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JOINT APPLIED PROJECT REPORT

**DEVELOPING A PROJECT MANAGER
COMPETENCY MODEL TO BETTER SERVE
THE WARFIGHTER AND THE DOD**

June 2022

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SERVE THE WARFIGHTER AND THE DOD**

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Submitted in partial fulfillment of the
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from the

NAVAL POSTGRADUATE SCHOOL

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ABSTRACT

As of today, the Department of Defense (DOD) project management competencies are structured differently from industry. Industry has made advancements in project management that the DOD does not currently take advantage of. By better aligning the DOD and PMI competency standards we can decrease cost, schedule, and performance issues. Based on previous research on the topic, the current DOD competency model is not sufficient for assessing today's program managers. The purpose of this research is to use the three PMI industry standards to develop a survey tool to better serve the DOD acquisition workforce. We were able to create this survey tool and hope that, by using this survey tool, future research teams will be able to effectively gauge the acquisition community's correlation between the three PMI standards and the current DOD workload. The information gathered from this research can be useful not only to DOD acquisition communities, but also can set future guidelines to program managers in order to save the DOD on schedule, cost, and performance.

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TABLE OF CONTENTS

I.	INTRODUCTION.....	1
	A. PURPOSE.....	3
	B. SCOPE	4
	C. SIGNIFICANCE	4
	D. BENEFITS OF THE STUDY	4
	E. THESIS STATEMENT	5
	F. RESEARCH QUESTIONS.....	5
	G. PROJECT ORGANIZATION.....	5
	H. SUMMARY	6
II.	BACKGROUND/LITERATURE REVIEW	7
	A. DOD PM COMPETENCY MODEL	7
	B. GUIDE TO PROJECT MANAGEMENT BODY OF KNOWLEDGE (PMBOK).....	10
	C. THE STANDARD FOR PROGRAM MANAGEMENT (TSPGM).....	14
	D. THE STANDARD FOR PORTFOLIO MANAGEMENT (TSPFM).....	15
	E. SUMMARY	18
III.	DATA ANALYSIS.....	21
	A. INTRODUCTION.....	21
	B. QUESTION 1: CAN A WEB-BASED SURVEY TOOL BE DEVELOPED THAT WILL ALLOW ACQUISITION PROFESSIONALS TO IDENTIFY APPLICABILITY OF THE THREE PMI STANDARDS TO CURRENT DOD WORKLOAD?	21
	C. QUESTION 2: WHICH AREAS OF THE DOD PROGRAM MANAGEMENT COMPETENCY MODEL WOULD BENEFIT MOST FROM IMPROVEMENT?.....	22
IV.	SURVEY TOOL	29
	A. RESEARCH PLAN	29
	1. Step 1: Background	30
	2. Step 2: Questionnaire Conceptualization	30
	3. Step 3: Format and Data Analysis.....	30
	4. Step 4: Establishing Validity.....	31
	5. Step 5: Establishing Reliability.....	31

B.	TARGET AUDIENCE	31
C.	QUESTION STRUCTURE AND DESIGN.....	32
D.	RESEARCH LIMITATIONS.....	38
E.	BETA TESTING RESULTS.....	38
V.	CONCLUSION AND RECOMMENDATION FOR FURTHER RESEARCH	41
A.	CONCLUSION	41
1.	Can a Web-Based Survey Tool Be Developed that Will Allow Acquisition Professionals to Identify the Applicability of the Three PMI Standards to Current DOD Workloads?	41
2.	Which Areas of the DOD Program Management Competency Model would Benefit Most from Improvement?	41
B.	RECOMMENDATIONS FOR FURTHER RESEARCH	42
	APPENDIX. PROGRAM MANAGEMENT SURVEY TOOL	43
	LIST OF REFERENCES.....	53
	INITIAL DISTRIBUTION LIST	57

LIST OF FIGURES

Figure 1.	DOD Program Management Certification Requirements. Source: Office of the Assistant Secretary of Defense (2021).	9
Figure 2.	DOD Program Management Career Field Functional Competencies. Source: DAU (2020).....	10
Figure 3.	DOD Program Management Competency Units and Competencies. Source: MacStravic (2016)	11
Figure 4.	Ten Knowledge Areas of the PMBOK. Source: PMI (2017).	13
Figure 5.	Program Management Professional Performance Domains. Source Joapen (2018).....	15
Figure 6.	PMI’s High-Level View of Portfolios, Programs and Projects Source: PMI (2017).....	16
Figure 7.	Portfolio Management Professional Performance Domains. Source: PMI (2017).....	17
Figure 8.	Extent to which the DOD PM Competency Elements Align to the PMI Standards by Pie Chart. Source: Karnes (2020).	18
Figure 9.	Alignment of Acquisition Management DOD PM Category by PMI Standard. Source: Karnes (2020).	23
Figure 10.	Alignment of Business Management DOD PM Category by PMI Standard. Source: Karnes (2020).	24
Figure 11.	Alignment of Technical Management DOD PM Category by PMI Standard. Source: Karnes (2020).	25
Figure 12.	Alignment of Executive Leadership DOD PM Category by PMI Standard. Source: Karnes (2020).	26
Figure 13.	Sequence of Questionnaire/Instrument Development. Source: Radhakrishna, 2007.....	30
Figure 14.	Acquisition Management, Capability Integration Survey Question	34
Figure 15.	Acquisition Management, Program Execution Survey Question	34
Figure 16.	Business Management, Contract Management Survey Question	35

Figure 17.	Business Management, Financial Management Survey Question.....	35
Figure 18.	Technical Management, Product Support Management Survey Question	36
Figure 19.	Executive Leadership, Foundational Competencies Survey Question	37
Figure 20.	Executive Leadership, Results-Driven Survey Question.....	37
Figure 21.	Executive Leadership, Building Coalitions Survey Question.....	37
Figure 22.	Survey Tool Development Plan	39

LIST OF TABLES

Table 1.	Quantity of DOD PM Competency Elements Mapped to PMI's Standards (Organized by Level of Alignment and DAWIA Level). Source: Karnes (2020).	17
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LIST OF ACRONYMS AND ABBREVIATIONS

ANSI	American national Standards Institute
CL	continuous learning
DAU	Defense Acquisition University
DAWIA	Defense acquisition Workforce Improvement Act
DOD	Department of Defense
GAO	Government Accountability Office
NDAA	National Defense Authorization Act
NPS	Naval Postgraduate School
PM	program management
PMBOK	<i>Project Management Body of Knowledge</i>
PMI	Project Management Institute
PMP	project management professional
PgMP	program management professional
PfMP	portfolio management professional
SecDef	Secretary of Defense
TSPfM	<i>The Standard for Portfolio Management</i>
TSPgM	<i>The Standard for Program Management</i>

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EXECUTIVE SUMMARY

Program management within the Department of Defense (DOD) has faced many challenges to meet cost, schedule, and performance metrics. The Defense acquisition system has often failed to meet the expectation of delivering capability to the warfighter. Congress and DOD leadership have attempted a great number of reforms and initiatives to increase the performance of major acquisition projects with little success. Recently, the acquisition workforce has looked to the example of commercial industry standards, specifically of the Project Management Institute (PMI), to leverage the advances made in the field of program management.

