The dynamics of successful program management: the case of Army TACMS.

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The Dynamics of Successful Program Management: The Case of Army TACMS

by

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Project Management has evolved as a successful tool to manage complex weapon systems. As budgets decline, Department of Defense project managers are challenged to improve their skills and competencies for successful project management. While the current literature specifies the overall requirements necessary for successful project management, it does not detail and describe how those requirements are to be fulfilled on a daily basis. The purpose of this thesis is to provide future project managers with an in-depth glimpse of how a successful project manager operates in real time. The project manager of the Army Tactical Missile System (TACMS) was selected to study because he was named by the Army as the 1991 Project Manager of the Year. The analysis is based on interviews with the Project Manager (PM), his team, and outside stakeholders, such as the office of the Program Executive Officer. This research identifies two areas of factors that impact success: factors within the PM's control and factors beyond the PM's control. Further analysis of the factors within the PM's control identified three domains of competencies: leadership, stakeholder relations, and management. This research presents the approaches used by the Army TACMS PM to manage the three domains while achieving successful project management.

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Project management has evolved as a successful tool to manage complex weapon systems. As budgets decline, Department of Defense project managers are challenged to improve their skills and competencies for successful project management.

While the current literature specifies the overall requirements necessary for successful project management, it does not detail and describe how those requirements are to be fulfilled on a daily basis. The purpose of this thesis is to provide future project managers with an in-depth glimpse of how a successful project manager operates in real time.

The project manager of the Army Tactical Missile System (TACMS) was selected to study because he was named by the Army as the 1991 Project Manager of the Year. The analysis is based on interviews with the Project Manager (PM), his team, and outside stakeholders, such as the office of the Program Executive Officer. This research identifies two areas of factors that impact success: factors within the PM's control and factors beyond the PM's control. Further analysis of the factors within the PM's control identified three domains of competencies: leadership, stakeholder relations, and management. This research presents the approaches used by the Army TACMS PM to manage the three domains while achieving successful project management.

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I. INTRODUCTION

A. PURPOSE

This study builds on the survey analysis research developed by the Defense Systems Management College (DSMC) to explore the critical competencies of a successful project manager.[1] Following one project manager through time, this study attributes his success to six competencies.

B. BACKGROUND

In the 1950s a new management technique called program management began to develop. This management technique enjoyed limited use until about the 1960s when companies began to diversify and have many product lines. The project/program manager became responsible for the complete management of a particular product. He was more than a technical expert, for he had to deal with all the organizational and financial matters. This made the job of project management very complex.

The change to highly technical, expensive weapon systems in the Department of Defense (DOD) also made project/program management a necessity. Acquiring and deploying systems with the size and complexity required by the DOD posed unique and difficult challenges. In an effort to define the competencies required for effective project

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[1]Defense Systems Management College, A Competency Model of Program Managers in the DOD Acquisition Process, Fort Belvior, VA: DSMC, February 1990, pp. 1-1.

management, the Defense Systems Management College (DSMC) sponsored a study of project managers nominated from their Service acquisition commands. Their study found that effective project managers demonstrated sixteen competencies. Further analysis revealed six competencies which distinguished outstanding DOD project managers from their contemporaries. The six competencies were:

- Sense of Ownership
- Political Awareness
- Relationship Development
- Strategic Influence
- Interpersonal Assessment
- Action Orientation[2]

C. THESIS OBJECTIVES

The primary objective of this research was to demonstrate how a single project manager fulfilled these competencies in order to provide more specific guidance to project managers on how to operate on a daily basis.

D. RESEARCH QUESTIONS

1. Primary

How does a project manager fulfill the basic competencies required for successful project management?

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[2]DSMC, A Competency Model, pp. 2-7.

2. Subsidiary

- What are the competencies required for successful project management?
- Do project managers and their teams all agree on these competencies?
- Are there other factors besides the personal characteristics of the project manager that account for project management success?

E. ORGANIZATION

Chapter II establishes the background of the problem. As a literature review, it discusses a DOD perspective of what project management is and the major challenges faced by project managers. This chapter also presents the DSMC Job Competency Study and an overview of how it was conducted. Additionally, it summarizes the sixteen competencies for effective project management, provides a short definition of each, and identifies the six competencies that outstanding project managers have.

Chapter III describes the research design and explains the rationale for choosing a single case study. This chapter also introduces the case, outlines the interview questions, and gives a brief explanation as to the intent of each question. Additionally, this chapter explains how a video was used to capture the project managers' competencies in action. The chapter concludes by defining the limitations of this type of research.

Chapter IV gives a brief history of the Army TACMS project and sets the stage for the project under Colonel Matthews' management.

Chapter V summarizes the findings from the research. The chapter summarizes the results from the interviews with the project manager, and with people both internal and external to the project. Additionally, a critical incident illustrates the project

manager's approach to problem solving. The chapter concludes with an overview of the video tape results.

Chapter VI analyzes the data and illustrates how the project manager and his team converge in their identification of a successful project manager's key competencies. These competencies are then compared with those identified in the literature, with significant differences pointed out.

Chapter VII draws conclusions from the analysis and makes recommendations to future project managers. The chapter concludes with recommendations for future research.

II. LITERATURE REVIEW

A. INTRODUCTION

The Department of Defense (DOD) definition of project management is:

> The process whereby a single leader and team are responsible for planning, organizing, coordinating, directing, and controlling the combined efforts of participating/assigned civilian and military personnel and organizations in accomplishment of program objectives. A special management approach used to provide centralized authority and responsibility for the management of a specific defense acquisition program or programs. Program management provides a single point of contact as the major force for directing the system through development, production, and deployment.[3]

The DOD idea of project management is further clarified as:

> A special management approach used to provide centralized authority and responsibility for the priority accomplishments of a specified project or task. The task critical to the organization's success involves the timely integration of divergent specialties and activities into coherent, coordinated management.[4]

B. THE EVOLUTION OF DOD PROJECT MANAGEMENT

The evolution of DOD project management stemmed from a shift in acquisition philosophy after World War II. The shift was from large quantities of simple weapon systems to procuring the most advanced weapon systems money could buy. A new environment of constrained resources after World War II also contributed to this shift.

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[3]DSMC, Glossary: Defense Acquisition Acronyms and Terms (Fifth Edition), Fort Belvior, VA: Defense Systems Management College Press, 1991, pp. B-89.

[4]DSMC, Introduction to Defense Acquisition Management, Fort Belvior, VA: Defense Systems Management College Press, 1989, pp. 29.

In response to the desire for complex weapons systems in a constrained fiscal environment, DOD adopted the philosophy of life cycle support. This philosophy required that projects consider the cost of a weapon system from its inception until its retirement. Projects now had to consider the effects of early designs on the future costs of operation and maintenance after systems were fielded. To support the new life cycle philosophy, all functional departments (i.e., research and development, engineering, and manufacturing) had to be integrated early in development. A desire to smooth the transition from engineering to production grew and led to the emergence of project management. The idea of program management, in turn, required that a highly skilled manager lead the project to ensure the successful development and production of the major weapon system during its full life cycle. The project manager emerged as the central figure in this process.

C. THE PROJECT MANAGER (PM)

The DOD defines the project manager as:

> Official responsible for managing a specific acquisition program who reports to and receives direction from either a PEO or a CAE.[5] Also, called Program Manager or Program Director. The PM is a leader and manager, who understands the requirements, environment, organizations, activities, constraints, and motivations impacting the program. The PM is knowledgeable of and understands how to operate within the constraints imposed by the requirements generation system, the acquisition management system and the PPBS. The PM coordinates the work of defense industry contractors, consultants, in-house engineers,

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[5]PEO refers to the Program Executive Officer and CAE refers to the Civilian Executive Officer.

logisticians, contracting officers, and others, whether assigned directly to the program office or supporting it from a functional matrixed.[6]

Based on this definition, the project manager becomes the focal point for controlling, coordinating, directing, and bringing the project to a successful conclusion.[7] The above definition reveals the enormous demands made on the DOD project manager ranging from project leader and manager to acquisition process expert. It requires that the PM be both a leader and a manager who understands the many factors affecting his project. The definition also demands he have knowledge of vast systems, i.e., the acquisition management system. Finally, the definition requires that the project manager be an integrator responsible for many external and internal stakeholders. These demands produce large challenges for the project manager to solve.

D. CHALLENGES FACED BY PMs

The project manager's tasks of controlling, coordinating, directing, and bringing the project to successful completion has inherent challenges. The capability of the project manager to meet these challenges decides whether the project will be successful or not. Literature identifies three areas that contain the most challenge: integration, management of the matrix organization, and leadership of the project office.

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[6]DSMC, Glossary, pp. B-90.

[7]Obradovitch, M.M. and Stephanou, S.E., Project Management: Risks & Productivity, Bend, OR: Daniel Spencer Publishers, 1990, pp. 67.

1. Integration

The project manager must be able to integrate the many facets of the project. Figure 1 illustrates how Kerzner conceptualizes the many areas requiring integration by the project manager.[8] The DOD project manager must integrate the military needs of the customer in the field with the capabilities of the defense contractors, while meeting the priority and funding constraints imposed by the Pentagon and Service headquarters.

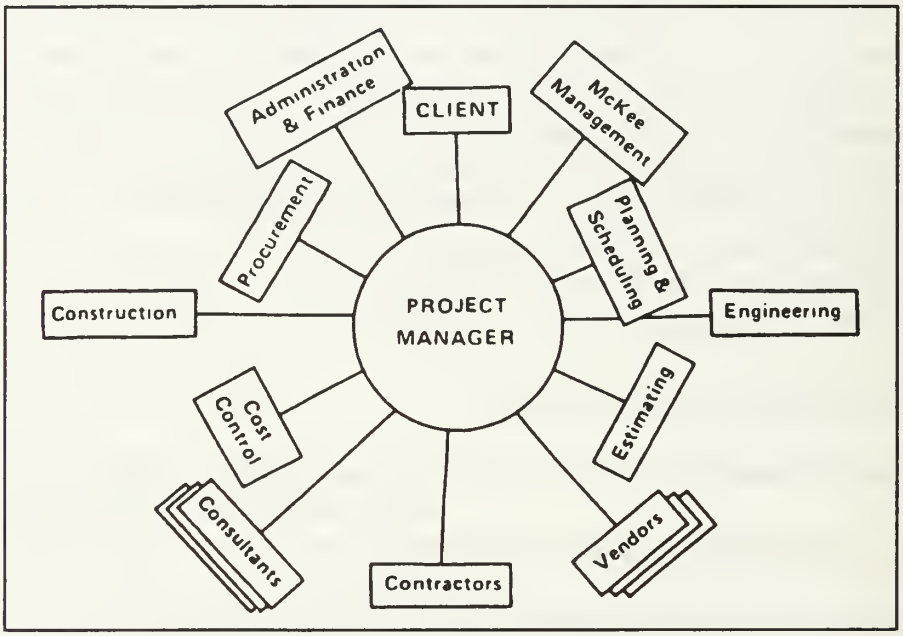

Figure 1: Areas requiring integration within project management. Source: Kerzner, pp. 177.

The challenge of integration is made more difficult when the user changes the requirements in the middle of the project. Also, the project manager's integration efforts are challenged when the defense contractor requires more money to complete his work.

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[8]Kerzner, Harold, Project Management: A Systems Approach to Planning, Scheduling, and Controlling (Fourth Edition), New York, NY: Van Nostrand Reinhold, 1992, pp. 177, 179.

The challenge of the annual budgeting process of Congress means that the project manager must plan for long-term integration, but be able to react to short-term fiscal changes.

2. Management of the Matrix Organization

The matrix organization is an attempt to create synergism through shared responsibility between project and functional management.[9] This organizational form combines the advantages of the pure functional structure and the product organizational structure.[10] The advantages of using a matrix organization are:

- Personnel are only used for the length of time they are needed.
- Technical and other expertise of the various functional units can be fully used.
- The PM can give more attention to achieving the project objectives than can a functional manager who may have several project efforts underway.
- The PM can better achieve the integration of all the functional specialties.
- The sharing of resources is enhanced over the functional organization.
- The expertise of the functional or discipline-oriented groups is kept intact.
- It can provide a rapid response to changes, conflicts, and other project needs.

The matrix organization is not without its disadvantages:

- The complexity of operation can be cumbersome.
- Power struggles between the horizontal organization and the vertical organization.
- There may be too many people involved in the decision-making process.

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[9]Kerzner, pp. 122.

[10]Kerzner, pp. 120.

- Project priorities and competition for talent may interrupt the stability of the organization and interfere with its long-range interests.
- The "two-boss" situation faced by functional personnel working on projects can cause problems.
- Conflicts and their resolution may be a continuous process.

Therefore, the matrix organization becomes a compromise in an attempt to obtain the best of two worlds. Figure 2 depicts a typical matrix structure.

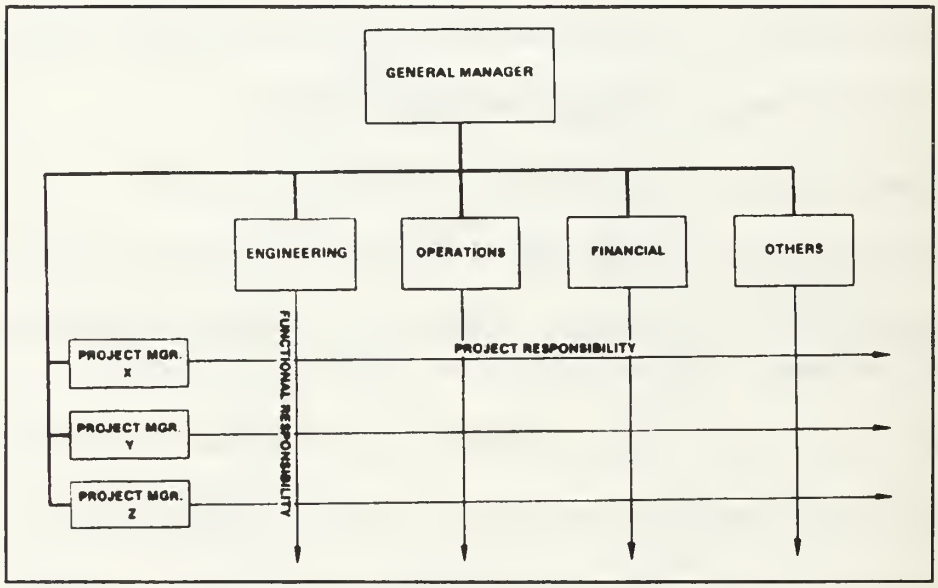

Figure 2: The typical matrix structure.
Source: Kerzner, pp. 121.

