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MBA PROFESSIONAL REPORT

Project Management in Major Systems Acquisition for the Polish Armed Forces

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December 2003

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13. ABSTRACT (maximum 200 words)

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   The PAF have undergone major transformation since the fall of the Berlin's wall and the dissolution of the Warsaw Pact. Serious reduction of the PAF has been accompanied by technical restructuring and modernization of several major weapon systems, which must meet new, high NATO standards. Successful and effective managing of the acquisition process seems to be crucial for the new shape of the PAF.

   However, no centralized management across all phases of the acquisition process exists in Poland at the moment. Different military and civilian authorities dominate different phases of the acquisition process. There is an urgent need to implement project management policy in order to consolidate the efforts of all the branches and to ensure a successful transformation of the PAF.

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PROJECT MANAGEMENT IN MAJOR SYSTEMS ACQUISITION FOR THE POLISH ARMED FORCES

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Last but not least, my special thanks to the United States government for allowing me the privilege of studying at such a prestigious school.

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EXECUTIVE SUMMARY

This project investigates the potential role of project management policy in major systems acquisition for the Polish Armed Forces (PAF). It includes a short overview of program management policy in the U.S. Department of Defense (DoD); an analysis of present procedures in the PAF; a cost and benefit discussion of implementation the policy in Poland; and finally a discussion of possible solutions and implementation plans. The final product resulting from the project is a "step-by-step" plan for implementing a project management policy in the Polish Ministry of National Defense (MoND). This plan is supported by a proposal of the project manager's job description, or charter.

The project begins by introducing several of the most important definitions related to project management (Chapter II). This chapter briefly describes the following definitions: system, program, project, project life-cycles & milestones, risk management, cost estimation, total quality management, matrix organization, integrated product teams, and ISO 15288.

The analysis of the U.S. DoD approach to project management that was conducted in Chapter III shows that there is no need to apply all the American solutions in the PAF. The main reason for this is that Poland allocates considerably less funds for national defense than the U.S does. The PAF, for example, does not need to distribute the acquisition process among the Services. Poland should rather centralize and consolidate the acquisition process in order to minimize administrative costs, secure better control of the projects to avoid duplication of effort, and finally build desirable integrity and transparency. On the other hand, the acquisition workforce in Poland must adopt the ability to work in matrix organizations from the American model. An Integrated Product Team approach could also be quite beneficial in managing acquisition projects in the PAF.

The analysis of present procedures for major systems acquisition in the PAF that is discussed in Chapter IV proves that the acquisition process is highly fragmented. Different civilian and military authorities dominate different stages of the acquisition

process. Requirements determination begins in the Services; specifications are created within the Armament Policy Department (APD); financial resources are determined through cooperation of the Services, the Budget Department, the Council of Ministers and the legislature; acquisition planning is conducted entirely within the APD and finally procurement functions and contract administration are in the responsibility of the Procurement Department (PD). There is an urgent need to establish an authority that would consolidate the efforts of the scores of people who work on each project. This authority would ensure a successful achievement of the project's goals and make use of public funds most effectively.

A discussion of costs and benefits that is conducted in Chapter V proves that the benefits associated with implementing of project management policy in the PAF would outstrip costs. The most important benefits would be increased integrity and transparency of the procurement system, streamlining of the acquisition process, centralized decision-making, better communication between stakeholders, mitigation of projects' risk, life-cycle costs savings, and improved total quality management. Costs on the other hand, would be mainly associated with educational preparation of the workforce and slightly increased management costs.

Chapter VI presents three possible alternatives for implementing project management policy in the PAF. Alternative I was based on the proposal of the Naval Postgraduate School's (NPS) National Acquisition Strategy Team (NAST) which, visited Poland in 2000. It assumed implementation of the policy on the strength of the APD. Alternative II assumed the establishment of the Bureau of Project Management (BPM) under the Secretary of State. Alternative III assumed the establishment of the BPM under the Chairman of the Office of Public Procurement.

Chapter VII details two possible implementation plans: "the revolutionary method" (1 to 2 years) and "the evolutionary method" (3 to 5 years).

My final recommendation is to establish project management structures by combining Alternatives I and II. Implementation, on the other hand, should be accomplished through the "evolutionary method." This method provides the time needed

mainly for the educational preparation of personnel and the policy "test of effectiveness," and also significantly mitigates the risk associated with "fundamental and cultural change" in doing business. As a "test of effectiveness," I suggest applying the project management policy to all R&D projects conducted within the APD as described in Alternative I. Afterward, based on the lessons learned from the test, I suggest establishing of the Bureau of Project Management under the Secretary of State as described in Alternative II.

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I. INTRODUCTION

A. PREFACE

Competition stimulates innovation. In the contemporary world, to face competitors, an organization must constantly seek new solutions, new products, new services. Mr. Skip Hawthorne said: *The only thing constant is change.*[1] Project management is about implementing change.

Project management policy is widely used by both the civilian and military sectors across the entire world. Project management has certainly proved its value in many challenging projects, in almost every branch of industry and federal administration.

The main goal of project management policy is to ensure a centralized and effective introduction of new ideas, approaches, products or services in an organization without jeopardizing its current operations. Generally speaking, project managers are responsible for ensuring that their projects will meet high priority goals specified up-front. The most common project goals are expressed in terms of time schedules, budgeted costs, functionality and quality. Project managers could be appointed to manage R&D activities, to develop and introduce new products and services, to reengineer, redesign or modify existing products, to make procurements, to construct or rebuild, and many other such responsibilities.

B. BACKGROUND

Poland has been undergoing an enormous transformation since the end of the socialistic era. This transformation also concerns the Polish Armed Forces (PAF). The majority of the present warfighting systems are being replaced or will be replaced in the near future. Successful and effective management of the acquisition process seems to be crucial for the new structure of the PAF. Recent procurement projects, such as the multi-year program to equip the Air Forces (AF) with a multi-functional fighter aircraft or the project to equip the Land Forces (LF) with the Armored Personnel Carrier, caused many

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[1] S. Hawthorne's lecture in Naval Postgraduate School in August, 2003

controversies and speculations in the mass media. These projects proved that Poland needs to implement project management policy to ensure centralized and effective management of the acquisition activities, increase transparency of the procurement system, and streamline the decision-making process.

C.   PROJECT'S OBJECTIVES

1.   Primary Objective

The primary objective of this project is to underline the role of project management policy in major systems acquisition for the Polish Armed Forces and to describe the recommended solution and implementation plan.

2.   Subsidiary Objectives

The main subsidiary objectives of this project are to become familiar with the U.S. Department of Defense's approach to project management; analyze costs & benefits associated with implementation of project management policy; analyze present procedures for major systems acquisition in the PAF and propose possible alternatives and implementation plans for the Polish MoND.

D.   FINAL PRODUCT

The final product resulting from the project will be a step-by-step plan for implementing project management policy in the Polish MoND. This plan will be supported by a proposal for the project manager's job description, or charter.

II. DEFINITIONS RELATED TO PROJECT MANAGEMENT

A. SYSTEM, PROGRAM, PROJECT

1. System

System is a very broad concept. Different environments use different definitions. However most often the system is defined as:

A group of elements, either human or nonhuman, that is organized and arranged in such away that the elements can act as a whole toward achieving some common goal, objective, or end.[2]

This project discusses major warfighting systems acquisition. The Federal Acquisition Regulation (FAR) defines a major warfighting system as:

A combination of elements that will function together to produce the capabilities required to fulfill a mission need. The elements may include hardware, equipment, software, or any combination thereof, but exclude construction or other improvements to real property.[3]

Furthermore the FAR provides financial thresholds above which the concept of major systems are applicable as follows:

- $115,000,000 for research, development, test, and evaluation, or

- $540,000,000 for the eventual total expenditure for the acquisition

The Polish MoND should define its own financial thresholds above which the major warfighting systems concept will be applicable.

2. Program/Project

In practice two terms, "program" and "project", are used interchangeably because there is no basic difference between them. However, programs are generally more expensive and sophisticated than projects. Moreover, especially in the U.S., federal procurement projects are very often considered as the first level of breakdown of a program.

The Air Force defines program and project as follows:

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[2] H. Kerzner, *Project Management*, p.77
[3] FAR 2.101

Program is the integrated, time-phased tasks necessary to accomplish a particular purpose.

Project is within a program as an undertaking with a scheduled beginning and end, and which normally involves some primary purpose.[4]

Universally, the term "program management" is used widely by federal authorities while the term "project management" is preferred by civilian industry.

In this MBA project, I will consistently use the terms: project management/project managers.

B.   PROJECT LIFE-CYCLES & MILESTONES

1.   Project Life-Cycles

Every project passes through certain successive life-cycle phases. Most projects consist of four phases: R&D, Serial Production, Operating & Support and Disposal. However, when we consider the project as a procurement of a fully developed product, we do not have to take into consideration the R&D phase. Similarly, when we assume that a product will be sold or granted to a third party following the Operating & Support phase, then we do not have to consider the disposal phase, except as pertains to the eventual disposal of hazardous materials.

Different costs and risks are associated with each of the life-cycle phases. For example, if we decide to invest more of our resources in the quality of the product during the R&D and serial production phases, then we can minimize our expenses in the operating phase, and vice versa. The total life-cycle costs must be precisely evaluated and compared, especially during the source selection phase. Procurement authorities must be aware that product price reflects only part of the total life-cycle cost of the product. Project managers should analyze the project's life-cycle phases and undertake the necessary steps to achieve desired goals.

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[4] H. Kerzner, *Project Management*, p.78

Recent research shows that the operating phase is the most expensive. On average, it absorbs 65% of a total project's cost. (See Figure 1)
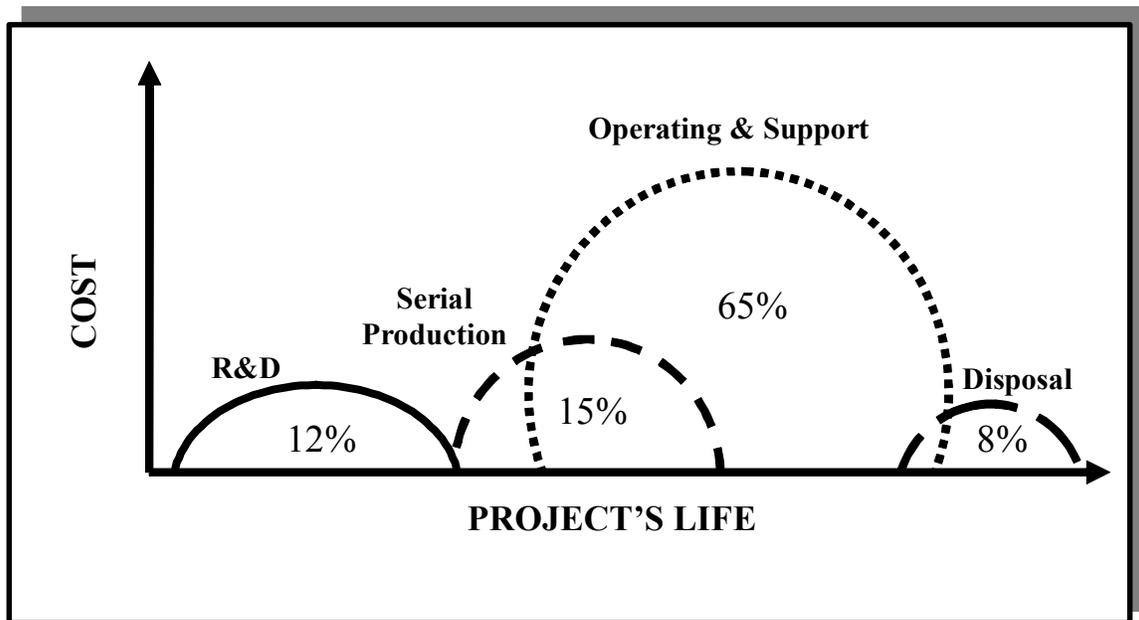
Figure 1.   Project Life-Cycle Costs[5]

Some of the phases, such as serial production and operating & support, can overlap each other. The reason could be that additional batches of the product are acquired during the operating phase so serial production must be continued. These additional batches of the product on the other hand will result in some batches of the product that are already in the disposal phase while others are still in the operating phase.

2.   Project's Milestones

Every project should be divided on specified-upfront, successive steps called milestones. Milestones are commonly used to evaluate the overall project's performance. Practically, milestones are established for both acquisition process phases and contracting process phases.

Acquisition process milestones are related to system development and production activities and generally encompass long periods of time (sometimes even several years).