The purpose of this thesis is to develop a survey tool that measures the applicability of the PMI industry standards to the DOD PM career competencies. The goal is to clearly define what parts of the DOD PM competency model can be improved, and recommend changes to the current model.

The Office of the Assistant Secretary of Defense defines program management as, “the knowledge, capabilities and practices associated with formulating, planning, implementing, managing, tracking and evaluating projects/programs and their associated requirements and risks, ranging from small one-time projects to major system-of-system programs” (MacStravic, 2016, p. 2). The role of program manager is a diverse, difficult, and integral part of the acquisition process. The PM guides a team of professionals to deliver capabilities to the warfighter. They must manage requirements, funding and timelines to achieve the best possible value for the end user and for all stakeholders.

This research builds upon previous work identifying the gaps in the DOD career competencies compared to PMI industry standards. In his paper, “Aligning DOD Program Management Competencies with the Project Management Institute Standards,” Mortlock (2021) recommended ways to “best transition from current DOD PM certification requirements to those based on PMI standards” (Mortlock, 2021, p. 1). Mortlock’s work maps “DOD program management competency elements at the basic, intermediate, and

advanced DAWIA levels to PMI’s PMBOK Guide, TSPgM and TSPfM” (Mortlock, 2021, p. 1).

The team conducted a review of the literature associated with this research study. We present a detailed breakdown of the 10 knowledge areas from the PMBOK Guide, the program management domains from TSPgM, and the portfolio management domains from TSPfM. Based on the literature review, we address the research questions, (a) can a web-based survey tool be developed that will allow acquisition professionals identify applicability of the three PMI standards to current DOD workload?, (b) which areas of the DOD program management competency model would benefit most from improvement?

The research team created a web-based survey tool that will allow acquisition professionals to identify the applicability of the three PMI standards to current DOD workloads. The survey tool asks acquisition professionals about their proficiency level in the following categories: capability integration planning, program execution, contract management, financial management, product support management, foundational competencies, results driven, and building coalitions. These categories all fall under the four competencies of acquisition management, business management, technical management, and executive leadership.

A web-based survey tool was developed using the findings of our research. We used industry best practices to create the questionnaire, determine target audience, and choosing the method of delivery. We used Naval Postgraduate School (NPS) open-source surveying tool Qualtrics to develop the questions, edit the format and manage the data analysis. The survey consists of twenty-three fixed response questions divided into five sections: Demographics, Acquisition Management, Business Management, Technical Management, and Executive Leadership. The survey is designed for participants “to respond to competency statements regarding self-assessed proficiency levels in performing tasks within each associated domain” (Hayashi & Pfannenstiel, 2021). We use a “Likert scale, ranging from values 1 through 5, to express proficiency and knowledge levels when answering the competency statements” (Rendon & Schwartz, 2020).

A recommendation for future study is to deliver the survey to DOD Program Managers to assess the applicability of the PMI Standards in the DOD workforce. Researchers can analyze the question responses to determine how the PM career competencies need to be adjusted to match current workplace conditions.

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I. INTRODUCTION

The Office of the Assistant Secretary of Defense defines program management as, “the knowledge, capabilities and practices associated with formulating, planning, implementing, managing, tracking and evaluating projects/programs and their associated requirements and risks, ranging from small one-time projects to major system-of-system programs” (MacStravic, 2016, p. 2). The program manager (PM) and the acquisition team are important parts of delivering capability to the warfighter. Because of the criticality of the PMs role, these individuals must be trained to the greatest extent possible and develop competencies equitable to their job responsibilities.

Historically, the Department of Defense (DOD) has struggled to consistently complete their projects on time and within budget. The large portion of responsibility for these failures is placed on the PM and their acquisition team. The Government Accountability Office (GAO) has repeatedly included the DOD’s inability to manage cost, schedule, and performance constraints on its high-risk list. DOD Weapon Systems Acquisition has been on the list for 32 years now. The GAO reasoning for the high-risk determination is that the

DOD expects to invest about \$1.8 trillion to acquire 106 new weapon systems. Congress and DOD have long sought to improve how DOD acquires these systems, yet many programs continue to fall short of cost, schedule, and performance goals. We added this area to our High-Risk List in 1990. These challenges occur in an era when programs are more software driven than ever before and face global cybersecurity threats. However, software development continues to be a stumbling block for programs, and DOD has made only limited progress in addressing cybersecurity vulnerabilities. A number of other issues could also affect DOD’s ability to keep pace with evolving threats, such as the ability to develop innovative technologies and the capabilities of the defense industrial base. (Government Accountability Office [GAO], 2021, p. 147)

The DOD has entertained many different committees, conferences and initiatives intended to correct the program, cost, and schedule issues. One of most influential was the President’s Blue Ribbon Commission on Defense Management, “informally known as the Packard Commission” (Karnes, 2020, p. 2). The commission provided recommendations

on defense management that then President Reagan implemented into law. One recommendation was to “implement business-related education and training for acquisition personnel” (Karnes, 2020, p. 2). Based on this recommendation, the Defense Acquisition Workforce Improvement Act (DAWIA) was passed in 1990, leading to the establishment of the Defense Acquisition University (DAU). The DAU curriculum has been updated many times since its implementation. The Office of the Assistant Secretary of Defense for Acquisition realigned the DOD Program Management career field functional competencies, stating:

Critical abilities are to define Component, customer and stakeholder needs and constraints; reduce ambiguity in objectives; develop and manage an efficient project organizational structure; and apply system architecture principles to develop and manage technical requirements in order to achieve the appropriate balance between resources, schedule, and technical requirements. (MacStravic, 2016, p. 2)

The fiscal year (FY) 2020 National Defense Authorization Act once again updated the requirements for the DAU curriculum (National Defense Authorization Act [NDAA], 2019). The act directs the secretary of defense (SecDef) to update acquisition training curriculum to match industry standards, “The certification requirement for any acquisition workforce career field shall be based on standards developed by a third-party accredited program based on nationally or internationally recognized standards” (NDAA, 2019). The adoption of industry standards and best practices allows the DOD to capitalize on the knowledge and experience that organizations such as the Project Management Institute (PMI) have cultivated over many years of focused development.