The matrix organization challenges the project manager because it requires a collaborative approach. Since several people usually require the same pieces of information, information sharing is mandatory. An example of this would be when a decision is made to change a design, this change would affect many different functional areas. While the PM is responsible for the decisions made within the project, the matrix organization requires that the project team accept the decision. A matrix also can bring

up conflicts regarding loyalty and authority, since it violates the principle of unity of command. This is especially true when the project manager and the functional manager do not agree on decisions. The shared nature of authority, between the project manager and the functional area manager, poses the greatest challenge to the project manager in making the matrix organization work.

3. Leadership of the Project

"Most acquisition programs are overmanaged and underled, not because the managers lack magnetism and personal presence, but because far too few program managers have a clear understanding of what leadership is and what it can accomplish."[11] This reflection reinforces the DOD assertion that it is the project manager who is tasked with providing project leadership. Wofford defines leadership "as interpersonal influence, exercised in a situation and directed, through the communication process, toward the attainment of a goal or goals."[12] Through the PM's interpersonal skills the project manager is expected to capitalize on people's strengths, cover their weaknesses, and know when to intercede. Above all, through leadership the project manager must get others to share commitment to the project. Achieving this commitment is essential to attain successful project completion.

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[11]Drayer, Dennis, "Where Have All The Leaders Gone?", Program Manager, September-October 1992, pp. 31.

[12]Wofford, Jerry C., Organizational Behavior, Boston, MA: Kent Publishing Company, 1982, pp. 262.

Leadership from the perspective of program management means the project manager has the vision of what should be done and a strategy for achieving that vision. Vision sets the direction for the project office and creates an environment that enables others to integrate their work. Constantly changing requirements, Congressional funding variances, and many oversight organizations make the PM's vision difficult to maintain.

The project organization poses numerous challenges to the leadership of the project manager. Leadership is very difficult for a project manager because of the matrix structure which requires shared authority between the project manager and functional managers. This environment continually tests the leadership ability of the PM because he has to deal with managers and supporting personnel over whom he has little or no formal authority. His leadership is also challenged by the need to collect and filter relevant data for decision making in a dynamic environment, integrating individual demands, requirements, and limitations into decisions that benefit overall project performance.[13]

Having pointed out the importance and challenges of leadership within project management, a need exists to define successful ways to accomplish leadership. Dennis Drayer's article, Where Have All The Leaders Gone?, defines ten key points for leadership success and failure.

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[13]Kerzner, pp. 183.

- Maintain a concern for vision and risk.
- Individuals at the strategic level, . . . , need to shift thinking patterns from the finite nature of budgets and programs to envision the future in order to resolve complex problems that will take 10-25 years to complete.
- Leaders must get seriously and accountably involved in their work.
- Learn, practice, and encourage open lines of communication.
- Identify, develop, and nurture future leaders. (Mentoring)
- Leaders must be able to focus and provide continuity and momentum.
- One of the key responsibilities of leadership is the obligation to be rational.
- Leaders rely on people instead of structures.
- Keep the system simple and worth the effort.
- Secure the right organizational climate.[14]

E. STANDARDS FOR SUCCESS IN PROJECT MANAGEMENT

Success of a project is defined by whether it meets its schedule, is within cost, meets the performance requirements, and satisfies the customer's expectations of quality. Figure 3 displays these criteria and their interaction. While these criteria define project success, they do not define how to accomplish that success. Since the project's performance is a direct reflection of the project manager, it is important to know what competencies a DOD project manager needs to be successful.

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[14]Drayer, pp. 32.

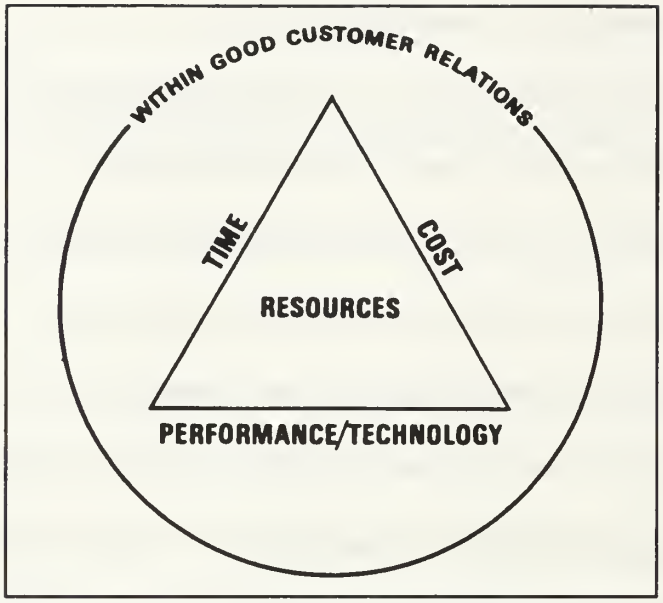

Figure 3: Successful Project Management.
Source: Kerzner, pp. 5.

1. Defense Systems Management College (DSMC) Competency Study

In an effort to specifically define the skill requirements of DOD project managers, DSMC conducted a study into the competencies of outstanding DOD project managers. From September 1987 to February 1989, the DSMC and Charles River Consulting groups conducted a study of DOD project managers to identify characteristics that distinguish outstanding project managers. The study used an interview format with sixty project managers designated by their acquisition command.

The study was conducted in response to criticism of the defense acquisition workforce. Reports from the Packard Commission, DOD, and GAO continually stressed

how the defense acquisition workforce was undertrained, underpaid, and inexperienced.[15] Given that the DSMC has the mission to prepare future project managers, it was imperative that they identify the skills necessary for success. Therefore, they initiated the Job Competency Study under the premise: "The best way to find out what it takes to do a job is to analyze the job's outstanding performers and then study what they do that makes them effective."[16]

The study found the following:

- The competencies that are critical for outstanding performance;
- The definitions of these competencies in terms of observable behavior; and,
- The relationships among these competencies and the major tasks and activities that make up the job.[17]

The DSMC study hypothesized that there were eighteen competencies project managers should demonstrate to be effective. The study used a two-step process to find the required competencies. In the first step, researchers interviewed sixty project managers who were nominated by their acquisition commands. These interviews used the Critical Behavior Interview approach to look at critical incidents during the project manager's tenure. (The Critical Behavior Interview is further explained in Chapter III.)

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[15]Defense Systems Management College, A Competency Model of Program Managers in the DOD Acquisition Process, Ft. Belvior, VA: Defense Systems Management College Press, 1990, pp. 1-1.

[16]DSMC, A Competency Model, pp.1-3.

[17]DSMC, A Competency Model, pp.1-3.

Analysis of the interview data revealed that sixteen of the original eighteen hypothesized competencies contributed to effective project manager performance. Further analysis of the data, using factor analysis, revealed that the sixteen competencies could be broken down into four general areas. The four areas were:

- Managing the External Environment;
- Managing the Internal Environment;
- Managing for Enhanced Performance:
- Proactivity.[18]

The second step of the study validated the analysis from the first step. This step was added to overcome the deficiencies of small sample size and method bias from the first step. Nine additional competencies, from other studies[19], were added to the original eighteen to total twenty-seven competencies. The nine additional competencies, "control" competencies, were only marginally relevant to a program manager's job. A competency validation survey for program mangers and other acquisition professionals was designed. It incorporated three components. Part one asked respondents to choose twelve out of the twenty-seven competencies they felt were the most important for a project manager's job.[20] The objective of this part was to validate the sixteen competencies from the interviews as unique to the project manager position.

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[18]DSMC, A Competency Model, pp. 2-13.

[19]The study does not specifically name the other studies referenced.

[20]No rationale was given in the DSMC study for asking respondents to chose only twelve competencies.

Component two asked non-project managers to rate the importance of both their job and the project manager's job. This was to allow comparisons of the importance of the competencies for different jobs. The objective of this section was to identify the competencies unique to effective program manager performance.

The third component involved deciding to what extent respondents from different acquisition positions agreed upon the most important competencies needed by project managers.[21] This section was included to account for the wide diversity of acquisition experience among the respondents. It was stated in the study that "Major differences in perceptions of the required competencies of those familiar with the program manager's job would undermine the hypothesis that these hypothesized competencies were the critical attributes."[22]

Finally, a total of 579 surveys were distributed to program managers, other acquisition professionals in a variety of positions, and students in the DSMC Program Managers Course (88-3), with and without prior acquisition experience. The survey had a response rate of approximately 88 percent. The survey results strongly confirmed the importance of the sixteen competencies for effective project management.

The four general areas and their associated competencies were:

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[21]DSMC, A Competency Model, pp. 4-2.

[22]DSMC, A Competency Model, pp. 4-2.

a. Managing the External Environment

- **Sense of Ownership/Mission:** Sees self as responsible for resolving significant problems or taking action related to the program.

- **Political Awareness:** Knows the influential players, what they want and how best to work with them.

- **Relationship Development:** Spends time and energy getting to know program sponsors, users and contractors.

- **Strategic Influence:** Builds coalitions and orchestrates situations to overcome obstacles and obtain support.

- **Interpersonal Assessment:** Identifies specific interests, motivations, strengths and weaknesses of others.

- **Assertiveness:** Takes or maintains positions despite anticipated resistance or opposition from influential others.

b. Managing the Internal Environment

- **Managerial Orientation:** Gets work done through the efforts of others.

- **Results Orientation:** Evaluates performance in terms of accomplishing specific goals or meeting specific standards.

- **Critical Inquiry:** Identifies and explores critical issues that others fail to address.

c. Managing for Enhanced Performance

- **Long-term Perspective:** Anticipates and plans for future issues or problems.

- **Focus on Excellence:** Strives for the highest standards.

- **Innovativeness/Initiative:** Champions and pushes new ways of meeting program requirements.

- **Optimizing:** Makes decisions after carefully evaluating advantage and disadvantage.

- **Systematic Thinking:** Organizes and analyzes problems methodically.

d. Proactivity

- **Action Oriented:** Reacts to problems energetically and with a sense of urgency.
- **Proactive Information Gathering:** Systematically collects and reviews information.

2. Outstanding Competencies from DSMC Study

Further analysis of the DSMC data, on project manager competencies, revealed outstanding project managers demonstrate six competencies significantly more frequently than their average counterparts. These six competencies were:

- Sense of Mission
- Political Awareness
- Relationship Development
- Strategic Influence
- Interpersonal Assessment
- Action Orientation[23]

Five of the six competencies that distinguish outstanding from average project managers came from the managing the external environment group, according to the study.[24] Two possible explanations were given in the study to account for this fact:

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[23]DSMC, A Competency Model, pp. 2-7.

[24]This analysis was conducted by six of the researchers involved in the interviewing (three from DSMC and three from Charles River Consulting).

- PMs who are outstanding owe part of their success to their skills in managing the external environment, or
- PMs skilled at managing the external environment tend to be seen as outstanding.[25]

Finally, the study found that outstanding project managers exhibit the sixteen competencies more frequently than their average peers.

F. SUMMARY

The complexities of project management are immense. The individual who is given the job of project manager must possess many competencies to meet the challenges of project management. His effectiveness in these competencies will directly impact upon the success or failure of the project. The DSMC Competency Study is an important step in identifying the competencies that PMs must accomplish to be successful. However, the broad nature of the study does not explain how a single project manager accomplishes the sixteen competencies on a daily basis. The next step is to select and follow a successful PM to identify how he accomplishes the necessary competencies.

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[25]DSMC, A Competency Model, pp. 2-18.

III. METHODOLOGY

A. INTRODUCTION

As stated before, this research project documents a case of successful project management. This section discusses the rationale for using a case and explains the methodology employed in the data collection.

B. RESEARCH DESIGN

The goal of the research design was to describe the details of successful project management. Rather than review the functional requirements of project management often championed by literature, this thesis examined the day-to-day activities of a successful project manager. The purpose was to distill those activities and tasks essential to successful project management, independent of the functions that have to be performed.

A case was chosen as the research vehicle to study because the research questions focus on "how" things are accomplished rather than on "what" was done.[26] A case study will document this process approach in an excellent fashion. Sacrificing breadth

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[26]Yin, Robert K., CASE STUDY RESEARCH, Beverly Hills: SAGE Publications Inc., 1984, pp. 13.

for depth,[27] and due to time and resource constraints, exploration was limited to a single case rather than multiple cases.[28]

Data collection began with a standardized open-ended interview. The use of a standardized open-ended format ensured that each person was asked essentially the same questions in an optimal time period. Another purpose of the standardized open-ended interview was to minimize interviewer interference by asking the same question of each respondent.[29] This approach also allows for a conversational interview and for follow-up questions to be asked for clarification of key points and to gain respondents' opinions about events.[30]

The limitations of this research approach are covered in Section E. To overcome some limitations of the open-ended interview analysis, the Critical Behavior Interview technique was adapted from Dr. Owen Gadeken (1990).[31] Gadeken's technique is a variation on the classic critical-incident interview technique originally developed by John Flannigan (1954).[32] The Critical Behavior Interview, incorporated as part of the open-ended interview, has the interviewee first identify past job situations in which he or she

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[27]Patton, Michael Q., Qualitative Evaluation Methods, Beverly Hills: SAGE Publications Inc., 1980, pp. 97.

[28]Yin, pp. 43.

[29]Patton, pp. 202.

[30]Yin, pp. 83.

[31]DSMC, A Competency Model, pp. 1-6.

[32]Flannigan, J.C., Critical Incident Interviews, Psychological Bulletin, 51, 1954, pp. 327-358.

felt either effective or ineffective, and then describe these situations in great detail. By having the individual focus on specific high and low points of each job, the Critical Behavior Interview efficiently reconstructs job experiences. Information is provided on thoughts as well as behavior and explains peoples' theories about what it takes to do a good job by looking at what they did.[33] This approach was modified by identifying critical incidents during the test case tenure and asking all respondents to identify their personal perspective of the events. Additionally, a video tape was used to document nonverbal behavior and communication of the Program Manager. The video tape also provides a visual link with the PM. [34]

C. THE CASE

The Army Tactical Missile System (TACMS) was chosen as a successful case of project management, as the Army TACMS Project Manager was chosen as the U.S. Army Project Manager of the Year in 1991.[35] The project manager for the Army TACMS project is Colonel David F. Matthews, he assumed this position on 14 April 1990. Also, this project was selected because it has achieved the three main requirements for project success: remaining on schedule, being within cost guidelines,

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[33]DSMC, A Competency Model, pp. 1-6.

[34]Marshall, Catherine and Rossman, Gretchen B., Designing Qualitative Research, Newbury Park: SAGE Publications Inc., 1989, pp. 86.

[35]Martel, Sandra, "Matthews named Army's project manager of year," The Redstone Rocket, 29 January 1992, pp. 1.

and providing the required technical performance.[36] The Army TACMS is a major defense acquisition program and is an Acquisition Category I (ACAT I) project.[37] Fox, in his text The Defense Management Challenge: Weapons Acquisition, states "ACAT I projects are considered the most difficult to manage and receive the most scrutiny."[38] This intense scrutiny is due to past poor management and to the large expenditures of money for weapon systems.