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[5] R. M. Engelbeck, *Acquisition Planning* – presentation slides, course MN4301, 22 July 2003

Office of the Secretary of Defense (OSD) proposes the following milestones for an acquisition process:

- Concept & Technology Development

  - Concept Exploration

  - Technology Development

- System Development & Demonstration

  - System Integration

  - System Demonstration

- Production & Deployment

  - Low-Rate Initial Production

  - Full-Rate Production & Deployment

- Operations & Support

  - Sustainment

  - Disposal[6]

Contracting process milestones on the other hand are associated with the acquisition cycle. The FAR proposes the following milestones for the acquisition cycle: acquisition plan approval; statement of work and specifications; data requirements; completion of acquisition-package preparation; purchase request; justification and approval for other than full and open competition where applicable; issuance of the synopsis; issuance of solicitation; evaluation of proposals, audits, and field reports; the beginning and completion of negotiations, if applicable; contract preparation, review, and clearance; contract award.[7]

An acquisition process for a major warfighting system can consist of several contracting processes. Separate contracts can be awarded for different phases of the

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[6] DoDI 5000.2
[7] FAR 7.105

acquisition process e.g., concept exploration or disposal. Contracting process milestones should be established for every contract.

C.   RISK MANAGEMENT

Risk is an inseparable part of every acquisition project. It is defined as *a measure of the probability and consequence of not achieving defined project goals*[8] such as quality, functionality, cost or schedule. Eliminating risk completely is not possible. However several methods and techniques can be applied to predict, analyze, handle and minimize risk. Managers must realize that risk management is an active, continuing process that should be conducted during all phases of the acquisition process.

DSMC Risk Management Guide for DoD Acquisition identifies four main phases of risk management: risk planning, risk assessment, risk handling and risk monitoring.

1.   Risk Planning

Risk Planning is a process of developing a risk management strategy, determining methods and techniques that can be used in risk management and planning for adequate resources[9].

2.   Risk Assessment

Risk Assessment is divided into risk identification and risk analysis. [10]

- Risk Identification - a process of examining all internal and external environmental factors that can negatively affect the project and all aspects associated with the project's performance, such as life-cycle cost, schedule, contractors and subcontractors. During this phase, all areas of potential risk are identified, classified and prioritized.

- Risk Analysis - a process of determining the probability of the events that threaten the project and of estimating the consequences associated with these events.[11] There are many tools and techniques to aid this phase such as software modeling

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[8] H.Kerzner, *Project Management*, p. 879
[9] DSMS, *Risk Management Guide for DoD Acquisition*, Part 2.5,
[10] DSMS, *Risk Management Guide for DoD Acquisition*, Part 2.3,
[11] H.Kerzner, *Project Management*, p. 885

and simulations, prototyping, schedule network models and life-cycle cost models.

3.   Risk Handling

Risk handling is a process of applying different techniques to control, avoid, transfer or assume risk. Examples are as follows:

- Risk control - multiple developmental efforts or technological maturation efforts, alternative designs, early prototyping, incremental development, technology maturation efforts;

- Risk avoidance - modification or elimination of those operational requirements and activities that put the highest risk on the project;

- Risk transfer - developing requirements and specifications on the basis of functionality, acquiring services vs. products, applying different contract types, warranties and reliability provisions.

- Risk assumption - acknowledgement that, in any program, risks exist that must be accepted without any special effort to control them.[12]

4.   Risk Monitoring

Risk monitoring is a process of evaluating efficiency of risk handling techniques and conducting overall monitoring of the project's performance in order to foresee possible additional threats and obstacles. Risk monitoring includes meetings to track risk concerns and progress.

5.   Risk Documenting

Documentation should be realized during the whole risk management process. It should ensure quick access to risk management strategy, goals, plans, gathered data, analyses results and applied risk-handling techniques. Documentation should always be up-to-date with progress of the project and should reflect all forthcoming problems and uncertainties. Documentation should also include Project Management Office (PMO) reports, recommendations and lessons learned.

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[12] DSMS, *Risk Management Guide for DoD Acquisition*, Part 5.6

D. COST ESTIMATION

The term "cost" in acquisition often reflects the amount of money a procuring entity expects to incur to purchase an item. However, in acquisition of major warfighting systems, the term "cost" very often reflects not only the amount paid for the item but rather the total life-cycle cost of the item.

Cost estimation is employed to determine if the price of a product/service is fair and reasonable. Generally, the procuring entity should employ cost estimation in procuring a non-commercial product/service when market price comparison is not possible. The classic example could be sole-source procurement.

Costs are commonly divided into direct costs such as direct labor and direct materials, and indirect costs that consist of overhead, general and administration costs, selling expense, etc. Most cost components (drivers) such as labor hour rates and direct materials prices could be estimated by comparing them to typical market rates and prices. However, there are situations when there is not enough market data available to conduct such comparisons. In these cases, alternative techniques must be employed. The most commonly used alternative cost estimation techniques are

- Historic cost method - applying cost historical data from the same or similar projects by adjusting to present economical and technological factors;

- Modular pricing - dividing the item on several, separate, smaller modules and then estimating the cost of the module, and judging its complexity;

- Parametric estimates - using the mathematical relationship of the item to one or more of its functions or characteristics, e.g., the cost per pound;

- Expert estimates - relying on the judgment of an individual who can combine experience and instincts to estimate the hours required to perform the task. [13]

In serial production, the concept of learning curves can be employed for cost estimation. Learning curves represent an ability of a human to improve his efficiency in

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[13] R. M. Engelbeck, *Acquisition Management*, p.253-255

performing repetitive operations. H. Kerzner provides three conclusions on which the current theory and practice of learning curves is based:

- *The time required to perform a task decreases as the task is repeated*

- *The amount of improvement decreases as more units are produced.*

- *The rate of improvement has sufficient consistency to allow its use as a prediction tool.*

Figure 2 represents the relationship between the cost per unit and the total number of units produced.
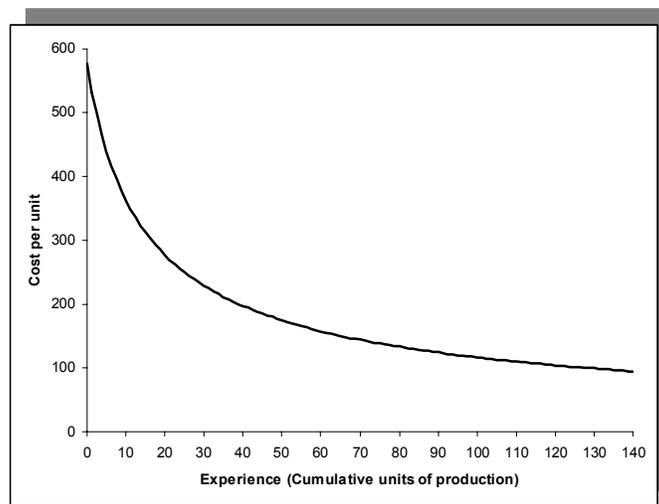
Figure 2.   A 75-Percent Learning Curve[14]

E.   TOTAL QUALITY MANAGEMENT

Total quality management (TQM) is a broad term that defines an overall way of doing business. It is defined by the Besterfields as follow:

an enhancement to the traditional way of doing business; (...) the art of managing the whole to achieve excellence; (...) both a philosophy and a set of guiding principles that represent the foundation of a continuously improving organization;(...) the application of quantitative methods and

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[14] H.Kerzner, *Project Management*, Figure 18-1, p. 929

human resources to improve all the processes within an organization and exceed customer needs now and in the future.[15]

According to the Besterfields, TQM requires six basic concepts: management involvement-leadership, customer satisfaction, employee involvement, continuous improvement, treating suppliers as partners and establishing of performance measures for the process. Project managers should recognize all of these concepts of total quality management and create a favorable environment to accomplish each of them in their projects.

Additionally, project managers must be aware that each project has certain unique characteristics and requires a specific approach to achieve quality. This unique attitude to the project should be determined during quality planning and ensured through quality control.

The goal of quality planning is to define quality and develop overall quality policy, objectives, and standards that are most suitable for a particular project. Moreover, during the quality planning, appropriate performance measures should be established.

Quality planning should be based on the comparison of quality cost and a project's life-cycle costs. As mentioned earlier, a higher quality and a more expensive product guarantees lower costs during its operating and maintenance cycle. Project managers must make many "tradeoff" decisions during this phase.

The quality planning phase is successfully accomplished when a precise quality plan is developed and appropriate techniques and tools for quality control are selected.

Quality control is a process of ensuring that products and services that are delivered are as required, specified in the planning phase and contract - quality level.

In the contemporary world, statistical methods and software-based tools are widely used to control quality. Statistical Process Control (SPC) and Six Sigma (SS) techniques are very powerful techniques that offer the potential to reduce the cost of quality while increasing user satisfaction. There are many advanced, automated systems

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[15] D. H. Besterfield, C. Besterfield-Michna, G. Besterfield, M. Besterfield-Sacre, *Total Quality Management*, p.1

on the market that collect, analyze and summarize quality control data. Among most commonly applied tools for process control, we can list: data figures, Pareto analysis, cause-and-effect analysis, trend analysis, histograms, scatter diagrams, and process control charts. These statistics-based tools enable efficient collection of data, identification of patterns in data, and measurements of variability.[16]

F.   MATRIX ORGANIZATION

The matrix management is widely used in both the civilian and military industry. The main reason for this is that a matrix organization attempts to obtain advantages from the functional structure and the product-driven structure. (Figure 3 and 4)
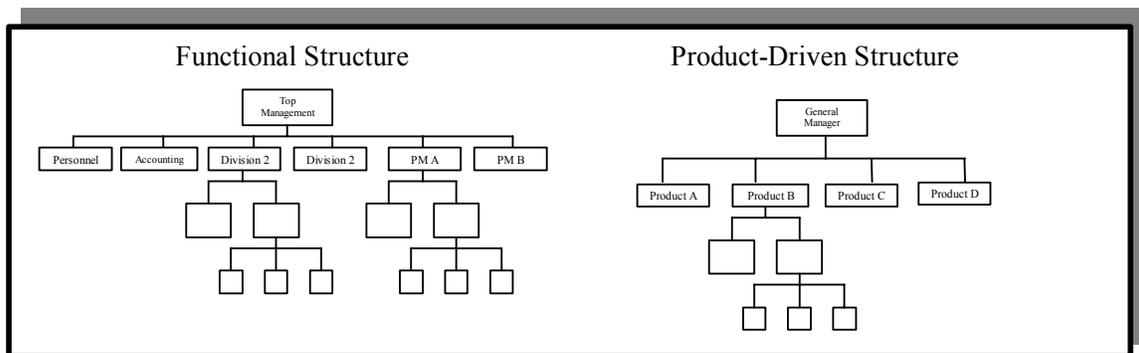
Figure 3.   Functional and Product-Driven Structure
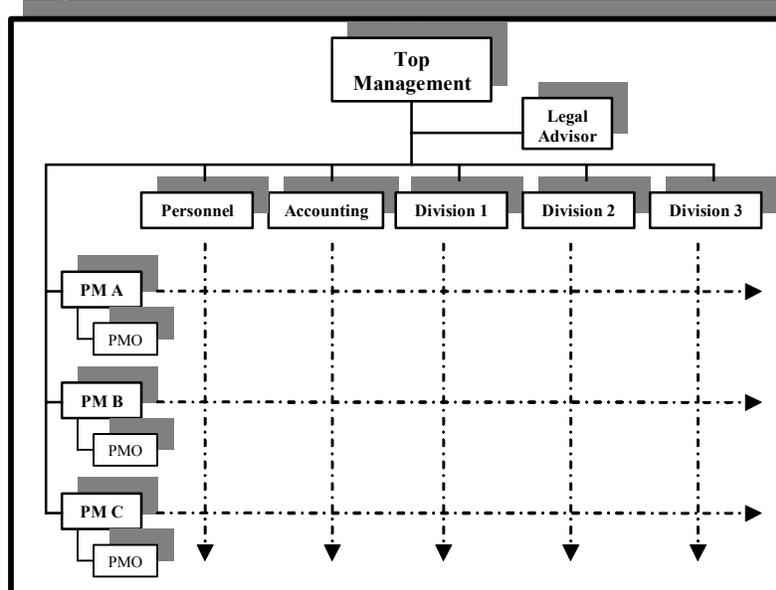
Figure 4.   Typical Matrix Organization

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[16] H.Kerzner, *Project Management*, p. 1057-1058

As shown in Figure 4, the PM in the matrix organization retains direct authority only over permanent members of his project management office. Typically, the number of permanent ("full-time") members of PMO is relatively small, perhaps from two to five people. Hence, the tiny "core" of the PMO is reinforced by matrix personnel, i.e., specialists "carved" from functional divisions of the organization ("part-time" members).

A communication protocol in a matrix organization is based on both horizontal and vertical communication. Vertical communication generally dominates within functional divisions and horizontal communication plays a "key role" in project management offices.

The most important advantages and disadvantages of a matrix organization are summarized in Table 1.

Advantages	Disadvantages
Centralized project management	Not clear "chain of command"
Direct labor cost reduction because the same personnel can effectively participate in different projects	PMs must coordinate manpower decisions with functional managers
Horizontal communication enables quick responsiveness to environment uncertainty	Possible conflicts of interests in vertical and horizontal directions
Different procedures can be established for each project	
No need to "look for a job" after completion of the project	

Table 1.   Advantages and Disadvantages of Matrix Organization[17]

[17] Daft, Richard L, *Essentials of Organizations – Theory and Design*, p. 45-48

G. INTEGRATED PRODUCT TEAMS[18]

The concept of integrated product teams (IPT) is based on organizing all project's stakeholders into one product team.