The PMI is a not-for-profit professional membership association that provides resources, training, and best practices for project managers. The organization was founded in 1969 with the objectives to

foster recognition of the need for professionalism in project management; provide a forum for the free exchange of project management problems, solutions and applications; coordinate industrial and academic research efforts; develop common terminology and techniques to improve communications; provide interface between users and suppliers of hardware and software systems; and to provide guidelines for instruction and career

development in the field of project management. (Chumas & Hartman, 1975, p. 141)

PMI was instrumental in developing the industry standards for project management. In 1996, *A Guide to the Project Management Body of Knowledge* (PMBOK® Guide) was released as the culmination of the organizations research of industry best practices. Three years later, the American National Standards Institute (ANSI) approved the PMI's PMBOK® Guide as an American National Standard (Holtzman, 1999, p. 44). The PMI also publishes *The Standard for Program Management* (TSPgM; PMI, 2017) and *The Standard for Portfolio Management* (TSPfM; PMI, 2017) that expand upon the foundations in the PMBOK Guide. They have created various credentials for Project Management Professional (PMP), Portfolio Management Professional (PfMP), and Program Management Professional (PgMP).

We aim to develop a survey tool that measures the applicability of PMI industry standards to DOD PM career competencies. The goal is to clearly define where the DOD PM competency model can be improved, and to recommend changes and updates to the current DOD PM competency model.

A. PURPOSE

The purpose of the research is to develop a web-based survey tool to analyze the applicability of the three PMI standards to the current DOD workload. This work will allow future researchers to present the survey to DOD acquisition professionals to evaluate the most relevant areas of PMI competencies. The results of the survey can be used to make recommendations to the DOD on improvements to the current program management certification requirements.

This research builds upon previous work identifying the gaps in the DOD career competencies compared to PMI industry standards. In his paper, "Aligning DOD Program Management Competencies with the Project Management Institute Standards," Mortlock (2021) recommended ways to "best transition from current DOD PM certification requirements to those based on PMI standards" (Mortlock, 2021, p. 1). Mortlock's work maps "DOD program management competency elements at the basic, intermediate, and

advanced DAWIA levels to PMI’s PMBOK Guide, TSPgM and TSPfM” (Mortlock, 2021, p. 1). That study provided recommendations to the Office of the Secretary of Defense and the DAU, which are tasked with realigning PM certification mandated by the NDAA.

B. SCOPE

In this study, we focus on developing a survey that can be presented to DOD acquisition professionals to determine the applicability of the three PMI standards to the current DOD workload. We present a detailed breakdown of the 10 knowledge areas from the PMBOK Guide, the program management domains from TSPgM, and the portfolio management domains from TSPfM. Finally, we provide recommendations on where the DOD can make improvements to the program management education curriculum.

C. SIGNIFICANCE

DOD acquisition, and program management in particular, has faced a lot of scrutiny over the mishandling of major acquisition projects. Failed acquisition programs have left the warfighter ill equipped to achieve their mission objectives. DAU and the SecDef have created initiatives to increase the knowledge and skills of the program management workforce. These efforts have been successful in starting to examine the requirements for an effective acquisition workforce. It is essential that the skills and competencies of program managers align with industry best practices of the PMI standards. This research provides an important tool to help DOD leadership gauge how closely their skills and competencies match the best practices.

D. BENEFITS OF THE STUDY

We use the results of this study to offer recommendations to DOD officials tasked with development of the program management certification curriculum. In addition, DOD officials are able use the survey we create for this study to directly engage with acquisition professionals and measure the applicability of PMI standards across the DOD acquisition enterprise.

E. THESIS STATEMENT

We develop a survey tool to ask acquisition professionals the applicability of the three PMI industry standards to the current DOD workload. The DOD program management competencies will be examined for alignment with the competencies of the PMI standards. Lastly, the DOD program management competency model will be analyzed to determine areas where improvement would bring the most benefit to the government and workforce.

F. RESEARCH QUESTIONS

1. Can a web-based survey tool be developed that will allow acquisition professionals to identify the applicability of the three PMI standards to current DOD PM competency standards?
2. Which areas of the DOD program management competency model would benefit most from improvement?

G. PROJECT ORGANIZATION

This research consists of five chapters.

1. Chapter I: Introduction

This chapter introduces the research for this project with a description of the DOD program management profession, the problems faced and efforts to improve the workforce, as well as the industry best practices. The chapter defines the purpose, scope, significance, benefits, and research questions for this study.

2. Chapter II: Background/Literature Review

Chapter II contains the review of the literature associated with this research study. The review consists of four main sections with information about the DOD Program Management competency model, PMBOK, The Standard for Program Management (TSPgM), and The Standard for Portfolio Management (TSPfM).

3. Chapter III: Data Analysis

This chapter presents the findings of the study and addresses the research questions:

- Can a web-based survey tool be developed that will allow acquisition professionals identify applicability of the three PMI standards to current DOD workload?
- Which areas of the DOD program management competency model would benefit most from improvement?

4. Chapter IV: Survey Tool

Chapter IV delivers the web-based survey tool developed from this research. The purpose of the survey tool is to allow acquisition professionals to gauge the applicability of the three PMI industry standards to the current DOD workload.

5. Chapter V: Conclusions and Future Research

This chapter provides a summary of the research study. The summary contains recommendations on the DOD program management competencies model, answers the research questions and areas for future research.

H. SUMMARY

The purpose of the research is to develop a web-based survey tool to analyze the applicability of the three PMI standards to the current DOD workload. This work will allow future researchers to present the survey to DOD acquisition professionals to evaluate the most relevant areas of PMI competencies. The results of the survey can be used to make recommendations to the DOD on improvements to the current program management certification requirements.

II. BACKGROUND/LITERATURE REVIEW

The DOD and the Defense acquisition system is often criticized for providing products late and over budget to the warfighter. Although the DOD has been trying to make adjustments to training and education requirements, the opportunities exist to improve the effectiveness and efficiency of Defense acquisition programs. This literature review will cover current processes adapted by DOD that sheds light on this problem and how aligning to PMI standards would help.