D. DATA COLLECTION METHODS

1. Interview Questions

The intent of the research questions was to begin an exchange in a given area. The following list presents the interview questions and the desired objective of each question.

1) What do you think are the reasons the ATACMS project is considered successful?

The purpose of this question was to probe the respondent's view of why the program is successful and if they feel Colonel Matthews' program management was a catalyst.

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[36]Kerzner, pp. 6.

[37]DOD, USD(A), Department of Defense Directive 5000.2, Defense Acquisition Management Policies and Procedures, 23 February 1991, pp. 3, 2-3.

[38]Fox, J. Ronald, The Defense Management Challenge: Weapons Acquisition, Boston, MA: Harvard Business School Press, 1988, pp. 312.

2) Why do you feel Colonel Matthews was nominated and selected as Army Program Manager of the Year?

The design of this question was to determine why Colonel Matthews is considered successful and what factors have guided his success.

3) How would you describe Colonel Matthews' management style?[39] *a) What do you feel Colonel Matthews' approach has been in handling the political side of Program Management?*[40] *b) Do you feel he has been successful?*

This question's intent was to gain information on Colonel Matthews' program management style and how he handles key aspects of program management.

4) What do you feel is the difference between Colonel Matthews and less successful project managers? Describe the importance of the project team to the project's success?

This question developed a comparative base of project managers and relied upon the experience of the respondent. The second part of the question attempted to measure the impact of the team in terms of the success of the project and Colonel Matthews.

5) The literature identifies ten skills a project manager should master for successful project management.[41]

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[39]Margerison, Charles J., How To Assess Your Managerial Style New York: AMACOM, 1980, pp. 34-42.

[40]Meredith, Jack R. and Mantel, Samuel J. Jr., Project Management: A Managerial Approach (Second Edition), New York, NY: John Wiley & Sons, 1987, pp. 92.

[41]Kerzner, pp. 182.

a) Team Building
b) Leadership
c) Conflict resolution
d) Technical expertise
e) Planning
f) Organization
g) Entrepreneurship
h) Administration
i) Management support
j) Resource allocation

Do you feel Colonel Matthews has mastered these? Which of these would you rate as his strengths?

The goal of this question was to see if Colonel Matthews is accomplished in the skills advocated by the literature. A second goal of this question was to document how Colonel Matthews accomplishes the functions of program management. If deficiencies appear, a third goal was to find out how he covers his weaknesses.

6) A DSMC study found that outstanding project managers displayed six competencies that less successful project managers did not.[42] These competencies are:

a) Sense of Mission
b) Political Awareness
c) Relationship Development
d) Strategic Influence
e) Interpersonal Assessment
f) Action Orientation

Do you feel Colonel Matthews demonstrates these competencies?

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[42]Gadeken, O.C., B.J. Cullen, and N.F. Huvell, "Program Managers with the Right Stuff," Program Manager, May-June 1990, pp. 26-31.

The purpose of this question was to learn if Colonel Matthews exhibits any of these competencies.

7) What are Colonel Matthews' strengths and weaknesses? What are the ATACMS project team's strengths and weaknesses?

The purpose of this question was to check for consistency in the answers.

8) Describe your relationship with Colonel Matthews? Do you feel free to voice your opinion? Does he encourage you to be innovative?

The goal of this question was to record Colonel Matthews' personnel management style and how he handles interpersonal relationships. The final part of this question documents Colonel Matthews' approach to innovation and entrepreneurship.

9) Can you describe some critical situations/events in the ATACMS project and how you feel Colonel Matthews and your team handled them?

This question's intent was to develop some critical incidents to complete the picture of Colonel Matthews as a Program Manager. This question also provides an opportunity to examine how Colonel Matthews operates under pressure and in critical situations.

2. Critical Behavior Interviews

The critical incidents from the Critical Behavior Interviews were designed to show the program management approach of Colonel Matthews. They further document his problem solving approaches. The critical incidents provided a view of his crisis

management techniques. Finally, the description of these incidents documents Colonel Matthews' decision making in pressure situations.

3. Video Tape

The video tape provided a face to accompany the description of the management style. Furthermore, the video tape captures Colonel Matthews, the Program Manager, in his actual setting and provides further insight into his management style.

E. LIMITATIONS

The biggest limitation to this research is that it relies solely on historical data. The longer the interval between an interview and the actual event, the less accurate the information tends to be.[43] Data are only as good as the memories of the people interviewed. Although the interview questions were designed to elicit information about actual events, the data are still subject to selective recollection and personal bias.

A further limitation to the study was the use of a single case rather than multiple cases. A potential vulnerability of the single-case design was that the case may later turn out not to be the case it was originally thought to be.[44] This is because the case is chosen due to its outward appearance and the inner workings are not known until after the research is begun. Army TACMS has the possibility of not being a true representation of the successful project management population due to the many complexities of project management. However, a single case-design had to be employed

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[43]Yin, pp. 85.

[44]Yin, pp. 44.

to obtain an in-depth exploration of project management within the limited time and resources.[45]

F. SUMMARY

The goal of the research design was to document a single case of successful program management. While the literature outlines the functions and competencies necessary for successful program management, few comprehensive examples have been published of how to accomplish these functions and competencies. An in-depth case analysis has the advantage of focusing on the process of program management as well as its outcomes. The next section will introduce the history of Army TACMS and present the data from the interviews.

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[45]Bunker, Barbara B., Howard B. Pearlson, and Justin W. Schulz, A Student's Guide to Conducting Social Science Research. New York: Human Sciences Press, 1975, pp. 16.

IV. HISTORY OF THE ARMY TACTICAL MISSILE SYSTEM

A. THE ARMY TACTICAL MISSILE SYSTEM (ARMY TACMS)

The mission of Army TACMS is to provide the Army Corps Commander with a deep attack system that can engage second echelon forces. Army TACMS is a ground-launched missile system consisting of a surface-to-surface guided missile with an anti-personnel/anti-material warhead configuration. Army TACMS missiles are fired from a Multiple Launch Rocket System (MLRS) modified M270 launcher. The Loral Vought Systems (LVS)[46] Corporation, Dallas, TX, is the prime contractor and integrator of the weapon system.

The Army TACMS is one of the ten project offices under the control of the Program Executive Office (PEO) Tactical Missiles. Figure 4 shows the organizational chart of PEO Tactical Missiles. The Army TACMS project office has eighty-seven civil service employees and eight military. Figure 5 displays the Army TACMS organizational chart. Thirty-three of these people are assigned directly to the project office and sixty-two come from the Missile Command (MICOM) matrix structure. Figure 6 depicts the MICOM matrix support. There is one prime contractor and over thirty subcontractors who build and assemble the missile. Figure 7 shows the number

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[46]LTV changed ownership on 18 August 1992 and became Loral Vought Systems (LVS) Corporation.

and geographical dispersion of the different contractors involved in the Army TACMS project.

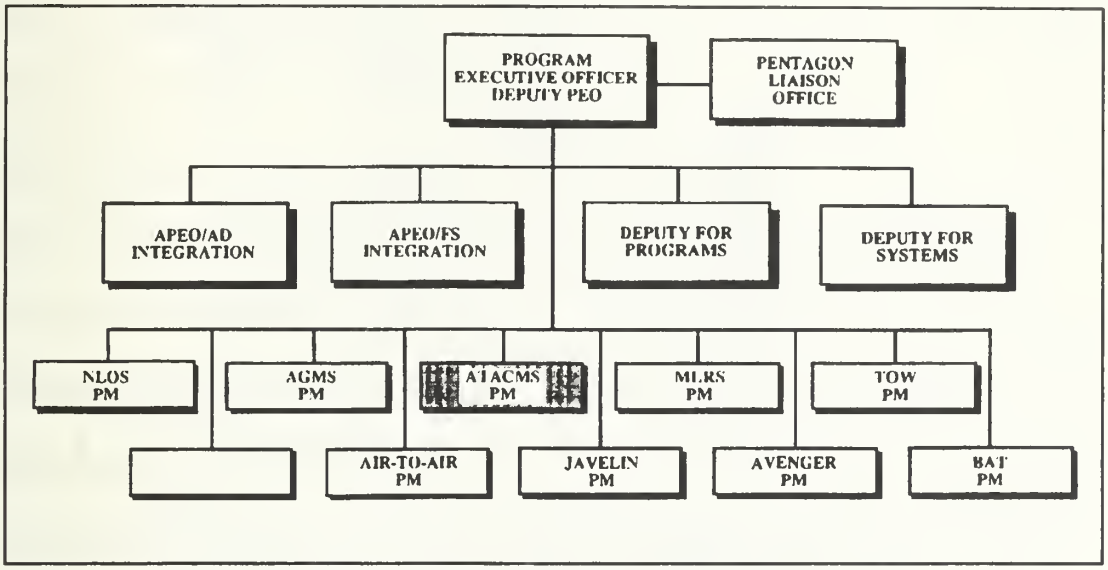

Figure 4: PEO Tactical Missiles Organizational Chart.
Source: Army TACMS Project Office.

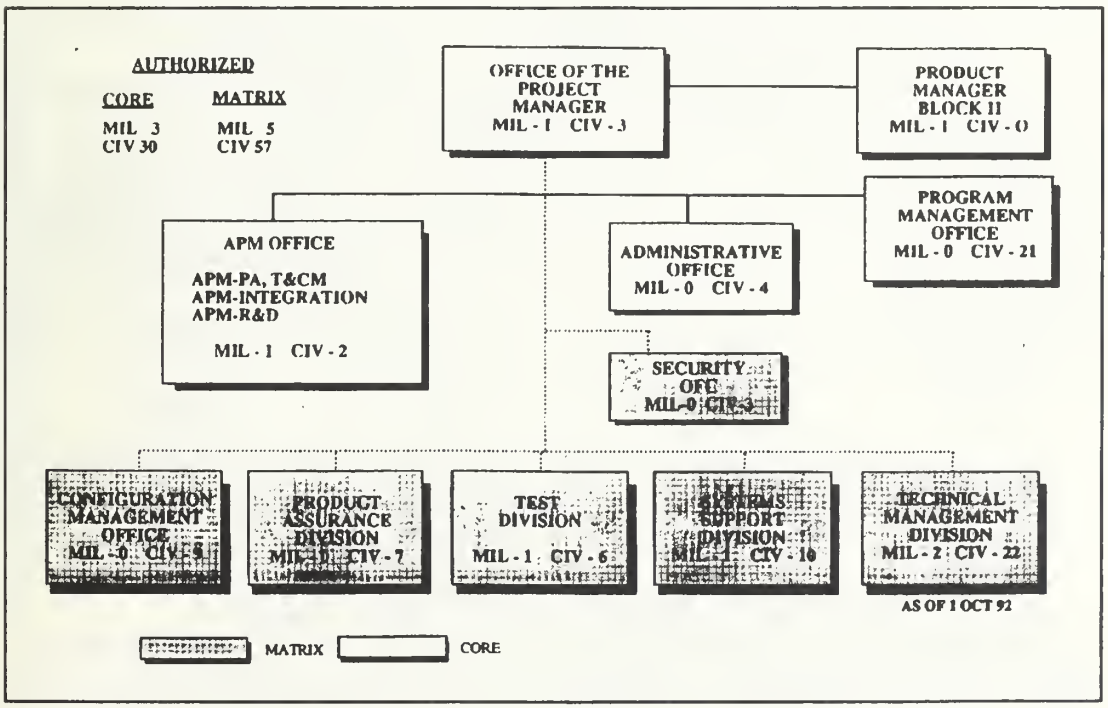

Figure 5: Army TACMS Organizational Chart.
Source: Army TACMS Project Office.

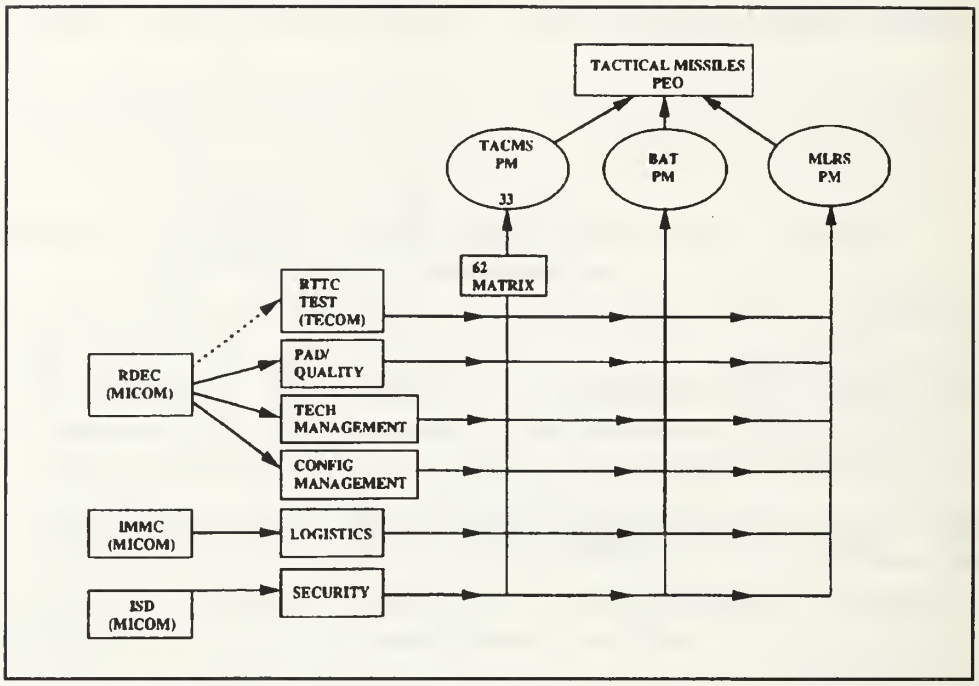

Figure 6: Army TACMS Matrix Support.
Source: Army TACMS Project Office.

