currently, PARMs are going to multiple reviews and presenting relatively the same redundant programmatic information on GFM being procured.

The inefficiencies get worse when the reporting formats vary depending on the ship's program office. Each SPM is using their own report template, thus asking for the same information but in a different way. Multiple meetings and multiple templates waste time and manpower. [47]

[47] PEO IWS Manager interview, May 22, 2006.

LIST OF REFERENCES

Chenhall, R.H. & Euske, K.J. (2006). *The Role of Management Control Systems in Planned Organizational Change: An Analysis of Two Organizations.*

Euske, K.J., & Player, R.S. (1996). Leveraging Management Improvement Techniques. *Sloan Management Review/Fall*. 38, 69-79.

Government Accountability Office. (2003). *Results-oriented cultures, Implementation steps to assist mergers and organizational transformations*. GAO-03-669. Retrieved April 4, 2006 from www.gao.gov/cgi-bin/getrpt?GAO-03-669.

Huy, Q.N., (2001). Time, temporal capability, and planned change. *Academy of Management Review*. Vol 26, No. 4. 601-623.

Kotter, J. P. (1996). *Leading Change*. Boston, MA: Harvard Business School Press.

PEO IWS, Objectives for FY06/07 May 26, 2006.

ASN RD&A Naval Message Date Time Group 112123Z OCT 02.

Naval Sea Systems Command Instruction 9410.2 (NAVSEAINST 9410.2), (SEA 06) NAVAL WARFARE SYSTEMS CERTIFICATION POLICY, July 18, 2005.

PEO IWS, Warfare Systems Acquisition Strategy brief, August 25, 2005.

PEO IWS, Horizontal Integration Board brief, March 17, 2006.

PEO IWS, Command Overview brief V2, September 6, 2005.

PEO IWS, Close In Weapon System (CIWS) Staffer brief, February 13, 2006.

PEO IWS Strategic Initiatives Horizontal Integration Team Decision Brief, June 17, 2005.

HASC Website: Accessed March 26, 2006. http://www.house.gov/hasc/.

SASC Website: Accessed March 26, 2006. http://armed-services.senate.gov/.

PEO SHIPS Website. Accessed March 26, 2006. http://peoships.crane.navy.mil/FAQ.htm

N77 Website: Accessed March 26, 2006: http://www.navy.mil/palib/cno/n76/index.html.

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APPENDIX A: PEO IWS STAKEHOLDERS

There are multiple entities that PEO IWS influences. In turn, PEO IWS gets tasking from multiple bodies.

A. Congress

1. Appropriators

The House Appropriations Committee for Defense (HAC-D) and the Senate Appropriations Committee for Defense (SAC-D) are responsible for reviewing, approving and appropriating funding for all programs in PEO IWS.

2. Authorizers

The United States House Committee on Armed Services (HASC) and United States Senate Committee on Armed Services (SASC) are responsible for reviewing, approving and authorizing all programs in PEO IWS. The HASC and SASC are responsible for funding and oversight of the Department of Defense (DOD) and the United States armed forces, as well as substantial portions of the Department of Energy.[48] The SASC is empowered with legislative oversight of the nation's military, including the Department of Defense, military research and development, nuclear energy (as pertaining to national security), benefits for members of the military, the Selective Service System and other matters related to defense policy.[49]

Both the authorizers and the appropriators review each program prior to each budget year. If they decide the program is performing as expected, funding levels are recommended for inclusion into the Department of Defense budget. Sometimes, language is written into the bill requiring the program manager to make specific decisions.

B. The Assistant Secretary of the Navy for Research Development and Acquisition (ASN RDA)

ASN RDA is the reporting senior for PEO IWS. Much of the direction and guidance for the short-term and long-term activities within IWS originates with ASN

[48] HASC Website: http://www.house.gov/hasc/. Accessed March 26 2006.

[49] SASC Website: http://armed-services.senate.gov/ Accessed March 26, 2006.