> *Members of the product team are multi-organizational as well as cross-functional. This means that the ultimate user, contractors, suppliers, and the acquisition professional are organized into a product team.[19]*

R.M. Engelbeck distinguishes three types of integrated acquisition/product teams: overarching integrated product teams (OIPT), intermediate integrated product teams (IIPT) and working-level integrated product teams (WIPT). These three types of IPT and their interrelationships are depicted in Figure 5.

The OIPT is led by an authority at least one level above the PM and provides assistance, oversight and review through the acquisition process. It is also responsible for chartering the IIPT and the WIPT.

The IIPT is responsible for coordinating of the efforts of the WIPT and handling issues assigned to another team.

The WIPT is normally led by the PM who is responsible for executing of the acquisition process.[20]

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[18] The terms "Integrated Acquisition Teams" (IAT) and "Integrated Product Teams" (IPT) are often used interchangeably. In this project, I will consistently use the term IPT because this term was already introduced in Poland.

[19] R. M. Engelbeck, *Acquisition Management*, p.43

[20] R. M. Engelbeck, *Acquisition Management*, p.53-55
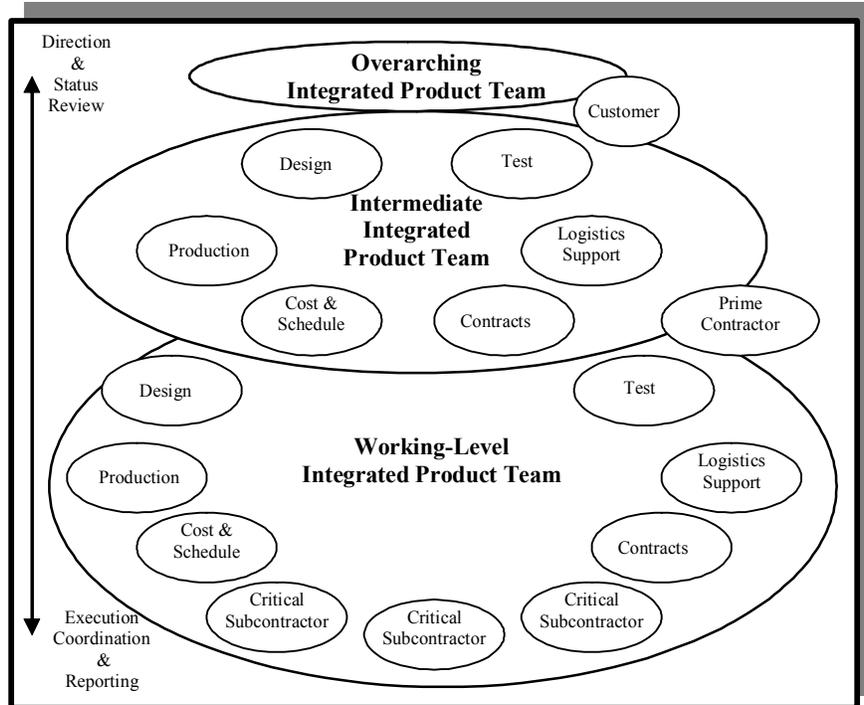
Figure 5.   The Three Types of Integrated Product Teams[21]

H.   ISO 15288

ISO 15288 is an international standard that establishes a common framework for Systems Life Cycle Management. It defines associated terminology and characterizes the life-cycle processes for managing and performing the conception, development, production, utilization, support and retirement of systems.

This International Standard defines the role of the project management not only in developing product and services within an organization but also in acquiring/supplying already fully-developed products/services on the market.

ISO 15288 recognizes the following processes of the project management: Planning Process, Assessment Process, Control Process, Decision Making Process, Risk Management Process and Configuration Management Process. It also provides the list of activities that acquirer and supplier should undertake during the acquisition and supply processes.

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[21] R. M. Engelbeck, *Acquisition* Management, Figure 2-5, p.55

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III.   SHORT OVERVIEW OF PROJECT/PROGRAM MANAGEMENT IN THE U.S. DEPARTMENT OF DEFENSE

A.   INTRODUCTION

Acquisition of major warfighting systems in the U.S. is normally accomplished at the Service level: Army, Navy and Air Force. The Services practically execute the acquisition process and take full responsibility for the project/program management.

However, major warfighting systems are often supervised by the Office of the Secretary of Defense (OSD) - specifically the Under-Secretary of Defense for Acquisition, Technology and Logistics (USD(AT&L)).

The USD(AT&L) has the primary responsibility for establishing policies and procedures governing the operations of the DoD Acquisition System; supervising the performance of the DoD Acquisition System; coordinating research and development programs DoD-wide to eliminate duplication of effort; developing DoD-wide acquisition plans, strategies, guidance, and assessments; representing the U.S. at the North Atlantic Treaty Organization (NATO) and other multinational forums; and developing agreements with friendly and Allied Nations relating to acquisition matters.[22] Additionally, the USD (AT&L) is the Milestone Decision Authority for those major warfighting programs designated for defense oversight. Moreover, guidance has recently been revised so that capability documents (indicating user requirements) are prepared jointly. Therefore, from capability to operational program reviews and program/project funds there is OSD oversight of the Services.

B.   PROJECT MANAGEMENT REPORTING RELATIONSHIP

Although project management in the U.S. remains in the responsibility of the Services, all branches have a common overall reporting relationship. The project management reporting relationship and overall organization of the U.S. DoD Acquisition System is illustrated in Figure 6.

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[22] DoD Directive 5134.1

SD

DSD — USD(AT&L)

SN	SA	SAF
USN	USA	USAF
ASN(RD&A)	ASA(AL&T)	ASAFA
PEO	PEO	PEO
PM	PM	PM
PMO	PMO	PMO

NAVY   ARMY   AIR FORCE

— · · — · · —   Acquisition reporting chain
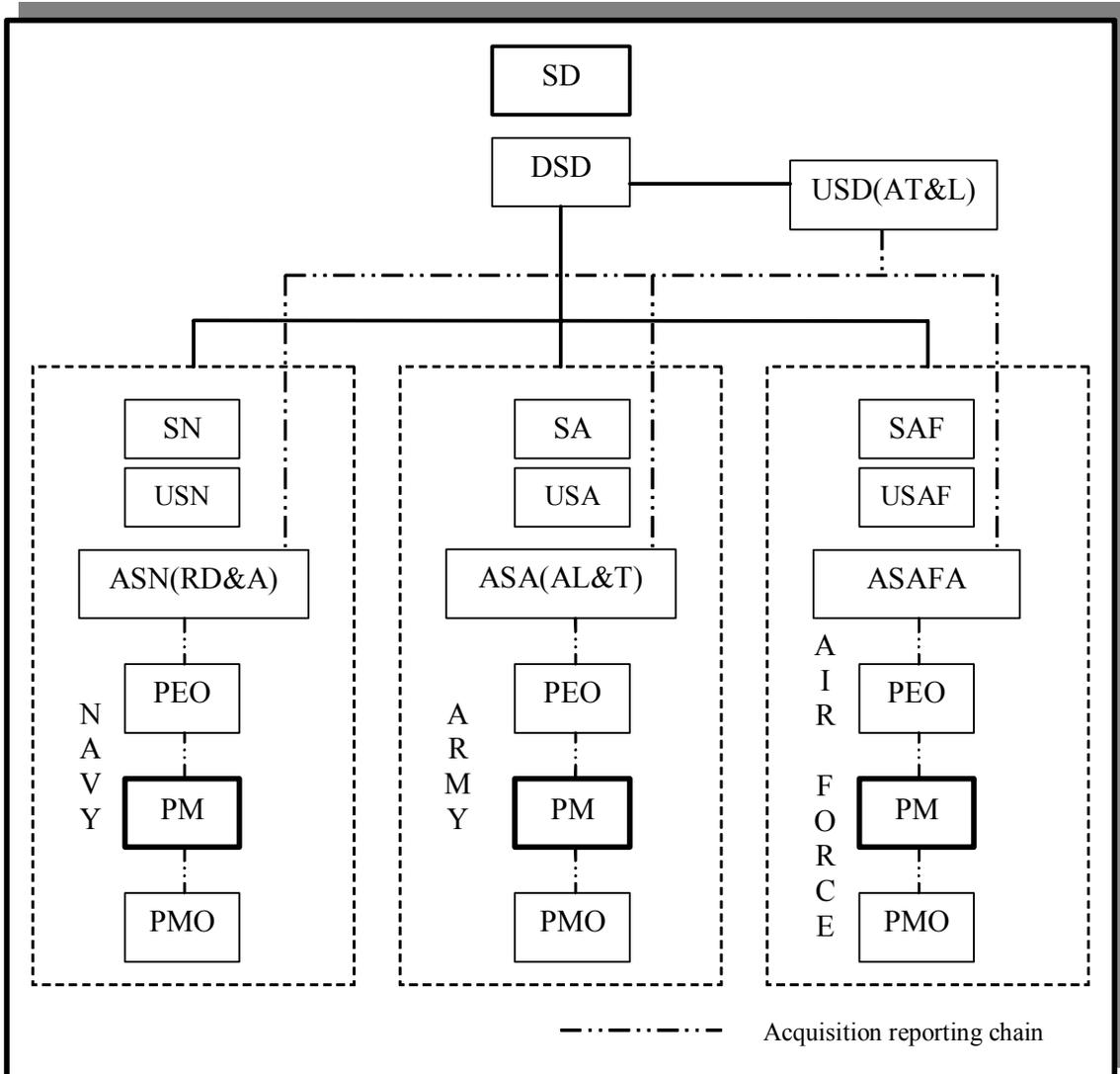
Figure 6.   The U.S. DoD Project Management Reporting Relationship

As shown in Figure 6, for major programs that are designed for OSD oversight, there are only two levels of management between the PM and the USD(AT&L).

Project managers in the U.S. DoD are appointed to acquire all major warfighting systems. Additionally, PMs can be appointed not only for acquisition of new systems but also for the modernization or overhauls of existing systems, e.g., aircraft carrier overhauls. PMs report to Program Executive Officers (PEO). PEOs are responsible for particular warfighting systems, e.g., in the Air Force: PEO Tactical and Airlift Programs is responsible for all programs related to tactical and transportation aircraft; in the Navy:

PEO Submarines is responsible for all contracts related to submarines. PEOs report directly to Service Acquisition Executives (SAE). In the Navy, the service acquisition executive is the Assistant Secretary of the Navy for Research, Development & Acquisition (ASN(RD&A)); in the Army the service acquisition executive is the Assistant Secretary of the Army for Acquisition, Logistics & Technology (ASA(AL&T); in the Air Force, the service acquisition executive is the Assistant Secretary of the Air Force for Acquisition (ASAFA). SAEs report to the Secretaries of the Services. Finally, Secretaries of the Services report directly to the Secretary of Defense. For acquisition matters, the SAEs report to the USD(AT&L).

C.   PROJECT MANAGER'S TASKS AND AUTHORITY

The primary task of a project manager is to ensure that the project achieves specified up-front project goals.

> *Typical duties of the project manager (…) include establishing program objectives; developing [user] requirements [into product](…); scheduling, estimating, budgeting, and controlling process; coordinating project planning with the contracting officer[23].*

One of the main objectives for the PM is to mitigate risks associated with the project.

The PM takes responsibility for the entire project. However, a direct authority PM retains only over members of his Project Management Office (PMO). In the case of other personnel involved in the project his authority is indirect. This comes from the fact that the PM must cooperate with different people and within different organizations during the life of the project. He must collaborate with final users during acquisition planning and evolution of the requirements; technical specialists during the composing of specifications; the contracting officer across all stages of the acquisition process; contractors in post-award phase, etc. Generally speaking, the PM very often does not have direct authority over the workforce assigned to the project. He must work through negotiations with functional supervisors of his team members. He must achieve a willing

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[23] R.M. Engelbeck, *Acquisition Management*, p.45

agreement to cooperate. Although the PM's direct authority over members of his IPT is limited, in reality nobody wants to dispute him. There are two basic reasons: first, the PM controls the funds of the project, and second he has a powerful reporting chain-of-command. Project management in the U.S. DoD is based on the Integrated Product Teams and matrix organization.

> *The PM's task is to discipline the acquisition process and establish a climate and a communication protocol that will ensure that the entire integrated product team works together.*[24]

D.   CONCLUSION

Project management in the U.S. has worked successfully for a long time. The U.S. Department of Defense workforce has gotten much experience in managing not only sophisticated and expensive programs but also in managing small projects. PMs in the U.S. DoD are supported and controlled by many organizations, including the USD (AT&L), SAE, PEO, System Development Commands (SDC) and the Contract Management Agency (DCMA). The U.S. Acquisition Law and Regulations evolved to support U.S. acquisition. Similarly, Polish Procurement Law must be shaped to support Polish Defense Acquisition.