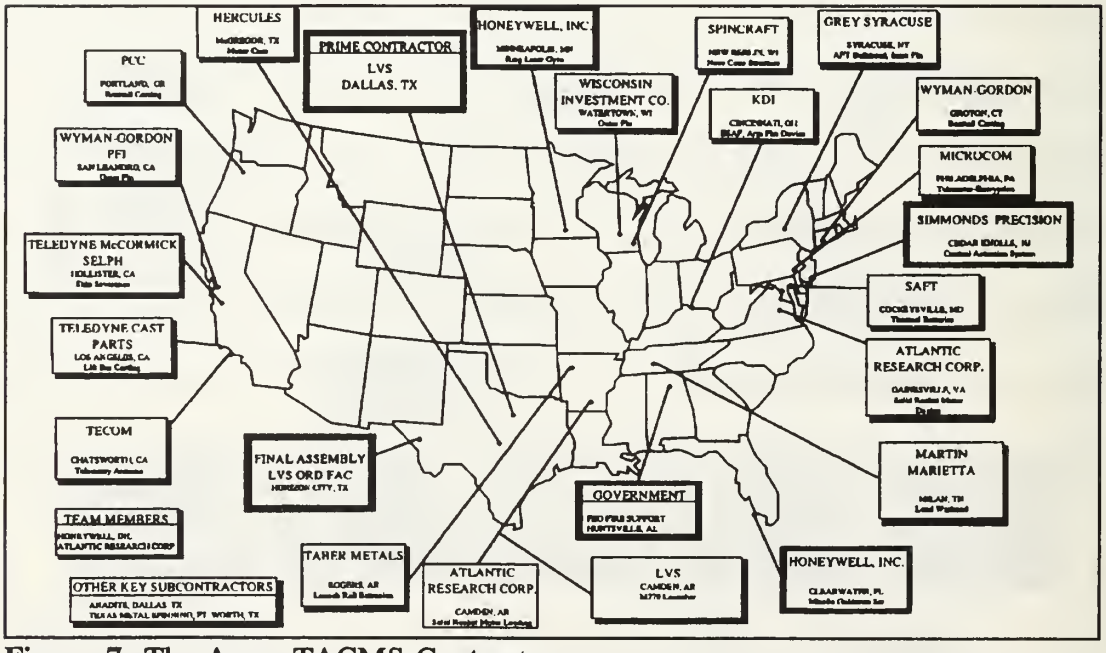

Figure 7: The Army TACMS Contractors.
Source: Army TACMS Project Office.

B. BIRTH OF ARMY TACMS

The genesis of Army TACMS came from the "Assault Breaker" demonstration program that began in 1978 by the Defense Advanced Research Projects Agency (DARPA). In 1981, the Army established a special task force to begin development of requirements for a Corps Support Weapon System (CSWS) to engage high priority targets at ranges beyond those of existing weapons.[47] This CSWS was combined with the Air Force conventional standoff weapon in 1983 to form a joint program called the Joint Tactical Missile System (JTACMS). In August of 1984, the Air Force decided to end its participation. The Army then requested and received DOD approval to continue the program. The programs' Required Operational Capability (ROC) received approval in May 1985 and the program name was changed to the Army Tactical Missile System (Army TACMS).[48]

A competitive request for proposals (RFPs) to industry for full-scale development (FSD) of the Army TACMS, and a sole-source RFP for integration of the Army TACMS with the MLRS launcher were released in June 1985.[49] Ling, Temco, Vought (LTV) Corporation's Missiles and Electronics Group was the winner of the competition for development of the Army TACMS. In March 1986, LTV was awarded fixed-price

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[47]Army Tactical Missile System Project Office, "Program Descriptive Data: Program Highlights", Huntsville, AL: Unpublished, 3 July 1991, pp. 2-2.

[48]"Program Descriptive Data", pp. 2-2.

[49]Army Tactical Missile System Project Office, The Army Tactical Missile System Lessons Learned, Desert Shield/Desert Storm, 2 August 1990-31 July 1991, Huntsville, AL: Unpublished, pp. 1.

contracts for both the development and integration efforts. The use of a fixed-price contract for development placed most of the project risk on LTV. LTV was willing to accept this risk because of their work with DARPA on the "Assault Breaker" technology.

The next major milestone for Army TACMS came in January 1989, when the Army Systems Acquisition Review Council (ASARC) authorized the award of a Low-Rate Initial Production (LRIP) Option. Developmental flight testing of Army TACMS took place at White Sands Missile Range (WSMR), NM, from March 1989 to December 1989. Additional component qualification testing and the addition of two developmental flight tests delayed the operational flight tests that were scheduled to begin in October 1989. Actual Army TACMS operational flight testing was completed between March and June 1990.

C. THE ARMY TACMS PROJECT UNDER COLONEL MATTHEWS

On 16 April 1990, a change of command occurred from Colonel Thomas J. Kunhart to Colonel David F. Matthews as the Army TACMS Project Manager. The Initial Operational Test and Evaluation (IOTE) were currently underway. Also, the Army TACMS annual update of their Test and Evaluation Master Plan (TEMP) was in progress. The Office of the Secretary of Defense (OSD) granted approval for the TEMP on 16 May 1990. In June 1990, the IOTE program was completed with all fifteen IOTE flights being successful.[50] Army TACMS Pre-ASARC briefings began in August 1990 culminating with the ASARC granting Army Milestone IIIB approval on 17 September

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[50]"Program Descriptive Data", pp. 2-2.

1990. This authorization allowed Army TACMS to initiate the milestone authorization request for full rate production and go on to OSD for Defense Acquisition Board (DAB) Milestone IIIB approval. All these major events concluded within the first five months that Colonel Matthews was Project Manager.

Army TACMS was originally scheduled for deployment to U.S. Army Europe (USAREUR) with a First Unit Equipped (FUE) date of September 1990. In response to Operation Desert Shield, the decision was made to divert these assets to Southwest Asia (SWA). By the end of August 1990, the actual deployment had been accomplished. Also, in response to Operation Desert Shield, the LRIP contract schedule was accelerated to provide twenty additional missiles to SWA and to complete deliveries by the end of December 1990. All this took place while the Project Office continued to prepare for its DAB Milestone IIIB review, planned for November 1990. Figure 8 depicts the many briefings required in preparation for a DAB Milestone IIIB review. On 2 November 1990, the DAB granted Army TACMS approval to go to Milestone IIIB, Full-Rate Production. On 5 November 1990, the Project Office exercised a full-rate production option with LTV for 318 missiles.[51]

The LRIP schedule was accelerated twice to support the SWA buildup. The first acceleration was in September of 1990 and required twenty additional missiles by December of 1990. In January 1991, a second acceleration caused the LRIP II schedule to be moved forward by four months and deliver forty-eight missiles early. A total of

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[51]"Program Descriptive Data", pp. 2-2.

one hundred and five missiles were sent to SWA well ahead of schedule. Throughout the war, thirty-two Army TACMS missiles were fired. The missile was 100% reliable and effective during Operation Desert Shield/Desert Storm. A message from the VII Corps Artillery Commander during the war attested: "It's working great!"

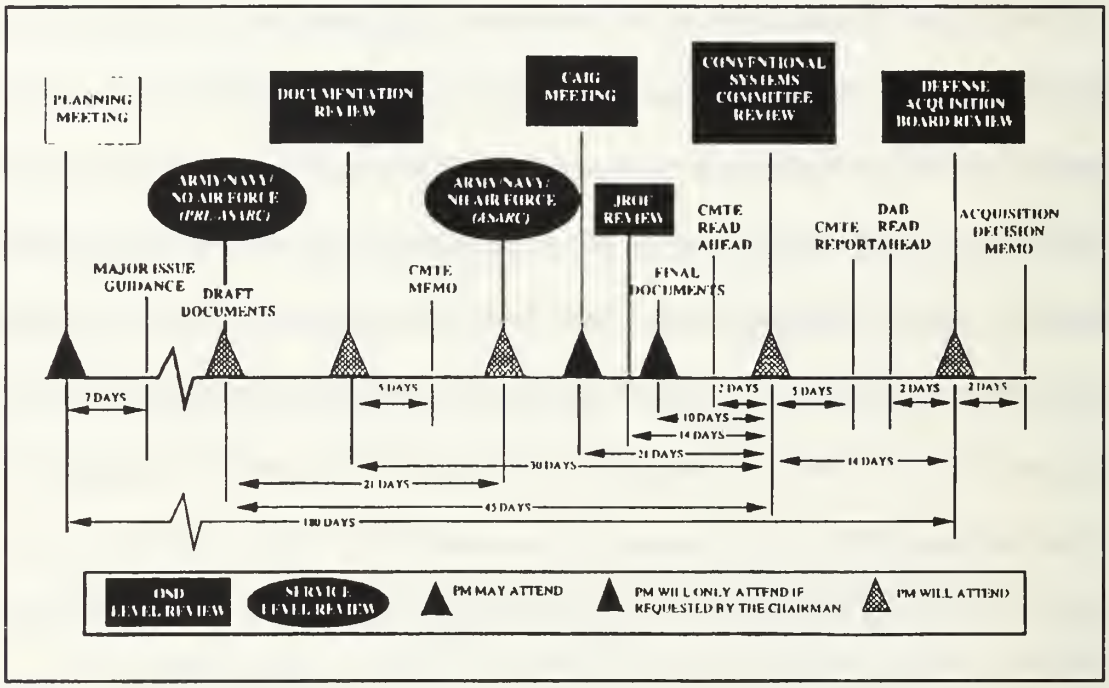

Figure 8: DAB Review Process.
Source: Army TACMS Project Office.

The double acceleration of LRIP caused a four-month gap in production between LRIP II and Full-Rate Production (FRP). On 2 April 1991, a solicitation was issued to LTV for a multi-year acquisition of 1054 missiles. The project office accelerated the FRP-1, on 13 March 1991, to preclude a gap in production. Army TACMS project office then requested supplemental funds to fill the gap between FRP-1 and the first multi-year procurement. These funds were approved, and on 1 May 1991 a letter contract was signed for fifty-five additional missiles. The first FRP-1 missile was delivered ahead of

schedule and deployments to Europe and Korea were begun in July 1991 and September 1991, respectively.

Army TACMS project office is continuing production and upgrading. Deployments are continuing in Europe and Korea on schedule. The project office is also looking at possible improvements to the missile. These improvements include extending the range, diversifying the submunitions, and the installation of the Global Positioning System. Furthermore, the success of the Army TACMS in Operation Desert Storm has led to increased interest from the other DOD Services.

D. SUMMARY

This section has presented the history of the Army TACMS missile. It shows how the missile developed from the "Assault Breaker" technology. This early technology has lead to one of the Army's most reliable and effective weapon systems. The presentation presents the chronological order of the significant events in the Army TACMS history. Finally, this section charted the Army TACMS under Colonel Matthews' management. The next section will present the results from the interviews conducted with Colonel Matthews, people internal to the project, and people external to the project.

V. RESULTS

A. INTRODUCTION

The first part of this section presents the results from the interview with Colonel Matthews. The second part presents the results from interviews internal and external the Army TACMS project. Thirdly, a short case is presented to show Colonel Matthews' approach to crisis management. Finally, part four presents an overview of the video tape.

B. INTERVIEW RESULTS - COLONEL MATTHEWS

The following section presents the data from interviews conducted with Colonel Matthews during the week of October 19-23, 1992.

1) What do you think are the reasons the ATACMS project is considered successful?

Colonel Matthews stated he felt that the Army TACMS project was considered successful for many reasons. First, the Army TACMS is an outstanding weapon system. Its performance in Operation Desert Shield/Desert Storm was superb. The missile system had 100 percent reliability and was 100 percent effective. The second reason was that the system has not had any schedule delays or cost overruns. He attributed this to the prime contractor being very good, and subcontractors being well managed by the prime contractor. Also, he said that the project had been very lucky by

not experiencing any major production delays. The third reason was that the Army TACMS project office is a very good team. While he did not directly attribute the success to himself, he did take credit for putting together the Army TACMS team.

2) Why do you feel you were nominated and selected as Army Program Manager of the Year?

Colonel Matthews stated there were two main reasons for his nomination and selection for Army Program Manager of the Year. First, he felt it is a "feather in the cap" of the PEO to have one of his Program Manager's selected. So, the PEO picked not only a very good PM but also a project that has been very successful. He was nominated because of his projects very successful Operational Test and its outstanding performance in Southwest Asia. He thought the Army TACMS successful ASARC and DAB reviews helped portray the system as very good.

The second reason was that his Deputy PM, Mr. Barker, lobbied the PEO, Mr. Williams, very hard. This was very important because making it through the PEO selection is one of the harder steps. Once he was selected by PEO Tactical Missiles, Colonel Matthews believes that Mr. Williams lobbied the selection committee on his behalf. The decision to select three Program Managers of the Year for 1991 improved his chances. This decision was apparently made because a PM of the year had not been selected in 1989 and all three finalists were outstanding. He implied that it did not hurt to be well known by a couple members of the selection panel.

3) How would you describe your management style?[52] a) What has been your approach in handling the political side of Program Management?[53] b) Do you feel you have been successful?

Colonel Matthews said that the following characteristics were indicative of his management style:

- He uses a participatory style of management.
- He uses Total Quality Management (TQM).
- He delegates to subordinates and then supports them with the resources they need to do the job.
- He manages by walking around.
- He rewards people for hard work.

He portrayed himself as a participatory manager who believes in decisions by deliberation, but leaves no doubt he is in charge. Colonel Matthews also said he told the project office on his first day that he was not afraid to be controversial. He said he was willing to make the hard decisions, but he expected to have good information to make the correct decisions. Colonel Matthews also stated he was willing to take full responsibility for the decisions made in the project office. He went on to say he had given the project office four axioms to incorporate:

- "Bad news doesn't get better with age" (and he won't shoot the messenger).
- "In a watering contest it doesn't matter who gets wetter, you both end up stinking!"

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[52]Margerison, pp. 34-42.

[53] Meredith and Mantel, pp. 92.

- "Don't let the boss get surprised."
- "Forgiveness is frequently easier to obtain than permission."

These axioms have established the basis for his management style. One of the ways he has carried out this management style is through TQM.

Colonel Matthews' management approach is rooted in his strong belief in TQM. He is an advocate for TQM and has brought TQM to the project office. He began the implementation of TQM with his chiefs because he felt it was important that the change in philosophy begin with them if the implementation was to be successful. This change began with classes on TQM and moved to him empowering his chiefs to do their jobs. He has done this by delegating to the chiefs both the resources and authority necessary to make decisions.

He said he had learned the art of delegation from Lieutenant General (LTG) Thompson while working in the Pentagon. LTG Thompson gave him the philosophy of "hiring good people, then unload as much work as possible on them, but don't let them flounder." Colonel Matthews then stated an important part of his being able to delegate is his personnel assessment. He stated his educational background gave him skills to quickly assess people's strengths and weaknesses. His educational background is presented in Appendix B. He uses this skill to put people in positions that maximize their strengths. His interpersonal skills have also helped him assess how much he can delegate to people and who to promote from within the project office.

Colonel Matthews said his management style of walking around also helps him in this identification. He uses the technique of management by walking around to

enable him to talk with the office workers regularly. These conversations help him keep in touch with what is going on in the office, and with the project staff. He also uses his wandering to emphasize his support for TQM. Furthermore, it helps him to develop an atmosphere of caring, which he believes is essential in a project office. He felt the caring atmosphere had been partially responsible for an improvement in morale.