RDA. PEO IWS reports directly to Assistant Secretary of the Navy for Research, Development and Acquisition (ASN RDA) regarding acquisition management and to the Chief of Naval Operations through the Commander, Naval Sea Systems Command (NAVSEA) regarding support for in-service vessels.[50]

3. The Office of Naval Operations (OPNAV) N86

The Office of Naval Operations, N86, is responsible for setting the warfare and performance requirements for naval surface warfare assets. It is the job of the acquisition community to research, develop, procure, and sustain those assets. Therefore, PEO IWS performs its mission based on the requirements set forth by OPNAV N86.

N76, the Surface Warfare Directorate, is responsible for naval surface ship investment, current readiness, and modernization as well as future ship acquisition. The goal is to provide the President of the United States a surface navy that has the capability to defeat all maritime threats to the country and defend our way of life.[51]

4. Other Program Executive Offices

Without other PEOs, PEO IWS would not be able to field the majority of its programs. PEO IWS primarily deals with PEO SHIPS and PEO AIRCRAFT CARRIERS.

A. Program Executive Office for Ships

PEO SHIPS mission statement is as follows: "PEO SHIPS acquires and supports the current and future surface fleet, translating warfighter requirements into combat capability, producing and supporting ships, boats and craft from cradle to grave, enabling our nation and its allies to project presence in peace, power in war and assured access anytime. PEO Ships is a focused Navy team, providing the world's best ship innovation, acquisition, lifecycle support and disposal leadership."

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[50] PEO SHIPS Website. Accessed March 26, 2006. http://peoships.crane.navy.mil/FAQ.htm.

[51] N76 Website: Accessed March 26, 2006: http://www.navy.mil/palib/cno/n76/index.html.

B. Program Executive Office for Aircraft Carriers

PEO AIRCRAFT CARRIERS is responsible for the acquisition, life cycle management, and development of aircraft carriers and air platforms of the future, as well as modernizing and upgrading the present carrier fleet. They produce an integrated, fully supported ship-air wing warfighting system.

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APPENDIX B: ACQUISITION PARTICIPANTS & DEFINITIONS

A. PARM

The Participating Managers (PARM) must coordinate each system modernization effort very closely with Ship Platform Managers (SPM), other PARMs, contractors, In-Service Engineering Agents (ISEAs), planning yards, equipment manufacturers and laboratories in order to assure effective ship integration and system interoperability (PEO IWS Manager, personal communications, May 26th, 2006). The PARM is the office responsible for offering a warfare system element to be installed into a platform; a radar or gun, for example. PARMs are responsible for acquiring and developing systems to modernize Naval vessels. PARMs are responsible for acquiring and developing systems to modernize naval vessels. As such, PARMs must coordinate each system modernization effort very closely with Ship Platform Managers (SPM), other PARMs, contractors, In-Service Engineering Agents (ISEAs), planning yards, equipment manufacturers, and laboratories in order to assure effective ship integration and system interoperability PEO IWS Manager, personal communications, May 26th, 2006).

B. SHAPM

The Ship Acquisition Program Manager (SHAPM) is responsible for all aspects of life cycle modernization and support for a naval vessel at the platform level. A PARM shares the same responsibility for individual subsystems within these platforms.

C. SPM

The Ship Program Manager (SPM) is the office in PEO SHIPS (or PEO Carriers, etc.) whom is responsible for the construction of the entire ship – from the rudders to the mast.

D. WSE

Finally, there are the Warfare Systems Engineers (WSE). They are responsible for ensuring a variety of PARMs are engineering, producing and delivering their warfare system elements within cost, on schedule and to specific performance levels to ensure all the elements come together as a single, integrated warfare system to be installed onto the WSE's respective platform of responsibility. The WSE's are split into platforms of responsibility – WSE for CVN's, WSE for DDG and CG, WSE for DD(X), WSE for Amphibious ships, Auxiliary Ships and Coast Guard Cutters. Each WSE must coordinate with the PARMs and the SPMs to field a complete ship.