A. DOD PM COMPETENCY MODEL

Recently, the DAU released the following statement:

In September 2020, the Under Secretary of Defense for Acquisition and Sustainment launched the “Back-to-Basics” initiative to bring the 1990 DAWIA into the 21st century. This DOD pivot refocused resources on the Defense Acquisition Workforce members who develop, acquire, and sustain operational capability.

The DOD’s response to DAWIA, a three-tiered certification program, proved to be a powerful tool in the overall professionalization of the workforce. For more than thirty years, training was a one-size-fits-all approach and delivered early in an individual’s career. Now, DOD is rethinking training to foster a culture of lifelong learning for current and future acquisition professionals.

Workforce members are empowered to choose assignment specific, job-relevant training through the Defense Acquisition Credential Program. Credentials increase flexibility to tailor training and develop skills in specialty areas to meet changing needs. (DAU, Back-to-Basics, 2020)

This led to DAU doing business a different way. Instead of certifying program management (PM) professionals on a Level I, II and III scale, there are only two levels of certifications now, Practitioner and Advanced. This new way of certifying PM professionals took into effect on 1 February 2022. The current Assistant Secretary of Defense for Acquisition, Dyke Weatherington, stated that “Currently, the three-level certification construct of the PM career field created an unnecessary rush of the workforce to obtain certification ahead of need. This leads to training that will be forgotten or obsolete

when needed or receiving elements of training that will never be used. (Weatherington, 2021).” He also stated about the two levels of certification:

The Practitioner level requirements have been developed to accommodate the vast majority of the PMW workforce positions. The Advanced level certification will apply to a much smaller percentage of the workforce that requires the highest level of expertise and is assigned the highest levels of responsibility (e.g., Acquisition Category Program Managers, Program Executive Officers, Directors). (Weatherington, 2021)

Along with these two new certification levels, the standards for achieving these certifications are more rigorous, even including a comprehensive exam. The PM Practitioner level will be required to have 4 years of relevant work experience and the PM Advanced level will require 8 years of relevant PM experience. In turn, the DOD is hoping that these new standards will continue to improve the professionalism of the PM workforce.

Figure 1 outlines the new guidelines for DOD Program Management certification requirements. Additionally, the DOD will require 80 hours of continuous learning (CL) during a 2-year cycle to maintain certification. This will ensure that the workforce is keeping up with today’s fast-paced, agile environment.

Previously, the DOD PM competency model contained the following categories, defined by the Office of the Assistant Secretary of Defense in 2016 (MacStravic, 2016):

- Acquisition Management
- Business Management
- Technical Management
- Executive Leadership

In general, a competency model can be defined “as a collection of competencies that together define successful performance in a particular work setting. Competency models are the foundation for important human resource functions such as recruiting and hiring, training and development, and performance management” (CareerOneStop, n.d.).

In June 2020, the competencies were updated by Defense Acquisition University to better align with the Program Management Institute (PMI) standard for project management. Some of the DOD PM career field functional competencies are listed in Figure 2 and shows the number of competencies and competency elements.

DoD Program Management Certification Requirements

	PM Practitioner	PM Advanced Practitioner
Education	Technical degree preferred	Technical degree preferred
Training	PM core competencies	PM core competencies
Experience¹	At least 4 years relevant acquisition experience with evidence of demonstrated proficiency in PM competencies.	8 or more years relevant program management experience, with at least 2 of these years with cost, schedule and performance responsibilities in a program management office or similar organization (dedicated matrix support to a PM, PEO, DCMA program integrator, or supervisor of shipbuilding).
Assessment & Validation	<ul style="list-style-type: none"> • Self-nominating process containing evidence of applicable experience over time • Endorsement / Validation by certified PM designated by Component • Comprehensive Examination 	<ul style="list-style-type: none"> • Self-nominating process containing evidence of applicable experience over time • Endorsement by certified PM designated by Component • Validation by 1 or more senior PM professionals designated by Component • Comprehensive Examination
Verification	Components verify and document completion of above requirements and provide DoD Program Management Certification.	
Currency	<ul style="list-style-type: none"> • 80 hours of Continuous Learning (CL) / 2 years • CL is training taken to address technical, professional, and specialty competencies. • A certain amount/type of CL as determined by supervisor shall directly map to professional competencies. • PM workforce members who do not fulfill the 80 hour requirement will need to submit certification extension requests through their Component. Extensions are limited to 12 months. Requests are approved by the Component DACM with results passed to the OSD and Component Functional Leaders. Should members still not comply with the 80 hour requirement at the end of the extension, their certifications will be deactivated. • CL Guidelines: <ul style="list-style-type: none"> o The 80 hours of CL shall pertain to Program Management or other related functional areas; common reoccurring DoD or other non-acquisition training should not be counted toward the 80 hours. o No fewer than 10 hours of the required 80 shall pertain to leadership training. o No more than 20 hours of the required 80 shall be conference attendance. 	

4

Enclosure (1)

Notes: 1. Fulfillment options available when onboarding more experienced personnel
 2. This version of requirements updates and clarifies the version approved at the November 2020 PM FIPT

Figure 1. DOD Program Management Certification Requirements. Source: Office of the Assistant Secretary of Defense (2021).

Figure 3 demonstrates the distribution of the 18 competencies (in bold) into four program management categories: Acquisition Management, Technical Management, Business Management and Executive Leadership.