He furthers this caring atmosphere by ensuring that peoples' hard work and loyalty are rewarded. He and Mr. Barker have made extensive use of the awards program as incentives to achieve goals. The project office gives out many awards each month to employees and subcontractors. This program has also included many cash awards for outstanding work. In addition they submit employees names for external recognition. An example is the project office has had the last three Female Employees of the Year for Redstone Arsenal.

Management of Politics. Colonel Matthews' approach to the political side of project management has been to be direct and to confront people on the issues. He said this approach has not always been the most political, but people always know where he is coming from. He went on to say he felt he was not particularly adept at playing the "political games." He compensates for this by networking throughout the many organizations with which he has to deal. This network keeps him in touch with the games being played and allows him the time to develop a strategy to circumvent the game playing. He gave a couple examples of what he meant, but he did not wish them published.

4) What do you feel is the difference between yourself and less successful project managers? Describe the importance of the project team to the projects' success?

Colonel Matthews was hesitant to compare himself to his peers. He eventually said he felt the biggest difference was his knowledge of the civilian personnel system combined with his management style. He has developed a mastery of the civilian personnel system. He attributes this knowledge about the civilian personnel system to his tour in Saudi Arabia. During that period, he acted as the personnel manager for eleven military officers, thirty Government civilian employees, and two thousand multinational contractors. This was equivalent to the responsibility of a mini-two-star command.

He defined his management approach as participatory and proactive. His proactive management approach has allowed him to stay ahead of potential problems, setting him apart from some of his peers. He stated, "A project in production is always just one step from disaster!" Also, he felt that the team atmosphere that he had developed was very important. He felt that many of his peers did not understand the importance of a team concept.

He credits the team with the project's success. Although, he was quick to take credit for putting the team together, he said that the team atmosphere had strengthened since he had taken over. This is due to his encouragement and to the critical events that they had gone through. He cited as examples of these events the rapid succession of IOTE completion, surges of LRIP for SWA, and the DAB review. He said that the successful completion of this succession of events was similar to a rite-of-

passage. Also, during these events members of the project had been placed in difficult management roles and had responded superbly. The superb performances led him to envision the mini-PM idea.

The idea of the mini-PM is to form teams across the functional areas to solve small problems. These teams are headed by a subordinate who shows management potential. Colonel Matthews feels that this allows people to develop management skills on a lower level, without feeling threatened. He went on to say he thought that communication had improved throughout the functional areas with the use of the mini-PM idea.

5) The literature identifies ten skills a project manager must have mastered for successful project management.[54]

a) Team Building
b) Leadership
c) Conflict resolution
d) Technical expertise
e) Planning
f) Organization
g) Entrepreneurship
h) Administration
i) Management support
j) Resource allocation

Do you feel you have mastered these? Which of these would you rate as your strengths?

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[54]Kerzner, pp. 182.

Colonel Matthews felt he had mastered eight of the ten skills. He felt he could be stronger in the area of technical expertise, although he did not consider it a weakness. The area he felt weakest was in administration. However, he felt that Mr. Barker was extremely qualified in administration and thus has delegated this responsibility to him.

Team Building: Colonel Matthews stated he felt that team building and talking to his people are his best management skills. His father (a retired Army Colonel) taught him that the key to morale was whether people believed that the boss cares. He believes his people know that he cares. He stated it is difficult to develop a team atmosphere in a project office because of the functional diversity of the people. He has tried to overcome this by:

- encouraging people to share information
- having an open forum in staff meetings
- emphasizing the TQM philosophy

Also, his management style of walking around helps him with team building because it keeps him informed. Another aspect of his team building is a technique he developed to ensure everyone feels he has an opportunity to voice his opinion. Prior to staff meetings a sheet is posted so office personnel may sign-up to attend. The first four "munchkins" to sign up get to participate in the staff meeting.

A difficult task in a project office is to make the noncollocated personnel feel as if they are a part of the team. Colonel Matthews explained how he accomplishes this task using the example of the project office Procuring Contracting Officer (PCO).

Because the PCO is not collocated in the project office, he always includes the PCO in major briefings and meetings. He cited responsiveness as another PM problem with noncollocated matrix personnel. He said he assures his PCOs responsiveness by giving cash awards for superior performance. This is a PM "technique" to ensure responsiveness of matrixed contracting officers.

Leadership: Colonel Matthews believes leadership is one of the most important skills of a project manager. He said that leadership within the project office starts with the PM. The PMs leadership sets the atmosphere and direction for the project office. He has used three vehicles to provide leadership.

The first is through the TQM philosophy. Through TQM he has established the direction for the project office. This direction has been passed to his chiefs by giving them guidance and then empowering them to do their job. He has backed this up by giving the chiefs the resources they need and removing the fear of making mistakes. He removed this fear on his first day as PM by stating, "I take full responsibility for everything that happens in this (Army TACMS) project office." This attitude has allowed mistakes to be used as learning tools.

The second vehicle of leadership has been mentoring both with the military project office personnel as well as the civilians. He has developed this approach from his mentors. He has had the good fortune of having outstanding mentors from which to draw philosophies. Mentors like his father have passed on techniques such as management by walking around, acquired long before it was advocated in the current management books. Also, Colonel Devanney, Deputy PEO-Tactical Missiles, has been

an important mentor to him. Colonel Devanney has passed on many of his program management experiences from the TOW missile project. He has used these lessons to avoid pitfalls in the Army TACMS project. These mentors have taught him the importance of mentoring.

Colonel Matthews uses mentoring to encourage people to develop their unique skills and continue their education. He has taken an active role in mentoring junior military officers, a role strongly championed by the current Army leadership. His mentoring for the military takes a more formal approach, since he utilizes Officer Professional Development (OPD) classes to support his efforts. He personally reviews each officer's career path and helps him chart his future goals. He has also encouraged his deputy to mentor the civilians. He feels this has helped build a close team.

His third vehicle for leadership is the establishment of high professional standards of conduct. He has established this by leading by example and expecting a high standard of professionalism. He has used the military officers to help effect this change. He did this by telling all the officers to act as leaders and professionals. Examples of this are the wearing of a jacket and tie while traveling on project office business. Prior to the officers wearing jackets and ties people traveled in jeans and sweat suits. Another example is ensuring that officers remain on temporary duty (TDY) until the mission is complete, not when the TDY is scheduled to be completed. This has established the standard of mission accomplishment. Over time, the civilian personnel have adopted these philosophies. Through this vehicle he has created a professional atmosphere throughout the project office.

Summing up his leadership he stated:

- You give the project a direction.
- You empower people to do their job.
- You assume total responsibility to remove the fear of failure.
- You let mistakes be a learning experience.
- You set and expect professional standards of conduct.

Conflict Resolution: He felt he was very good at conflict resolution. Colonel Matthews said conflict within the team was easier to resolve than conflicts external to the team. His approach to internal conflict resolution was to be proactive and to use his chain of command. One example is his difficulty with getting the functional groups to share information. He has minimized this problem by calling the functional managers in and getting them to work out how they are going to solve an issue.

Colonel Matthews said he uses a different approach to external conflict. He said he lived by his third axiom when approaching external conflicts. He believes it is better to attack the problem than to figure out who is at fault. As a problem solver, his approach to conflict resolution is from a win-win point of view. He cited an example with his prime contractor. The Army TACMS team had a missile failure because of a burn through in the exhaust nozzle. Analysis found that a low grade of graphite was the cause, but the graphite used was within the specification required by the Government. The situation was made more complex by the fact the missile was covered by an LTV warranty. Both the Government and the contractor had legal grounds to claim the other was responsible. Instead, Colonel Matthews negotiated a deal where the contractor

replaced the bad sections and the Government provided the facilities and paid the personnel. Thus, a win-win solution.

Technical Expertise: Colonel Matthews admitted that in theory this would be the toughest to master because of his social science educational background. While some would consider his education a liability in program management, he sees it as an asset. He has a patent answer for people who question his education. He says, "I can think, I can synthesize, I can communicate, and I can really manage people. Also, when things get technical, I can usually recognize BS." This usually ends any speculation about his ability. Even if he is not a technical expert, he can take the technical information and put it into analogies that he and others (specifically senior decision makers) can understand. Another way he has covered this skill is to hire good technical people and listen to them. He stated he is not afraid to ask questions and to continue asking questions until he understands the technical issues. He relies heavily on his Deputy and his Chief Engineer to assist him in technical matters.

Planning: Colonel Matthews characterized the planning process in the Army TACMS project office as discussion and deliberation. He elaborated to say that he uses his vision for the project to develop the general ideas, then he encourages discussion to refine the ideas. This process begins the consensus building necessary for the team development. After discussion, the refined vision is then given to the "munchkins" to work out the details.

Organization: Colonel Matthews thought organizational skills and team building were synonymous. He felt that the success of the team was confirmation of his

organizational skills. An example of this was on 30 November 1990, (seven months after he took over the Army TACMS project), his Deputy Project Manager, Chief of Technical Management, and his Chief of Systems Support all retired. While this loss was unfortunate, it allowed him the opportunity to choose people who would set the tone for the project office. He found two very good people outside the project office and promoted one internally. This was the foundation of the team building which has become very important in the project's success.

Entrepreneurship: Many successful organizations have an entrepreneur at the helm, providing the vision for the organization. Colonel Matthews is "the entrepreneur" in the Army TACMS project office. He uses his vision to set a clear direction for the project. Through discussion and deliberation this direction is then refined by the rest of the project office. This allows the project office to adopt the direction as their own and build a consensus. He cited the idea of the mini-PM as an example of his entrepreneurship. He stated he did not feel he was the lone entrepreneur in the organization. He felt Mr. Barker was very good in this area and shared this skill.

Colonel Matthews went on to say that he is the one who figures out what the two or three really important directions are for the office. He used the example of changing the guidance system. He was the one who realized the benefits of the improved guidance scheme and made the decision to go with it. He then took the idea of the improved guidance and sold the benefits of the missile to the right people.

Administration: Colonel Matthews said that administration was his weakest skill of the ten. Because of this, when he began looking for a new Deputy,

administrative skill was a necessary quality. He has placed this area of program management with Mr. Barker, the Deputy PM. He stated ". . . when I brought Don in, I told him I have enough problems. You handle that (administration)." He feels Mr. Barker is very good at the programmatics and he trusts him.

Management support: This was covered under the discussion about his management style.

Resource allocation: Colonel Matthews said he felt that this was in the same arena with administration. He has delegated the authority to manage the budget and civilian personnel to Mr. Barker. His only guidance to Mr. Barker was to give the chiefs of the departments their share of the resources and let them allocate as they need. This is in keeping with his strong TQM philosophy.

6) A DSMC study found that outstanding project managers displayed six competencies that less successful project managers did not.[55] These competencies are:

- ***a) Sense of Mission***
- ***b) Political Awareness***
- ***c) Relationship Development***
- ***d) Strategic Influence***
- ***e) Interpersonal Assessment***
- ***f) Action Orientation***

Do you feel you demonstrate these competencies?

Sense of mission: Colonel Matthews felt there was no question he had a sense of mission. He is totally dedicated to doing the best possible job for the Army

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[55]Gadeken, Cullen, and Huvell, pp. 26-31.

TACMS system and project office. In pursuit of this goal, he traveled over 200,000 miles in 1992. He constantly visits the prime contractor and subcontractors to wave the flag and ensure they understand their importance to the Army TACMS project. He spends many hours visiting the Pentagon, and institutions for military education to promote his project. He concluded the discussion in this area by saying "I want to be able to say I left this place better than I found it; and that the Army TACMS system is the best it can be."

Political awareness: Colonel Matthews feels that his political awareness is lower than most PMs. He said that politics were very important in the project management business. He feels political awareness is most important in the Pentagon because of all the infighting that goes on there. He went on to say that game playing is not his forte, which is what he means by political awareness. Although, he stated he is very good at assessing whom the key players are and what impact they can have on his project. He felt this was a key quality to survive as a PM. To illustrate his political awareness Colonel Matthews said:

> I know I have made some people mad at Fort Sill, because they think I'm going around doing their job. But I have to, because the weapon system isn't being used properly and they aren't getting out there and doing their job due to the lack of TRADOC[56] resources. I fill power vacuums! My charter[57] obligates me to do that. I will continue to do that until my boss tells me to stop or shut up.

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[56]TRADOC refers to the U.S. Army Training and Doctrine Command.

[57]Charter refers to Colonel Matthews Program Manager charter. For further explanation refer to Appendix C.

By filling "power vacuums" he is referring to areas of his project for which others have responsibility. He has done this by filling voids left by the TRADOC System Manager (TSM), the contractor and others. He tries to compensate for what he calls his political awareness deficiency by networking and keeping abreast of what is happening.

Relationship Development: Colonel Matthews stated "You have to work good relationships." He believes relationships are personality dependent. Because of his social science background he feels he is very adept at developing relationships. He believes good relationships require time. The 200,000 miles he traveled during his many visits in 1992 shows he believes in investing the time to get to develop relationships with sponsors, users, and contractors. Also, the time he has invested in developing an outstanding relationship with Mr. Anderson, his contractor counterpart, is a testimonial to the importance he puts in relationship building. Colonel Matthews also said he believed good relationships are built upon trust. Examples of this belief are his complete trust in both his Deputy and his contractor PM counterpart. He considered these his two most important relationships within the project.

Strategic Influence: Colonel Matthews said you have to know where you want to go. Then you have to identify how to get there. Then you have to identify who can help you get there. He stated, "There are still a few people who are piranhas out there and you can't ever have a conflict with a piranha." He said you have to be able to identify who the key people are and how they can affect your project. He felt it was important to identify these people and to keep an eye on them. Then you have to develop or build a relationship with these people or build relationships that negate their influence.

Colonel Matthews was then asked if he did a stakeholder analysis. He said he did not do a formal stakeholder analysis, but to be successful in this business you have to identify all the players. He also said that the players and their importance change depending on the project's stage of development. One of his lessons learned was "any DOD issue, no matter how trivial, must be taken seriously because if you don't it will come back to bite you!" He went on to say, he felt that the stakeholders in a project are extensive and an analysis might be continuous. The real key is to identify the people who can affect your project at the current time.

Interpersonal Assessment: Colonel Matthews stated he felt he was very good at assessing the strengths and weaknesses of people. His Master's Degree in Sociology has been very important in the development of this skill. His ability to assess peoples' strengths and weaknesses has given him insight into their management potential. He has used this insight to promote people from within his organization who did not necessarily have the expected credentials. An example of this was when he assessed the skills of his current Systems Support Chief. Although she lacked the expected educational background, he promoted her because he felt she had outstanding potential. He further said that he uses this skill in his team building, his leadership, and his relationship development.

Action Orientation: Colonel Matthews stated "I don't think there is any doubt about that." He felt that "action oriented" was the most descriptive term used in characterizing himself.