E. The Warfare Systems Engineering Processes

The first step in putting a warfare system onto a ship is the SPM reviews the requirements for the specific ship being constructed or overhauled. The SPM then decides what warfare system will best meet the requirements and contacts the WSE for that specific platform (or bypasses the WSE and deals directly with the individual PARMs). The WSE then contacts the applicable PARMs that will be providing elements of that specific warfare system and cost estimates for the warfare system elements (not integration or installation) are prepared. An individual funding estimate (NAVSEA form 7300) is produced for each warfare system element. The SPM then collects that information and, builds the price for the entire warfare system development, production and delivery process, and negotiates with the planning yard/prime contractor the costs for integrating the warfare system elements into the ship and also for physical installation.

F. Warfare System

Warfare System as defined in the NWSCP (NAVSEAINST 9410.2) "includes the Battle Management, Command, Control, Communications, Computers, Combat, Intelligence, Surveillance and Reconnaissance Systems, Combat Support Systems and training systems, subject to the C5IMP baselining process …that meet the definition for category I and category II systems… and are deployed in Navy surface, subsurface and air platforms."

APPENDIX C: ORGANIZATIONAL CHARTS

Figure 2. PEO IWS Organizational Chart

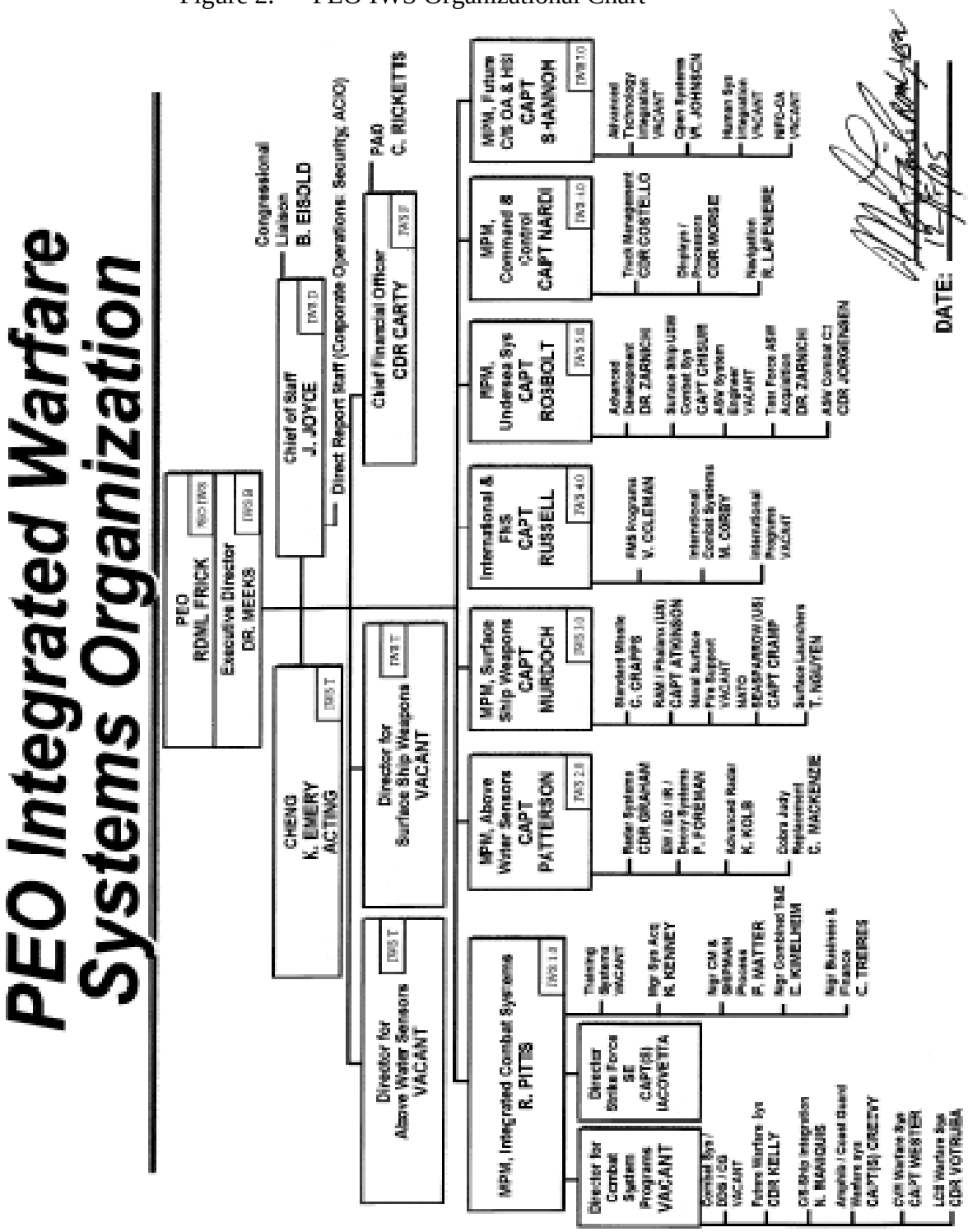
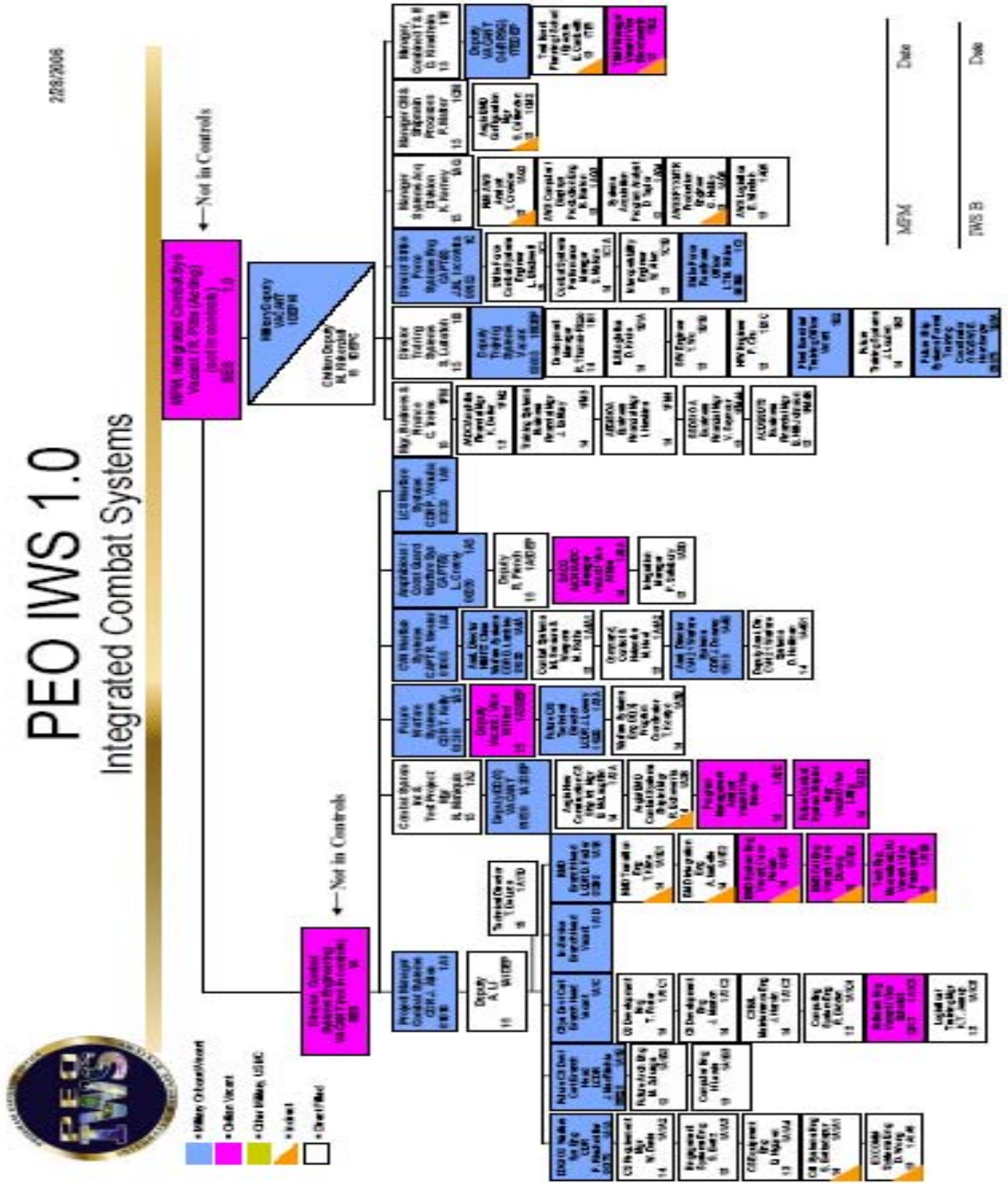