However, there is no need to adopt all the American solutions to the Polish Armed Forces. Rather, the Polish system must be designed to work well for Poland. The PAF does not need to, for example, separate the acquisition processes for each Service. Maybe it would be more efficient to centralize and to consolidate the acquisition process in order to minimize administrative costs, obtain better control of the projects to avoid duplication of efforts, and finally to build a desirable level of integrity and transparency. It must be recognized that Poland allocates considerably less funds on national defense than the U.S does. For comparison, the U.S. DoD spends an average of $150 billion

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[24] R.M. Engelbeck *Acquisition Management*, p.46

annually on acquisition,[25] while the whole modernization and restructuring of the Polish Armed Forces in the years 2002 to 2006 will cost no more that $22 billion.[26]

On the other hand, individual projects, Polish and American, may be of similar size. Hence, the acquisition workforce in Poland might benefit from some U.S. practices, such as project management. Matrix organizations and Integrated Product Teams that include multi-disciplinary cooperation could also be very beneficial in managing acquisition projects in the PAF.

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[25] David M. Walker testimony before the Subcommittee on Readiness an Management Support, Committee on Armed Services, United Stated Senate, GAO-03-573T

[26] The Act of May 25, 2001 on *The Technical Restructuring and Modernization of the Polish Armed Forces in the Years 2001-2006*

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IV. DISCUSSION OF PRESENT PROCEDURES FOR MAJOR SYSTEMS ACQUISITION IN THE POLISH ARMED FORCES

A. INTRODUCTION

Major warfighting systems acquisition in Poland is accomplished through cooperation of three state authorities: the legislative branch, the executive branch and the Polish Armed Forces (PAF).

The Polish legislative branch that consists of the Sejm (the lower chamber) and Senate (the upper chamber) is involved in major systems acquisition in at least three ways. First, the legislature passes primary acts that settle public procurement procedures. Second, for all contracts with an estimated value exceeding PLN 100,000,000 ($24 M), special multi-year programs are established and passed in the legislature. Finally, for contracts below this threshold, the legislature passes or rejects the yearly MoND's budget.

The Polish executive branch is represented by the Council of Ministers and the President. The Council of Ministers effects major systems acquisition by assigning financial resources in the yearly budget. The President on the other hand can sign or veto yearly budgets.

The Polish Armed Forces consist of the Ministry of National Defense (MoND) and three services: Land Forces, Navy and Air Forces. The MoND, based on inputs from the Services, shapes the direction of development of the Armed Forces, prepares and executes MoND's yearly budget, and practically realizes the acquisition process.

A discussion of the present procedures for major systems acquisition in the Polish Armed Forces requires two steps. The first step is to analyze Polish procurement law; the second step is to trace all stages of the acquisition/contracting processes for major warfighting systems.

B. POLISH PROCUREMENT LAW AND OTHER LEGISLATIVE ACTS THAT SHAPE MAJOR SYSTEMS ACQUISITION FOR THE POLISH ARMED FORCES.

Polish procurement law is based on two main legislative acts: the Act of June 10, 1994 on Public Procurement and the Act of November 26, 1998 on Public Finance. These two primary acts are supplemented by several other legislative acts that more precisely settle selective procedures and policies that apply to federal procurement as a whole or that apply solely to MoND. The most important of them in the aspect of major systems acquisition are the Act of September 10, 1999 on Compensate (Offset) Agreements and the Act of May 25, 2001 on The Technical Restructuring and Modernization of the Polish Armed Forces in the years 2001 to 2006.

1. The Act of June 10, 1994 on Public Procurement[27]

The Act of June 10, 1994 on Public Procurement is the most important act for the Polish public procurement authorities. All public contracts of the value exceeding EUR 3,000 must be awarded in accordance with this act. The general idea of the act is explained in its Article 1:

> *This Act determines the principles, forms and procedures for awarding public procurement contracts, the appropriate organs of government in matters related to public procurement, and procedures for reviewing protests and appeals filed during the course of procurement proceedings.*

The act was based on the following principles of conducting public procurement: transparency of tendering procedures, fostering competition, economic use of means, equal treatment of tenderers, clear requirements for participation and clear contract award criteria.

According to the Act, public contracts in Poland can be awarded under six following procedures: unlimited tendering, restricted tendering, two-stage tendering, negotiations while retaining competition, request-for-quotation or single-source procurement. These procedures are specified in the act as follow:

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[27] The Office of Public Procurement web site, http://www.uzp.gov.pl/, August 2003

a. Unlimited Tendering

Unlimited tendering is a primary procedure for awarding public contracts. Under this procedure *proposals can be submitted by all contractors who wish to participate in tendering.*

b. Restricted Tendering

Restricted tendering is a procedure in which *tenders may be submitted only by the suppliers or contractors admitted to the participation in the tendering and invited by the procuring entity to submit tenders.*

This procedure may be applied only when the value of the contract does not exceed EUR 30,000 or the nature of the contract limits the number of contractors able to perform a given procurement.

Others procedures for awarding public contracts can be applied only under special conditions specified in the act and are explained as follows.

c. Two-Stage Tendering

Two-stage tendering is a procedure in which *the suppliers and contractors submit initial tenders in the first stage without specifying their price.(…) The second stage is limited to selected tenderers and may be preceded by the negotiations between the procuring entity and tenderers.*

d. Negotiations with Retaining Competition

Negotiations with retaining competition is *a procedure in which the procuring entity negotiates the terms of a public procurement contract with such a number of suppliers or contractors which is sufficient to ensure the selection of the best offer, competition and efficient proceedings, however, not less than three, unless due to the specialized nature of a procurement there are only two suppliers or contractors able to perform the procurement.*

e. Request for Quotation

Request for quotation procedure *may be used when procurement is for the supply of readily available goods or services of established quality standards, and the procurement value does not exceed the equivalent of EUR 130,000.*

f. Single Source Procurement

Single source procurement is *a public procurement procedure in which the procuring entity awards a procurement contract after negotiating with only one supplier or contractor.*

However, the act also permits awarding contracts for armament or military equipment under special rules. The special rules may consist in renouncing of the provisions of the Act relating to the requirement of publication of notices, time limits, appeals, the requirement of approving a public procurement procedure other than unlimited tendering by the Chairman of the Office of Public Procurement, openness of proceedings, domestic preferences and premises for the application of restricted or two-stage tendering.

The Act of June 10, 1994 on Public Procurement also describes publicizing the requirement, responsibilities of the Office of Public Procurement and procedures for reviewing protests. Some of them will be mentioned in my analysis of the different stages of the acquisition process.

2. The Act of November 26, 1998 on Public Finance

The act defines concepts, policies and procedures related to public financial management. It specifies rules and principles of public financial audit, review, budget preparation, passage and execution, and finally specifies the penalties for violating those rules. It defines the organizational entities involved in public financial management and their primary responsibilities. The act also defines the concept of multi-year programs that can be established by the Council of Ministers and passed by legislature for contracts of the value exceeding PLN 100,000,000 ($24 M). An example of such a program is the Act of June 22, 2001 on establishment of a multi–year program to equip the Polish Armed Forces with a multi-functional fighter aircraft.

3. The Act of September 10, 1999 on Compensate (Offset) Agreements

The act established the requirement for foreign contractors that were awarded a contract for a warfighting system of the value exceeding EUR 5,000,000 to invest at least the same amount of money in the Polish industry. At least half of this investment should be made in the Polish military industry. The act specifies additionally that the contract for

a warfighting system becomes valid only when it is accompanied by the above-mentioned compensate (offset) agreement.

4. The Act of May 25, 2001 on The Technical Restructuring and Modernization of the Polish Armed Forces in the Years 2001 to 2006.

The act settles the main directions of the transformation and technological modernization of the Polish Armed Forces in the years 2001 to 2006 and defines the financial resources necessary to realize these tasks. It specifies several major weapon and communication systems that will be modified or replaced in that period. The main objective of this act is to enable one-third of the Polish Armed Forces to accomplish full interoperability with NATO members in the aspects of armament, mobility and capability to conduct warfare in every climatic and operational condition.

C. ACQUISITION AND CONTRACTING PROCESSES IN THE POLISH ARMED FORCES[28]

The acquisition process for major warfighting systems for the Polish Armed Forces consists of six main stages: Requirements Determination; Acquisition Planning; Feasibility Study;[29] Product Development and Demonstration; Initial Production and Testing; and finally Serial Production. Although the overall organization of the acquisition process is very similar to the American model, many differences exist in the implementation of the process. A general overview of the acquisition process in the Polish Armed Forces, including authorities responsible for conducting the particular acquisition stage, is depicted in Figure 7.

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[28] This chapter was written based on an interview with 1Lt Marek FLIS former employee of the Armament Policy Department and the final report of The National Acquisition Strategy Team that visited Poland in the year 2000.

[29] Definitions of "Feasibility Study," "Product Development" and "Serial Production" in regard to the acquisition process in the PAF were first used by the National Acquisition Strategy Team.

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│          ACQUISITION PROCESS IN THE POLISH ARMED FORCES                   │
│                                                                           │
│  ┌──────────┐ ┌──────────┐ ┌──────────┐ ┌──────────┐ ┌──────────┐ ┌──────────┐ │
│  │Requirements│ │Acquisition│ │Feasibility│ │ Product  │ │ Initial  │ │          │ │
│  │Determination│ │ Planning │ │  Study   │ │Development│ │Production│ │  Serial  │ │
│  │          │ │          │ │          │ │    &     │ │    &     │ │Production│ │
│  │          │ │          │ │          │ │Demonstration│ │ Testing  │ │          │ │
│  └──────────┘ └──────────┘ └──────────┘ └──────────┘ └──────────┘ └──────────┘ │
│        AUTHORITIES PARTICIPATING IN THE ACQUISITION STAGES                │
│  ┌──────────┐                                                             │
│  │ SERVICES │                            ┌──────────┐                     │
│  └──────────┘                            │   APD    │                     │
│  ┌──────────┐                            └──────────┘                     │
│  │  MoND    │  ┌────────┐ ┌────────┐ ┌────────┐ ┌──────────┐ ┌────────┐   │
│  └──────────┘  │  APD   │ │  APD   │ │  APD   │ │ Military │ │  PD    │   │
│  ┌──────────┐  └────────┘ └────────┘ └────────┘ │Institutes│ └────────┘   │
│  │ GS (P-5) │                                   └──────────┘             │
│  └──────────┘                            ┌──────────┐                     │
│  ┌──────────┐                            │ SERVICES │                     │
│  │   BD     │                            └──────────┘                     │
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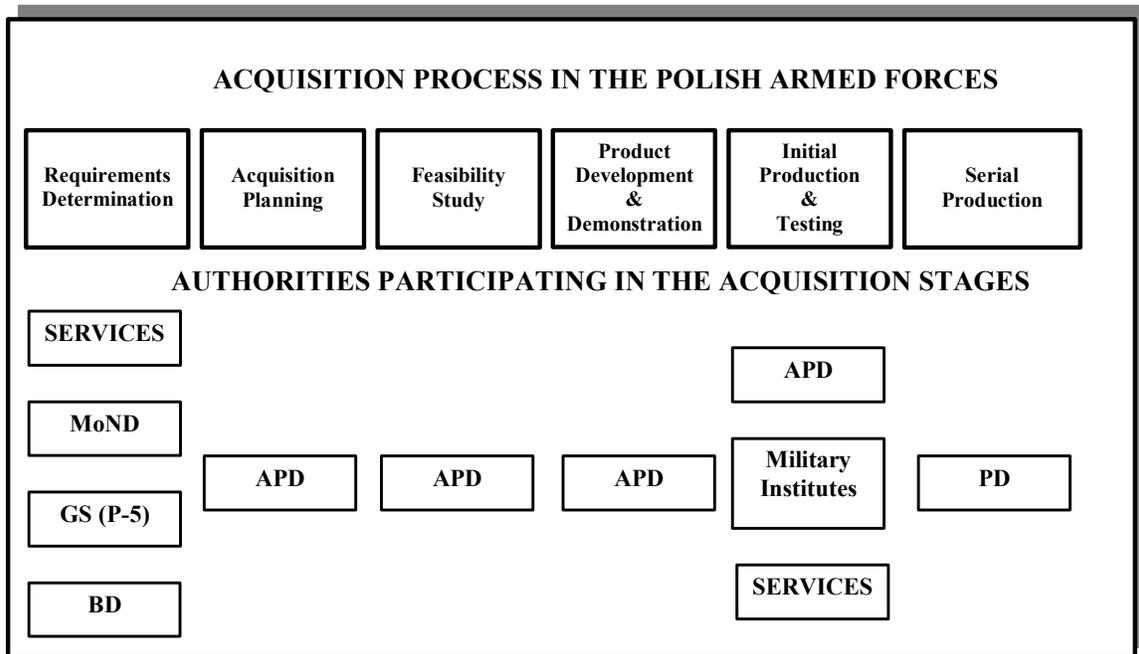
Figure 7.   Acquisition Process in the PAF

1.   Acquisition Process

a.   *Requirements Determination*

Requirement determination begins in the Services: Land Forces, Air Force and Navy. The Services Commanders based on present needs and deficiencies prepare the statement of requirements for a new warfighting system. This statement of requirements, accompanied by adequate funds and the desired schedule, is forwarded through the Minister of National Defense to the General Staff (GS) P-5 (Strategic Planning Directorate) in order to verify if it complies with the National Military/Security Strategy. The P-5 makes a recommendation to the Minister of National Defense who makes the final decision and after approval forwards the statement of requirements to the Armament Policy Department (APD). The APD initiates the acquisition planning process. The project funds are generally provided by the Services. However, the Services must include all acquisition expenditures in the yearly budget proposal for the incoming fiscal year that is forwarded to the Budget Department. The Budget Department (BD) based on the present needs and financial resources of the MoND, approves or rejects the acquisition expenditures. The only exceptions to this procedure are multi-year programs.