7) What are your strengths and weaknesses? What are the ATACMS project team's strengths and weaknesses?

The answers to this question have been incorporated in the responses above.

8) Please describe your relationship with Mr. Williams (PEO-Tactical Missiles)? Describe your relationship with Mr. Barker? Describe any other key relationships?

Colonel Matthews said that his relationship with Mr. Williams, the PEO-Tactical Missiles, was very professional. He felt free to go to him any time with a problem or a need. He felt that Mr. Williams was very supportive. But he also stated he really does not know Mr. Williams. He is unsure where he stands because Mr. Williams does not give him much feedback. Although, he stated, he does not mind this because he is left alone to do his job and he is having fun at it.

Mr. Barker is the Deputy Project Manager. Colonel Matthews has made Mr. Barker responsible for the internal running of the project office. He defined the relationship between himself and Mr. Barker by characterizing it as "Mr. Inside" and "Mr. Outside." As an example of the uniqueness of their relationship he described how the interview of Mr. Barker went. He had put out inquiries looking for a new Deputy PM. He had gotten the word that Mr. Barker was very good and very strong in programmatics. So, he called Mr. Barker and asked him if he was interested in the job. Mr. Barker said he would think about it and get back to him. This gave Colonel Matthews a little shock because he thought Mr. Barker would jump at this chance. Mr. Barker called Colonel Matthews on a Saturday and said he would like to talk to Colonel

Matthews about the Deputy PM job. Colonel Matthews invited him to his house and thought he would interview Mr. Barker. Much to his surprise, Mr. Barker came to interview Colonel Matthews. Colonel Matthews stated this approach really impressed him.

Mr. Barker frees Colonel Matthews from mundane details of running the project. This enables him to get out and handle the external requirements of the project. Also, he has given Mr. Barker responsibility for the programmatics and civilian personnel management. He trusts Mr. Barker completely and believes the combination of the two of them is probably one of the major contributors to the project's success. He also feels the project would probably not run as smoothly without Mr. Barker. In conclusion, he restated that he characterizes their relationship in two ways: Mr. Inside and Mr. Outside, and the two pieces necessary to make a complete circle.

The other key relationship Colonel Matthews mentioned was with his contractor counterpart, Mr. Bob Anderson. He said he trusts Mr. Anderson, and this trust had been built up over the years he has been PM. This relationship began with Mr. Anderson personally giving him a thorough briefing on the Army TACMS prior to Colonel Matthews becoming PM. He believes his trust in Mr. Anderson is unique in today's acquisition environment and attributes it to the fact both men understand the expectations and requirements of the other - one to return a profit, the other to deliver a quality weapon system on time and within cost. Also, the relationship between the two men has matured because of all the traveling the two do together. They visit most of the subcontractors together, and Mr. Anderson helps him keep networked with what is going

on at LVS. He returns the favor for Mr. Anderson from the Government side. Furthermore, Mr. Anderson has constantly ensured that he has had a say when a new vendor is being considered. Both men also talk on the phone almost daily, keeping current on all project activities. The openness of this relationship has been instrumental in keeping people from derailing the project.

C. INTERVIEW RESULTS - PROJECT ORGANIZATION

The following section summarizes the results of interviews conducted with personnel both internal and external to the Army TACMS project office. Personnel interviewed ranged from secretaries up to senior executives working in the Army Acquisition Executive (AAE) office. These interviews were conducted from August 1992 to March 1993.

1) What do you think are the reasons the ATACMS project is considered successful?

All the respondents felt the major reason the project is considered successful was because of the high quality of the weapon system. The second most mentioned response was the outstanding team. It is interesting to note that some respondents defined the team as the military project office, while the other respondents defined the team to include the prime contractor, subcontractors, and MICOM matrix support as well.

After the quality of the system, the internal team members felt the team and the team work were the most important reasons the project was successful. Respondents

external to the team attributed most of the project's success to its outstanding performance in SWA. The external respondents also thought that the fact that the project had not had any major "glitches," remained on schedule, and within cost was an important consideration. When asked, external respondents said they said they felt the Army TACMS team worked well, but they did not know how it worked.

2) Why do you feel Colonel Matthews was nominated and selected as Army Program Manager of the Year?

Half the respondents, both external and internal, felt that Colonel Matthews was nominated and selected because of his management. Specifically mentioned were his skills in team building, leadership, and marketing. Comments like "He works at team building and invests the time necessary to do that . . . " They attributed the quality of the team to Colonel Matthews' team building skills. Many of these respondents felt that Colonel Matthews' success in building the team, which includes subcontractors, had been instrumental in the high quality of the weapon system. Another respondent felt his success was due to the completion of so many difficult tasks in the previous year. When asked, the respondent listed the following tasks:

- completion of IOTE.
- negotiation of the DAB review process.
- acceleration of LRIP twice.
- outstanding missile performance in Operation Desert Shield/Desert Storm.

The other half felt the weapon system's performance in Southwest Asia was responsible for Colonel Matthews' selection. Most of these respondents felt the 100 percent reliability and effectiveness gave Colonel Matthews high visibility. They felt this was the major reason he was considered. One respondent said Colonel Matthews was in the right place at the right time. The fact that the system was going into production and was successfully surged for Operation Desert Shield/Desert Storm played a major part in his selection. Although these respondents felt Colonel Matthews' management was very good and was partially responsible.

3) How would you describe Colonel Matthews' management style?[58] a) What do you feel Colonel Matthews' approach has been in handling the political side of Program Management?[59] b) Do you feel he has been successful?

The respondents repeatedly characterized Colonel Matthews' management style as one of leadership and team building. Additional attributes from internal team respondents were his setting of direction and vision for the project. One respondent stated "He clearly points in the direction he wants the office to go and makes sure people know that he's in charge." Another respondent classified his style as the modern-day TQM manager. Most of the respondents felt his focus and interaction with the team were keys to his management style. Also mentioned was his receptiveness to new ideas and approaches.

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[58]Margerison, pp. 34-42.

[59] Meredith and Mantel, pp. 92.

Although none of the respondents characterized him as a micromanager, some felt he had a potential for micromanagement. They felt he was aware of this and worked hard to avoid it. Most of the respondents characterized him as a participatory manager, who encouraged discussion and decision making. Every chief interviewed said they made decisions freely knowing that Colonel Matthews would support them. All the chiefs said that they knew that when they consulted with Colonel Matthews they were expected to come with a recommendation. They also said they were not afraid to tell him bad news. All the internal respondents stated they felt he let them do their job with minimal interference. They also said they felt comfortable stating adverse opinions or asking questions. One respondent specifically stated that Colonel Matthews was an outstanding communicator. He felt this was important in setting the priorities, direction, and the objectives of the project. A couple respondents said his management style was one hundred and eighty degrees out from what they had been used to. This tended to scare them at first.

Most of the respondents felt Colonel Matthews was very adept at handling the political side of the PM business. In fact, one respondent felt Colonel Matthews was so accomplished at managing the politics of project management that he knew when he could ignore the politics. This respondent stated "He is aware that he doesn't necessarily do the things that are always politically correct and that probably is a strength not a weakness." Most of the respondents felt that Colonel Matthews accomplished managing politics through networking and marketing the system. The more experienced respondents mentioned his approach of filling power vacuums. When asked what they

meant by this, respondents said this means doing the job of other people associated with the project. A commonly cited example was that the TRADOC System Manager was not informing the user about the weapon system and Colonel Matthews stepped in to fill the void. They stated he accomplished this by sending his own people out to brief the user. Another example was Colonel Matthews' pursuit to find follow-on capabilities for the weapon system that would keep the production line open.

4) What do you feel is the difference between Colonel Matthews and less successful project managers? Describe the importance of the project team to the project's success?

The respondents' answers to this question fell into two groups. The first group said they felt the major difference was Colonel Matthews' management style. This group felt his empowerment of subordinates and his team building set him apart from less successful project managers. This group also felt Colonel Matthews genuinely cared for the members of the project which made a big difference. People felt compelled to work harder and give more to the project because of the caring atmosphere. The other group of respondents attributed the difference to his ability to establish priorities. One internal respondent stated "He is good at setting goals for our project and setting priorities for the work." An external respondent stated:

> A PM's time is very limited to devote to any one thing. Because of the high priority Colonel Matthews has placed on team building it has driven him to invest his time there. Developing those skills has allowed him to continue to see the big picture and look at things in more detail. Most PM's are so busy trying to kill the alligators that are eating their legs off they don't have time to go look at the big picture. That is the single most significant difference.

All the respondents felt the team was a major reason the project had been successful. One respondent said "The project's greatest success is the ATACMS team!" Some respondents felt there was a good team in place before Colonel Matthews. Most of the respondents said that the quality of the team was due to both Colonel Matthews and Mr. Barker.

5) The literature identifies ten skills a project manager should master for successful project management.[60]

a) Team Building
b) Leadership
c) Conflict resolution
d) Technical expertise
e) Planning
f) Organization
g) Entrepreneurship
h) Administration
i) Management support
j) Resource allocation

Do you feel Colonel Matthews has mastered these? Which of these would you rate as his strengths?

All the respondents felt Colonel Matthews had mastered all the above skills. The majority rated his strengths as:

- Leadership
- Team building
- Interpersonal skills

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[60]Kerzner, pp. 182.

- Management Support
- Entrepreneurship

The respondents were then asked to give examples of how he demonstrated these skills.

Leadership: The most common answer was that Colonel Matthews leads by example, although another common response was that he delegates to subordinates and treats people like adults instead of children. Almost all the internal respondents stated "I would go to war with him any time." When asked why, most of the respondents stated they felt he would take care of them. These respondents also said they had confidence that he would put together a good team. Finally, Colonel Matthews' expectation and establishment of professional work standards were cited as another example of his leadership.

Most of the respondents, both internal and external, characterized his leadership style as aggressive, although a couple of external respondents called it arrogance. The majority of respondents attributed this aggressiveness to confidence in his skills. The two external respondents who thought he was arrogant said that they thought he knew a lot less than he acted.

Team Building: Most of the respondents who had been in the office a long time felt Colonel Matthews had developed the team. They said many team members were in place prior to him, but they were only working within their functional area. These respondents felt Colonel Matthews was responsible for getting the functional areas communicating and working together.

Many respondents said Colonel Matthews' visits to subcontractors to tell them how important they were to the project had made a significant difference in their performance. Also, since Colonel Matthews usually travels with Mr. Anderson, the subcontractors realized the close relationship between the prime contractor and the Government. Many subcontractors said that Colonel Matthews' visits had a positive impact and made them feel like part of the team. Mr. Anderson referred to this as "wearing the uniform and waving the flag."[61] Mr. Anderson said he felt this was very important to building the Army TACMS team.

All the respondents believed Mr. Barker had been delegated the responsibility for the hiring and firing of civilian personnel. Yet they still felt Colonel Matthews had strong input into the actual team building and organization. Respondents who had known him for many years said Colonel Matthews was very knowledgeable about the workings of the civilian personnel system. They felt this gave him the capability to build a good team because he knew how to get the best people out of the system. Also, they felt his mentorship program was important to the development of the team.

Entrepreneurship: Most of the internal respondents felt that Colonel Matthews was the entrepreneur of the project office. They felt it was he who pushed the new ideas and approaches. Also, many respondents mentioned that Colonel Matthews was receptive to new ideas and approaches. Respondents said that he was constantly

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[61]Interview with Mr. Anderson on 28 January 1993.

encouraging people to be innovative in their problem solving. All the respondents said they felt Colonel Matthews had the vision of where the project office was going.

Management Support: All of the internal respondents attributed Colonel Matthews' accomplishment in this area to his overwhelming support for TQM. Through the TQM philosophy, section chiefs had been empowered to make decisions and allocate resources as they saw necessary. Furthermore, they said that Colonel Matthews allowed them to do their job, but always was available to help if needed. Most of the respondents felt that he did not micromanage. Another management characteristic mentioned was that he uses mistakes as a learning tool. All the respondents felt they could make honest mistakes, as long as they weren't major, and not suffer for them. Finally, one respondent cited the mini-PM idea as an example of management support.

6) A DSMC study found that outstanding project managers displayed six competencies that less successful project managers did not.[62] These competencies are:

- ***a) Sense of Mission***
- ***b) Political Awareness***
- ***c) Relationship Development***
- ***d) Strategic Influence***
- ***e) Interpersonal Assessment***
- ***f) Action Orientation***

Do you feel Colonel Matthews demonstrates these competencies?

All of the respondents felt Colonel Matthews demonstrated these competencies. The respondents thought sense of mission was one of Colonel Matthews'

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[62]Gadeken, Cullen, and Huvell, pp. 26-31.

strengths. Many respondents felt he owned the project and was completely responsible for everything that went on in the project. One respondent said "after the DAB, a senior Army officer said that there was no doubt that the Army TACMS was certainly Dave Matthews' project."

Interpersonal assessment and action orientation were the other two competencies most of the respondents mentioned as strengths of Colonel Matthews. They felt his proactive approach to project management had been instrumental in solving potential problems before they became "show stoppers." The respondents also felt his interpersonal assessment skills played a big part in his team building capability. One respondent felt very strongly that Colonel Matthews' personal assessment ability was a key skill. This respondent thought Colonel Matthews' ability to assess his own strengths and weaknesses were instrumental in beginning the team building process. When other respondents were questioned about this, most agreed.

7) What are Colonel Matthews' strengths and weaknesses? What are the ATACMS project team's strengths and weaknesses?

The responses to this question have been incorporated in the answers above.

8) Do you feel free to voice your opinion? Does he encourage you to be innovative?

All the internal respondents said they felt free to voice their opinion without fear of retribution. They also said they were encouraged to present a divergent viewpoint. The internal respondents felt their opinions were listened to and considered.

All the internal respondents felt Colonel Matthews and Mr. Barker encouraged them to be innovative. Many respondents said they felt the TQM philosophy supported this however, none could provide specific examples.

D. CRITICAL INCIDENT

The following incident was developed from the interviews using the Critical Behavior Interview Technique.[63] It provides an example of the project manager and project office problem solving approaches.

1. Bomblet Lethality Questioned

While at White Sands Missile Range during an early IOTE firing, one of the Institute for Defense Analysis (IDA) people mentioned to Colonel Matthews that the Army TACMS project had never empirically proved the lethality of the bomblet. Colonel Matthews brought this comment to his Chief Engineer. The Chief Engineer said that all the LANCE missiles in the world had been retrofitted with the M74 bomblet. He thought that was the dumbest comment he had ever heard. He stated surely they could not have retrofitted all those missiles without having tested the effects of the bomblet. Colonel Matthews figured when some research was done the analyst would find the test data and drop the issue.