Figure 3. PEO IWS 1.0 Organizational Chart



APPENDIX D: DESCRIPTION AND DECISION AUTHORITY FOR ACAT I – III PROGRAMS

Figure 4. Description and Decision Authority for ACAT I – III Programs

Acquisition Category	Reason for ACAT Designation	Decision Authority
ACAT I	MDAP (10 USC 2430, reference (n))) Dollar value: estimated by the USD(AT&L) to require an eventual total expenditure for research, development, test and evaluation (RDT&E) of more than $365 million in fiscal year (FY) 2000 constant dollars or, for procurement, of more than $2.190 billion in FY 2000 constant dollars MDA designation MDA designation as special interest	ACAT ID: USD(AT&L) ACAT IC: Head of the DoD Component or, if delegated, the DoD Component Acquisition Executive (CAE)
ACAT IA	MAIS: Dollar value of AIS estimated by the DoD Component Head to require program costs (all appropriations) in any single year in excess of $32 million in fiscal year (FY) 2000 constant dollars, total program costs in excess of $126 million in FY 2000 constant dollars, or total life-cycle costs in excess of $378 million in FY 2000 constant dollars MDA designation as special interest	ACAT IAM: ASD(C3I)/DoD CIO ACAT IAC: CAE, as delegated by the DoD CIO
ACAT II	Does not meet criteria for ACAT I Major system Dollar value: estimated by the DoD Component Head to require an eventual total expenditure for RDT&E of more than $140 million in FY 2000 constant dollars, or for procurement of more than $660 million in FY 2000 constant dollars (10 USC 2302d, reference (o)) MDA designation 4 (10 USC 2302(5), reference (p)) MDA designation as special interest	DoD CAE or the individual designated by the CAE
ACAT III	Does not meet criteria for ACAT II or above Less-than a MAIS program	Designated by the DoD CAE at the lowest level appropriate

Notes:

- *In some cases, an ACAT IA program, as defined above, also meets the definition of an MDAP. The USD(AT&L) and the ASD(C3I)/DoD CIO shall decide who will be the MDA for such programs. Regardless of who is the MDA, the statutory requirements that apply to MDAPs shall apply to such programs.*
- *An AIS program is an acquisition program that acquires IT, except IT that involves equipment that is an integral part of a weapon or weapons system, or is an acquisition of services program.*
- *The ASD(C3I)/DoD CIO shall designate programs as ACAT IAM or ACAT IAC. MAIS programs shall not be designated as ACAT II.*
- *As delegated by the Secretary of Defense or Secretary of the Military Department.*

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