Multi-year programs' funds are appropriated by the legislature and are approved on the yearly basis by the Council of Ministers.

b. *Acquisition Planning*

The acquisition planning process takes place entirely in the APD. It consists of two main stages: market research and development of specifications. Market research is conducted by the APD or can be outsourced. Based on market research and specification analysis, the Director of the APD makes a final determination whether the warfighting system must be developed from the beginning or if a ready product (that is, commercial or non-developmental) can be acquired in the military/civilian market.

c. *Feasibility Study*

If the product can be acquired on the market, then the whole acquisition process is immediately transferred to the Procurement Department (PD), which continues the acquisition process and activates serial production. If the product must be developed, then the APD begins a Feasibility Study. The Feasibility Study encompasses development of models and prototypes. It is conducted to be assured that there are capabilities in the market to build a warfighting system that fulfills the user's requirements.

d. *Product Development & Demonstration*

After successfully completing the Feasibility Study, the APD initiates a Product Development stage. The Product Development stage consists of research and development and component-advanced development. During this stage, the final product must be developed and demonstrated to the APD.

e. *Initial Production and Testing*

When the final product is developed, the Director of the APD makes a decision to begin low-rate initial production. The trial-batch is forwarded to the APD, which conducts product testing in military technological institutes and coordinates product testing by the final users. If the product meets all the user's requirements, safety precautions, generally all the product specifications, the Director of the APD decides to initiate serial production and transfers the warfighting system to the PD.

f. Serial Production

Serial Production is supervised by the Procurement Department. The PD becomes the link between the final users and contractor during the whole production, and operating and maintenance phases. The PD supervises the delivery of the system to the users, arranges spare parts supply and conducts quality control.

2. Contracting Process

The contracting process in the PAF consists of the following stages: Development of Specifications, Solicitation, Source Selection, Contract Award and Contract Administration. A general overview of the contracting process in the Polish Armed Forces including authorities responsible for conducting particular contracting stage is shown in the Figure 8.

CONTRACTING PROCESS IN THE POLISH ARMED FORCES

Development Specifications	Solicitation	Source Selection	Contract Award	Contract Administration	Contract Closeout

AUTHORITIES PARTICIPATING IN THE CONTRACTING STAGES

APD

Feasibility Study, Product Development, Initial Production

SERVICES

APD	APD	APD	APD	APD

Military Institutes

Serial Production

| Military Schools	PD	PD	PD	PD	PD

Figure 8.   Contracting Process in the PAF

As shown in Figure 8 the APD conducts contracting activities for the R&D, the Feasibility Study and the Product Development. The PD, on the other hand, conducts contracting activities for all commercial or non-developmental products that are available in the market and contracting activities associated with serial production. All contracting

phases such as solicitation, source selection, contract award and contract administration are accomplished in the same way and according to the same law and regulations.

a. *Development of Specifications*

Specifications, as mentioned earlier, are developed by the APD. The APD is responsible that all final users' requirements are properly addressed in the product specifications. Technological expertise during the development of specifications is provided by the PAF technological institutes and military educational centers such as the Military University of Technology or the Military School of Communications Systems.

b. *Solicitation*

The solicitation process is conducted according to procedures specified in The Act of June 10, 1994 on Public Procurement. The act specifies that all contracts of estimated value above EUR 30,000 must be displayed in public places and on the website, they must be published in the Bulletin of the Office of Public Procurement, and they might be published in the press. Additionally, all contracts of estimated value above EUR 130,000 must be published in the Official Journal of European Communities.

Although the primary procedure for the award of public contracts is unlimited tendering, most of the contracts for major warfighting systems are expected to be awarded under restricted tendering or single-source procurement. The procuring entities may award a procurement contract under a procedure other than unlimited tendering, exclusively under the circumstances specified in the Act. Additionally, all the applications of a procedure other than unlimited tendering for public procurements of the value exceeding EUR 200,000 shall be subject to consent by the Chairman of the Office of Public Procurement.

c. *Source Selection*

The main principle of source selection is precisely articulated in article 16 of the act in the following words: a *procuring entity is obligated to treat all competitors applying for a public procurement on equal terms and to conduct procurement proceedings in a manner that ensures fair competition.*

Source selection is conducted by the tendering committee, which can be of a permanent nature or can be appointed to conduct particular proceedings. The committee

is responsible for the opening of tenders, fair evaluation of tenders, exclusion of tenders that do not fulfill specifications and finally fair selection of the most advantageous tender. Polish procurement law and regulations do not require from the procurement authority to prepare a source selection plan. However, the U.S. experience in that area shows that a precise source selection plan and process structure could provide many benefits during this stage.

d. Contract Award

The best offer is selected based solely on the offer evaluation criteria set forth in the specification of the contract. Evaluation criteria can encompass: price, technical parameters, functional value and completion date. Each of these criteria has assigned percentage value. Contracts are awarded taking into account domestic preferences. Domestic suppliers' final price is reduced by 20%. Additionally there is a requirement that the value of domestic raw materials is not lower than 50% of the total value of the contract. In order to minimize corruption during the contract award process the subjective evaluation criteria of contractors such as past performance, financial situation, or management are not taken into consideration.

e. Contract Administration

Contract administration is conducted solely by the PD. Unfortunately this is the weakest stage of the Polish acquisition process. Polish procurement law does not specify any contract administration requirements. All contract modifications, contractor surveillance or contract closeouts are accomplished in accordance with commercial law.

D.   CONCLUSION

The Polish Armed Forces have undergone major transformation since the fall of the Berlin Wall and dissolution of the Warsaw Pact. Serious reduction of the Armed Forces has been accompanied by technical restructuring and modernization of several major weapon systems that must meet the new and rigorous standards of NATO. Successful and effective management of the acquisition of these major systems seems to be crucial to supply and to support the transformation of the Polish Armed Forces.

However, there is no centralized management across all phases of the acquisition and contracting processes in Poland at the moment. Different military and civilian authorities dominate different phases of the processes. There is an urgent need to implement project management strategy in order to consolidate the efforts of all the branches and to ensure a successful transformation of the Polish Armed Forces.

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V.   DISCUSSION OF COSTS & BENEFITS ASSOCIATED WITH IMPLEMENTING PROJECT MANAGEMENT IN THE POLISH ARMED FORCES

A.   INTRODUCTION

Implementing a fundamental change in doing business always requires certain up-front costs. These costs could be tangible and intangible. For example tangible costs are investment in Information Technology (IT) to better manage inventory or hiring additional workforce. Intangible costs could be confusions and misunderstandings caused by structural reorganization.

People generally oppose change. They subconsciously pursue the status quo. They are afraid that the change will deprive them of work, or will require additional skills and knowledge, or more specifically will threaten their present position in the organization. The change also requires time. Sometimes even a year or more must pass before the benefits of the change will outstrip its costs.

There are unfavorable circumstances to reorganizing the acquisition process in the PAF at the moment. The Act of May 25, 2001 on the Technical Restructuring and Modernization of the Polish Armed Forces in the years 2001 to 2006 requires that the number of soldiers be decreased by 25% by the end of 2003. Fifty thousand soldiers have already lost or will lose their careers in that period. The MoND has a reluctant attitude to all new ideas that increase instead of reduce the number of personnel in the PAF at the moment.

However, the PAF procurement system requires transparency and integrity. Recent procurement projects such as the multi-year program to equip the Air Forces (AF) with a multi-functional fighter aircraft or the project to equip the Land Forces (LF) with the Armored Personnel Carrier have caused many controversies and much speculation in the mass media. Additionally, three high ranking officers from the Command of the Land Forces were recently accused of dishonest dealings during the solicitation and contract award of four projects. The PAF must rebuild its credibility in the eyes of the taxpayers.

This chapter illustrates that the benefits of implementing of project management will outstrip the costs in the future. This chapter also answers the following question:

Why should the PAF implement the Project Management Policy?

B. COSTS

There are certainly some costs associated with implementing the project management policy. These costs can be divided into tangible and intangible costs. Among, the tangible costs, we can list management costs and educational and training costs. Among, intangible costs, we can list a blurred chain-of-command and reporting system, possible fractures between PMs and functional chiefs, and confusion and misunderstandings caused by fundamental changes in doing business.

1. Management Costs

Management costs would be associated with the slightly increased number of personnel, the necessity of renting new offices and equipping them with appropriate hardware and software.

2. Educational and Training Costs

Educational and training costs would consist of training project managers and PMO members. In the initial period, the expense would entail the cost of sending the workforce for education and training to the U.S. In the subsequent period, it would be the cost of establishing education and training courses in Poland.

3. A Blurred Chain-of-Command and Reporting System

Project management offices' members would be forced to work for "two bosses." In essence, they would be subordinate to their functional bosses, and would also report to project managers. As a matter-of-fact, employees in the PAF are evaluated by their functional supervisors on a yearly basis. That would provide incentives for the employees to give higher priority for tasks received from the functional supervisors than from the project managers. However, there are two simple solutions that could mitigate this disadvantage. First is securing the right for project managers to provide comments to the yearly evaluation report of the employee. Second is establishing financial incentives for

effective participation in the projects, e.g., as a percentage of the monthly salary. This financial incentive would lie in the project manager's hands.

4. Possible Fractures between PMs and Functional Chiefs

There could be potential fractures between PMs and functional chiefs. These would result from different priorities for the PMs and the functional chiefs. The priority for the functional chiefs is always the work inside his department. The priority for the project manager is his project. These priorities could sometimes be contradictory.

5. Fundamental Change in Doing Business

The fundamental change in doing business could cause confusion and misunderstandings, especially in the beginning of the transformation. Contractors, for example could be confused about who prepares specifications, who is responsible for solicitation, and who is the appropriate point of contact. This confusion could negatively impact the transparency and responsiveness of the system, as well as communication between procuring authorities and suppliers.

C. BENEFITS

The benefits associated with implementing of the project management policy are generally intangible. Some of the benefits would be visible from the beginning while others would require more time to prove their real value.

1. Mitigation of "Tragedy of Common"

One of the most important benefits of the project management is mitigation of the phenomenon of "tragedy of common."

The "tragedy of common" is a term widely used in the economics to describe people who care more about their own resources, tasks or businesses than commonly owned ones. The Twentieth Century, using vivid example of socialistic countries, forcibly proved that private management of the business is much more effective than common management. Because there is no centralized management of the acquisition process in the PAF at the moment, the major systems acquisition seems to be "commonly owned."

Any procurement authority in the Polish MoND is responsible for the entire major system acquisition.

Additionally another important factor associated with the "tragedy of common" is shared responsibility. A person who is solely responsible for a particular task cares about it much more than a person who is only a member of the group responsible for the same task. The reason is that in a group you can always try to transfer responsibility to another person saying: "It is not my job" or "This is his responsibility, not mine."

When you are the only person responsible for a particular task, you derive full benefits of it, but you are also responsible for all its misfortunes. The project manager should become the authority that gathers responsibility for major systems acquisition into his hands.

2.   Increased Transparency and Integrity

The Project Manager would act as the representative of his project. He would become the first and most important point of contact for every aspect of the project. He would always be up-to-date with progress of the project because every matter related to it would be within his area of responsibility. The PM would ensure transparency of the project through efficient information exchange between all stakeholders and mass media. He would also ensure that that all phases of the acquisition process are conducted in the light of integrity and fairness, and according to present procurement procedures and law.

3.   Centralized Decision-Making (Better Executive Control)

The project manager would ensure a centralized authority. As described in Chapter IV, the acquisition system in the PAF is highly fragmented at the moment. Different stakeholders dominate in different phases of the acquisition system. The PM would consolidate the efforts of these different branches and secure successful accomplishment of his project goals. He would be the authority that sets project milestones, supervises progress of the project, and makes all important decisions related to the project. He would be the only person that supervises the project from the beginning to the end and ensures efficient executive control across all phases of the acquisition process. However, the centralization should not go too far. Centralized planning and

authority with decentralized execution by an empowered workforce can provide amazing results.

Moreover, in order to be effective, the PM must control the funds of the project and have authority to select his PMO members. He must be experienced, well educated and devoted to his project.