By October 1990 the Army TACMS had made it through many major reviews in preparation for its DAB IIIB decision. Figure 4-5 depicts the DAB review process. Colonel Matthews went to the Conventional Systems Committee (CSC) Review fairly

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[63]DSMC, A Competency Model, pp. 1-6.

confident because he had survived the previous reviews without any major issues being raised. At the CSC, which was only fourteen days prior to the DAB, a major bomb was dropped on the Army TACMS. The director from the Live Fire Test Office of the Director, Operational Test and Evaluation (DOT&E) said that one of his analysts felt the tungsten fragments from the bomblets would vaporize, and the bomblets would not destroy the threat weapon system it was designed for. Furthermore, his analysts thought the calculated effects of Army TACMS were exaggerated. He said there was not any empirical data to support the effects claimed by Army TACMS. The board members asked Colonel Matthews if this was true. Colonel Matthews said that the bomblets were the same as the ones in the LANCE missile. The Live Fire people just would not let the issue die. Colonel Matthews stated he did not know of any empirical data and would have to look into it. The CSC review was adjourned until an answer could be found.

2. Colonel Matthews Reaction

Colonel Matthews immediately flew back to Huntsville, Alabama to decide what to do. He had a lot riding on this decision. If the DAB was postponed, he would lose a first production option from LTV for 318 missiles that was to expire on 1 November 1991. He knew that if the option was lost, the contract would have to be renegotiated and probably at a significantly higher price. He also knew that the option had been a fixed-price option negotiated four years prior and that LTV was not going to make much money on this lot. He knew it would take at least six months to accomplish a formal test that would provide the empirical data required to prove the effects of the bomblet. The questions that needed to be answered were:

- Is there anything that can be done to keep from postponing the DAB?
- If so, what kind of test can be put together?
- Where can this test take place?
- How can we demonstrate the ability to kill the threat vehicle?
- How can we pay for this?

When Colonel Matthews got back to Huntsville, he immediately called a meeting with his deputy, chief engineer, most of the test people, his acquisition management chief, and Major John Dillard, Assistant Program Manager for Army TACMS. He referred to these people as his war council. He immediately asked the pending questions. He had decided that he was going to try to prove DOT&E wrong, but nobody could find any existing empirical data. It appeared that all that had been done was parametric analysis and predictions based on velocity information supplied by the Ballistics Research Laboratory (BRL) and Research, Development, and Evaluation Center (RDEC) at Picatinny Arsenal in 1979. Colonel Matthews made the decision to put together a demonstration test to prove the effects of the bomblet.

It was decided a test could be done at the Milan Army Ammunition Plant where the bomblet was manufactured. They had an old machine that could spin the bomblet up to its required arming speed of 3000 rpm and then drop it. They had used this machine for acceptance testing of the bomblet lots during the Vietnam War. The war council then decided they could put up some aluminum and steel panels to represent the threat vehicle's thickness. These could be placed at different distances to test the effects of the bomblet. Colonel Matthews divided his team to begin accomplishing the

details. One group went over to the Missile and Space Intelligence Center (MSIC) to research the threat vehicle. Another group began coordinating to use the facility at Milan. Colonel Matthews decided he wanted a second test to be done simultaneously at White Sands Missile Range. This test was to be backup to the test at Milan. The test at White Sands would be even less acceptable because there wasn't a machine to spin up the bomblet. Detonation of the bomblet had to be accomplished by a blasting cap that violated the integrity of the tungsten hemispheres.

Making things more difficult, Colonel Matthews discovered that there wasn't any money to buy the aluminum and steel panels. He immediately called LTV and asked for their help. LTV bought the panels and shipped them in to Milan and White Sands. Colonel Matthews then put Major Dillard in charge of the test at Milan. Major Dillard went to the Property Disposal Office (PDO) at Redstone Arsenal and assembled some CRTs and electronics equipment. He packed up the CRTs and electronics equipment that was to represent the equipment inside the threat vehicle. The Army TACMS project test people were working out all the coordination at the different locations. Colonel Matthews called the Milan Ammunition Plant Commander and asked for help. He told him "money is no object, cut the red tape, I will pay all the bills." During this time Colonel Matthews was keeping control of the test with continuous in progress reviews. He got the Army Material Systems Analysis Agency (AMSAA) analysts to agree that the thickness of the panels was appropriate and that the arrangement of the equipment and panels was an adequate representation of the threat vehicle. They ran the tests and took pictures of the damage and collected fragments that had destroyed the equipment. They

put all these things in a briefing book and Colonel Matthews went to the Pentagon to brief his test.

A rump CSC was called and the book was shown to the board members. Colonel Matthews felt the biggest problem was that the board members wanted to give Army TACMS the go ahead, but they feared someone would leak to Congress that a whitewash had gone on. When Colonel Matthews presented his book, which clearly proved bomblets were effective, the board agreed it was safe to give the go ahead. This decision required Colonel Matthews to commit to a follow-on "formal" test by AMSAA and BRL to confirm his demonstration test results. Then someone at the CSC said that the Assistant to the Defense Acquisition Executive (DAE) should be briefed. From there, the briefing was given to the DAE's military assistant to informally brief the DAE.

The DAB IIIB review was scheduled for 2 November 1990. Colonel Matthews had to have Mr. Williams (PEO-Tactical Missiles) call the Executive Vice President of LTV and get the option extended for five days since the DAB was scheduled after the option expired. Friday, 2 November 1990, the DAB granted Milestone IIIB approval and authorization to go into-full rate production to the Army TACMS. A full-rate production option for 318 missiles was exercised with LTV on Monday, 5 November 1990.

Colonel Devanney, Deputy PEO for Tactical Missiles, said he believed "a lessor PM would have given up and said we simply don't have the time to do it." He felt this truly showed Colonel Matthews' organization, management, and conflict resolution skills. Many respondents said Colonel Matthews' proactive management style

kept the emergency bomblet test pushing ahead. All the respondents said they didn't think that the test would have been done if it were not for Colonel Matthews. Major Dillard stated he thought this was a good example of Colonel Matthews' straightforward decision making approach.

E. THE VIDEO TAPE

The video tape presents Colonel Matthews in two different environments. The first part shows Colonel Matthews preparing the Quarterly Status Review (QSR) briefing with his staff. This portion of the video tape documents how Colonel Matthews takes charge of the project, yet encourages discussion and deliberation. The discussion and deliberation provides an insight into how the Army TACMS team works. It also documents that Mr. Barker is in charge of the programmatics. He drives the questions and resolves the answers during this portion of the briefing preparation. Finally, the first portion of the tape confirms the close operating relationship between Colonel Matthews and Mr. Barker.

The second portion of the video tape shows Colonel Matthews during a briefing at the Naval Postgraduate School.[64] This portion of the tape also presents Mr. Barker, Deputy PM, and Mr. Anderson, LVS Army TACMS Project Manager. The three key players are giving a briefing on their interaction within the Army TACMS project. This portion of tape presents Colonel Matthews in a contrasting setting from the first part. Instead of Colonel Matthews presenting himself as the leader and project manager, this

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[64]This briefing was for the 815 and 816 Curriculum students on 28 January 1993.

setting shows Colonel Matthews as the marketeer. Selling the Army TACMS missile, Colonel Matthews displays his communication skills. This portion of the video tape also provides a glimpse of the interaction between Colonel Matthews and his deputy, and Colonel Matthews and his defense industry counterpart.

F. SUMMARY

This section has presented the results from interviews with people internal and external to the Army TACMS project. The interview data illustrate the project management approach of the Army TACMS project manager from two perspectives. The first perspective is of the project manager himself and contains his own description of how he accomplishes the skills of project management. The second perspective comes from those internal and external to the project team and how they view Colonel Matthews as a project manager, and how they view the project. To investigate how these skills come to life a short case was included as an example of a problem solving situation. Finally, a video tape shows Colonel Matthews in two contrasting settings. This video tape visually documents some of the key competencies of Colonel Matthews. The next section will provide an analysis of the interview data and a comparison with the DSMC Job Competency Study.

VI. ANALYSIS AND DISCUSSION

A. INTRODUCTION

The purpose of this chapter is to analyze the success of the Army TACMS project manager. The first section analyzes the results from the interviews. The next section presents an analysis of the factors affecting success. The last section compares the results with the literature.

B. ANALYSIS OF INTERVIEWS

This section analyzes the results from Chapter V. The first part presents the areas of agreement between Colonel Matthews and the respondents. The second part presents the areas of difference between Colonel Matthews and the respondents.

1. Agreement of Respondents

External and internal respondents all agreed Colonel Matthews had mastered Kerzner's ten skills required for success. Furthermore, all of the respondents agreed Colonel Matthews demonstrated the six competencies of an outstanding project manager. The researcher believes the agreement between Colonel Matthews and the internal respondents is because of the close relationships within the team. The agreement between Colonel Matthews and the external respondents is due to Colonel Matthews stakeholder management.

Of all the skills and competencies, the respondents most frequently cited leadership as Colonel Matthews' greatest strength. Although they disagreed about the nature of Colonel Matthews' leadership, aggressive versus arrogant, all respondents felt it was a key to his success. The researcher believes this disagreement over the nature of his leadership is attributed to Colonel Matthews' confidence in himself and his team. Also, most of the respondents and Colonel Matthews agreed that his strongest skills were: management support, team building, interpersonal skills, and relationship development. The researcher found these skills to have been instrumental in Colonel Matthews' successful project management.

2. Differences Among Respondents

There were three major differences of opinion between the respondents and Colonel Matthews. The first difference was that Colonel Matthews felt he was relatively weak in administration. This contrasted with the internal respondents opinion who thought he was accomplished in administration. A possible reason for this divergence in opinion could be that Mr. Barker successfully accomplishes the administration of the project.

The second divergence among respondents was over Colonel Matthews' technical expertise. Colonel Matthews thought his educational background did not make him a technical expert, although he felt he had the ability to handle the technical requirements of being a PM. Respondents, other than Colonel Matthews, thought he had mastered technical expertise. The researcher believes this divergence is because the respondents perceive his critical inquiry skills as technical expertise.

The third point of contention was over political awareness. Colonel Matthews felt that his political awareness was lower than most PMs. This view was in contrast with the other respondents who thought he was adept at the politics of project management. Furthermore, the external respondents thought this was a key skill of Colonel Matthews. An explanation for this difference may be that Colonel Matthews has been very successful at his networking and respondents may define networking as political awareness and skill.

C. ANALYSIS OF THE FACTORS FOR SUCCESS

1. Factors within the PMs Control

Analysis of the data identify three major domains that project managers have the capacity to control for success: leadership, stakeholder relations, and management style. The degree that a project manager is accomplished at the competencies in these domains will determine their effectiveness. This section identifies the three domains and how they were fulfilled from this study.

a. Leadership

The first domain that contributed to Colonel Matthews' success has been leadership. Through his leadership, the Army TACMS project office had direction. His vision for the project set the direction that kept the project on track and enabled the project office to do long range planning and remain proactive. This action orientation allowed the project to remain ahead of problems that could develop into "show stoppers."

He communicated this proactivity to his entire team through his participatory management.

His leadership also raised the level of professionalism within the project office by establishing high standards. These high standards have also raised the esprit de corps within the project office. Also, through the TQM philosophy he established a focus on constant improvement in pursuit of excellence. Colonel Matthews furthered this pursuit of excellence by creating an excellent team. His educational background gave him the ability to assess people's strengths and weaknesses, a very important factor in building the Army TACMS team.

Finally, Colonel Matthews' strong sense of mission provided the project leadership. Colonel Matthews has carried this sense of mission over to his project personnel through his mentoring program. This program allowed Colonel Matthews to create an atmosphere of caring throughout the project office. The caring atmosphere has been responsible for a very positive work environment and improved morale.

b. Stakeholder Relations

The second domain contributing to success has been Colonel Matthews' approach to stakeholder relations. Although he had never done a formal stakeholder analysis, he has done an informal analysis. This helped him identify the key players and their potential impact to his project. Also, it has enabled him to identify which relationships were most important to cultivate. He cultivated these relationships by traveling 200,000 miles in 1992 to visit different stakeholders. Colonel Matthews also has constantly reevaluated the impact of stakeholders, allowing him to devise new

courses of action and cultivate new relationships as needed. These new relationships have emerged into an extensive network helping him to stay in touch with the political side of project management.

The relationship between the Government and the prime contractor exemplifies a stakeholder relation that has been a factor in Colonel Matthews' success. LVS has been a very supportive and responsive prime contractor. These good relations have formed outstanding lines of communication between the project offices. This working relationship evolved because of the close relationship between Colonel Matthews and Mr. Anderson.

The stakeholder relationship that contributed most to Colonel Matthews' success was between Colonel Matthews and his defense contractor counterpart, Mr. Anderson. They have developed a bond of trust thanks to their constant travel and daily communication. Their bond of trust is unique in a community renowned for adversarial relationships. It has been instrumental in integrating the many subcontractors, project offices, and diverse users into a successful Army project.

c. Management Style

The third domain impacting on success has been his management style. The most important aspect of Colonel Matthews' management has been his relationship with his deputy, Mr. Barker. Mr. Barker has provided Colonel Matthews the ability to escape the day-to-day details of project management and concentrate on the big picture. This relationship has also minimized Colonel Matthews professed weakness in administration/programmatics. Colonel Matthews has grown to rely completely on Mr.

Barker's expertise in this area. Without the strength of this professional relationship, it is likely the project would not have been as successful.

Another important aspect of his management was Colonel Matthews' support of TQM. Through TQM he was able to empower people to do their jobs, constantly seek improvement, and delegate part of the workload of project management. His emphasis on TQM brought about a paradigm shift in management throughout the project office and was responsible for the development of a team that felt free to voice its opinion and was not intimidated in voicing an alternative point of view. Discussion and deliberation rather than dictates and orders were characteristics of the team's process.

2. Factors Beyond the PM's Control

While the individual competencies of the project manager are very important, this study suggests there are factors beyond the project manager's control that impact upon his success. In the case of the Army TACMS PM, three factors seem to stand out: the need for the weapon system, quality of the weapon system, and the acquisition approach.

a. Need for the Weapon System

The Army had identified a need for a Corps Support Weapon System to engage high priority targets at ranges beyond those of existing Army weapons. This meant that the project enjoyed widespread support from the key players in the Army acquisition arena. This support has enabled the Army TACMS project to proceed through the acquisition process with less than the usual number of obstacles.

b. Quality of the Weapon System

The Army TACMS weapon system has demonstrated superior quality throughout the project. The "Assault Breaker" technology demonstration program built a strong technological basis for the Army TACMS. This strong technical base created high expectation for the success of the Army TACMS weapon system. Also, the Army TACMS successful IOTE further showed that it was a good weapon system. Finally, the 100 percent reliability and 100 percent effectiveness experienced in Operation Desert Shield/Desert Storm confirmed the quality of Army TACMS. There is no better way to ensure the success of a project than to perform as needed in war. In fact, a major reason Colonel Matthews was selected Project Manager of the Year, according to most respondents, was due to the success of the weapon system.

c. Acquisition Approach

The Army's use of a fixed-price contract during the development helped the system avoid major cost and schedule "glitches." The fixed-price contract placed most of the risk on the contractor. This gave incentive to the contractor to make cost, because any cost overruns would have come out of their profits. LTV was willing to accept this risk because they had been involved in the "Assault Breaker" program and knew the quality of the technology. Staying within cost and on schedule has undoubtedly contributed to the success of the project.