DoD Program Management Career Field Functional Competencies				ANSI Standard
- Competency Units: 4 - Unit of Competency (UOC): 18 - Competencies: 69 - Competency Elements: 184 - Element Descriptions: Approx. three (basic, intermediate, and advanced) for each competency element				Program Management Institute (PMI) Standard for Project Management does not identify PM "competencies". It does contain – - Project Management Knowledge Areas: 10 - Project Management Processes: 49 mapped to each knowledge area, managed by 5 Process Management Groups
UOC	Topic	Competency Description	Sub-Competencies	Description
Acquisition Management (AM)1	Capability Integration Planning	Supervise the requirements management effort to derive, feasible program and portfolio requirements from the user capability needs statement and CONOPs per Joint Capabilities Integration and Development System (JCIDS) outputs or functional problem statements (for business systems) to establish the Acquisition Program Baseline (APB).	1. Implement a process, in coordination with user(s), to create and manage program requirements baseline (including interfaces) across the program life cycle 2. Establish a time-sensitive process for implementing requirements changes resulting from emerging intelligence information or other sources. 3. Supervise identification and articulation of rapid response situations; ensure use of unique documents and procedures needed to support urgent warfighter needs. 4. Guide requirements process together with user(s) to meet "customer needs" and support decisions in context of system-of-systems architecture. 5. Identify and incorporate best practices in trade-off analysis and system engineering to make requirements related program decisions 6. Ensure the DOD Information Enterprise Architecture is implemented.	Scope Management. Includes the processes required to ensure that the project includes all the work required, and only the work required, to complete the project successfully. Planning Process Group - Plan Scope Management -- Collect Requirements -- Define Scope -- Create WBS - Monitoring & Controlling Process Group -- Validate Scope -- Control Scope
AM1		Supervise the acquisition program strategic planning process to develop and document the organization's mission, vision of success, and fundamental values as they relate to achieving successful acquisition outcomes	1. Supervise and approve the development of an acquisition program baseline. 2. Frame an Acquisition Strategy that addresses the JCIDS requirements given the PPBE resourcing constraints and relevant risks & opportunities. 3. Crosswalk and validate supporting technical, financial, and contract planning documents against the Acquisition Strategy goals and objectives.	Integration Management. Includes the processes and activities to identify, define, combine, unify, and coordinate the various processes and project management activities within the Project Management Process Groups - Initiating Process Group: Develop Project Charter - Planning Process Group: Develop Project Management Plan - Executing Process Group: Direct and Manage Project Work; Manage Project Knowledge - Monitoring & Controlling Process Group: Monitor and Control Project Work; Perform Integrated Change Control - Closing Process Group: Close Project or Phase
		Utilize business case development to evaluate the merits and associated trade space of two or more potential solutions that provides industry with the frame work for creating functional activities to develop a product	1. Determine the merits and associated trade space of potential solutions 2. Understand that potential solutions are evaluated based on the merits and associated trade space for each solution.	

Figure 2. DOD Program Management Career Field Functional Competencies. Source: DAU (2020)

B. GUIDE TO PROJECT MANAGEMENT BODY OF KNOWLEDGE (PMBOK)

Founded in 1969, the PMI “is a not-for-profit organization that focuses on advancing careers, strengthening organizational successes, and enabling change makers with new skills and ways of working to maximize their impact” (Program Management Institute [PMI], 2022). It publishes standards for eight different certification programs that include the PMP, PgMP and the PfMP. Their “standards for project, program and portfolio management are the most widely recognized in the profession and are the model for project management in business and government” (PMI, 2022).

Acquisition Management		Technical Management
Capability Integration Planning	Program Execution	Engineering Management
Requirements Management (Mgmt)	Risk/Opportunity Mgmt	Technical Planning
Acquisition Program Strategic Planning	Program Planning	Requirements Decomposition
Business Case Development	Teaming	Technical Assessment
Acquisition Law and Policy	Program Oversight	Decision Analysis
Acquisition Policy and Best Practice	Resource Mgmt	Configuration Mgmt
Contractual Laws, Regulations, and Obligations	Technology Mgmt	Technical Data Mgmt
Financial Mgmt Laws, Directives, and Policies	Services Acquisition	Interface Mgmt
Program Support Laws, Directives, and Policies	Business Management	Defense Business Systems
Technical and Engineering Laws, Directives and Policies	Contract Management	DBS Certification
Information Technology Laws, Policy, Best Practices	Market Research	DBS Acquisition Approach Preparation
International Acquisition and Exportability	Pre-Solicitation Planning and Execution	Test and Evaluation Mgmt
International Cooperative Programs	Source Selection and Negotiations	Test Planning
Sales and Transfers	Contract Administration	Test Execution
Technology Security and Foreign Disclosure	Contract Closeout	Manufacturing Mgmt
Defense Exportability Integration	Financial Mgmt	Manufacturing Planning and Transition
	Financial Planning	Manufacturing Shutdown
Stakeholder Mgmt	Programming	Product Support Mgmt
Political Savvy	Budget Formulation	Product Support Planning
External Situational Awareness	Budget Execution	Product Support Mgmt
Media Relationships	Cost estimates	Supply Chain Mgmt
Executive Leadership		
Foundational Competencies	Leading Change	Results Driven
Interpersonal Skills	Creativity & Innovation	Accountability
Integrity / Honesty	Vision	Decisiveness
Communicate Effectively	Flexibility	Entrepreneurship
Continual Learning	Resilience	Customer Service
Public Service Motivation	Leading People	Problem Solving
Technical Credibility	Conflict Management	
Building Coalitions	Leveraging Diversity	
Influencing / Negotiating	Developing Others	
Partnering	Team Building	

Figure 3. DOD Program Management Competency Units and Competencies. Source: MacStravic (2016)

PMI's recognition in the profession has led them to receive high accolades, including one from the American National Standards Institute (ANSI). ANSI "approved PMI's A Guide to the Project Management Body of Knowledge (PMBOK® Guide) as an American National Standard. It represents a noteworthy accomplishment for the profession

and becomes a springboard for achievement into the future. ANSI is a private, nonprofit membership organization focused on meeting the standards and conformity assessment requirements of its diverse constituency, according to materials published by the organization. It serves as a neutral, unbiased forum for the development of consensus agreements on technical, political, and policy issues and is a representative of U.S. interests to national, regional, and international bodies.” (PMI, 2022).

The PMI is currently on the seventh edition of the PMBOK (Project Management Body of Knowledge). The new edition of the PMBOK Guide includes the following (PMI, 2022):

- reflects the full range of development approaches (predictive, traditional, adaptive,
- agile, hybrid, etc.)
- provides an entire section devoted to tailoring the development approach and
- processes
- expands the list of tools and techniques in a new section, “Models, Methods, and
- Artifacts”
- focuses on project outcomes in addition to deliverables
- integrates with PMIstandards+™ for access to content that helps the user apply the
- PMBOK® Guide on the job (PMI, 2022)

In December 2019, Congress passed the National Defense Authorization Act for Fiscal Year 2020 (NDAA). It states:

The Secretary of Defense shall implement a certification program to provide for a professional certification requirement for all members of the acquisition workforce ... the certification requirement for any acquisition workforce career field shall be based on standards developed by a third-party accredited program based on nationally or internationally recognized standards. (NDAA, 2019)

This requirement ensures that the DOD focuses on training its workforce in line with current PMI standards rather than outdated competencies that were established in 2016. “Project management knowledge areas are categorized by their knowledge requirements and are described in terms of their various component processes, practices, inputs, outputs,

tools, and techniques” (PMI, 2022). Figure 4 below includes a list of the 49 processes that are in the PMBOK Guide (PMI, 2022).