4. Streamlined Acquisition Process

The PM would streamline the acquisition process. He would facilitate a quick information exchange between the stakeholders and stimulate progress of his project. The PM would be also responsible for managing the schedule of his project, including critical-path determination and analysis.

5. Better Communication and Coordination Between Stakeholders

Stakeholders could have different opinions about the particular aspect of the project. These opinions could be opposing but very often each of them could provide some important insights. The PM would be the authority who facilitates the communication and coordination between the stakeholders. He would organize and conduct the stakeholders' meetings on a regular basis and derive benefits from such tactics as brainstorming and teamwork.

Appropriate communication protocol between project stakeholders would reduce revisions, increase responsiveness to project changes and uncertainties, ensure better understanding of roles and responsibilities, and establish long-term relationships with contractors.

6. Proactive vs. Reactive Approach

A reactive approach dominates in major systems acquisition for the PAF, at the moment. Procurement authorities seem to focus on countermeasures to the existing problems instead of focusing on planning, forecasts and predictions. The PM would be responsible for maintaining a proactive approach in major systems acquisition. He would focus on precise planning, forecasting and constantly analyzing his project's uncertainties.

7. Efficient Acquisition Planning

Acquisition planning for major systems acquisition in the PAF is realized by the APD. However, market research that is conducted in the department focuses on the market surveillance. Market investigation is conducted sporadically and most often is outsourced. After implementing of the project management, market research and especially market investigation would lie in the hands of the project manager.

The PM would also supervise the development of specifications. He would be responsible for close cooperation with the final users and the General Staff and make sure that all users' requirements are appropriately addressed in the specifications.

Additionally, during the acquisition planning, the PM would conduct the stakeholders' analysis that presently seems to be underestimated and neglected by the procurement authorities. During this analysis, he must link the projects goals and objectives to the stakeholders' needs. Finally, during acquisition planning, the PM would secure an effective cascade of objectives by establishing clear stakeholders' responsibilities, determining the project's milestones and performance metrics, estimating the project life-cycle costs, and developing of a realistic project schedule.

8. Better Funds Control and Allocation of Resources

The PM should control his project funds in order to be effective. He should actively cooperate with the Services and the Budget Department during the funding process, provide cost estimation and conduct life-cycle costs analysis. The PM would be accountable to the parliament, the BD and final users for his project funds. Being always up-to-date with project needs, the PM would ensure better funds control and allocation of resources.

9. Life-Cycle Cost Savings

The PM would be responsible for life-cycle cost analysis. Initially, during the acquisition planning, the PM would analyze his project life-cycle costs, taking into consideration the available funds. Through market investigation, he would explore best technology and best practices in the market and in the area of logistic support, assess the costs of all life-cycle phases of his project including system disposal, and provide recommendations to the final users. Afterward, during the source selection, the PM

would compare and assess the contractors' proposals in order to maximize life-cycle cost savings.

10.   Risk Mitigation

Risk mitigation would be one of the most important benefits of implementing a project management policy in the PAF. Risk management would be planned, assessed and prioritized from the beginning of the acquisition process. The PM would be responsible for choosing appropriate risk countermeasures and risk handling techniques. He would also conduct constant risk monitoring and risk documenting.

11.   Improved Total Quality Management

Implementing a project management policy in the PAF would improve the total quality management. Project managers would ensure the final users' satisfaction and the different stakeholders' involvement. He would continue improvements of the acquisition process, long-term relationships with suppliers, and constant quality control by comparing a project's outcomes with performance measures.

12.   Improved Documentation and New Database Systems

The project manager would be responsible for accurately documenting of his project, including preparation and submission of the project's reports, and maintaining a contractors' performance evaluation and lessons-learned database systems.

13.   Conformity with ISO 15288

Implementation of the project management policy in the PAF would enable conformity of the acquisition system in the Polish MoND with ISO 15288. This International Standard, as mentioned in Chapter II, characterizes life-cycle processes for managing and performing the conception, development, production, utilization, support and retirement of systems. The standard already has been put into practice by many civilian and federal organizations. The Polish Armed Forces must eventually implement the standard within its own organizations. Presently the standard may be considered an option, but in the near future it may become a requirement.

D.   SUMMARY OF COSTS AND BENEFITS

Most important costs and benefits associated with implementing a project management policy in the PAF are summarized in Table 2.

Costs	Benefits
Slightly increased management costs	Mitigation of "tragedy of common"
Educational & Training costs	Increased transparency and integrity
Unclear chain-of-command and reporting system	Centralized decision making (better executive control)
Possible fractures between PMs and functional chiefs	Streamlined acquisition process
Confusion and misunderstandings caused by fundamental change in doing business	Better communication and coordination between stakeholders
	Proactive vs. Reactive approach
	Efficient acquisition planning
	Better funds control and allocation of resources
	Life cycle cost savings
	Risk mitigation
	Improved Total Quality Management
	Improved documentation and new database systems
	Conformity with ISO 15288

Table 2.   Summary of Costs and Benefits of Project Management Policy

E.   CONCLUSIONS

Discussion of costs and benefits associated with implementing the project management policy in the PAF showed that benefits would outstrip costs. Although the implementing of the policy would require some costs associated with training the workforce, I recommend implementing project management policy. The PAF requires a

transparent and integrated acquisition system. The public is interested in the way the major warfighting systems are acquired. A project management policy would help rebuild the credibility of the procurement system and make effective use of taxpayers' money.

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VI.   ANALYSIS OF POSSIBLE ALTERNATIVES FOR THE POLISH ARMED FORCES

A.   INTRODUCTION

The discussion of the present procedures for major systems acquisition that was discussed in Chapter IV indicated that the acquisition process in the Polish Armed Forces is highly fragmented. Different civilian and military authorities dominate different stages of the acquisition process. Determining requirements begins in the Services; specifications are created within the Armament Policy Department; financial resources are determined through cooperation of the Services, the Budget Department, the Council of Ministers and legislature; acquisition planning is conducted entirely within the APD and finally procurement functions and contract administration are the responsibility of the Procurement Department. There is an urgent need to establish an authority that would consolidate the efforts of all the people who work on each project. This authority would ensure a successful achievement of the project's goals and the most effective use of public funds. Such an authority is the project manager.

There are many possible alternatives for establishing project management structures in Poland. Depending of the size of the project, different policies would govern placement within the MoND or Office of Public Procurement, the number of personnel that would be involved, the PMO members' job descriptions or specialties, and whether personnel would be "full-time" or "part-time" PMO members.

Based on the review of the American model (Chapter III), the discussion of the present procurement procedures in the PAF (Chapter IV) and the interviews with members of National Acquisition Strategy Team (NAST) from NPS who visited Poland in the year 2000, I propose three possible alternatives for establishing project management structures in Poland.

B. ALTERNATIVE I - LEAD ROLE OF ARMAMENT POLICY DEPARTMENT

The NAST proposed implementation of project management policy on the strength of the APD. This solution suggests establishing project management structures based on the present workforce and organization of the APD. According to NAST's proposal, the Director of the APD would appoint a PM who, in turn, would choose his team members, taking into consideration *technical skills, experience and ability to work cooperatively.*[30] However, the PM would be obligated to coordinate his personnel choices with functional chiefs of the department's divisions.

Project management offices would consist of 5 to 15 members - mostly technicians, plus financial manager, logistician, planner and others as necessary. Because the main goal of this solution is implementing a project management policy without significantly increasing the number of personnel in the department, PMO members would have to be "carved" from the present workforce. The only new person would be the project manager.[31]

While working in a PMO, members would work for "two bosses," and the PM would have to depend on the matrix organization. Team members would have to work in two directions or "planes": vertical - within functional divisions and horizontal - within the PMO. Horizontal communication within the APD would be a key to success in projects management. The PM would need to ensure a good climate and communication protocol within his team in order to achieve the full benefit of "teamwork".

Under this alternative, PMO members would report to both their functional chief and the project manager. The PM would report to the Director of the APD who, in turn, would report to the Secretary of State. Finally, the Secretary of State would report directly to the Minister of National Defense.

The chain-of-command and overall organization of the project management organization is depicted in Figure 9.

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[30] Proposed Blueprint for Polish National Acquisition Strategy, 01/22/03, p.12
[31] Proposed Blueprint for Polish National Acquisition Strategy, 01/22/03, p.11-12
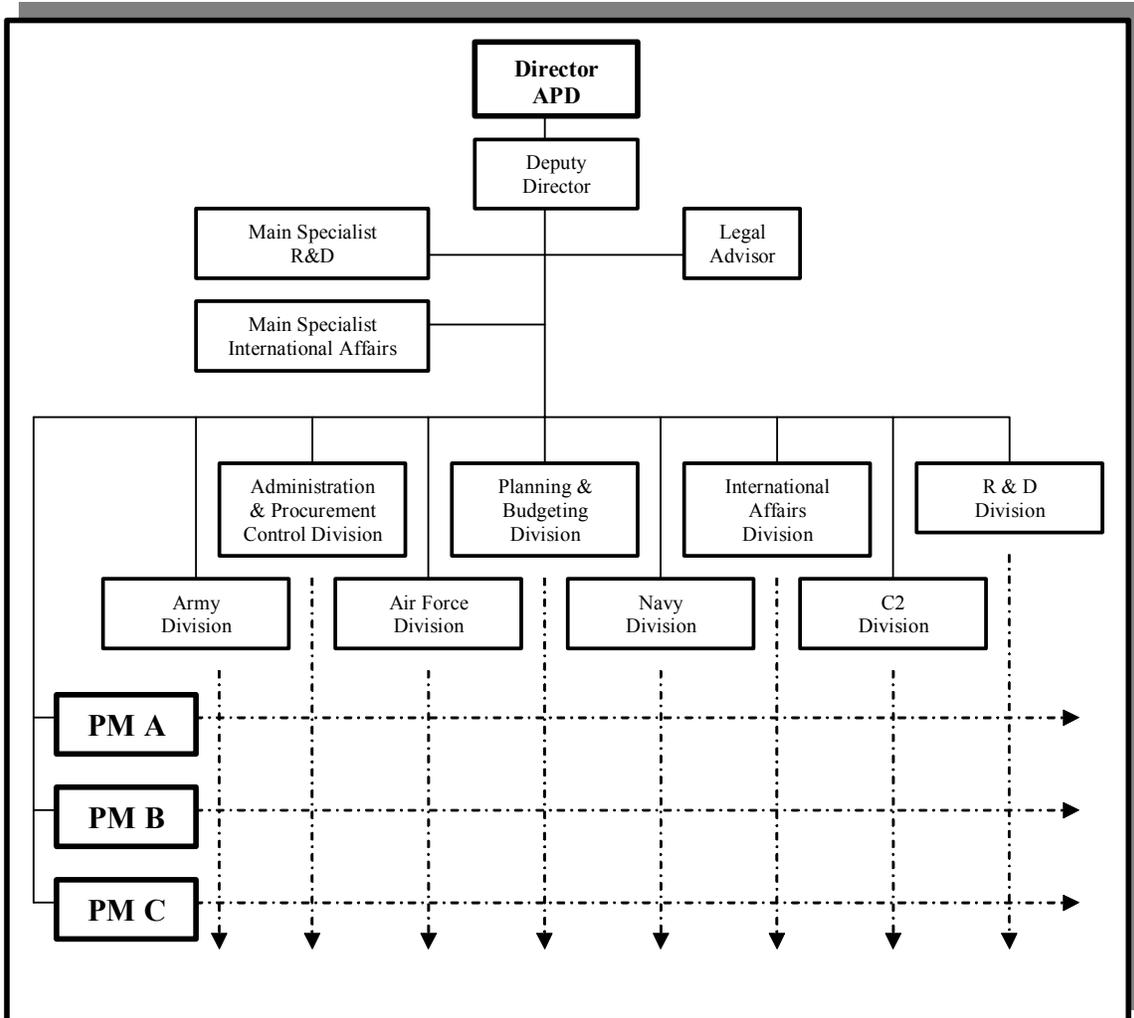
Figure 9.   Project Management in the APD

I suggest that project management policy under this alternative only fits R&D projects and "feasibility studies," unless the responsibilities of the APD change. The main reason is that only these projects are initiated, conducted and closed within the APD. In case of projects that include serial production or purchase fully-developed products, the acquisition process is forwarded to the Procurement Department. It would be difficult for the PM subordinated to the Director of the APD to retain authority over the workforce of the PD.

I suggest that this solution be implemented rather as "a test of effectiveness" of the project management policy in the PAF. It should be applied initially only to two or

three of the most challenging projects. Afterward, based on the lessons learned from this alternative, "higher structures" should be established in the MoND.

C. ALTERNATIVE II - ESTABLISHMENT OF A BUREAU OF PROJECT MANAGEMENT UNDER THE SECRETARY OF STATE

The discussion of the present procurement procedures in Chapter IV showed that three departments under the Secretary of State actively participate in the acquisition process: the APD, the PD and the BD. In order to effectively consolidate efforts of these departments, a "higher" or at least "equal" authority should be established. Under Alternative II, a Bureau of Project Management (BPM) would be established under the Secretary of State.