D. COMPARISON WITH LITERATURE

The data from this study confirm the sixteen competencies in the DSMC competency study. Colonel Matthews has used all of the sixteen competencies in achieving effective project management of the Army TACMS project. He also has regularly displayed the six competencies for outstanding project management. Based on this evaluation Colonel Matthews is an outstanding project manager. However, this study recommends the reordering of the competencies.

The DSMC competency model places its emphasis on management, with three of the four major groupings of competencies being management based. The results from this study do not support this structure. Instead, this study reveals a major factor of success comes from leadership and stakeholder relations. Comparable to the literature on commercial project management, the results from this study suggest a secondary role played by management competencies and a primary role played by leadership.

The literature on commercial project management advocates the view that a successful project manager must be the technical expert about the system he is managing since the PM must be able to evaluate technical concepts and solutions. This belief derives from current project management's genesis in engineering. However, based on this study, it is not clear that such emphasis on technical expertise is warranted. As evidenced in this case, the PM does not need to be a technical expert, he just needs to possess enough technical knowledge to manage the project.

E. OTHER FACTORS

It is important that the competencies be kept in perspective. The project manager competencies are just one ingredient in the recipe for success. The need for the weapon system, quality of the weapon system and perceptions of the operational community, and the Government's acquisition approach all impact upon the success of the project manager. Therefore, the organizational, environmental, technological, and socio-cultural factors over which the PM has no control potential, have as much influence over his success as his personal competencies.

F. SUMMARY

A project manager needs to demonstrate sixteen competencies to be effective in project management. These competencies can be broken down into three major areas: leadership, stakeholder relations, and management. Although the competencies of the project manager are very important, they are not necessarily the only keys to successful project management. This study suggests there are factors that are beyond the project manager's control that play a major role in deciding success of the project. These factors must be considered as well as the competencies of the project manager in determining outstanding project managers.

VII. CONCLUSIONS AND RECOMMENDATIONS

A. INTRODUCTION

As stated in Chapter I, the business of project management is very complex. This complexity is compounded in the Department of Defense by the desire to procure the most advanced, technologically superior weapon systems a limited budget can buy. The DOD project manager has been given the responsibility to acquire and deploy these weapon systems. To successfully complete this mission, a project manager must possess certain competencies. His ability to fulfill these competencies plays a key part in the success of the project.

B. CONCLUSIONS

1. General Conclusions

This study validates the sixteen competencies, from the DSMC study A Competency Model of Program Managers in the DOD Acquisition Process, a project manager must demonstrate for effective project management. These competencies are:

- Sense of Ownership/Mission
- Long-term Perspective
- Interpersonal Assessment
- Assertiveness
- Action Oriented

- Proactive Information Gathering
- Relationship Development
- Political Awareness
- Strategic Influence
- Critical Inquiry
- Optimizing
- Managerial Orientation
- Results Orientation
- Innovativeness/Initiative
- Systematic Thinking

Furthermore, this study validates the six competencies found demonstrated more frequently by outstanding project managers. The six competencies were:

- Sense of Ownership/Mission
- Interpersonal Assessment
- Action Orientation
- Relationship Development
- Political Awareness
- Strategic Influence

2. Specific Conclusions

This study addressed the primary research question: **How does a project manager fulfill the basic competencies required for successful project management?**

Using the case of the Army TACMS project manager, this study found three major domains that explained how a project manager fulfilled these competencies. The areas were: leadership, stakeholder relations, and management. The domain of leadership was fulfilled by:

- having the vision for the project and using it to set the direction for the project office.
- remaining proactive and staying ahead of problems.
- establishing high standards of professionalism.
- establishing a pursuit of excellence through TQM.
- assessing people's strengths and weaknesses to build a strong team.
- mentoring project office personnel to develop a sense of caring and mission.

The domain of stakeholder relations was accomplished by:

- doing and constantly updating an informal stakeholder analysis.
- identifying the potential impact of key players to the project.
- identifying and developing key relationships.
- networking to keep in touch with the politics involved in project management.
- developing a close and supportive relationship with the Prime Contractor.
- developing good communication and trust with the Prime Contractor Project Manager.

The domain area of management was fulfilled by:

- development of an outstanding relationship with the Deputy Project Manager, "Mr. Inside," that allowed the delegation of many of the day-to-day management tasks.
- implementing the change to the TQM philosophy.

- empowering people to do their jobs.
- delegating much of the workload of project management.
- establishing a management environment of discussion and deliberation.

This study also revealed that there are factors that are beyond the project manager's control. These factors directly impact the success of the project. Furthermore, these factors can affect the perception of success or failure of a project manager. These factors were:

- need for the weapon system.
- quality of the weapon system.
- the acquisition approach used to procure the weapon system.

C. RECOMMENDATIONS

The following recommendations are a result of this research effort that the DSMC competency study reorder their competencies to reflect emphasis on leadership and stakeholder relations. A reordering based on the results of this study is:

1. Leadership

- Sense of Ownership/Mission
- Long-term Perspective
- Focus on Excellence
- Interpersonal Assessment
- Assertiveness

- Action Oriented
- Proactive Information Gathering

2. Stakeholder Relations

- Relationship Development
- Political Awareness
- Strategic Influence
- Critical Inquiry
- Optimizing

3. Management

- Managerial Orientation
- Results Orientation
- Innovativeness/Initiative
- Systematic Thinking

The reordered competencies support the emphasis on leadership and stakeholder relations found in this study. Furthermore, the competencies listed under leadership are supported by the leadership tasks for success presented in Chapter II. The six competencies of outstanding project managers identified by the DSMC study, (sense of mission, political awareness, relationship development, strategic influence, interpersonal assessment, and action orientation) are equally distributed between leadership and stakeholder relations. This shifts the emphasis, for outstanding performers, away from just managing the internal environment to leadership and stakeholder relations within the

external environment. Thus, if a project manager is to be rated "outstanding" he must be able to lead as well as manage.

D. RECOMMENDATIONS FOR FURTHER STUDY

1. Factors affecting success of a project beyond the PMs control.

Investigate the factors that are beyond the control of PMs. This research effort indicates that there were three factors over which the PM did not have control, yet did impact the success of his project. Further research could explore these and other factors, and the degree to which they impact project success.

2. What are the competencies required of project office personnel?

Examine the competencies required of project office personnel. This study found that the PM's team building skills were very important. The quality of the team was found to have a significant effect on the success of the project. Further research could explore what the important competencies are for team members and their impact on the success of a project. They may be different competencies for different functional groups and not all groups may make an equal contribution to the success of the project.

3. What are the best ways to build a project team for success?

Examine the different approaches to team building and develop a recommendation to successfully implement team building within project management. This research would also identify who the important team members are and strategies for incorporating them into the team.

4. What are the criteria for selecting DOD project managers?

Examine the criteria used in selecting DOD project managers and determine if the selection process is following recommendations in the published literature. This study suggests that there is a limited need for technical expertise. The study would document if DOD is placing too much emphasis on technical expertise. This assessment would also aid future project managers in making career decisions to keep them competitive.

5. Should the DOD project manager be the advocate for his weapon system?

This research would focus on the DOD acquisition arena and identify who should be the advocate for a weapon system. The research done in this thesis suggests that there is confusion throughout the acquisition community as to who is the project advocate. The advocate role places the project manager at odds with his defined responsibility of being an honest broker. This research would identify who is best suited to be the project advocate in the acquisition process.

APPENDIX A: SAMPLE INTERVIEW QUESTIONS

Interviewee: Colonel Matthews

Personal
- Education Background
- Previous project experience

1) What do you think are the reasons the ATACMS project is considered successful?

2) Why do you feel you were nominated and selected as Army Program Manger of the Year?

3) How would you describe your management style? a) What has been your approach in handling the political side of Program Management? Do you feel you have been successful?

4) What do you feel is the difference between yourself and less successful project managers? a) Describe the importance of the project team to the projects' success?

5) The literature identifies ten skills a project manager must have mastered for successful project management.

a) Team Building
b) Leadership
c) Conflict Resolution
d) Technical Expertise
e) Planning
f) Organization
g) Entrepreneurship
h) Administration
i) Management support
j) Resource allocation

Do you feel you have mastered these? Which of these would you rate as your strength?

6) A DSMC study found that outstanding project managers demonstrated six competencies that less successful project managers did not. These competencies are:

1) Sense of Mission
2) Political Awareness
3) Relationship Development
4) Strategic Influence
5) Interpersonal Assessment
6) Action Orientation

Do you feel you demonstrate these competencies?

7) What are your strengths and weaknesses? What are the ATACMS project team's strengths and weaknesses?

8) Please describe your relationship with Mr. Williams? Describe your relationship with Mr. Barker? Describe any other key relationships?

9) Can you describe 3 - 6 critical situations/events in your program and how you, and your team, handled them?

What was the low point in each event?

What was the high point in each event?

Interviewee: Department Chief

Personal
- Education Background
- Previous project experience

1) What do you think are the reasons the ATACMS project is considered successful?

2) Why do you feel Colonel Matthews was nominated and selected as Army Program Manger of the Year?

3) How would you describe Colonel Matthews' management style? a) What do you feel Colonel Matthews' approach has been in handling the political side of Program Management? Do you feel he has been successful?

4) What do you feel is the difference between Colonel Matthews and less successful project managers? a) Describe the importance of the project team to the projects' success?

5) The literature identifies ten skills a project manager should master for successful project management.

a) Team Building
b) Leadership
c) Conflict Resolution
d) Technical Expertise
e) Planning
f) Organization
g) Entrepreneurship
h) Administration
i) Management support
j) Resource allocation

Do you feel Colonel Matthews has mastered these? Which of these would you rate as his strengths?

6) A DSMC study found that outstanding project managers demonstrated six competencies that less successful project managers did not. These competencies are:

1) Sense of Mission
2) Political Awareness
3) Relationship Development

4) Strategic Influence
5) Interpersonal Assessment
6) Action Orientation

Do you feel Colonel Matthews demonstrates these competencies?

7) What are Colonel Matthews' strengths and weaknesses? What are the ATACMS project team's strengths and weaknesses?

8) Describe your relationship with Colonel Matthews? Do you feel free to voice your opinion? Does he encourage you to be innovative?

9) Can you describe 3 - 6 critical situations/events in the ATACMS program and how you feel Colonel Matthews, and your team, handled them?
What was the low point in each event?
What was the high point in each event?

APPENDIX B: BIOGRAPHICAL DATA

Biographical data of Colonel David F. Matthews

Colonel David F. Matthews became the second Project Manager of the Army Tactical Missile System (ATACMS), Office of the Program Executive Officer for Fire Support (PEO-FS), Redstone Arsenal, AL, on 14 April 1990.

Before his current assignment, Colonel Matthews had served with the U.S. Army Corps of Engineers, commanding their Ordnance Program Division (OPD) in Riyadh, Saudi Arabia, since February 1988. OPD is a one-of-a-kind organization with 11 U.S. Army Ordnance Officers, 30 U.S. Government Civilians, and 1900 multi-national contract employees, which provides material acquisition, logistics, technical, and security assistance to the Royal Saudi Land Forces.

Prior to that, he had been Chief of the Integrated Logistics Support Division, Multiple Launch Rocket System (MLRS) Project Office, Redstone Arsenal, AL, from June, 1985, through February 1988.

Other assignments include: Chief, Professional Development Team, Chief of Staff, Army's 1984 Officer Personnel Management System (OPMS) Study; Logistics Staff Officer, Office of the Deputy Chief of Staff for Logistics (DCSLOG), Pentagon; Ordnance Officer Professional Development Manager, U.S. Army Military Personnel Center (MILPERCEN), Alexandria, VA; Executive Officer, 194th Maintenance Battalion, Camp Humphreys, Korea; Research and Development Coordinator, U.S. Army Research Institute for Behavioral and Social Sciences (ARI), Arlington, VA; and Logistics Staff Officer, U.S. Army Maintenance Board, Ft. Knox, KY.

Colonel Matthews served two tours in Vietnam, including one as Commander, D Company, 704th Maintenance Battalion, 4th Infantry Division at An Khe. During his first tour, he was a Platoon Leader and subsequently became C Company Executive Officer, 1st Battalion, 69th Armor, 4th Infantry Division at Pleiku.

Colonel Matthews holds a Bachelor's Degree in History and Political Science from Vanderbilt University and an Army-sponsored Master's Degree in Sociology form Middle Tennessee State University. He is a graduate of the U.S. Army Command and General Staff College, the Program Manager's Course of the Defense Systems Management College, and is a 1990 graduate of the U.S. Army War College.

His military awards include the Legion of Merit, the Bronze Star Medal with three Oak Leaf Clusters, Meritorious Service Medal with three Oak Leaf Clusters, Army Commendation Medal with two Oak Leaf Clusters, Army Achievement Medal, Vietnam Campaign Medal (with six campaigns), Armed Forces Expeditionary Medal, and the Vietnam Service Medal. He is the 1991 Secretary of the Army Project Manager of the Year.

He is married to the former Eve Horton of Lexington, NC.

APPENDIX C: CHARTER

PROJECT MANAGER

By direction of the Army Acquisition Executive,
and by appointment of me,
as the Program Executive Officer,
I hereby appoint

Colonel David F. Matthews

as the Project Manager for the

Army Tactical Missile System Project Office

in accordance with AR 1000-XX,
the Army Acquisition Management System.

As Project Manager (PM), you will perform as the Army centralized manager for your assigned Project reporting directly to the Program Executive Officer (PEO).

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

You will coordinate, integrate, lead and directly control your subordinate managers within the assigned mission area.

You will place primary management emphasis on cost estimating, planning, programming, budgeting, program integration, interoperability and oversight.

You are hereby delegated the full line authority of the Program Executive Officer for the centralized management of the assigned project.

Unless sooner terminated, this appointment will remain in effect so long as the Project Manager is assigned.

GEORGE G. WILLIAMS
Program Executive Officer,
Tactical Missiles

29 July 1992

APPENDIX D: VIDEO TAPE

The video tape in support of this thesis is being kept by Dr. Nancy Roberts. All requests for this video tape should be directed to:

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