Knowledge Areas	Project Management Process Groups				
	Initiating Process Group	Planning Process Group	Executing Process Group	Monitoring and Controlling Process Group	Closing Process Group
4. Project Integration Management	4.1 Develop Project Charter	4.2 Develop Project Management Plan	4.3 Direct and Manage Project Work 4.4 Manage Project Knowledge	4.5 Monitor and Control Project Work 4.6 Perform Integrated Change Control	4.7 Close Project or Phase
5. Project Scope Management		5.1 Plan Scope Management 5.2 Collect Requirements 5.3 Define Scope 5.4 Create WBS		5.5 Validate Scope 5.6 Control Scope	
6. Project Schedule Management		6.1 Plan Schedule Management 6.2 Define Activities 6.3 Sequence Activities 6.4 Estimate Activity Durations 6.5 Develop Schedule		6.6 Control Schedule	
7. Project Cost Management		7.1 Plan Cost Management 7.2 Estimate Costs 7.3 Determine Budget		7.4 Control Costs	
8. Project Quality Management		8.1 Plan Quality Management	8.2 Manage Quality	8.3 Control Quality	
9. Project Resource Management		9.1 Plan Resource Management 9.2 Estimate Activity Resources	9.3 Acquire Resources 9.4 Develop Team 9.5 Manage Team	9.6 Control Resources	
10. Project Communications Management		10.1 Plan Communications Management	10.2 Manage Communications	10.3 Monitor Communications	
11. Project Risk Management		11.1 Plan Risk Management 11.2 Identify Risks 11.3 Perform Qualitative Risk Analysis 11.4 Perform Quantitative Risk Analysis 11.5 Plan Risk Responses	11.6 Implement Risk Responses	11.7 Monitor Risks	
12. Project Procurement Management		12.1 Plan Procurement Management	12.2 Conduct Procurements	12.3 Control Procurements	
13. Project Stakeholder Management	13.1 Identify Stakeholders	13.2 Plan Stakeholder Engagement	13.3 Manage Stakeholder Engagement	13.4 Monitor Stakeholder Engagement	

Figure 4. Ten Knowledge Areas of the PMBOK. Source: PMI (2017).

C. THE STANDARD FOR PROGRAM MANAGEMENT (TSPGM)

The Standard for Program Management is

the definitive guide for individuals and organizations seeking to mature their program management practices. It is principle-based, making it a powerful tool for a broad range of organizations, regardless of project delivery approach. The TSPGM provides clear, complete, relevant information generally recognized as good practices for most programs, most of the time. It's an invaluable tool for anyone who works with programs, from project, program and portfolio managers to project stakeholders and senior managers. (PMI, n.d.b).

The TSPgM (also ANSI approved) aligns with another certification, similar to the PMP, this one is called the PgMP (The Program Management Professional). The PgMP is “a visible sign of advanced experience and skill that gives a distinct advantage in employment and promotion” managers (PMI, n.d.b). “The purpose of TSPgM is to provide generally recognized guidance on principles, practices, and actions to support good program management practices. Furthermore, this standard is meant to provide a common understanding of the role of a program manager and offer guidance in their interactions with portfolio and project managers as well as any other program stakeholders” (PMI, Program Management Professional [PgMP]®, 2022).

The TSPgM discusses five performance domains that are “complementary groupings of related areas of activity or function that uniquely characterize and differentiate the activities found in one performance domain from the others within the full scope of program management work” (Joapen, 2018).

“When organizations pursue similar programs, the interactions among the performance domains are similar and often repetitive. All five domains interact with each other with varying degrees of intensity. These domains are the areas in which program managers will spend their time while implementing the program” (Joapen, 2018).

“The five domains reflect the higher level business functions that are essential aspects of the program manager’s role regardless of the size of the organization, industry or business focus, and/or geographic location” (Joapen, 2018). The domains listed below in Figure 5 reflect the program management performance domains.

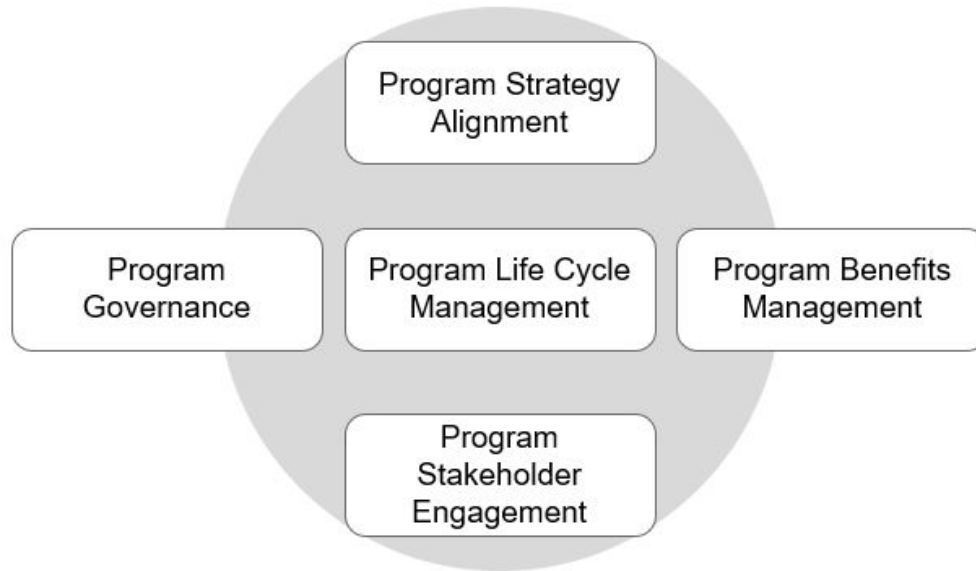


Figure 5. Program Management Professional Performance Domains. Source Joapen (2018).

D. THE STANDARD FOR PORTFOLIO MANAGEMENT (TSPFM)

“The Standard for Portfolio Management (TSPfM) identifies project portfolio management principles and performance management domains that are generally recognized as good practices for organizations to effectively manage complex and intense program and project investments” (PMI, 2022). *“The TSPFM includes a common, unified vocabulary for use among the portfolio management profession for promoting, discussing, researching, writing, applying, and continuously improving portfolio management concepts. By using a single lexicon that is understandable by practitioners regardless of geographical location, culture, industry, or educational background, portfolio management practitioners are able to communicate and facilitate the management of portfolios and execution of strategies.”* (PMI, 2017). Similar to the PMBOK and TSPgM, TSPFM is also an ANSI approved standard. Figure 6 shows a high-level view of portfolios, programs, and projects.

