

# NAVAL POSTGRADUATE SCHOOL

## Monterey, California



## THESIS

**INTEGRATED PRODUCT TEAM EFFECTIVENESS IN  
THE DEPARTMENT OF DEFENSE**

by

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March 2002

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REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington DC 20503.				
1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE March 2002	3. REPORT TYPE AND DATES COVERED Master's Thesis	
4. TITLE AND SUBTITLE: Integrated Product Team Effectiveness in the Department of Defense			5. FUNDING NUMBERS	
6. AUTHOR(S) Gregg B. Monk				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey, CA 93943-5000			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) N/A			10. SPONSORING / MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.				
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution is unlimited			12b. DISTRIBUTION CODE	
13. ABSTRACT (maximum 200 words)  In 1995, then Secretary of Defense William Perry, directed a "fundamental change" in the way DoD did business when he endorsed and required the use of the Integrated Product and Process Development (IPPD) management technique. The use of multidisciplinary Integrated Product Teams (IPTs) is the cornerstone of this technique. This research focused on what key factors, specifically team training and empowerment, lead to the success, or lack of success, of IPTs. Twenty IPT participants, ten team leaders and ten other team members, were interviewed and asked their views on the current state of training and empowerment as they relate to IPTs. This research, though only a small sample size, revealed that DoD still has a long way to go if it is to meet its own goals of effectively utilizing IPPD. The primary conclusion of the research is that DoD's overuse of the term IPT is the key factor that IPPD and IPTs are not being utilized to their full potential. The thesis recommends possible solutions and areas of further research to help alleviate this problem.				
14. SUBJECT TERMS Integrated Product and Process Development (IPPD), Integrated Product Team (IPT), Teaming, Department of Defense (DoD)			15. NUMBER OF PAGES 85	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT UL	

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**INTEGRATED PRODUCT TEAM EFFECTIVENESS IN THE DEPARTMENT  
OF DEFENSE**

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Submitted in partial fulfillment of the  
requirements for the degree of

**MASTER OF SCIENCE IN MANAGEMENT**

from the

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## **ABSTRACT**

In 1995, then Secretary of Defense William Perry, directed a “fundamental change” in the way DoD did business when he endorsed and required the use of the Integrated Product and Process Development (IPPD) management technique. The use of multidisciplinary Integrated Product Teams (IPTs) is the cornerstone of this technique. This research focused on what key factors, specifically team training and empowerment, lead to the success, or lack of success, of IPTs. Twenty IPT participants, ten team leaders and ten other team members, were interviewed and asked their views on the current state of training and empowerment as they relate to IPTs. This research, though only a small sample size, revealed that DoD still has a long way to go if it is to meet its own goals of effectively utilizing IPPD. The primary conclusion of the research is that DoD’s overuse of the term IPT is the key factor that IPPD and IPTs are not being utilized to their full potential. The thesis recommends possible solutions and areas of further research to help alleviate this problem.

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# **I. INTRODUCTION**

## **A. PURPOSE**

This thesis examines multifunctional Integrated Product Teams (IPT)s within the Department of Defense (DoD) and determines what makes them effective. To accomplish this goal, the reader will be provided with a historical background and a current understanding of the Integrated Product and Process Development (IPPD) management technique. The focus is on what key factors lead to the success or lack of success of IPTs and how members of the acquisition community can apply these lessons learned. Specifically, team training and the empowerment of individual IPT members will be examined. The study's ultimate objective is to determine if DoD, through the use of IPTs, is using the IPPD management technique to its full advantage. The research results will be examined and recommendations provided to help ensure that this technique is used, as intended, to increase the production and efficiency of the DoD acquisition process.

## **B. BACKGROUND**

Globalization of the world's economy has forced organizations to become more efficient in order to meet increased competition throughout the world. The traditional "stovepipe" organizational structure is too slow and inefficient in today's market economy. Corporations must get things right the first time if they are to be cost effective and get quality goods to market before their competitors. This has led to the implementation of self-managing teams throughout the private sector. These teams have been empowered to get a job done and the team concept has many success stories, yet not all teams are successful.

The end of the cold war as well as the changing budgetary climate in DoD in the 1990s, forced DoD to reexamine how it conducts business. Acquisition periods had to be shortened and costs had to be reduced, while quality and performance had much need for improvement. DoD was faced with many of the same challenges the private sector had faced a decade before. To be successful, efficiency within the organization had to be improved.

The effects of the teaming process in the private sector were not lost on Secretary of Defense, William Perry. In 1995, he directed a “fundamental change” in the way DoD did business when he endorsed and required the use of IPPD. The hierarchical decision-making process of the past was to be replaced by the IPPD process that allowed decisions to be made horizontally, across organizational structures. Through the success of private industry, he recognized the huge potential for increased efficiency through the use of IPPD. Today, DOD 5000.2 R; Mandatory Procedures for Major Defense Acquisition Programs and Major Automated Information System Acquisition Programs; dated 10 June 2001, states “the Program Manager shall employ IPPD to the maximum extent practicable.” It is expected that through the use of IPTs, DoD “shall simultaneously optimize the product, product manufacturing, and supportability to meet system cost and performance objectives.”

### **C. RESEARCH QUESTIONS**

The primary research questions for this thesis are:

- Are IPT members fully empowered by their organizations?
- Do IPT members receive the training and education necessary to execute their specialized tasks?

In order to obtain the basic knowledge necessary to develop and define the primary research questions, it was necessary to first answer the following subsidiary questions:

- What is teaming?
- What is IPPD?
- How does empowerment relate to the effectiveness of IPTs?
- What is the importance of training and education in the IPPD process?

### **D. RESEARCH METHODOLOGY**

Initial research included a thorough literature review. This literature review consisted of an extensive review of books, journals, CD-ROM systems and other library information resources relating to teams and the IPPD process. A thorough search of the Internet was also conducted for information pertaining to teaming and IPPD. Follow-on research consisted of e-mail interviews. Interviews were conducted with a wide variety of IPT leaders and IPT members.

## **E. ORGANIZATION OF THE STUDY**

The thesis is organized into the following chapters:

Chapter II: Background – This chapter contains an overview of teaming and the IPPD Process. The basics of teams and teaming will be thoroughly discussed. This discussion will lead into the importance of teaming in the private sector. Finally, the chapter will conclude with DoD and its use of IPPD.

Chapter III: Research Objective and Methodology – This chapter discusses why the research questions were selected and provides insight into empowerment, training, and education and how they relate to IPPD and IPTs. Finally, it explains the methods used for executing the research design. The interview questions are presented.

Chapter IV: Data Presentation and Analysis – This chapter presents and analyzes the data.

Chapter V: Conclusions and Recommendations – This chapter summarizes the results and presents the conclusions of the thesis. Possible areas for future research are also discussed.

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## **II. BACKGROUND**

### **A. INTRODUCTION**

This chapter first discusses the basic concept of teaming and the differences between groups and teams. The unique features of teams and team processes will be discussed. Next, the chapter will explore the relevant history of teaming in the private business sector. After the basics of teaming are understood, the advent of teaming in the Department of Defense (DoD) through the development of Integrated Product and Process Development (IPPD) will be addressed. Discussion will ultimately focus on the program level Integrated Product Team (IPT) and what is necessary for these IPTs to be effective.

### **B. TEAMING**

It has long been recognized that much more can be accomplished by groups of people working together than by any single individual. All of us have had some sort of experience working as members of a group or team. Many believe that by simply placing a group of people together and calling them a team, you do in fact have a team. While every team is in fact a group, every group is not a team.

#### **1. Working Groups vs. Teams**

A working group is a collection of two or more persons who interact with one another to produce a product. By the simple fact that multiple people are placed together, a group is formed. The key facet of a working group is that it relies primarily on the individual contributions of its members for group performance. The leader of a working group is relied upon for both the assignment and integration of the individual work products. Because of this fact, a group is inherently less productive than individuals who work alone. The process of task assignment and integration in itself exacts a cost.

Working groups are both prevalent and effective in large organizations. They thrive in hierarchical structures where individual accountability counts the most. The best working groups come together to share information, perspectives, and insights, to make decisions that help each person do his or her job better, and to reinforce each other's individual performance standards. But the focus is always on individual performance goals and accountabilities. A working group uses its purpose solely to

delineate individual roles, tasks, and responsibilities. Typically, these roles match formal organizational positions. Working groups pay attention to individual outcomes and results. Members of effective working groups constructively compete with one another in their pursuit of individual performance targets. They also provide counsel and insights to each other and become concerned when any among them falters. But working group members do not take responsibility for results other than their own. Nor do they try to develop incremental performance contributions requiring the combined, real work of two or more group members. (Katzenbach & Smith, 1993, p. 89)

In the literature there are many different definitions as to what a team actually is. Katzenbach and Smith apply the following definition:

A team is a small number of people with complementary skills who are committed to a common purpose, performance goals and approach for which they hold themselves mutually accountable. (Katzenbach & Smith, 1993, p. 92)

Mr. Terry Little, the Program Manager for the Joint Direct Attack Munitions and Joint Air-to-Surface Standoff Missile Programs, defines a “team” as:

A group of people in a collaborative relationship working toward a mutual goal—a goal that dominates all other individual and sub-group goals—a goal for which every team member is mutually accountable. (Gadeken, 1991)

Forming a team is not as simple as placing multiple people together and telling them to get to work. Teams cannot be “up and running” as quickly as a group. They take time to form, require work, and have many special attributes. Among these are interdependence among team members as well as specialized skills and knowledge between members. Teams draw together the combined skills of multiple leaders and members to produce a common, combined work product. This is a marked difference from the working group’s integration of individual work products. The power of effective teams is that, unlike working groups, they are much more productive than individuals who work alone. In the case of a team, the output is greater than the sum of the individual parts. (Katzenbach & Smith, 1993, pp. 88-92)

Figure 1 highlights the differences between working groups and teams and is adapted from a figure published by Jon Katzenbach in *The Work of Teams*.

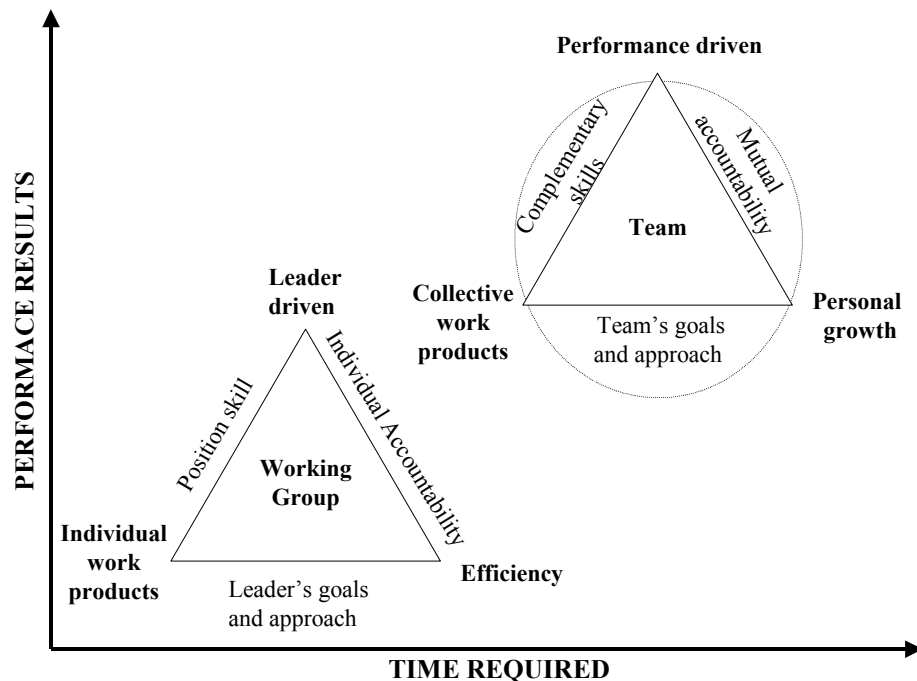


Figure 1. Working Groups vs. Teams, adapted from (Katzenbach, 1998).