The bureau initially would be responsible for directly managing two or three projects for major warfighting systems. If the policy of project management proves to be effective, the bureau will manage all future major systems acquisitions.

The BPM initially would be very small 7 to 10 persons. Moreover, the structure of the bureau would be rather changeable and vary with the number of projects. The only permanent position would be the Director of the Bureau of Project Management (DBPM).

The DBPM would report directly to the Secretary of State. His position should be on the same level as the directors of the APD, the BD and the PD. Project managers would report directly to the DBPM.

The project manager would have the authority to select two permanent members of his PMO. One of them should be a planner/coordinator; the second one, depending on the projects, could be a technician, logistician or other specialty as necessary. The rest of the members of the PMO would be "carved" from different departments of the MoND or General Staff.

The PM, as in Alternative I, would depend on the matrix organization. The main difference is that in Alternative II, horizontal communication would be conducted across all organizations of the MoND.

PMs would take full responsibility for their projects. They would monitor and control by cooperating with the GS for conformity of the projects with the National Defense Strategy; the BD and the Services regarding project funding; final users for requirements generation; the APD for development of specifications, R&D and the feasibility study; the PD for the final procurement functions, serial production and contract administration.

Organization of the MoND with the BPM is depicted in Figure 10.
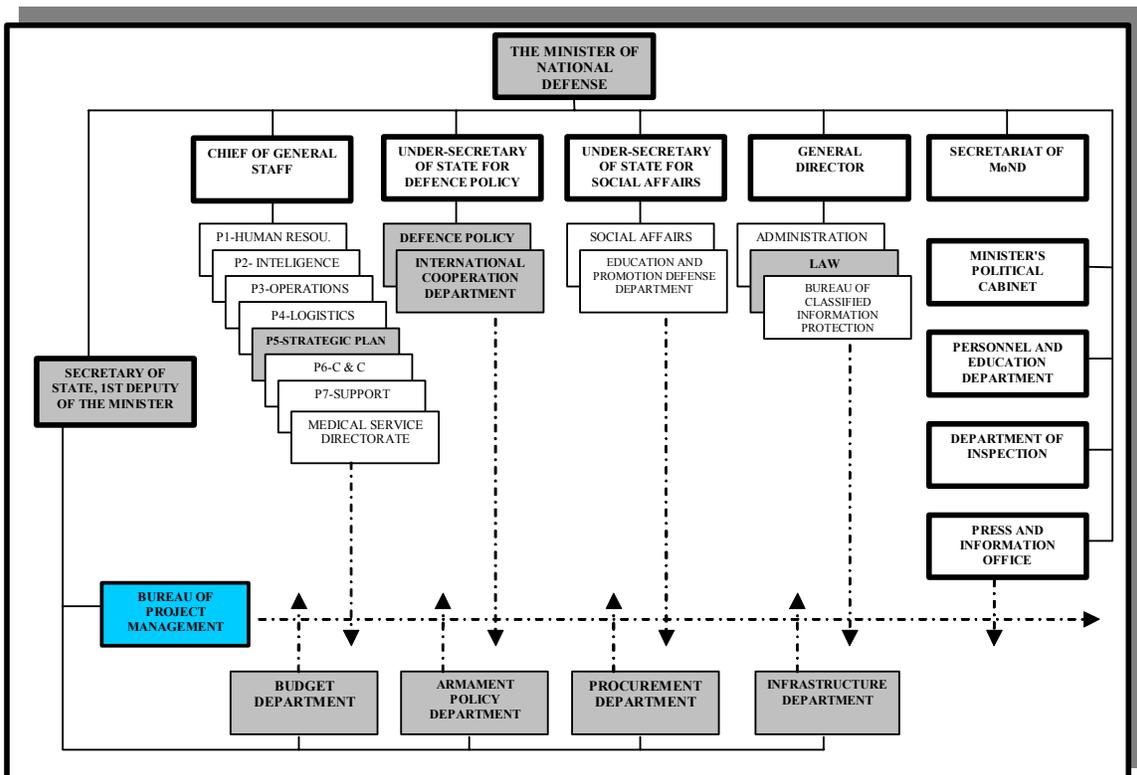
Figure 10.   Bureau of PM under the Secretary of State

D.   ALTERNATIVE III -   ESTABLISHMENT OF BUREAU OF PROJECT MANAGEMENT UNDER THE CHAIRMAN OF THE OFFICE OF PUBLIC PROCUREMENT

Alternatives I and II assumed incorporation of project management structures into the structures of the Polish Armed Forces. However, there is also the possibility to implement the project management policy in the PAF through the Office of Public Procurement.

Alternative III assumes establishment of the Bureau of Project Management under the Chairman of the Office of Public Procurement (COPP). (See Figure 11)
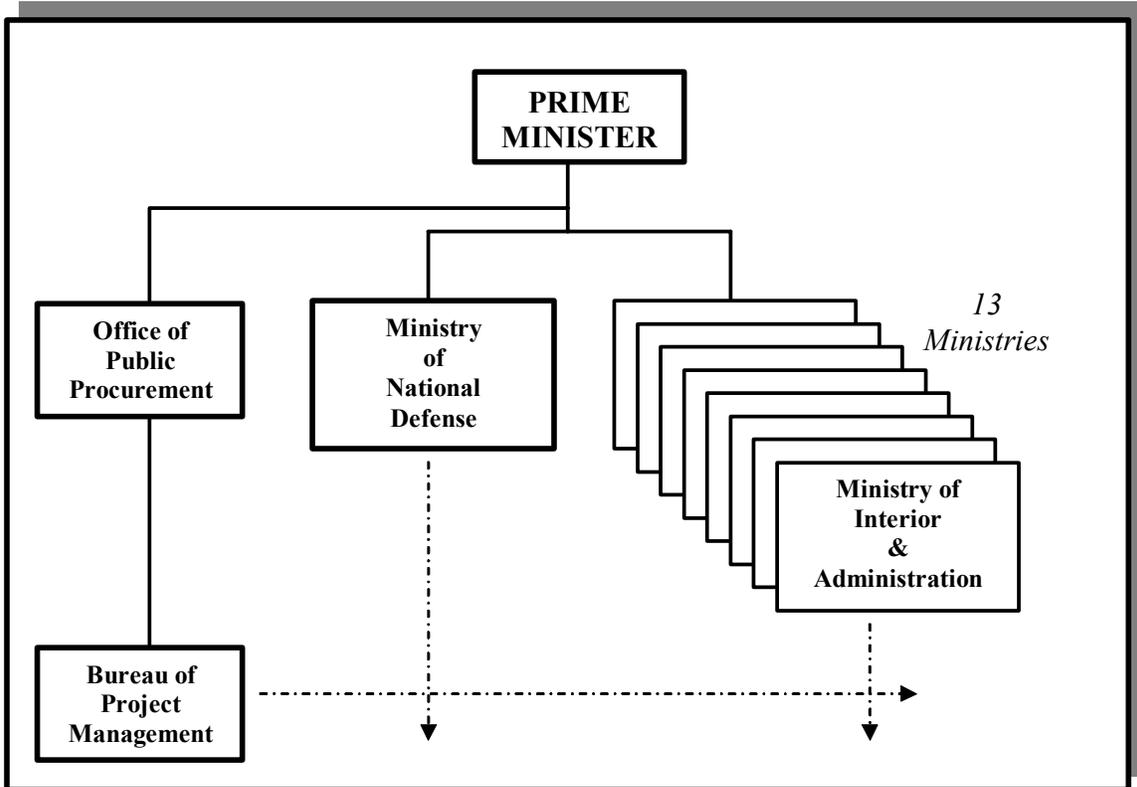

Figure 11.   Bureau of PM under the Office of Public Procurement

The main idea of this alternative is to apply the project management policy initially only to multi-year programs passed by the Polish Legislature. The concept of the multi-years programs was described in Chapter IV. Generally speaking, project managers would be appointed initially only for projects exceeding PLN 100,000,000 ($24 M). An example of such a project is the Act of June 22, 2001 on establishing a multi–year program to equip the Polish Armed Forces in multi-functional fighter aircraft.

Under this alternative, PMs for all projects that concern the PAF would be appointed by the Minister of National Defense but would report directly to the Director of the Office of Public Procurement. PMs would have authority to select their permanent PMO members not only from military personnel but also civilians. This flexibility would be very important because the PMs could hire specialists from the civilian market who

have experience not available in the military, e.g., contracting or market research specialists. However the core of the PMOs would still consist of specialists drawn from the APD, the BD, and the PD. The size of the PMOs under this alternative should be larger than under Alternatives I and II, mainly due to the higher value and importance of the projects. I assume 10 to 15 people, depending on the project. Among other advantages of this solution (from the MoND standpoint) are that administrative costs will be shifted outside the MoND; the most expensive programs would be managed by a professional military and civilian workforce; the relatively higher PM positions in the executive hierarchy of Poland could enable better funds control (The Chairman of the Office of Public Procurement reports directly to the Prime Minister).

Among disadvantages of this alternative are that due to the rarity of multi-year programs, most of the acquisitions for the PAF would be conducted without project management; the Minister of National Defense would have less control over the PMs who would report directly to DOPP; civilian specialists might have no military experience. However, the principal disadvantage is the likelihood that such an organization would be too remote from its customers and would be less responsive to military needs.

E.   RECOMMENDATIONS

My recommendation is to establish project management structures by combining Alternatives I and II. As a "test of effectiveness," I suggest applying the project management policy to all R&D projects conducted within the APD as described in Alternative I. Following that, based on the lessons learned from the test, I suggest establishing of the Bureau of Project Management under the Secretary of State as described in Alternative II.

I recommend implementing Alternative III only if there is no possibility to incorporate project management structures into the Ministry of National Defense.

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VII. DISCUSSION OF POSSIBLE IMPLEMENTATION PLANS

A. INTRODUCTION

There are at least two ways of implementing project management policy in the PAF. The first way might be characterized as the "revolutionary method." It would consist of the following steps: quickly establishing project management structures within the MoND; appointing "part-time" project managers and PMO members to major projects that are already initiated; appointing "full-time" project managers and PMO members to all new projects for major warfighting systems.

The second way is an evolutionary method. This method would encompass the following: educational preparation of future "full-time" project managers; testing PM policy in one or two R&D projects; based on lessons learned, establishing PM structures within the MoND and finally applying PM policy to all new major warfighting systems.

This chapter will analyze the advantages and disadvantages of both methods and provide a recommendation.

B. REVOLUTIONARY METHOD (1 TO 2 YEARS)

There is a need to implement project management policy quickly because a transformation of the Polish Armed Forces has already begun. The Act of May 25, 2001 on the Technical Restructuring and Modernization of the Polish Armed Forces in the Years 2001 to 2006 identifies several major weapon and communication systems that will be modified or replaced in that period. Many acquisition processes have already been initiated or will be initiated in the near future. If the MoND wants to derive benefits from the project management policy, it must take decisive steps.

This method would consist of the following phases:

1. Establishing PM Structures within the MoND

The Minister of National Defense should establish a Bureau of Project Management under the Secretary of State as described in Chapter VI. The bureau would

be responsible for directly managing all new projects for major warfighting systems and supervising projects already initiated.

2.   Managing Projects Already Initiated

Projects that have already been initiated would be managed by "part-time" project managers. These managers would be appointed within the Armament Policy Department or the Procurement Department, depending on the project's stage. If the project is in the stage of preparing specifications or it is entirely for R&D, then the PM should be appointed from within the APD. If the project is already in the serial production stage or contract administration stage, then the PM should be appointed from within the PD.

3.   Managing New Projects

Every new project for major warfighting system should be managed by a "full-time" PM. Project managers would be responsible for monitoring all aspects of the project, beginning with requirement generation, developmental activities, acquisition planning, through source selection, and ending with contract award and contract administration. They would select permanent PM office members.

4.   Advantages and Disadvantages

Advantages	Disadvantages
Partially centralized management of projects already initiated	"Part-time" managers might have to work for "two bosses"
Effective management of modernizing the Polish Armed Forces	No time to complete appropriate educational preparation of PM workforce
Fully centralized management of all new projects	Sudden fundamental change could cause serious problems "down the road"

Table 3.   Advantages and Disadvantages of the Revolutionary Method

C.   EVOLUTIONARY METHOD (3 TO 5 YEARS)

Implementing project management policy under this method requires more time. The time is required first for educational preparation of future Project Managers and their staff and second to test the effectiveness of the project management policy in the Polish MoND. Implementation under this method would consist of the following phases:

1. Educational Preparation of Future "Full-Time" Project Managers and PMO Members

Educational preparation of PMs and their staff could be originally conducted in the Naval Postgraduate School in Monterey in the U.S. or be conducted in Warsaw. Project mangers could take a series of courses on project management, and PM office members could take short courses on Systems Acquisition Management (SAM), Integrated Product and Process Development (IPPD), logistics, and other such areas. [32]

2. Test of Effectiveness of the PM Strategy in the Polish Armed Forces

Before the PM strategy is applied MoND-wide to all major warfighting systems, it should be tested initially in one or two projects. During this period well educated and prepared PMs supported by professional staff would need to prove the benefits associated with the project management policy. As a test of effectiveness, I would suggest implementing the policy in the APD only to R&D or "feasibility studies" projects. (See Alternative I, Chapter VI)

3. Establishment of PM Structures within the MoND

Based on experience and lessons learned from the previous phase, an appropriate structure should be incorporated within the MoND. I recommend establishing the Bureau of Project Management under the Secretary of State as described in Chapter VI.