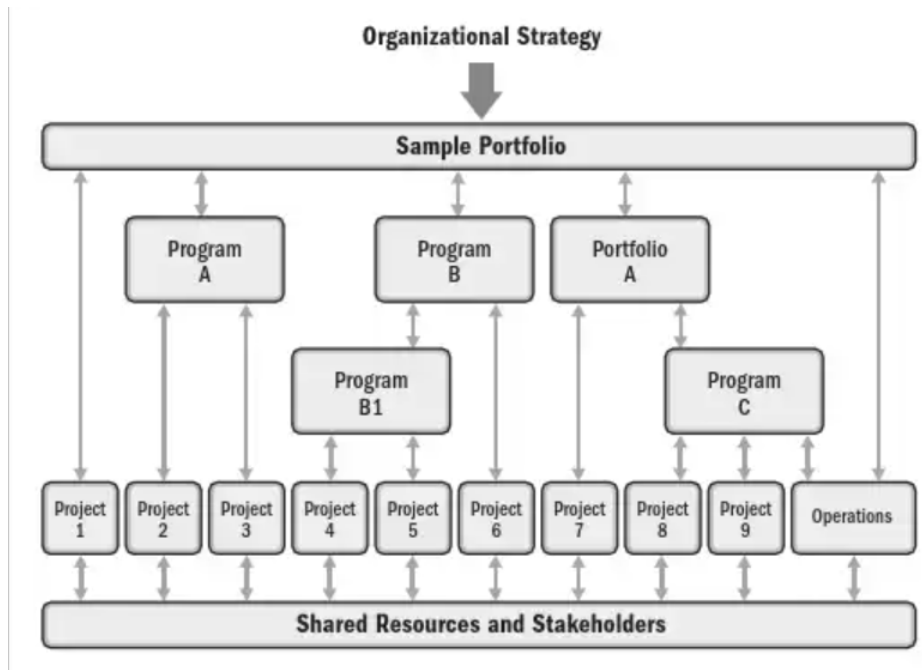


Figure 6. PMI’s High-Level View of Portfolios, Programs and Projects Source: PMI (2017)

TSPfM, which the portfolio management professional (PfMP) certificate is based on, provides “portfolio management principles and performance management domains that are considered to be good practices for organizations that manage complex programs and projects” (PMI, 2017). “TSPfM provides a common understanding of the role of a portfolio manager as well as a unified vocabulary to use across industries” (PMI, 2022). According to the PMI, “a portfolio is a collection of projects, programs and subsidiary portfolios and operations managed as a group to achieve strategic objectives” (PMI, 2022). The “purpose of managing a portfolio versus independent programs and projects is to achieve organizational objectives and strategies that could not be met otherwise. TSPfM is very similar to TSPgM in that it consists of seven performance domains and is supported by the PMBOK Guide” (Karnes, 2020). In Figure 7, we show the portfolio management professional performance domains and the life cycle they reside in.



Figure 7. Portfolio Management Professional Performance Domains. Source: PMI (2017).

Based on previous research done, we can accurately assess how well the DOD program management competencies align with the three PMI standards. We can then continue the research previously done and combine it with the survey tool our team created, to better serve the DOD and warfighter.

Jonathan Karnes has provided extensive research into the alignment of PMI standards to DOD competencies. Karnes provided quantitative analysis of how each of PMI guides aligned to the DOD competency elements shown in Table 1.

Table 1. Quantity of DOD PM Competency Elements Mapped to PMI’s Standards (Organized by Level of Alignment and DAWIA Level). Source: Karnes (2020).

	Basic <i>PMBOK</i> Guide	Intermediate <i>PMBOK</i> Guide	Intermediate <i>TSPgM</i>	Advanced <i>PMBOK</i> Guide	Advanced <i>TSPgM</i>	Advanced <i>TSPfM</i>
Aligned	73	65	52	56	47	47
Somewhat Aligned	66	83	98	99	115	116
Completely Unaligned	20	29	27	35	28	27
N/A	31	13	13	0	0	0
	190	190	190	190	190	190

Karnes goes on to present this data in Figure 8, showing pie charts to further provide a different perspective into the data.

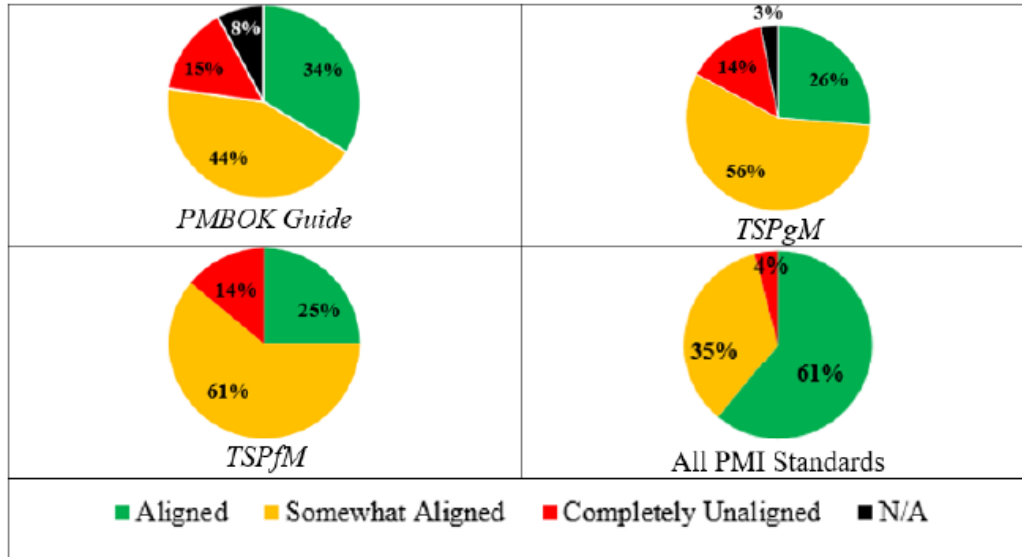


Figure 8. Extent to which the DOD PM Competency Elements Align to the PMI Standards by Pie Chart.
Source: Karnes (2020).

Based on this research, we can see that the PMBOK is the guide that is most aligned with DOD PM competency elements. Since that is the case we can focus our attention on the other guides, the TSPgM and TSPfM. Karnes goes into much further detail in his research comparing each unit of competency from the DOD to the PMI guides.