## 2. Team Processes and Skills

A team is a complex entity and there are many theories as to how and why they interact. A team has both technical and interrelationship concerns and both of these must be taken into account if effective teaming is to occur. Fisher, Rayner, and Belgard highlight the importance of both of these concerns:

There are basic types of needs or issues that arise on a team – task and [social] relationship. Task issues relate to the actual work that the team must accomplish. Relationship issues relate to how well the people on the team get along and work together. A team that is too heavily focused on task may find itself overlooking important relationship issues. As a result, tension may rise and tempers may flare. A team that overemphasizes relationships may find that important tasks do not get done or that quality begins to slip. As a result, the team may lose credibility as expectations are not met, motivation of team members may decline, and individuals may begin to point fingers. (Fisher, Rayner & Belgard, 1995)

In order to deal with these basic team needs, it is critical that teams have the basic skills necessary in order to perform effectively. Some of these critical skills have been identified by Mohrman, Cohen, and Mohrman (1995). They are technical or functional competence, cross-training, interpersonal and conflict resolution skills, decision making skills, learning skills and leadership skills. These are discussed in more detail in the sections that follow.

***a. Technical or Functional Competence***

Team members must have the technical skills and knowledge base that will allow them to represent their particular functional area and contribute to the team's goals and objectives. They should possess both a formal education and practical experience in their area of expertise. Each member must remain current with respect to technical changes in his or her field to be a true functional area expert.

Team members may not have all the skills they need to support the team's objectives when they are first assigned to the team. Therefore, education and training must be an ongoing process where members continuously learn from their technical mentors, formal training, informal training, experience, and from each other.

The team's functional area mix is just as critical as the skill levels of its members. The team's collective knowledge must be sufficient to reach the desired objectives. Internal and supplemental development is not enough to compensate for an improper mix of skilled members. (Mohrman, Cohen, and Mohrman, 1995, pp. 248-249)

***b. Cross-Training***

Although it is highly desirable, fully cross-trained teams may be impractical due to technical complexities of each functional area represented on the team. However, all team members should have a level of understanding of the other team members' jobs that will enable them to discuss issues and functional area trade-offs and to understand divergent points of view. The more team members know about the other functional areas represented on the team, the better the chances for effective communications among the team. (Mohrman, Cohen, and Mohrman, 1995, pp. 249-250)

***c. Interpersonal and Conflict Resolution Skills***

Team members must be able to communicate clearly, listen to other views and opinions, feel free to offer ideas and suggestions, and be willing to respectfully and



objectively disagree with other team members. Conflict resolution skills are vital to any team. Members bring different frames of reference and bodies of knowledge to each meeting. Each member will have his or her own priorities, ethics, perceptions, and biases. In order for teams to effectively resolve conflict, they must be able to recognize and respect these differences and freely voice concerns, feelings, and frustrations. Above all, the team must have clearly established and understood goals. Without clear goals, conflict resolution is not possible. (Mohrman, Cohen, and Mohrman, 1995, pp. 250-251)

*d. Decision-Making Skills*

In order to be effective decision makers, teams need systematic decision-making processes. Systematic decision processes are methods of collecting data, evaluating alternatives, and determining outcomes. The decision making process can be taught on the job and within the team, but the team must be sure to take the time to conduct proper training and to orient new members to the decision making process.

The team leader must ensure that the decision making process is enforced and is not cast aside when the team is confronted with a short suspense action or other type of problem that may require quick resolution. While it may be faster and seem easier to make a hasty decision and disregard a systematic approach, the end result may be a poor decision, which will require rework and additional time. It is important that the decision making process adopted by the team be acceptable to all team members. If not, resistance will impede the process and will be counter productive. (Mohrman, Cohen, and Mohrman, 1995, pp. 251-252)

*e. Learning Skills*

Team members must be willing to develop skills they do not already have. They must be willing to develop and expand interpersonal skills and conflict resolution skills, and they must stay current in their functional areas of expertise. In addition, members may be required to attend formal training in their disciplines outside of the team environment. Team members must also be open to learning something about the other disciplines on their team. This relates closely to the team cross-training concept discussed earlier. The more each member knows about the disciplines involved with his or her team, the better the team will communicate, interact, and solve problems. (Mohrman, Cohen, and Mohrman, 1995, p. 252)

*f. Leadership Skills*

Team members must be ready to assume a number of different leadership roles. They may be tasked to assume the role of team leader, technical mentor, trainer, system integrator, or liaison with another work group or entity external to the team. To carry out these roles, individuals must develop skills that will allow them to influence others manage meetings, communicate effectively, and resolve issues. (Mohrman, Cohen, and Mohrman, 1995, pp. 252-253)

**C. WHY THE EMPHASIS ON TEAMING?**

**1. Teaming in the Private Sector**

US industry changed drastically during the 1980s. The globalization of the world's economy created a much more intense and competitive business environment. Those who were slow in getting their products to market and did not meet ever changing and sometimes fickle consumer demand were doomed to failure. The old status quo was no longer good enough. Nowhere was this more apparent than in the American automobile industry. America had long dominated the industry. The old saying went, "What is good for General Motors is good for America." When a Japanese product, the Honda Accord, became America's best-selling automobile, it was painfully apparent that America was losing its competitive edge.

The American product design cycle was simply too slow. Up to this point in time, American companies had dominated the global marketplace. Because of this domination, companies grew larger and continued to develop and market new products. They organized their businesses into functional areas, departments and divisions. This led to a sequential product flow as illustrated in Figure 2.

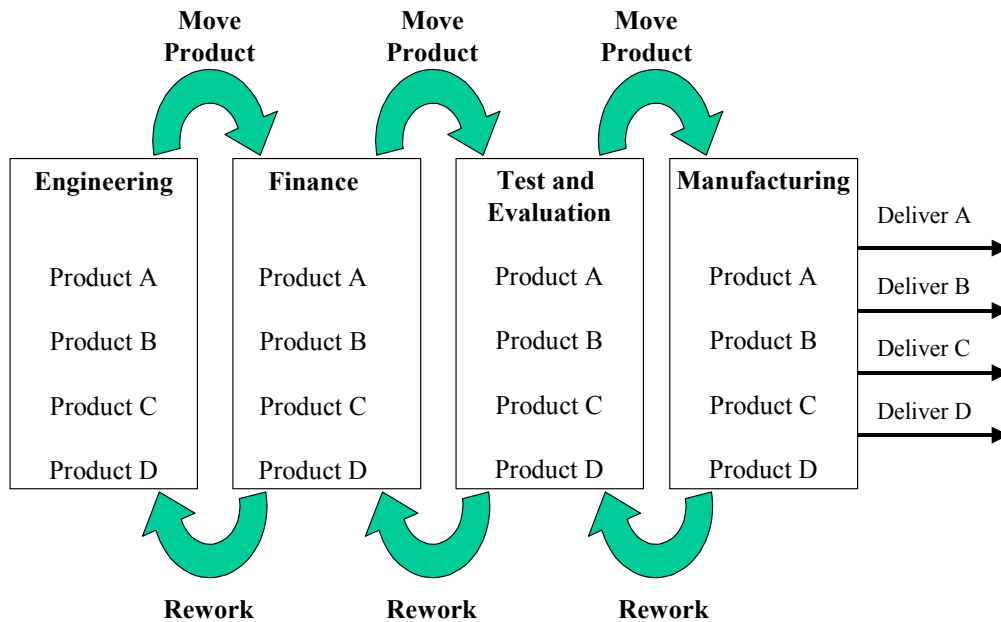


Figure 2. Functional Approach to Product Development, from (GAO, 2001).

Expertise and decision making authority was distributed by function, not products. This led to the sequential development of products and countless, recurring, feedback loops as each division, with their functional area expertise, contributed value added input to the product and passed it along to the experts in the next division. The next group of functional experts then added their input and passed the product both forwards and backwards along the sequential trail for further input. This had the effect of every division performing a form of oversight on every other division and in theory should have led to the production of a high quality product. Unfortunately, it did just the opposite.

Each division became focused with their own individual input to the final product. They lacked a common goal and vision as to what this product was to be. Overall goals often conflicted. Engineering desired leading edge technology while finance wanted low production costs. Not only did this functional technique lead to an inferior product, but also it greatly increased the time to get new products to market. By the time they did

arrive they were based on dated consumer preferences and ultimately, when forced to compete against the highly responsive competition from overseas, they failed in the marketplace. American industry was now operating at a clear disadvantage to its foreign competition.

American industry realized that they had to improve the quality of their products and become more responsive and flexible to consumer demand. Productivity had to be improved if they were to survive. Concurrent engineering, through the use of teaming, seemed to offer a potential solution to excessive cycle times. It was working for the competition. Instead of the familiar functional, sequential approach, multifunctional teams were organized. These teams were given the responsibility for developing an entire product and introducing it to the marketplace. In this “cradle to grave” type approach, each team member now had a common goal and his individual success depended on the success of the product. This teaming effort would eventually evolve into the Integrated Product Team (IPT) approach to development depicted in Figure 3.

Major American corporations adopted this new IPT approach. Ford’s Taurus eventually overtook the Honda Accord as the top selling car in America. The IPT approach was instrumental in the success of Boeing’s 777 aircraft program. 3M, General Motors, Chrysler (now DaimlerChrysler), and Westinghouse are but a few in a long list that adopted this approach. The IPT approach transformed American industry allowing it, among other things, to cut cycle times and increase the quality of its products.

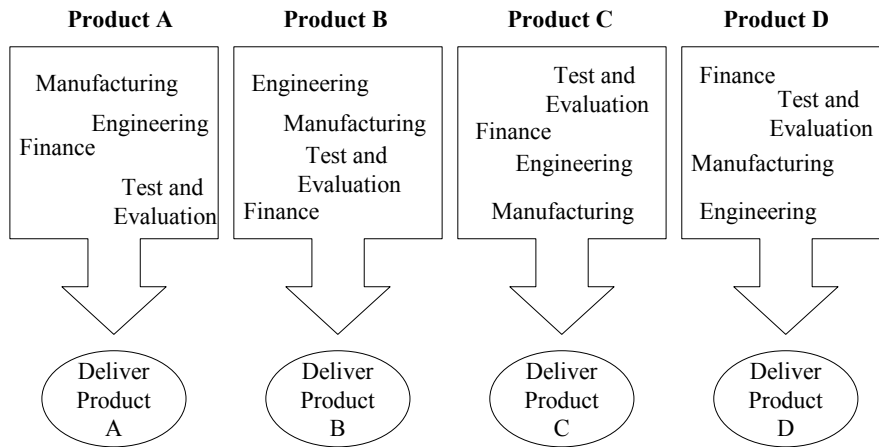


Figure 3. IPT Approach to Product Development, adapted from (GAO, 2001).

## 2. DoD and the Integrated Process and Product Development (IPPD) Concept. Why?

American industry had been forced to change and adapt to the increased global competition of the 1980s. No such requirement existed for the Department of Defense (DoD). The Cold War between the United States and the Soviet Union ensured a steady availability of defense dollars. Efficiency was not the number one priority in the DoD acquisition system. The end of the Cold War in 1991 drastically changed this. The nation was in a recession and looked forward to a “peace dividend” associated with the demise of the Soviet Union. From 1990 to 1997, the United States defense budget would experience a decrease from \$350 billion to \$250 billion. (Defense News, 1997, pp. 10, 22)

This change in fiscal environment would force DoD to change. Acquisition reform was declared a major priority of the Clinton administration in 1993. DoD did stand up and take notice of this new environment. They had no choice. Numerous studies took place to help DoD determine how to reinvent itself. Among these, were several studies by the Defense Science Board and the Defense Manufacturing Council.

Among other things, all recommended the use of IPPD concepts and the implementation of IPPD within DoD.

William J. Perry had served as Deputy Secretary of Defense from 1993 to 1994. In February 1994 he was appointed as Secretary of Defense, a position he would hold until January 1997. Mr. Perry had served many years in industry and had been the Chief Executive Officer of a high technology firm. He had observed and appreciated the potential benefits of teaming first hand in the private sector. This experience, coupled with the knowledge of the studies' recommendations on IPPD, led him to believe drastic change was required in the way DoD conducted operations. In a memo dated 10 May 95, he stated the following:

I am directing a fundamental change in the way the Department (DoD) acquires goods and services. The concepts of IPPD and IPTs shall be applied throughout the acquisition process to the maximum extent practicable.

The Secretary of Defense now mandated IPPD and IPT, which had been used only sporadically previously throughout the acquisition process. This truly was a "fundamental change."

#### **D. IPPD IN DOD**

In response to Secretary Perry's mandate, DoD published, in March 1996, major rewrites of *DoD directive 5000.1, Defense Acquisition Directive, and DoD Instruction 5000.2, now DoD Regulation 5000.2-R, Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information System (MAIS) Acquisition Programs*. The 5000.1 states policies and principles for the management of all DoD acquisition programs and identifies the Department's key acquisition officials and forums. It repeats Secretary Perry's mandate to implement IPPD and IPTs "to the maximum extent practicable."