4. Training Programs

If project management effectiveness is implemented, the appropriate training programs could be activated, for example, in The Military University of Technology or in The Academy of National Defense in Warsaw.

5. Gradual Implementation of PM Strategy to All New Major Warfighting Systems

When appropriate structures are established in the MoND and a well-trained project management workforce is available, the policy can be applied to all new major warfighting systems.

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[32] These courses were first proposed by NAST, which visited Poland in the year 2000, but implementing such training effort would need to be arranged through direct negotiations with the U.S. DoD.

6. Advantages and Disadvantages

Advantages	Disadvantages
Appropriate educational preparation of PM workforce	No centralized management of already initiated projects
Smooth implementation of fundamental change	Modernization of the PAF would be completed according to "old" principles
Structures developed based on experience and lessons learned	
Fully centralized management of all new projects	

Table 4.   Advantages and Disadvantages of the Evolutionary Method

D.   RECOMMENDATION

Based on the above analysis, I recommend implementing project management policy through the evolutionary method. Effective management of acquisition processes requires appropriate preparation of the workforce, well thought out organization of the PM organizational structure, supportive internal and external structures, clear job descriptions and responsibilities. Possible missteps in the beginning of the process could discourage personnel in the MoND from accepting the whole policy. Applying the policy initially to only one or two programs would mitigate the risk associated with this fundamental change, provide valuable lessons learned, and finally smooth the implementation of the project management in future projects.

VIII. CONCLUSIONS AND RECOMMENDATIONS

Project management policy has continuously gained in importance and acceptance in military and civilian environments for the last several decades. The policy is widely used in civilian and military industry across the whole world. Courses on project management are offered by many colleges and universities in the United States. Project management has proved its effectiveness in many sophisticated and challenging projects.

Poland has been undergoing enormous transformation since the end of the socialistic era. This transformation also includes the PAF. The majority of the warfighting systems will be replaced or modernized in the near future. However, the acquisition process in the PAF is highly fragmented at the moment. Different procurement authorities dominate different acquisition stages. Implementing project management policy is essential to effectively manage acquisitions in the PAF.

The costs and benefits discussion in Chapter V concluded that benefits associated with implementing project management policy in the PAF would outstrip the costs. The most important benefits would be the encouragement of integrity and transparency of the procurement system, streamlining of the acquisition process, centralized decision-making, better communication between the stakeholders, mitigation of projects' risk, life-cycle cost savings, and improved total quality management. Costs on the other hand would be mainly associated with educational preparation of workforce and slightly increased management costs. Through improved organization and efficiency, project management might more than pay for itself.

Project management is usually dependent on the matrix organization, both in the military and civilian sectors. Horizontal communication is a "key" to success for two reasons: first, it does not require additional administrative and labor expense, and second, it increases effectiveness through improved communications and intensive management. The Polish Armed Forces workforce must adopt the ability to work in a matrix organization, to be successful in the 21st century. People must learn how to work for "two

bosses" (product-oriented and functional) and fully benefit from such tactics as "teamwork" and "brainstorming."

I recommend implementing of the project management policy through the "evolutionary method" described in Chapter VII. This method requires time mainly to educate personnel and the policy "test of effectiveness," but also significantly mitigates the risk associated with "fundamental and cultural changes" in business practices. As a "test of effectiveness," I suggest applying the project management policy to all R&D projects conducted within the APD, as described in Alternative I in Chapter VI. After this, based on the lessons learned from the test, I suggest establishing the Bureau of Project Management under the Secretary of State, as described in Alternative II in Chapter VI.

Appendix A to this report describes a recommended step-by-step plan of implementing project management policy in the PAF. This plan was based on John P. Kotter's article, *Why Transformation Efforts Fail*, published in Harvard Business School Press, March-Aril 1995. Appendix B is an example of a project manager's job description, or charter. Appendix C provides ten tips for project managers that were expressed by Mr. Skip Hawthorne during his seminar lecture at the Naval Postgraduate School in August, 2003.

APPENDIX A – EIGHT STEPS TO IMPLEMENTING PROJECT MANAGEMENT POLICY IN THE POLISH ARMED FORCES[33]

1.   *Establishing a Sense of Urgency*

Initiators of the project management must establish a sense of urgency in the Polish MoND. Decision-making authorities, such as the Minister of National Defense and the Secretary of State, must be convinced that the project management policy is the only right choice and that it must be implemented quickly in order to improve the transparency, integrity and fairness of the acquisition system in the PAF.

2.   *Forming a Powerful Guiding Coalition*

A powerful guiding coalition could consist of the directors of the APD and the PD, the Secretary of State and the Minister of National Defense. Additionally, the supportive attitude of the Director of BD, the Services and the Chairman of the Office of Public Procurement would be very desirable.

3.   *Creating a Vision*

The guiding coalition should craft the vision of the acquisition system in the PAF. The vision should set the directions toward which major systems acquisition in the PAF needs to move. It should express the procuring authorities' dream - it should stretch the imagination and motivate the MoND employees to rethink what is possible.[34]

4.   *Communicating the Vision*

The vision should be communicated across all procuring authorities in the MoND. Each of the potential stakeholders in the major systems acquisition should be briefed and familiarized with the concept of the project management, the costs and benefits associated with implementing the policy and his future responsibilities.

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[33] This plan was based on John P. Kotter article *Why Transformation Efforts Fail* published in Harvard Business School Press, March-Aril 1995.

[34] Belgard, Fisher, Rayner *Vision, Opportunity, and Tenacity: Three Informal Processes That Influence Transformation*, p. 135, 1988

5.   *Empowering Others to Act on the Vision*

The MoND employees should be empowered to act on the vision. Incentives should be established for the employees of the APD, the PD and the BD to work as "part-time" members of PMOs or members of the Integrated Product Teams. Project managers should be empowered to make final decisions about theirs projects, select their team members and control funds of their projects.

6.   *Planning for and Creating Short-Term Wins*

According to the survey[35] that examined the most common pitfalls of implementing a change in 93 medium- and large-sized firms - 76% of the respondents answered:

Implementation took more time than originally expected

Based on this survey, we can conclude that employees become quickly impatient and frustrated if they do not see tangible results of their efforts. In such a situation, maintaining their full commitment and stimulate progress in the organization is quite difficult.

Planning for and creating short-term wins is the most effective method of overcoming this problem. Organizations should continuously look for short-term goals, achieve them, and reward employees. The entire process of implementing a change should consist of several short-term goals and objectives.

7.   *Consolidating Improvements and Producing Still More Change*

After change has begun, the guiding coalition must ensure that all improvements are consolidated and the appropriate bases for Total Quality Management are established. The employees in the MoND must realize that effectively managing the acquisition system requires constant improvements and modifications. A proactive approach should be promoted versus a reactive approach. Procuring authorities must ensure that the acquisition process in the PAF always meets or exceeds the present market and final users expectations.

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[35] Larry Alexander, *Successfully Implementing Strategic Decisions*, p.91-97, 1985

8. *Institutionalizing New Approaches*

Institutionalizing the project management could be accomplished by initiating project management courses and training in Poland. Appropriate structure for the Bureau of the Project Management under the Secretary of State should be developed.

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APPENDIX B – PROJECT MANAGER CHARTER[36]

By decree of the Minister of National Defense (# and date of decree) and by appointment of me, as the Director of the Bureau of Project Management, I hereby confirm

………………………………………………………
(rank, first name, second name)

As the PROJECT MANAGER, for

………………………………………………………
(name of the project)

As Project Manager, you will function as centralized manager for your assigned project, reporting directly to the Director of the Bureau of Project Management.

You will, as the responsible management official, provide overall direction and guidance for the development acquisition, testing, product improvements and fielding of assigned systems.

You will ensure transparency, integrity and fairness of your project.

You will place primary management emphasis on cost, schedule and performance, program integration, interoperability and oversight.

You are accountable to the Director of the Bureau of Project Management for fulfillment of all responsibilities listed in this charter.

You are hereby delegated the full line of authority in all the aspects listed in this charter.

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[36] This appendix was written based on the charter of Col. Michael W. Boudreau who was assigned as the Project Manager for Family of Medium Tactical Vehicles for US Army and the mythical charter of Mr. Robert L. James who was assigned as the Project Manager for the Acme Project in Electrodynamics Corp, described in Kerzner's *Project Management*, p.624

Responsibilities:

1. Actively assist the final users during requirements generation
2. Ensure that all PMO and IPT members are kept informed of their responsibilities on the project
3. Keep the executive management informed as to project status through monthly (detailed) and yearly (summary) status reporting
4. Conduct market research
5. Supervise development of specifications
6. Conduct life-cycle cost analysis and the project cost estimation
7. Conduct risk analysis
8. Conduct quality planning
9. Develop realistic project schedule and propose project's milestones to the Director of the Bureau of Project Management
10. Conduct all formal communication between the MoND and the contractor.
11. Supervise Feasibility Study and Product Development
12. Compare actual to predicted cost and performance and take corrective action when necessary
13. Supervise initial production testing by the final users and the military technological institutes and provide recommendation to the Director of Armament Policy Department about initiation of serial production
14. Supervise quality control
15. Develop in cooperation with the contractor plan for support of the system during the operating phase
16. Provide recommendations for the disposal of the system

Authority:

1. Control funds of the project
2. Direct access to all documents related to the project
3. Select PMO and IPT members in cooperation with functional managers
4. Renegotiate with functional managers for changes in personnel assignments
5. Organize PMO and IPT meetings at least twice a month
6. Require periodic functional status reporting from "full-time" and "part-time" PMO and IPT members
7. Provide inputs to yearly evaluation reports of the PMO and IPT members
8. Represent the project in the mass media
9. Represent the final users in all negotiations with contractors

Signed,

………………………

(The Director of the Bureau of Project Management)

APPENDIX C – TEN TIPS FOR PROJECT MANAGERS[37]

1.   *Know Your Neighborhood.*

The project manager should establish very close relationships with all his project stakeholders. He should constantly analyze theirs interests, bargaining position, priorities, strength and weaknesses.

2.   *Pay Them Now or, Pay Them Later.*

This statement or saying means that the project manager must listen to people and organizations and give them due consideration. If the PM fails to work cooperatively and fairly, others will find a way to "pay" him for being unfair or uncooperative.

3.   *It's More Than Paper. It's Your Contract.*

 Written contract is one of the most important elements of the acquisition process. Everything that is enclosed in the contract becomes the roadmap that must be fulfilled unless there is a mutual amendment to it. All potential disputes will be judged based on the contract. The PM must ensure that the contract precisely expresses all the final users' interests in the project. It must be clear, transparent, and lack ambiguity.

4.   *Just Say "No."*

The PM's position depends on the success of his project. In order to keep his project alive, sometimes a PM may be willing to promise too much. However, he must be aware that everything what was promised must be fulfilled. The customers are very happy when they are provided more than expected, but on the other hand, they are very disappointed when they are provided less than promised.

5.   *It Is the Engineering, Stupid.*

Development of the final product requires a systems engineering effort. The PM does not have to be a technical specialist. However, he must ensure that real experts are

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[37] S. Hawthorne's lecture in Naval Postgraduate School in August, 2003

involved in the development of the specifications, the feasibility studies, tradeoff analyses quality control and testing of the final product.

6. *Software Bytes.*

Software is essential to virtually all of our warfighting systems. The PM may not be an expert in system software development, but he can insist that software development be controlled by well-defined and constantly improved practices. Sloppy software development will damage or destroy a warfighting system project.

7. *Test a Little - Learn a Lot.*

Testing is very important in the acquisition process. Serial production must always be preceded by testing of the prototypes and early production units. Field testing of the product should be conducted by the final users to ensure that it meets user requirements.

8. *Walk the Line. Don't Cross It.*

The PM must be very careful when he requests additional funds for his project. He could be easily accused of bad planning, wastefulness or ineffectiveness.

9. *The Only Thing Constant Is Change.*

There are many uncertainties associated with every project. It is not possible to predict all obstacles and barriers initially. The PM must be ready to modify his project to address the present conditions of the market and the final users' expectations.

10. I'm from OSD. I'm here to Help.

OSD stands for the Office of Secretary of Defense in the U.S. The equivalent of OSD in the PAF is the Minister of National Defense. The last of Mr. Hawthorne's tips for PMs suggests keeping the highest authorities in the MoND constantly well informed about the progress of the project. The Director of the Bureau of Project Management, the Secretary of State and the Minister of National Defense could be very helpful in overcoming the project's obstacles.

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