The 5000.2-R defines IPPD as:

A management technique that simultaneously integrates all essential acquisition activities through the use of multidisciplinary teams to optimize the design, manufacturing and supportability processes. IPPD facilitates meeting cost and performance objectives from product concept

through production, including field support. One of the key tenets is multidisciplinary teamwork through Integrated Product Teams (IPTs).

## **E. KEY TENETS**

If IPPD is to be effective in DoD, the key tenets inherent to IPPD must be understood. The *DoD Guide to Integrated Product and Process Development*, dated February 5, 1996, lists and describes these key tenets as they were outlined by Secretary of Defense Perry's mandate. These tenets are consistent with those found in industry. They are described in the following section.

### **1. Customer Focus**

The primary objective of IPPD is to identify and satisfy the customer's needs better, faster, and cheaper. The customer's needs should determine the nature of the product and its associated processes.

### **2. Concurrent Development of Products and Processes**

Processes should be developed concurrently with the products they support. It is critical that the processes used to manage, develop, manufacture, verify, test, deploy, operate, support, train people, and eventually dispose of the product be considered during product design and development. Product and process design and performance should be kept in balance to achieve life-cycle cost and effectiveness objectives. Early integration of design elements can result in lower costs by requiring fewer costly changes late in the development process.

### **3. Early and Continuous Life Cycle Planning**

Planning for a product and its processes should begin early in the science and technology phase (especially advanced development) and extend throughout every product's life-cycle. Early life-cycle planning, which includes customers, functions, and suppliers, lays a solid foundation for the various phases of a product and its processes. Key program activities and events should be defined so that progress toward achievement of cost-effective targets can be tracked, resources can be applied, and the impact of problems, resource constraints and requirements changes can be better understood and managed.

#### **4. Maximize Flexibility for Optimization and Use of Contractor Approaches**

Requests for Proposals (RFPs) and contracts should provide maximum flexibility for employment of IPPD principles and use of contractor processes and commercial specifications, standards and practices. They should also accommodate changes in requirements and incentives contractors to challenge requirements and offer alternative solutions that provide cost-effective solutions.

#### **5. Encourage Robust Design and Improved Process Capability**

The use of advanced design and manufacturing techniques that promote (1) achieving quality through design, products with little sensitivity to variations in the manufacturing process (robust design), (2) a focus on process capability, and (3) continuous process improvement are encouraged. Variability reduction tools such as ultra-low variation process control similar to “Six Sigma” and lean/agile manufacturing concepts should be encouraged.

#### **6. Event-Driven Scheduling**

A scheduling framework should be established which relates program events to their associated accomplishments and accomplishment criteria. An event is considered complete only when the accomplishments associated with that event have reached completion as measured by the accomplishment criteria. This event-driven scheduling reduces risk by ensuring that product and process maturity are incrementally demonstrated prior to beginning follow-on activities.

#### **7. Multidisciplinary Teamwork**

Multidisciplinary teamwork is essential to the integrated and concurrent development of a product and its processes. The right people at the right place at the right time are required to make timely decisions. Team decisions, as a result of risk assessments, should be based on the combined input of the entire team (technical, cost, manufacturing and support functions and organizations) including customers and suppliers. Each team member needs to understand his role and support the roles of the other members, as well as understand constraints under which team members operate. All must operate so as to seek global optima and targets.



## **8. Empowerment**

Decision making should be driven to the lowest possible level commensurate with risk. Resources should be allocated to levels consistent with risk assessment authority, responsibility, and the ability of people. The team should be given the authority, responsibility, and resources to manage its product and its risk commensurate with the team's capabilities. The authority of team members needs to be defined and understood by the individual team members. The team should accept responsibility and be held accountable for the results of its efforts. Management practices within the teams and their organizations must be team-oriented rather than structurally-, functionally-, or individually-oriented.

## **9. Seamless Management Tools**

A framework should be established that relates products and processes at all levels to demonstrate dependencies and interrelationships. A management system should be established that relates requirements, planning, resource allocation, execution and program tracking over the product's life-cycle. This integrated or dedicated approach helps ensure teams have all available information thereby enhancing team decision making at all levels. Capabilities should be provided to share technical, industrial, and business information throughout the product development and deployment life cycle through the use of acquisition and support shared information systems and software tools (including models) for accessing, exchanging, validating, and viewing information.

## **10. Proactive Identification and Management of Risk**

Critical cost, schedule and technical parameters related to system characteristics should be identified from risk analyses and user requirements. Technical and business performance measurement plans, with appropriate metrics, should be developed and compared to best-in-class Government and industry benchmarks to provide continuing verification of the effectiveness and degree of anticipated and actual achievement of technical and business parameters.

## **F. IPTs**

DoD Directive 5000.1 describes an IPT in the following manner:

The Integrated Product Team (IPT) is composed of representatives from all appropriate functional disciplines working together with a Team Leader to build successful and balanced programs, identify and resolve

issues, and make sound and timely recommendations to facilitate decision-making.

DoD further states that IPTs are cross-functional teams that are formed for the specific purpose of delivering a product for an external or internal customer. IPT members should have complementary skills and be committed to a common purpose, performance objectives, and approach for which they hold themselves mutually accountable. IPTs are the means through which IPPD is implemented. Members of an IPT represent technical, manufacturing, business, and support functions and organizations that are critical to developing, procuring and supporting the product. Having these functions represented concurrently permits teams to consider more and broader alternatives quickly, and in broader context, enables faster and better decisions. Once on a team, the role of an IPT member changes from that of a member of a particular functional organization, who focuses on a given discipline, to that of a team member who focuses on a product and its associated processes. Each individual should offer his expertise to the team as well as understand and respect the expertise available from other members of the team. Team members work together to achieve the team's objectives. Critical to the formation of a successful IPT are: (1) all functional disciplines influencing the product throughout its lifetime should be represented on the team; (2) a clear understanding of the team's goals, responsibilities, and authority should be established among the business unit manager, program manager and functional managers, as well as the IPT; and (3) identification of resource requirements such as staffing, funding, and facilities. The above can be defined in a team charter, which provides guidance.

DoD uses three types of IPTs to accomplish its goals: Overarching IPTs (OIPT), Working-Level IPTs (WIPT), and Program-Level IPTs (PIPT). Table 1 shows the focus and responsibilities of the three types of IPTs in DoD.

Organization	Teams	Focus	Participant Responsibilities
Office of the Secretary of Defense & Components	OIPT	<ul style="list-style-type: none"> <li>• Strategic Guidance</li> <li>• Tailoring</li> <li>• Program Assessment</li> <li>• Resolve Issues Elevated by WIPTs</li> </ul>	<ul style="list-style-type: none"> <li>• Program Success</li> <li>• Functional Area Leadership</li> <li>• Independent Assessment</li> <li>• Issue Resolution</li> </ul>
	WIPTs	<ul style="list-style-type: none"> <li>• Planning for Program Success</li> <li>• Opportunities for Acquisition Reform (e.g., innovation, streamlining)</li> <li>• Identifying/Resolve Program Issues</li> <li>• Program Status</li> </ul>	<ul style="list-style-type: none"> <li>• Functional Knowledge &amp; Experience</li> <li>• Empowerment Contribution</li> <li>• Recommendations for Program Success</li> <li>• Communicate Status &amp; Unresolved Issues</li> </ul>
Program Teams & System Contractors	Program IPTs	<ul style="list-style-type: none"> <li>• Program Execution</li> <li>• Identify &amp; Implement Acquisition Reform</li> </ul>	<ul style="list-style-type: none"> <li>• Manage Complete Scope of Program, Resources &amp; Risk</li> <li>• Integrate Government &amp; Contractor Efforts for Program Success</li> <li>• Report Program Status &amp; Issues</li> </ul>

Table 1. DoD IPT Types, Focus and Responsibilities, from (OUSD, 1996).

Figure 4 more clearly defines the hierarchy and relationships among the various types of IPTs in DoD.

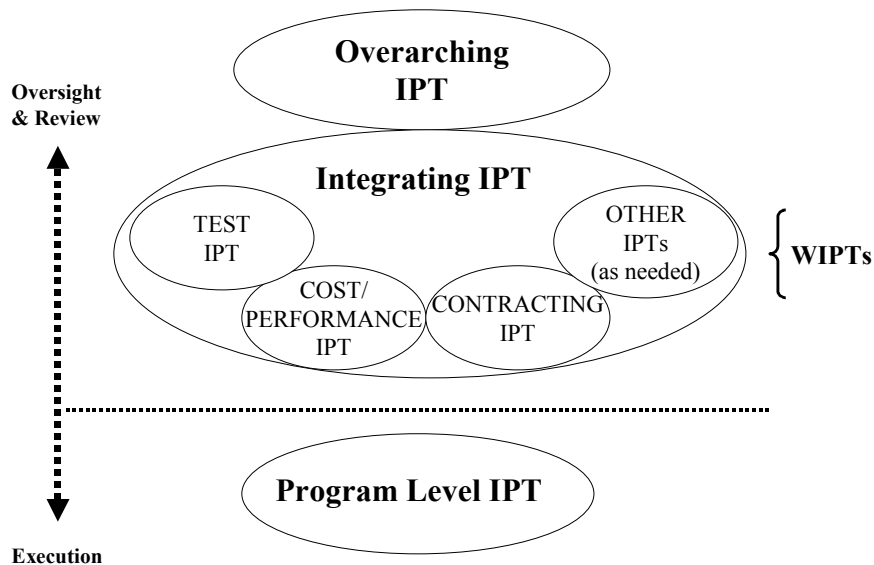


Figure 4. IPT Hierarchy, adapted from (OUSD, 1995).

The following sections provide a further brief description of the overarching, working-level, and program-level IPTs.

### 1. Overarching IPTs

Overarching IPTs only exist on major defense acquisition programs. They are formed for the purpose of providing assistance, oversight and review for these programs as they proceed throughout the acquisition life-cycle. They are led by very high level DoD personnel from the Office of the Secretary of Defense or Service headquarters. A Deputy Assistant Secretary of Defense or an Assistant Deputy Under Secretary of Defense are examples of officials who would lead an OIPT. Again, OIPTs only exist for major defense acquisition programs.

### 2. Working-Level IPTs

The purpose of working level IPTs is to support such activities as the development of strategies for acquisition and contracts, cost estimates, evaluation of alternatives, logistics management, and cost-performance trade-offs. They help provide the Program Manager with information with which to plan program structure and

documentation as well as to resolve other issues. Another major responsibility is to provide information to participants of the Overarching IPT.

### 3. Program-Level IPTs

While the OIPT and WIPTs provided oversight and review of defense acquisition programs, it is the program-level IPT that actually executes the plan and ensures that lower level processes occur and products are produced. PIPTs provide for program execution. Because of this fact, they are by far the most numerous type of IPT in DoD. Most people that are a part of an IPT are part of a PIPT. At the program level, there are usually many sub-tier teams. Each component of the system (product) being required may have its own IPT. For example, a major truck program may have a separate sub-tier team for the truck's engine, a tank program for the tank's main gun. These sub-tier teams are still PIPTs. Figure 5 provides an example for a notional IPT structure.

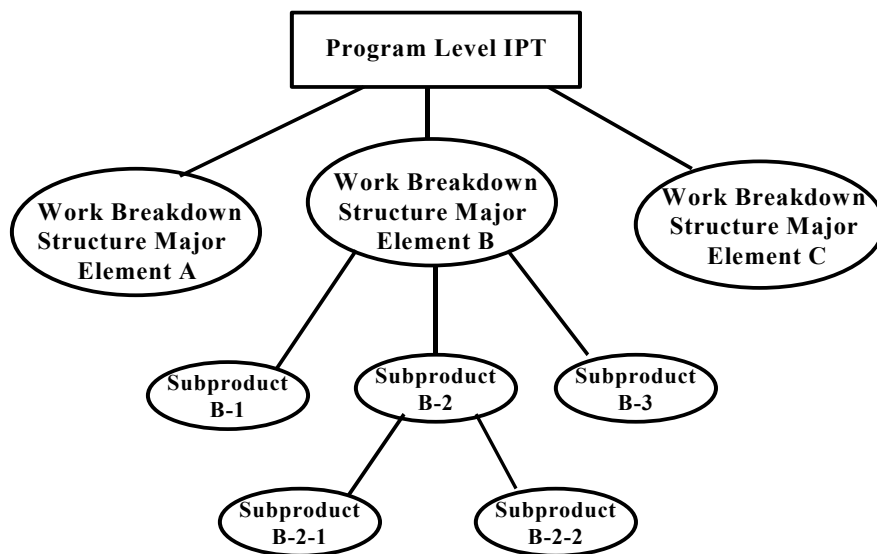


Figure 5. Notional IPT Structure, adapted from (OUSD, 1996).

### G. BARRIERS TO IMPLEMENTATION OF IPPD AND IPTs

It should be evident that the use of teaming and IPPD offers tremendous potential for DoD. But, like everything else, successfully implementing IPPD requires a great deal of hard work and planning. It is not easy. Some of the more common barriers to effective IPPD implementation are described in the sections that follow. These sections

are extracted from *the DOD Guide to Integrated Product and Process Development*. (OUSD, 1996)

**1. Lack of Sustained Top Management Commitment**

The first principle of successful IPPD implementation is to obtain unequivocal top management commitment. Without total top management commitment many employees may view IPPD as just another fad.

**2. Cultural Change Required**

Despite the time that has passed since Secretary Perry's mandate, cultural change is still required for the IPPD process to work. Because of the hierarchical structure of the military Services, adaptation to the IPPD method of doing business may be difficult due to the changing roles of the different staffs. This perception can become more pronounced as differences in rank increase. It is essential that an atmosphere with freedom to express ideas without repercussion from those conflicting views is created.

**3. Functional Organization Not Fully Integrated Into The IPPD Process**

Functional organizations are responsible for technology development, personnel development, process development, process improvement, and administrative functions. These activities cannot be adequately performed if the functional organization and its people are treated as outsiders to the work to be accomplished. For example, process improvement can only occur when teams understand and use the processes developed by the functional organizations.

**4. Lack of Planning**

Planning can be rushed and incomplete as teams quickly form to start an effort already behind schedule.

**5. Insufficient Education/Training**

Education/training has often been overlooked in the process. Sometimes it is assumed that members have received the required training and, therefore, do not require additional education/training. Education/training will be discussed in more detail in Chapter III.

**6. Lessons Learned and Good Practices Not Shared Across Programs**

There is often a lack of communication across programs/organizations in areas of problem solving, lessons learned, and good practices.

**7. “Not Invented Here”**

There is a natural tendency when things are not going well for a team to focus on its immediate problems to the exclusion of other organizations and their needs. A “Not Invented Here” philosophy can develop causing teams to exclude ideas/inputs from their internal and external customers and co-workers.

**8. IPPD Practices “Directed by Contract”**

A series of “approved, recommended, or best practices” for applying IPPD should not be contractually imposed. These practices will become standards by implication and contractors will be hesitant to deviate from them for fear of being found non-responsive.

**9. Contractor Uses IPPD While DoD Does Not**

Problems may arise when DoD expects contractors to use IPPD approaches, but DoD does not participate in IPPD tools, teams or processes.

**10. Contractors Promise More Than They Can Deliver in Implementing IPPD**

The possibility of contractors promising more than they can deliver has always been a problem for Source Selection Evaluation Boards (SSEBs). This is an even greater concern in an IPPD environment because, in the spirit of teamwork, oversight may develop a tendency to be less independent than prior to IPPD implementation. A related trap is if contractors parrot back the IPPD requirements without making the internal cultural changes to operate using IPPD techniques.

**11. Poor Incentives/Awards Fees Criteria**

Under the IPPD philosophy, the driving force behind incentive/award fees should be successful product/process development. Concurrent product and process development, full life cycle design considerations, and continuous improvements should be the focuses. Unfortunately, some contract incentive criteria can disincentivise contractors from using IPPD. For example, incentivizing only development cost can cause the contractor not to perform needed design analysis, testing, and alternative examination. Incentivising meeting of scheduled milestone events, such as design reviews, causes contractors to meet those dates whether they are ready or not.

## **12. Over-Extended Reviews**

When all members of a multifunctional team are encouraged to participate in a design, many questions and issues will be brought up which could be discussed for an excessive time.

### **H. SUMMARY**

This chapter first described teaming, team processes and skills. A team is a highly complex unit and forming a team is not as simple as simply putting a group of people together and calling them a team. A wide variety of skills are necessary if a team is to be successful.

Second, the necessity and success of teaming in private industry was discussed. Teaming allowed American industry to compete in an increasingly global marketplace. The quality of American products improved while cycle times were cut drastically. Most major US corporations currently utilize some form of teaming.

Finally, the factors that drove DoD to implement teaming and IPPD were discussed. An overview of the key tenets of IPPD as well as the organization of IPPD within DoD was presented. This discussion highlighted some of the complexities associated with teaming and IPPD. Twelve barriers associated with the successful implementation of IPPD were discussed. Just as a group of people does not automatically become a team just because someone decides to call them a “team”, DoD cannot successfully implement IPPD by simply claiming to use IPTs. Like any form of teaming, IPPD and IPTs are hard work.



### **III. RESEARCH OBJECTIVE AND METHODOLOGY**

#### **A. INTRODUCTION**

This chapter initially discusses why the research questions were selected and provides direct insight into empowerment, training, and education and how they relate to IPPD and IPTs. Next, the data collection interview methodology is discussed. The data collection technique and interview questions are presented. Initial research included a thorough review of the available literature: books, journals, CD-ROM systems and other library information resources relating to teams and the IPPD process. A thorough search of the Internet was also conducted for information pertaining to teaming and IPPD. Follow-on research consisted of e-mail interviews. Interviews were conducted with a wide variety of IPT team leaders and IPT members.

#### **B. OBJECTIVE**

As is evident from Chapter II, while teaming and IPPD may initially sound like simple concepts, their effective implementation can prove quite complicated. There are countless, often interrelated factors, that must be taken into account in order for a team and the IPPD process to be effective. Prior to the conduct of any research for this thesis, the initial objective was to determine what key factors made teams, specifically, IPTs effective. Very early after the commencement of initial research, it became apparent that this goal was far too lofty and would require many more resources, in terms of manpower and time, than were available. The decision was made to restrict the focus of the research to a much narrower scope. Empowerment and training and education were terms and issues the author had been very familiar with throughout his military career. The importance of each is widely understood. Yet, from his own operational experience, there had been many occasions where these ideas were conformed to only superficially. Realizing the importance of these issues to IPPD and IPTs, the primary research questions were formulated:

- Are IPT members fully empowered by their organizations?
- Do IPT members receive the training and education necessary to execute their specialized tasks?

The paragraphs below will focus specifically on the importance of empowerment and training and education in IPPD and IPTs.

### **1. The Effects of Empowerment on IPT Effectiveness**

In order for an IPT to be effective, it is essential that it possess the authority essential to make timely decisions. Authority is present when the team is responsible for making both day-to-day decisions and delivering the product. (GAO, 2001, p. 28) Mohrman defines empowerment as “the capability to make a difference in the attainment of individual, team, and organizational goals.” (Mohrman, Cohen, and Mohrman, 1995, p. 57) Mohrman further states that empowerment is composed of two elements, a directional element and a capability element. The directional element states that teams are empowered to attain goals that are consistent with the objectives of the overall organization. In the case of an IPT, this would entail meeting the commitments of its charter. The capability element assumes that that empowered teams do in fact have the knowledge, skills, information, resources, and power required to enable them to perform in an effective manner. A fully empowered team does not simply have the authority to make decisions within its charter, it also has the ability to influence outside decisions that may positively or negatively influence its ability to attain its goals. This would include having authority over such matters as the team’s composition. In a study on DoD teaming practices, the GAO found that those teams that did not possess control over their compositions, specifically the selection of IPT personnel and their rotation dates, were less effective than those that did possess this form of control. Thus empowerment takes into account not only direct authority in conjunction with the team’s charter, but also the authority to influence decisions that will have either a direct or indirect impact upon the team.

DiTrapani amplifies the above by stating that the key to empowerment is that team members must have (1) functional skills that qualify them to speak for their functional organizations in most situations, and (2) they must have prompt access to their organizations/supervisors for those situations requiring policy changes or deviations. (DiTrapani, 1996, p. 31)

The previous discussion is not intended to convey the idea that empowerment is synonymous with complete autonomy. Although this is a common perception, it is definitely not the case. An IPT is part of a larger organization and the organization's overall goals and objectives must be kept in mind at all times. The reason that the IPT even exists at all is to aid in the accomplishment of the organization's overall goals. Thus no team can have complete autonomy over the determination of its goals. Goal setting is a two-way process between the IPT and the larger organization and no team can expect to, or should desire to, have the authority to make decisions beyond its scope or charter. Empowerment does imply, however, having the authority to make decisions within the team's scope and to influence decisions made elsewhere that impact the team's work. The scope of decision-making authority needs to be clearly defined before a team can be empowered. (Mohrman, Cohen, and Mohrman, 1995, pp. 277-278)

The Army Materiel Command (AMC) echoes this belief. According to AMC, empowerment of IPTs is critical to their effectiveness. It allows Program Managers to focus on the big picture and long range goals. "It is recognized that all IPT members cannot be expected to have the breadth of knowledge and experience of their supervisors, however they are expected to be in frequent communication with their supervisors, and thus ensure that their advice to the PM is sound and will not be changed later, barring unforeseen circumstances or new information." (Deskbook, 1999) If empowerment is to be utilized effectively, it is imperative that the PM and IPT leaders work closely together. He must understand the team's strengths and a bond of trust must be developed between the PM and the IPT members. Through the team charter, the PM must provide the teams with program direction and guidance to ensure that they can effectively and efficiently execute the objectives of the program office. According to AMC, PMs are "expected to delegate program/product decision authority to the IPTs in consonance with PM direction and guidance, and allow them to manage their assigned products or program." (Deskbook, 1999) The team members must always remember, that while they are empowered and held responsible in the achievement of their goals, it is the PM who is ultimately responsible for the program and quality of the product produced.

## **2. The Importance of Training in the IPPD Process**

The “DoD Integrated Product and Process Development Handbook” (1998) provides guidance to DoD on the use of IPPD and IPTs. It states that, “Successful institutionalization and implementation of IPPD within DoD depend on well-trained participants at all levels.” (OUSD, 1998) It continues to stress the importance of completing training soon after the formation of an IPT and before the entry into any new phase of work. This training should include team skills training, such as team building, as well as program specific training. Early training provides team members with a common set of experiences, expectations, and a shared understanding of the basic ground rules and processes of the team. Whenever a new member is added to the team, it is critical that he receive the training necessary to bring him “up to speed” with the rest of the team. As COL Shiflett of the Army’s Close Combat Tactical Trainer program states, “the path of self discovery does not work.” (Deskbook, 1999) If team members do not understand what a team is and how it works, there is no way it can be effective and it is doomed to fail.

AMC reinforces DoD’s sentiment. AMC believes “IPT member training is vital to the development and operation of a high performance IPT. It is absolutely essential that all members have a common understanding of the objectives of the IPT and IPT dynamics at the earliest possible time.” (Deskbook, 1999) Like DoD, AMC stresses the importance of “just in time” training as soon as possible after team formation. This belief is not unique to DoD or AMC, it is found throughout civilian industry. The Government Accounting Office affirmed the importance of training to the success of IPPD and IPTs in a 2001 study. (GAO, 2001) In a 1999 study on best practices, the GAO, interviewed Program Managers from programs considered, by DoD, to be leaders in the implementation of best practices. These Program Managers stressed that training must be conducted early on. Whenever a new practice or concept is introduced, training must be conducted. Their belief was that if training was conducted too soon, knowledge could fade before it could be applied to the actual work environment. If the training was received too late, people would be forced to acquire the needed knowledge somehow on their own, or worse still, incorrectly execute their assigned mission. (GAO, 1999) It

should be obvious that this allows the possibility of each team member having an entirely different vision of what a team should be. It is very difficult to have a cohesive, effective team when each team member is pursuing different goals or perhaps using radically different methods to achieve the same goals. An effective team must have a common vision.

The Boeing Company provides an example from the civilian sector of the importance of training. The design and production of the Boeing 777 aircraft is testament to the priority placed on training. Team building, conflict resolution techniques and technical skills training were all incorporated up front and early in the design and production of the 777. Boeing emphasized that all 777 team members were equally trained. The employees completed training immediately before they reported to the program office. It was a prerequisite for employment on the 777 program. Where possible, teams were trained together as a unit in the work environment. For example, 120 hours of start-up training was required on several of the key 777 practices. Boeing officials have stated that they believe this training was instrumental to the implementation of key practices, and ultimate success of the 777 program. This was especially true in the case of IPTs. At the time, IPTs were a new concept for Boeing. Employees were not accustomed to working in a team environment and the idea of working across functional areas was counter to the longstanding culture of the company. The Ford Motor Company uses similar techniques and refers to their training process as “just in time” training. Like Boeing, Ford believes that it is important to learn new skills immediately before they will be applied to the job. (GAO, 1999)

### **3. Empowerment and Training: Essential Complements**

From the above paragraphs, it should be apparent that empowerment and training are two essential and complementary factors in the success of an IPT and thus IPPD. In order to be empowered, one must have the skills and knowledge necessary to make decisions. No responsible functional area supervisor would empower an IPT member to make decisions if he was not knowledgeable in his functional area and did not understand the interrelationships to the rest of the program. In order for individuals, and IPTs as a whole to acquire the necessary knowledge, training must occur. Knowledge is power and only through training can the entire team possess the common traits of knowledge

required to operate in the most effective and efficient manner. It is for these reasons that the decision was made to focus on empowerment and training issues in regards to IPTs.

### **C. METHODOLOGY**

Chapter II and the previous sections of this chapter have already answered the subsidiary research questions:

- What is teaming?
- What is IPPD?
- What is the importance of training and education in the IPPD process?
- How does empowerment relate to the effectiveness of IPTs?

The answers to these questions were obtained through the initial research, which included a thorough review of the available literature: books, journals, CD-ROM systems and other library information resources relating to teams and the IPPD process. A thorough search of the Internet was also conducted for information pertaining to teaming and IPPD.

Interviews were conducted in order to answer the primary research questions listed below:

- Are IPT members fully empowered by their organizations?
- Do IPT members receive the training and education necessary to execute their specialized tasks?

Contact was made with a wide variety of IPT members who had the common trait of belonging to an IPT related to a weapons or technical system of concern to the United States Marine Corps. A total of twenty IPT members were interviewed. The demographics of this group were as follows:

- Six were active duty military
- Eleven were Government civilian personnel
- Three were civilian contractor personnel

Ten of the twenty IPT members interviewed were either IPT or sub-IPT leaders. The group provided feedback on over twenty different IPTs or sub-IPTs. Initially an e-mail was sent to each potential interviewee describing the nature of the research and requesting either an e-mail or telephonic interview. A list of the interview questions was included with this e-mail. The questions were designed to focus on IPT training and

empowerment. The IPT members were informed that, because of the number of interviews being conducted, an e-mail interview was preferred. If this was not suitable, a telephonic interview could be conducted at the convenience of the interviewee. Each participant elected to conduct the interview via e-mail. Each interviewee was informed that all information that they provided would be kept strictly confidential and neither their organization, IPT, nor they would be specifically identified. Program specific information was only asked for in order to help organize the data and ensure that data was being obtained about a number of different IPTs. The goal was not to obtain duplicate data. The participants were assured that the findings would be presented as a group and would not identify or target any specific organization. This was done so that the participants could answer all questions honestly without any fear of possible reprisal or repercussions. The confidential information requested, and used for organizational purposes only, appears below:

**Organization:**

**Interviewee:**

**Program:**

**IPT or sub-IPT:**

**Position and Title on IPT:**

**Government or Contractor:**

**e-mail address:**

The following interview questions were used for each interview and appeared in the general format as presented:

**General:**

1. How often does your IPT or sub-IPT meet?
2. How many members comprise your IPT or sub-IPT?

3. Are members collocated? (Located within the same building or complex)
4. Are you an IPT or sub-IPT Leader?
5. Do you feel that your IPT or sub-IPT is effective?

**IPT Training:**

The *DoD Integrated Product and Process Development Handbook* states that successful implementation of IPPD depends on well-trained participants. The following questions are in regards to IPPD and IPT training.

1. How did you attain the knowledge necessary to work as part of an IPT? (e.g. Government training, on-the-job training, finding external training on your own, developing your own training program, you do not feel you have the appropriate knowledge, etc.)

2. If formal training was conducted:

- a) Was it conducted individually or as a group?
- b) Were all members of the IPT equally trained?
- c) Who conducted the training? (e.g. program office, DSMC, contractor, etc.)
- d) Were your instructors current and was the training relevant?
- e) Was the training tailored in such a way that individuals could see how the practices could be applied to their own program?
- f) What did the training consist of? (How long did it take and what was taught?)
- g) Did you consider the training effective and useful or was it conducted merely as “a check in the box” to meet a perceived requirement?

3. Do you feel that your knowledge of IPPD and IPTs is adequate to allow you to perform effectively as an IPT member? Do you feel the other team members possess the requisite knowledge? Was the manner in which you obtained this knowledge effective? Please elaborate if necessary.



4. Do you have any suggestions to improve IPPD/IPT training? Does more need to occur or should it be eliminated completely because it is a waste of time?

5. Do you feel training is essential to the success of an IPT? Please explain.

6. Are you properly trained and qualified as a subject matter expert to accomplish your assigned functional area duties as part of the IPT?

7. Does your team possess the knowledge and functional area expertise to carry out its expected role?

8. Please add any additional comments or suggestions you have in regards to IPPD/IPT training.

**Empowerment:**

1. Do you feel that your IPT, as an entity, is empowered to make decisions within the authority defined in the team charter?

2. Are you empowered to make decisions (within the team charter) by your functional leadership/managers or do authorities outside of the team have authority to make decisions that affect the team-chartered responsibilities? What percentage of team members do you believe possess this level of empowerment?

3. Is your team responsible for making both day-to-day decisions and held accountable for its results?

4. Do the team leader or other team members have any direct input to your work evaluation or is this solely the responsibility of your functional area manager?

5. Did the team leader or other IPT members have any input into the selection of team members or was team member selection the responsibility of the functional area manager?

6. Was your team involved in the creation of its charter? Did it have any input into the goal-setting process? Were these goals realistic? Are you meeting cost, schedule and performance goals?

7. Do you feel that empowerment is critical to individual IPT members and the IPT as a whole?

8. Please add any additional comments or suggestions you have in regards to IPT empowerment.

Once all the interviews were completed, the researcher consolidated the responses into a master interview response sheet. The purpose of the master interview response sheet was to facilitate the sorting and analysis of the data.

#### **D. SUMMARY**

This chapter initially discussed the rationale as to why the primary research question was selected. The primary research questions were once again presented:

- Are IPT members fully empowered by their organizations?
- Do IPT members receive the training and education necessary to execute their specialized tasks?

The initial research which included a thorough review of the available literature: books, journals, CD-ROM systems and other library information resources, provided insight into the importance of empowerment, training and education in regards to IPPD and IPTs. These factors were universally considered essential by the literature resources reviewed. DoD places great importance on empowerment and training in regards to IPPD and IPTs.

Next, the methodology of the study was discussed. The interview techniques of data collection and the demographics of the research participants were presented.

Finally, the interview questions were themselves presented. Along with this, quick reference was made to the master interview response sheet that is to be used to facilitate the sorting and analysis of the accumulated data.

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## **IV. DATA PRESENTATION AND ANALYSIS**

### **A. INTRODUCTION**

This chapter contains a summary of e-mail interviews conducted by the author during December 2001. The respondents were divided into two groups, those who were IPT or sub-IPT leaders and those who were not. Throughout the chapter, members of these two groups will be referred to as IPT leaders and team members respectfully. The purpose of the interviews was to obtain the data necessary to answer the primary research questions:

- Are IPT members fully empowered by their organizations?
- Do IPT members receive the training and education necessary to execute their specialized tasks?

The interview questions, as presented in Chapter III, were designed to focus in on training and empowerment issues. Each area, training and empowerment, divided into eight question areas. The data are comprised of the comments, opinions and personal experiences of those interviewed in regards to the eight question areas on training and empowerment. The data is grouped by the responses to each question area in the chapter that follows. The question areas are once again presented and are immediately followed by the compiled data and a short analysis.

Ten IPT leaders were interviewed. Five were civilian Government personnel, four were uniformed military members, and one respondent was a civilian contractor. Ten other team members were also interviewed. Of these, six were civilian Government personnel, two were uniformed military members, and two respondents were civilian contractors. Many respondents were members of more than one IPT. Three were members of the same IPT. Overall, the interviewees represented over twenty different IPTs.

IPT membership averaged about twelve personnel. There were two outliers; that is, one team only had three members while one was comprised of fifty members. The number of members in each of the other IPTs was very close to the average. Of the twenty people interviewed, seventeen viewed their IPTs as effective; two viewed their IPTs as marginally effective, while one viewed his IPT as being ineffective.

## **B. COMPILED DATA AND ANALYSIS: IPT TRAINING ISSUES**

### **1. Question Area 1**

The following question comprised question area 1:

**How did you attain the knowledge necessary to work as part of an IPT? (e.g. Government training, on-the-job training, finding external training on your own, developing your own training program, you do not feel that you have the appropriate knowledge, etc.)**

#### ***a. IPT Leaders' Responses***

Of the ten IPT leaders interviewed, only four received any type of formal IPT training. Each respondent either obtained all or a large portion of their knowledge through on-the-job training. Two participants identified general management training they had received while earning Masters degrees as being indirectly beneficial, although this training had taken place many years before and was not focused towards the utilization of IPTs. Generally, respondents were required to take the initiative to obtain the required knowledge. One respondent specifically cited the DoD publication "DoD Rules of the Road for Successful IPTs." All participants identified past work experience and IPT experience as a prime source of their IPT knowledge.

#### ***b. Team Members' Responses***

On-the-job training was the overwhelming response of the IPT team members. Seven of the team members had received no training at all. Some had served on previous IPTs, on which they received no training, which they credited with providing them with some of the basic required knowledge. But, as one team member stated, he was "the only member (on his current IPT) that had worked on a previous IPT." Three of the team members had received formal Government acquisition training, which included IPT training. This training had been conducted prior to their membership on their current IPT and was in no way tailored to the current situation. It was general acquisition training. One member's IPT did use facilitators at times, which he viewed as very helpful. This same team member also, through his own initiative, read many books on problem solving such as "*The Problem Solving Journey*" in order to become a more effective team member. Even he agreed that the basic attitude of his IPT was just "go and do it."

*c. Analysis*

The responses of the IPT team leaders and team members make it clear that participants are receiving little to no training on the use of IPPD and IPTs. DoD's approach, at least in the IPTs studied, seems to be a train as you go approach and is contrary to DoD's own guidance on the subject. If DoD truly intends to follow former Secretary of Defense William Perry's guidance and fully implement IPPD in the acquisition process, it must follow its own guidance. Complete training is necessary soon after the formation of an IPT and before the entry into any new phase of work. On-the-job training can have positive results, but it should not replace a formal training process. This is especially true if only a small percentage of IPT members have had any type of formal training. Team members may believe that they are fully conforming to IPPD and the IPT process when in actuality they are not. How can they conform to something when they are not really sure what it is that they are supposed to be conforming to? As was stated early on in this thesis, simply throwing a bunch of people together and calling them a team does not make that group of individuals a team.

**2. Question Area 2**

**The following questions comprised question area 2:**

**If formal training was conducted:**

- **Was it conducted individually or as a group?**
- **Were all members of the IPT equally trained?**
- **Who conducted the training? (e.g. program office, DSMC, contractor, etc.)**
- **Were your instructors current and was the training relevant?**
- **Was the training tailored in such a way that individuals could see how the practices could be applied to their own programs?**
- **What did the training consist of? (How long did it take and what was taught?)**
- **Did you consider the training effective and useful or was it conducted merely as "a check in the box" to meet a perceived requirement?**

*a. IPT Leaders' Responses*

Each of the four IPT leaders who received formal IPT training received it as a group. Every IPT member who received training did not receive the same training

and with the exception of one IPT, general, generic training was conducted. Defense Systems Management College and program office personnel conducted the training. The leader of the IPT that received tailored training believed that it was very helpful, but not a necessity for his IPT. The tailored training incorporated group workshops that conducted exercises to apply some of the IPT principles learned from classroom instruction. The workshops were viewed as effective. Two of the other leaders believed the training was very effective. None of the entire IPTs received training together but portions of the IPT received collective IPT training together. One IPT leader viewed the training as nothing more than a “check in the box.” His IPT received group training, but it was not conducted for his IPT specifically. Training was incorporated into an Acquisition Reform Standdown in which the entire larger organization participated. In this case basic IPT principles were presented.

***b. Team Members’ Responses***

The three team members who received formal training all received it from professional contract instructors and found it extremely effective. In all three cases it has helped them perform their functions on their IPT and has improved the overall effectiveness of the IPT. Two of the team members attended the training with their entire IPT as a group. One IPT had common core training for all individuals and some specifically tailored training for their management and technical teams. The Motorola University “WORKOUT” training sessions were specifically mentioned. These sessions were three to four days of mentored/facilitated IPT work to help the team solve particular problems. It was very effective and useful for the IPT concerned. The Motorola University facilitators were viewed as “excellent” by one team member. The one team member who did not attend IPT training with his entire team had attended a one-week training session at the Florida Institute of Technology. It was comprised of classroom instruction and practical application of the skills learned. He was putting this training to effective use in his current IPT. One team member had received general IPPD training from his command on several occasions. The typical training period was one hour in length and was viewed as nothing more than a “check in the box” by the respondent. This sort of training was viewed as completely ineffective.



*c. Analysis*

The responses to this question area tie in very clearly with the responses in question area 1. Once again, it is obvious that not many people received training. This is especially true in regards to team skills training and specifically tailored training prior to IPT formation. The training that was viewed as the most effective was that conducted by professionals who were well versed in IPPD and the potential effectiveness of IPTs. Training by experts in the field when combined with practical application seems to be very effective. Instead of “guessing” how they should operate as a team, team members were shown how to be effective through intense training sessions. This seemed to make the group’s learning process much more efficient and therefore made them a more effective team. Attempts to comply with Secretary Perry’s guidance through the use of command wide training days were viewed as being exactly what they were, “a check in the block” to say that training was taking place and command personnel all received “training” in IPPD and IPTs.

**3. Question Area 3**

The following questions comprised question area 3:

**Do you feel that your knowledge of IPPD and IPTs is adequate to allow you to perform effectively as an IPT member? Do you feel the other team members possess the requisite knowledge? Was the manner in which you obtained this knowledge effective?**

*a. IPT Leaders’ Responses*

All of the IPT leaders felt that they and their team members possessed an *adequate* knowledge of IPPD and the IPT process. At the same time, most also felt the IPT would be more effective if a higher knowledge level was present. As two respondents stated, “Our knowledge is barely adequate” and “I feel that my knowledge is adequate but some of the other members could use a formal/structured training program” point to an adequate, but not superior knowledge level. Another remarked that “IPT training makes sense” for many of our team members. One IPT leader commented that his IPT is “feeling their way through what works and what doesn’t. The team is still made up of individuals with different ideas.” Once again team leaders credited their past

experience and initiative vice any training program as the reason as to why they possessed the requisite knowledge that allowed their IPTs to produce effective results.

***b. Team Members' Responses***

Like the IPT team leaders, the team members felt that the IPT possessed an *adequate* knowledge of IPPD and the IPT process, which allowed them to complete their tasks. The team members who had received training felt especially confident in their own knowledge and abilities. There was a general feeling that not everyone on the team had the knowledge required and that the IPT process seemed to be a “learn on the job” experience for many. Even though many team members believed their team was still effective overall, they did not seem to be obtaining the full potential of their IPTs. As one team member states, “we still occasionally experience the deliverable and approval process vice the joint development we are attempting.” The team members felt that the manner in which they obtained their knowledge, mainly on-the-job training, was effective but not nearly as effective as it could have been. One team member expressed the following feelings:

“You learn as you go along. I would have preferred formal training for all members. I think the IPTs would have been more effective in the early stages. At first we were all on the learning curve and the IPT effectiveness was low in the early stages. I feel that our process is effective now but there is still room for improvement,”

***c. Analysis***

The IPT leaders and team members felt their knowledge was adequate because they were able to produce results. Many team members thought their knowledge was adequate, but the others could have benefited from increased knowledge. Time and time again the “learn on the job” experience was brought up. This entails a lot of wasted time and team inefficiencies from the very beginning as team members try to figure out exactly what it is they are supposed to do. Effective up-front training, by professionals, would eliminate a great deal of this unnecessary “overhead” learning that takes place. It would also provide the benefit of providing a common baseline degree of knowledge for all team personnel. Expectations and a clear focus could be created early on. The IPTs still seem to be performing their work in a vertical or hierarchical manner vice the horizontal manner stressed by IPPD. It appears that many of the IPT members do not

even realize the full potential of their teams and IPPD, because they do not really know what IPPD is. To many, a team is no more than a group of people who have been “thrown” together. It appears that many believe as long as I’m producing something, everything is “OK”. They do not realize the synergistic effect that is possible with an IPT.

#### **4. Question Area 4**

Question area 4 was comprised of the following questions:

**Do you have any suggestions to improve IPPD/IPT training? Does more need to occur or should it be eliminated completely because it is a waste of time?**

##### ***a. IPT Leaders’ Responses***

Six of the IPT leaders had never experienced or received any IPPD/IPT training. Because of this fact, five of these IPT leaders did not feel that they could offer any suggestions to improve anything they had never experienced. The responses of the other five interviewees varied. Four of the respondents expressed the belief that training was necessary and could be improved. Two specifically mentioned tailoring training to meet the need of the particular program. “IPPD/IPT training programs should be tailored at the beginning of every program and revisited at each phase of the acquisition program because of the changing/evolving nature of most programs.” “Training programs for developing the skills and knowledge needed to perform management and/or technical skills should be provided and scaled to each project.” One IPT leader expressed his belief in the importance of training stating, “On this project training of any kind is a low priority task which I am actively trying to change for the health of the project.” One IPT leader expressed his opinion that “formal training ... is good because it gives people a point of departure.” He goes on to state that “in the real world the details of the (IPPD) process are widely ignored in the interest of getting something accomplished. About the only thing some IPTs retain from the formal methodology is the idea of a charter. The charter is a good way to ... force member agencies into participation.” There was only one IPT leader who believed that training had no value and therefore could not be improved. He stated that “effective team members do not come from training but from all the skills attained over a career. IPT members have different roles and may have skills that are effective on one IPT but not on others.”

***b. Team Members' Responses***

There was universal agreement that the simple act of conducting training would be a big improvement over the current situation and that more training was needed. That being said, the quality of the training is very important. As one team member stated, "Bottom line – if the training is good, more is always better and should target where the IPT is trying to go." Examples and more examples were considered to be very important aspects of effective training. One team member went so far as to state that, "...all the participants should be an expert on the subject (IPPD/IPTs)." Many team members stated their belief that all team members of a specific IPT should have formal training together. No one viewed quality training as a waste of time.

***c. Analysis***

With the exception of the one IPT team leader, there was universal agreement, from those who felt that they could respond (the five IPT leaders), that training should definitely take place. One IPT leader, who disagreed with the need for training, had a valid point that skills attained throughout ones career are very important. Unfortunately, all team members have not experienced everything in their careers and early training would help them bridge this experience gap. It was also interesting that all the team members thought they could respond and that increased knowledge of IPPD and IPTs was needed. There seemed to be a strong desire among team members for effective group training so the team could in fact have a common baseline from which to operate.

**5. Question Area 5**

Question area 5 was comprised of the following question:

**Do you feel training is essential to the success of an IPT? Please explain.**

***a. IPT Leaders' Responses***

Overall the IPT leaders thought training was a facet of a successful IPT, but they did not believe that it was essential. They thought their own IPTs were successful and this success was accomplished with little or no training. Strong leadership and common sense were considered more important than training. As well, the quality of the personnel on the teams was considered important. Their willingness to go "above and beyond" to get the job done and their own personnel background and experience were considered key factors. One respondent stated, "If good people believe in the system and

the people running the program, they will find a way to get the job done regardless of the amount of training.” That being said, the overall opinion was that training would be extremely helpful. “Establishing a baseline is important” and training enables this, indicated an IPT leader. Another stated, “A group will normally consist of many people with diverse technical and non-technical backgrounds, skills and experience. It is important that everyone is not only aware of this but understands what the objectives of the program are and realize why a team approach is needed.” As one leader said, “Competency training is very necessary to adequately perform the required duties. Training programs for developing the skills and knowledge needed to perform management and/or technical roles should be provided and scaled to each project.”

***b. Team Members’ Responses***

Eight of the ten team members were emphatic that training was essential to the success of an IPT. This was considered especially important early. Training was considered important to get all participants on the “same page and allow the team to become more comfortable with their personal dynamics” was the response of one team member. Without it some members will tend to flounder because they don’t have something to point to that tells them exactly what to do. Another stated, “An effective IPT requires team building in order for the group to learn the strengths and weaknesses of the individuals so that they can most effectively define the roles and responsibilities of each individual.” One team member was not sure about the importance of training. In this team member’s case, IPTs ended up being “informational meetings.” Decisions were made by upper level management (General Officer level) who had not been provided with the full range of information required to make informed decisions. The decisions were then briefed to the IPT. The IPT did not have any real input into the decision making process. Only one team member did not view training as providing any value to an IPT. This member believed that if an IPT is empowered to do what needs to be done and supported from higher management, then the IPT can be effective without training.

***c. Analysis***

Once again, the overall view is that training is very important. Also, once again, this view is even more prevalent among the IPT team members than it is among the IPT team leaders. The IPT team leaders once again tend to feel more that they do not

need any training and they can get through anything due to their experience and strong leadership skills. There is no doubt that these elements are key factors in the success of an IPT. The IPT team members tended to be less experienced. Because they did not have the experience many of the IPT leaders had to fall back on, they viewed training as being essential. From his response, the one IPT team member who was not sure about the importance of training did not seem to understand what IPPD and IPTs were. In fact it appears that his entire team and upper level management may not have had a true understanding of what IPPD should be. An IPT should do more than listen to informational meetings. If that is all they are doing, they are an IPT in name only. It would seem that those who could not see the importance of training could have perhaps benefited the most by training in IPPD and team building techniques.

#### **6. Question Area 6**

The following question comprises question area 6:

**Are you properly trained and qualified as a subject matter expert to accomplish your assigned functional area duties as part of the IPT?**

##### ***a. IPT Leaders' Responses***

Overall, the IPT leaders felt that they were qualified to lead their IPTs. Most did not consider themselves subject matter experts but they did not find that a necessity for an IPT leader. Once again, leadership and common sense were considered important traits for an IPT leader. They felt that their job was to, in one IPT leader's words, "get the smart guys in a room together, identify the issues, and steer them towards an acceptable solution." The team members themselves were responsible for providing the subject matter expertise.

##### ***b. Team Members' Responses***

Eight of the team members felt that they were properly trained and qualified as subject matter experts in their functional areas. If they did not possess the requisite knowledge they felt that they had access to it through their functional area organizations. One team member felt only somewhat qualified, while one uniformed Service member did not feel that he was qualified as a subject matter expert at all. He was new to his current organization and had had no previous acquisition experience.

*c. Analysis*

It would seem that the IPT leaders and team members think that they have been properly trained to the extent necessary in their functional area. They did possess or had easy access to the functional area expertise required. This is in agreement with the recommendations found in the literature. The fact that the team members are in fact functional area experts is probably what allows them to accomplish their tasks even though their overall knowledge of IPPD and IPTs appears to be lacking. Success seems to occur due to the perseverance of individuals rather than the synergy of a team.

**7. Question Area 7**

The following question comprised question area 7:

**Does your team possess the knowledge and functional area expertise to carry out its expected role?**

*a. IPT Leaders' Responses*

Nine of the ten IPT leaders thought that their team did possess the knowledge and functional area expertise necessary to carry out its expected role. One IPT leader felt that some of the subcontractor personnel did not possess the knowledge and functional area expertise required. If the team did not possess the expertise required in certain areas they were empowered to bring in additional members to the IPT to fill this void. Individually, the teams did not have the overall knowledge required. It was the combined team knowledge and expertise that enabled them to be effective. "The sum of all the individual parts possesses the knowledge needed," responded one IPT leader.

*b. Team Members' Responses*

Overall the team members felt that their team did possess the knowledge and functional area expertise necessary to carry out its expected role. If they did not have the resident expertise, they had the ability to find someone who did. Not having the resident expertise directly available did at times create a conflict of priorities and time delays. Overall, the "IPT structure has a cross section of experience that enables us to function proficiently and efficiently," stated a team member. There was one contradictory opinion. One experienced IPT member stated that only about half of the IPTs he has been on had team members who possess the knowledge and functional area expertise to enable the IPT to effectively carry out its role. As he stated, there is "nothing

worse than looking around the table and saying to yourself, we've got the wrong people here.”

*c. Analysis*

IPT leaders and team members agreed with their individual observations when applied to the team as a whole. Overall, though not universally, the team members were confident in the functional area expertise of their teammates. This confidence would make any team building exercise more successful. It was noted that not having the required expertise could cause delays in the effective functioning of an IPT. To be fully effective and utilize concurrent engineering techniques, the team should have all of the required functional area expertise resident on their team. Obviously, this is not completely practical and the teams studied generally recognize this.

**8. Question Area 8**

The following statement makes up question area 8:

**Please add any additional comments or suggestions you have in regards to IPPD/IPT training.**

*a. IPT Leaders' Responses*

Any additional comments made by the IPT team leaders provided amplification of the previous question areas presented. As such, these statements were included in the relevant question areas.

*b. Team Members' Responses*

As with the IPT leader responses, any additional comments made by the IPT team members provided amplification and clarification of previously discussed question areas. These responses have already been incorporated into the previous data presented.

**C. COMPILED DATA AND ANALYSIS: IPT EMPOWERMENT ISSUES**

**1. Question Area 1**

The following question comprised question area 1:

**Do you feel that your IPT, as an entity, is empowered to make decisions within the authority defined in the team charter? Does empowerment include authority to commit resources?**



**a. *IPT Leaders' Responses***

Overall, the IPT team leaders felt that they were empowered to make decisions within the authority defined in their team charter. Some also had the authority to commit resources but this tended to be on a very limited basis. This limitation was usually due to tight budget and funding constraints. Approval from higher levels generally had to be received for any type of resource commitment of any significance. One highly successful test IPT was fully empowered by their collective functional area leaders. The IPT leader of this IPT attributed much of their in-the-field test successes to this fact.

**b. *Team Members' Responses***

Nine of the ten IPT team members believed that their IPT was empowered to make decisions within the authority defined in their charter. Of these nine, one team member felt that her IPT was empowered, but that her IPT leader never allowed the IPT to exercise this empowerment, instead leaving the decisions to external leadership/managers. Only one did not believe that his team was empowered in such a way. The team charter was viewed as being absolutely necessary to define the bounds and “draw a box” for the IPT to proceed in the right direction. Of the nine team members who believed their teams were empowered to make decisions, only two were actually empowered to commit resources directly. Without the ability to commit resources the team members did not feel that they were truly empowered. One team member commented that all of his team’s decisions must pass through the program management “side of the house” before any resources could be committed. He viewed this as a hindrance to his IPT’s effectiveness.

**c. *Analysis***

Only one of the teams appeared to be fully empowered and had been given the authority to commit resources. While empowerment does not entail complete autonomy, IPTs should be given authority to commit resources commensurate with their capabilities. Either the teams are completely incapable or they are not fully empowered. Based on the team responses in regards to training, the latter would seem to be the case.

**2. *Question Area 2***

The following questions comprised question area 2:

**Are you empowered to make decisions (within the team charter) by your functional leadership/managers or do authorities outside of the team have authority to make decisions that affect the team-chartered responsibilities? What percentage of team members do you believe possess this level of empowerment?**

***a. IPT Leaders' Responses***

Responses were very similar to those received in question area 1. Many of the IPT leaders felt empowered to make recommendations only and felt that outside authorities did in fact influence the implementation of the charter and responsibilities. Opinions of the IPT team leaders varied from zero to one hundred percent when asked what percentage of team members do you believe possess this individual level of empowerment

***b. Team Members' Responses***

Three of the IPT team members felt that they were empowered to make decisions by their functional area managers. These three IPT members thought about seventy percent of their IPT was so empowered. The other seven IPT members were not empowered and felt that zero to ten percent of their IPTs were empowered in such a way. One team member, who did feel that his team was empowered, said that this does not entail complete empowerment and he thought that that was good. He stated, "Communism sounds great on paper, but it simply doesn't work in the real world the way it sounds like it would. True empowerment is similar. Besides, the system of checks and balances has worked throughout history for a reason." The key is to find the happy medium between no empowerment and complete autonomy.

***c. Analysis***

Again, from the responses above it seems clear that individual IPT members are, for the most part, not empowered at all by their functional area managers. Management functions continue to be structurally- or functionally- oriented rather than team-oriented as desired and required to be effective using IPPD. Program offices do not seem to have fully "bought in" to IPPD and IPTs. Being empowered to make recommendations only implies that nothing has changed. The hierarchical process is still in place only now it is being called IPPD. Unfortunately, this is not what IPPD is.

### **3. Question Area 3**

The following question comprised question area 3:

**Is your team responsible for making both day-to-day decisions and held accountable for its results?**

#### ***a. IPT Leaders' Responses***

Six of the IPT leaders responded that their IPTs were responsible for making day-to-day decisions and held accountable for their results. Two of the IPT leaders were very adamant about this fact. In fact on one IPT, for the contractor, failure meant the loss of jobs. As the IPT leader remarked, "I would guess that was the ultimate accountability factor on our team." Two of the team leaders replied that their teams were marginally responsible and accountable for their results while two respondents stated they were not held responsible or accountable at all.

#### ***b. Team Members' Responses***

Four of the IPT team members thought that their teams were responsible for making day-to-day decisions and held accountable for their results. The other six team members all felt that they were not responsible for these decisions nor were they held accountable.

#### ***c. Analysis***

Ten of the twenty respondents did feel that their team was responsible for making day-to-day decisions and held accountable for their results. When taken in conjunction with the responses in question area 2, it seems, overall, that these decisions would entail nothing more than advice to upper level management. If the IPTs are actually responsible for more than that, the other half of the members interviewed still feel that they are not responsible or held accountable at all for their results. This is in direct contrast to Secretary Perry's mandate. It violates one of the key tenets inherent to IPPD, that of empowerment. If a team is going to be held accountable for its performance and results, it must also be empowered to commit resources. If this is not the case, the tenets of IPPD are also not being properly applied.

### **4. Question Area 4**

Question area 4 was comprised of the following question:

**Do the team leader or other team members have any direct input to your evaluation or is it solely the responsibility of your functional area manager?**

***a. IPT Leaders' Responses***

One IPT leader responded that he and the other team members had any direct input into the evaluations of the IPT personnel on their IPT. All of the other IPT leaders responded negatively. The leaders did attempt to recognize and identify superior performers to their functional area managers. They thought that the functional area managers would note this recognition during later evaluations. No comments were made about identifying poor performers.

***b. Team Members' Responses***

IPT team leaders did have direct input into the team members' evaluation in two cases but, in both of these cases the team leader was also the team member's functional area manager. In every other case no one on the team had any type of direct input into another team members' evaluation. One team member did believe that there might have been indirect impact on his evaluation from "tidbits" of information his functional area manager may have gleaned from conversation with other team members. This same team member also believed that team members should have input and contribute (anonymously) to the evaluations of the other team members.

***c. Analysis***

One of the barriers to implementation of IPPD and IPTs is possibly poor incentives. In the literature this mainly deals with financial rewards to contractors. The same applies to IPT team members. Unless the team leader or other team members have some sort of input into the personnel evaluation process, there is no direct motivation for the IPT members to "go that extra mile" and perform to their fullest ability. Many are very professional and perform in such a manner due to their own personal pride and professionalism. But, once again, if an IPT is to be fully empowered it must be held accountable for its actions and given the resources to accomplish its tasks. This should occur on a personal as well as a team level. The only manner in which individual team members can be held directly accountable for their actions as members of an IPT, is if the IPT itself has some sort of direct input into the team member's evaluation. This is not currently taking place.

## 5. Question Area 5

Question area 5 was comprised of the following question:

**Did the team leader or other IPT members have any input into the selection of team members or was team member selection the responsibility of someone else, such as the functional area manager?**

### *a. IPT Leaders' Responses*

Eight of the IPT team leaders stated that they and/or their teams did have input into the selection and replacement of team members. One had no initial input into the team selection but was given the ability to eliminate “deadweight” from the team. He felt that he had a good team after this “deadweight” was eliminated. One IPT leader remarked that neither he nor his team members had any input into the selection of team members.

### *b. Team Members' Responses*

Four of the IPT team members stated that the IPT team leader and team members had no input into the selection of team members. It was solely the responsibility of either functional area managers or others. The other six IPT members stated that either the team leader or a combination of the team leader and team members had direct input into the selection of team members. One team member, who was replacing an outgoing member, remarked that the person he was replacing had a major input into his interview and evaluation for selection as a part of the team. One member stated that he had previously been on IPTs in which functional area managers selected the team members. He found these IPTs to be a “disaster.”

### *c. Analysis*

The fact that so many of the IPT members interviewed stated that either the team leader or team members did have input into team member selection was a positive sign in regards to empowerment. If a team is to be empowered to control its own destiny, having an input on the personal composition of the team is very important. This can help to provide the correct mix of functional area expertise and prevent personality conflicts. The ability to eliminate “deadweight” is evidence of some amount of empowerment being granted to IPTs. The ability to have input in the selection of new members is even more important to DoD than it would be to civilian organizations.

Because of the large turnover rate of military personnel, if IPTs were not so empowered there could be drastic changes in the priorities of IPT members. Input in personnel selection helps to alleviate this possibility and also to increase the “buy in” of team members.

## **6. Question Area 6**

The following questions comprise question area 6:

**Was your team involved in the creation of its charter? Did it have input into the goal-setting process? Were these goals realistic? Are you meeting cost, schedule and performance goals?**

### *a. IPT Leaders’ Responses*

Eight of the IPT leaders interviewed stated that their teams had input into the creation of their team’s charter. One team had no involvement at all in the creation of its charter. All teams have been involved in the goal-setting process and believe that the goals set, albeit in some cases they have been set fairly high, are realistic and obtainable. Most of the teams are currently meeting cost, schedule and performance goals. One IPT team leader reports that his IPT has had minor cost and schedule lags that have been directly attributable to personnel turnover.

### *b. Team Members’ Responses*

Eight of the IPT team members state that either they or previous IPT members had been involved in the development of their team’s charter. Seven of these team members believed that their IPT had input into the goal-setting process. Every team member that had input into goal setting felt that the IPT had realistic goals. The others felt the goals were too lofty and possibly unrealistic. The teams that had input into the goal-setting process were generally meeting their cost, schedule and performance goals. Those who did not, generally were not meeting their goals.

### *c. Analysis*

Involvement in the creation of a team charter and the establishment of team goals are key steps in helping IPT members to feel empowered and feel like they are part of a team. Goals become team goals and not the goals of some outsider who, as one team member remarked, “doesn’t understand what the team is all about.” This is a

positive trait in regards to conforming to the IPPD process. Team members feel more responsible for the team's goals if they have a say in the goal-setting process.

## **7. Question Area 7**

The following question comprised question area 7:

**Do you feel that empowerment is critical to individual IPT members and the IPT as a whole?**

### ***a. IPT Leaders' Responses***

Every IPT team leader was emphatic that empowerment is critical to both individual IPT members and the IPT as a whole. Major successes were attributed to the empowerment of the IPTs. Many of the IPT leaders did not feel that they were empowered to the extent that they should be and that this had a negative effect on the performance. IPT leaders who were not fully empowered still felt that their IPTs were effective to an extent, though not nearly to the level they could be if fully empowered. IPT leaders who were fully empowered also seemed to believe that they were among the more successful IPTs. One team leader thought this was very important because it forced the team to "buy in" to the IPT. It made him feel more responsible both professionally and personally to the IPT and program. When coupled with the respect for his PM, who had empowered him, the IPT leader said that he would do nearly anything required to ensure that his IPT met its objectives.

### ***b. Team Members' Responses***

Eight IPT team members felt that it was obvious that empowerment is critical. "Without empowerment and allowing IPT members to do their job, an IPT is non-functional" and "If a person can't be empowered then they shouldn't be involved in a decision-making process" were typical statements reflecting the feelings of these eight team members. One team member did not think that it was critical but stated that he could "see how it could be." One team member remarked that empowerment is overrated. He compared empowerment to trust, stating that both had to be earned. He felt that it took time to learn who should be empowered and to what extent.

### ***c. Analysis***

The responses of the IPT leaders and team members agree with the recommendations found in the literature concerning the importance of empowerment to

IPTs and IPPD. Even the one team member who disagreed with the importance of empowerment actually agreed with the literature. The literature states that the team should be given the authority, responsibility, and resources to manage its product and its risk commensurate with the team's capabilities. This does not entail complete autonomy or "leaps of blind faith." The team member was correct, the trust that goes along with empowerment must be earned. The team's authority needs to be clearly defined and understood by the individual team members. This once again points to the value of a current charter. As the IPT earns this trust from its superiors, the degree of empowerment should increase accordingly. Conversely, if the team proves irresponsible, incompetent, or simply in "over its head," the degree of empowerment should be reduced.

## **8. Question Area 8**

The following statement makes up question area 8:

**Please add any additional comments or suggestions you have in regards to IPT Empowerment.**

### *a. IPT Leaders' Responses*

The IPT leaders provided two different types of insightful and thoughtful responses in regards to this request. One IPT leader felt that the empowerment his program office had given him was excellent. He also realizes that this is not equivalent to a "Carte Blanc" check. He stated that the final decisions come out of the program office and that is how he believes things should work. He also stated that up until the time of the final decision, he and his team are given the authority to guide the program into what he saw as being a valuable and crucial part of defense support.

Another IPT leader had quite a different experience. He stated, "We use the term 'IPT' pretty loosely within DoD. We call a lot of groups 'IPTs' when in fact they are really working groups or review panels at the action officer level. We give lip service to IPPD, but DoD will never give up the hierarchy under which the decision makers are General Officers, SESs and, ultimately, political appointees. So we convene an 'IPT' made up of action officers, all of whom recite a chorus of 'I need to take this back to my principal' and that principal forwards it on to his boss who (hopefully) makes the decision(s)."



***b. Team Members' Responses***

There was a feeling that IPT goals and objectives should be incremental with fixed deliverables. Agendas seem to change over time as leaders rotate. One team member felt that when a new IPT member is added, it seems to be someone that the providing organization can “spare.” This is often someone with only a “short time left on station.” The team member felt that even if this individual was “good,” the replacement comes in and it takes time to get the replacement “up to speed.” Along the same line of thinking, another IPT team member felt that the entire IPT should be included in the review of any new team members. He felt that this resulted in a “buy in” and complete acceptance of responsibility of the success or failure of new members.

***c. Analysis***

The statements above appear as a common theme. The remark on the common overuse of the term “IPT” is especially insightful. It seems that in an attempt to comply with former Secretary of Defense Perry’s guidance, DoD now calls almost every group of people that work together an “IPT”. This causes confusion as to what a real IPT should be and causes a great deal of misunderstanding among “IPT” personnel. The lack of training by true professionals in the field of IPPD/IPTs and team building tends to exacerbate this fact even more.

**D. SUMMARY**

This chapter presented the data for this thesis, a summary of twenty e-mail interviews conducted by the author during December, 2001. The respondents were divided into two groups, those who were IPT or sub-IPT leaders and those who were not. The interviews were comprised of eight question areas dealing with IPT training issues and eight areas dealing with IPT empowerment issues. The ultimate goal of these question areas was to answer the primary research questions:

- Are IPT members fully empowered by their organizations?
- Do IPT members receive the training and education necessary to execute their specialized tasks?

The question areas were presented first, immediately followed by the responses of each interview group. These responses were presented concurrently but separately directly after the question area to which they pertained. An analysis of this data

immediately followed. The intent was to note any major differences in the experiences and opinions of the two groups as well as to the research literature presented in Chapter II.

## **V. CONCLUSIONS AND RECOMMENDATIONS**

### **A. INTRODUCTION**

This thesis has examined multifunctional IPTs within DoD. More specifically, team training and education, as well as the empowerment of individual IPT members, were examined. The ultimate objective of the study was to determine if DoD, through the use of IPTs, is using the IPPD management technique to its full advantage.

Section “B” of this chapter presents the answers to the primary research questions:

- Are IPT members fully empowered by their organizations?
- Do IPT members receive the training and education necessary to execute their specialized tasks?

Section “B” also provides recommendations developed as a result of this study. Section “C” identifies some potential areas for future research.

### **B. CONCLUSIONS**

The research conducted in this thesis indicates that IPT members are not fully empowered by their organizations, and they do not receive all of the training and education necessary to execute their specialized tasks. DoD’s blatant overuse of the term “IPT” appears to be a major contributing factor to the statement above. This fact was brought to the forefront by the response of an IPT team leader in Chapter IV when he was asked for comments in regards to IPT empowerment. To restate his comments, “We use the term ‘IPT’ pretty loosely within DoD. We call a lot of groups ‘IPTs’ when in fact they are really working groups or review panels at the action officer level. We give lip service to IPPD, but DoD will never give up the hierarchy under which the decision makers are General Officers, SESs and ultimately political appointees. So we convene an ‘IPT’ made up of action officers, all of whom recite a chorus of ‘I need to take this back to my principal’ and that principal forwards it on to his boss who (hopefully) makes the decision(s).” Though not as direct, the essence of this perception is reinforced through the responses of many other IPT team leaders and team members interviewed for this thesis.

**1. Primary Research Question: Are IPT Members Fully Empowered by their Organizations?**

The research findings clearly suggest that IPT members are not fully empowered by their organizations. A fully empowered IPT has the authority to make decisions within its charter and the ability to influence outside decisions that may influence its ability to attain its goals. As the research indicates, if a concurrent approach to product development is to be implemented, IPTs must be empowered. This is not necessary in the traditional sequential approach to product development. By failing to fully empower its IPTs, DoD does not allow them to achieve their full potential. It is noted that the extent to which IPTs are empowered is difficult to analyze. This is directly attributable to the improper pragmatic use of the term “IPT” throughout DoD. The term “IPT” connotes empowerment. As previously discussed in Chapter II, empowerment is a key tenet of IPPD and IPTs. If a team is not empowered, it is not an IPT. Many of the personnel referred to as “IPT leaders and team members” in this thesis did not think that they were fully empowered because they may not have been empowered. The reason that some were not fully empowered is because they were not actually IPT members. Many were in fact members of working groups, advisory panels, review panels or something else. But, they were not members of IPTs and there is no reason or intent for them to be fully empowered. It appears that this confusion occurs because, despite the fact that they are not IPT members, DoD culture seems to incorrectly uses the term “IPT” to refer to them. This is an overzealous attempt to comply with former Secretary of Defense Perry’s and DOD 5000.2 R’s requirement to “...employ IPPD to the maximum extent practical.” By calling every type of group or team an IPT, it appears DoD hinders the spirit of Secretary Perry’s intent.

Some evidence of empowerment does exist, however. The fact that so many study respondents thought their teams did have input into selection of team members and the creation of team charters indicates “higher authority” does have some confidence in, and values the opinions and knowledge of, team members. The fact that so few respondents had the authority to commit resources stems largely from the sequential, hierarchical, approach to the acquisition process that seems to still pervade DoD, despite attempts to “streamline” the process. The lack of confidence that “higher authority”

seems to have in its teams' ability to properly employ resources is a direct result of the hierarchical culture that is still pervasive throughout DoD. The IPPD process is considered to be a mindset that runs counter to the ways things have been done in the past. It also runs counter to the military culture where hierarchical processes have and continue, often necessarily, to be stressed.

**2. Primary Research Question: Do IPT Members Receive the Training and Education Necessary to Execute their Specialized Tasks?**

IPT members and DoD personnel, in general, do not seem to be receiving the training and education necessary to execute their specialized tasks to the level of maximum effectiveness. This is especially true in regards to IPT training and begins at a very basic level. DoD personnel must have a basic working knowledge and understanding of IPPD and IPTs, if they are to be employed effectively. An apparent lack of training and education currently exists and is the root of the problems DoD has had with the implementation of IPPD. On-the-job training is considered necessary and can provide excellent results. However, within DoD, the problem with on-the-job training in regards to IPPD and IPTs is that the overall knowledge base of these practices appears weak. Practice makes permanent, not perfect. If a management technique is practiced incorrectly time and time again it becomes part of that culture, even if it is wrong. The old adage applies, "We're doing it this way because we've always done it this way." This does not make something wrong become right. Many acquisition professionals appear to be learning incorrect information and this misinformation is allowed to permeate throughout the acquisition workforce creating confusion. This also prevents IPPD and IPTs from achieving their full potential as acquisition management techniques.

The above comments are not meant to imply that all is wrong in DoD in regards to IPPD. Some IPTs seem to have effectively implemented Secretary Perry's vision and are functioning very effectively. Some of these work groups, advisory panels, etc., also seem to be effective; yet they are not IPTs.

Even among those teams that one might consider an IPT by definition, there remains much room for improvement. DoD's training practices do not comply with its own recommendations. Team training is not conducted early in the IPT process. This

seems to result in a great deal of wasted “overhead” administrative time. Teams do not appear to become effective as quickly as they would if this training was conducted.

The “bright spot” in regards to training seems to be in the functional area expertise and experience of DoD employees. The functional area knowledge is there. Team members do appear to be experts, or at least competent, in their functional areas. DoD’s IPPD process must be improved to ensure that this knowledge is employed to its full potential and the full synergistic effects of teaming are realized. Further, DoD seems to have had many successes in the acquisition process. Primarily, this seems to be the result of the tenacity and work experience of its employees. The problem with experience is that it takes time to accumulate. DoD employees are willing to work and seem to have a strong desire to be effective at their jobs. Perhaps, through proper training, less experienced members of the acquisition workforce will be able to reach higher performance levels at an accelerated rate.

### **3. Recommendations**

Analysis of the data collected and presented throughout the study leads to the following five recommendations.

#### ***a. Recommendation #1***

The most critical step that must be taken by DoD in order to ensure the success of IPTs and the IPPD management technique is to implement specific, detailed, IPPD/IPT training for the DoD acquisition workforce. The study clearly identified and presented the general confusion that exists among members of the DoD acquisition workforce as to what an “IPT” is. This confusion is the major factor preventing IPTs and IPPD from maximizing their results. If DoD is to change the culture of its acquisition workforce to allow the concurrent approach to product development to flourish, the workforce must have a clear understanding of how IPTs and IPPD fit into this process. IPTs can and will only be fully empowered if the acquisition workforce has a clear understanding of IPTs and IPPD coupled with how empowerment relates to each. This can occur only if a specific, detailed, IPPD/IPT training program is developed and implemented throughout the acquisition workforce.

***b. Recommendation #2***

The importance of completing training soon after the formation of an IPT and before the entry into any new phase of work is already recognized by DoD. This idea was presented in Chapter III and is stressed in DoD's own publications. However, it is proposed that DoD is not complying with its own guidance. If team members are to have a common set of experiences, expectations, and a shared understanding of the basic ground rules and processes of the team concept, this training must be provided early on. DoD must ensure IPTs receive team skills training, to include team building, as well as program specific training soon after the formation of an IPT and before the entry into any new phase of work. This type of training will enhance team cohesiveness, and would be expected to provide a higher confidence level among "higher authorities," typically Program Managers, in the teams' competence and accomplishments. This in turn, should lead the "higher authorities" to more fully empower the IPTs which will potentially increase the teams' effectiveness.

***c. Recommendation #3***

No metrics currently exist to measure the success of IPPD and IPTs in DoD. If the culture that currently exists in DoD is to be changed, and the concurrent approach to product development fully embraced, such a set of metrics must be developed. The DoD acquisition workforce must be shown clear evidence that these practices will truly improve the quality of their work and are not just another "fad."

***d. Recommendation #4***

DoD should ensure that the performance of personnel as IPT members has direct impact into their performance evaluations. This recommendation complements the previous recommendation. If the DoD acquisition workforce is to fully "buy in" to IPPD and IPTs, the reward process must reflect the importance DoD places on each. This is not currently the case. People must want to be part of an IPT because it is good for their career and for DoD. As the research clearly indicates, how well an individual currently performs as a member of an IPT seems to have little impact on his performance evaluation.

*e. Recommendation #5*

DoD should ensure IPT members are provided with adequate authority and resources commensurate with their assigned tasks and responsibilities. This recommendation seems obvious, but IPT members are not always provided with adequate authority and resources commensurate with their assigned tasks and responsibilities. Implementing the first two recommendations cited above in regards to training, would have a positive effect on DoD culture and help ease the implementation of this specific recommendation. However, it will not be possible to fully implement this recommendation without first changing the current culture of the DoD acquisition workforce.

**C. RECOMMENDATIONS FOR FURTHER RESEARCH**

The research has highlighted many areas for future research. The following areas of study are recommended:

- Conduct a study to determine the best method of implementing training to change DoD's current culture in regards to IPPD/IPT
- Examine what metrics should be used to measure IPPD/IPT success
- Determine the merits and practicality of using professional contract personnel vs. Government personnel to conduct IPPD/IPT training
- Examine the effects of other key factors, such as team leadership, on the effectiveness of IPTs



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