E. SUMMARY

The literature reviewed in this section included background from industry PM standards, along with background on the Department of Defense’s PM competency model standard. This background provides the framework for the following chapters and sets the groundwork for the survey that was produced. The alignment of the DOD’s PM competency standards should be based on the three ANSI-approved PMI standards (PMBOK, TSPgM, and TSPfM), (Karnes, 2020). With the overall goal of aligning the DOD PM standards and the standards of industry, DOD must work to improve the training

of their acquisition PM workforce. The background research done in this section led us to develop a web-based survey tool for the PM acquisition community.

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III. DATA ANALYSIS

This chapter leverages previous research done on alignments between the DOD's project management competencies and the PMI standards. The chapter uses this research to create an applicable survey tool and use it to allow acquisition professionals to identify applicability of the three PMI standards to their current DOD workload. The chapter further identifies which areas of the DOD competency model would benefit most from the survey tool.

A. INTRODUCTION

This chapter aims to provide answers to our initial research questions and provide fundamental background into the survey tool created in the next chapter.

- Can a web-based survey tool be developed that will allow acquisition professionals to identify the applicability of the three PMI standards to current DOD workloads?
- Which areas of the DOD program management competency model would benefit most from improvement?

B. **QUESTION 1: CAN A WEB-BASED SURVEY TOOL BE DEVELOPED THAT WILL ALLOW ACQUISITION PROFESSIONALS TO IDENTIFY APPLICABILITY OF THE THREE PMI STANDARDS TO CURRENT DOD WORKLOAD?**

The team created a web-based survey tool that allows acquisition professionals to identify the applicability of the three PMI standards to current DOD PM workloads. To confirm this theory, we conducted beta testing of the tool with subject matter experts. Survey tool asks acquisition professionals about their proficiency level in the following categories: capability integration planning, program execution, contract management, financial management, product support management, foundational competencies, results driven, and building coalitions. We chose these categories because we feel like they are fundamental to becoming a successful project manager. Although all 18 categories are fundamental for project success, we chose to focus on these eight to better quantify our

results. One must have traits from each of these categories in order to understand the full spectrum of project management and the responsibilities that come with the title in the DOD. These categories fall under the four competency categories of acquisition management, business management, technical management, and executive leadership.

After the development of the survey tool, we then highlight how the DOD PM competency model could benefit from the survey tool. The survey tool will provide feedback answers into where the PM acquisition workforce feels applicability of PM competencies align with their current job duties and responsibilities.

C. QUESTION 2: WHICH AREAS OF THE DOD PROGRAM MANAGEMENT COMPETENCY MODEL WOULD BENEFIT MOST FROM IMPROVEMENT?

We combined the results from our research and the research previously done by Jonathan Karnes to decipher which areas of the DOD PM competency model would benefit most from improvement. Figures 9–12 provide in depth detail in determining which DOD PM competency elements need to be improved on.

Unit of Competency	Element #	PMBOK Guide			TSP ₂ M		TSP ₃ M	All PMI Standards		
		Basic	Int	Adv	Int	Adv	Adv	Basic	Int	Adv
Capability Integration Planning	111									
	112									
	113									
	114									
	115									
	116									
	117									
	121									
	122									
	123									
	124									
131										
Acquisition Law and Policy	211									
	221									
	231									
	241									
	251									
	261									
Program Execution	311									
	312									
	313									
	314									
	315									
	321									
	322									
	323									
	331									
	332									
	333									
	334									
	341									
	342									
	343									
	344									
	345									
	346									
	351									
	352									
	353									
354										
361										
362										
363										
Stakeholder Management	411									
	421									
	431									
International Acquisition and Exportability (IA&E)	511									
	512									
	521									
	522									
	531									
	532									
	533									
541										
542										
Services Acquisition	611									
	611									
	611									

Figure 9. Alignment of Acquisition Management DOD PM Category by PMI Standard. Source: Karnes (2020).

Unit of Competency	Element #	PMBOK Guide			TSPgM		TSPfM	All PMI Standards		
		Basic	Int	Adv	Int	Adv	Adv	Basic	Int	Adv
Contract Management	1.1.1	Green	Yellow	Yellow	Green	Yellow	Yellow	Green	Yellow	Yellow
	1.1.2	Yellow	Yellow	Yellow	Green	Yellow	Yellow	Yellow	Yellow	Yellow
	1.1.3	Green	Yellow	Yellow	Green	Yellow	Yellow	Green	Yellow	Yellow
	1.1.4	Green	Yellow	Yellow	Green	Yellow	Yellow	Green	Yellow	Yellow
	1.2.1	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
	1.2.2	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
	1.2.3	Red	Red	Red	Red	Red	Red	Red	Red	Red
	1.2.4	Green	Yellow	Yellow	Green	Yellow	Yellow	Green	Yellow	Yellow
	1.2.5	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
	1.2.6	Red	Red	Red	Red	Red	Red	Red	Red	Red
	1.2.7	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
	1.2.8	Green	Yellow	Yellow	Green	Yellow	Yellow	Green	Yellow	Yellow
	1.2.9	Green	Yellow	Yellow	Green	Yellow	Yellow	Green	Yellow	Yellow
	1.2.10	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
	1.2.11	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
	1.3.1	Yellow	Yellow	Yellow	Yellow	Yellow	Red	Yellow	Yellow	Yellow
	1.3.2	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
	1.4.1	Green	Yellow	Yellow	Green	Yellow	Yellow	Green	Yellow	Yellow
	1.4.2	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
	1.4.3	Green	Yellow	Yellow	Green	Yellow	Yellow	Green	Yellow	Yellow
1.4.4	Yellow	Yellow	Yellow	Yellow	Yellow	Red	Yellow	Yellow	Yellow	
1.4.5	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	
1.4.6	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	
1.4.7	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	
1.5.1	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	
Financial Management	2.1.1	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
	2.2.1	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
	2.3.1	Yellow	Yellow	Red	Yellow	Red	Yellow	Yellow	Yellow	Yellow
	2.3.2	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
	2.3.3	Red	Red	Red	Red	Red	Red	Red	Red	Red
	2.4.1	Yellow	Yellow	Yellow	Green	Yellow	Yellow	Yellow	Green	Yellow
	2.4.2	Yellow	Yellow	Yellow	Green	Yellow	Yellow	Yellow	Green	Yellow
	2.4.3	Yellow	Yellow	Yellow	Green	Yellow	Yellow	Yellow	Green	Yellow
2.4.4	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Red	Yellow	Yellow	
2.5.1	Green	Yellow	Yellow	Green	Yellow	Yellow	Green	Yellow	Yellow	
2.5.2	Green	Yellow	Yellow	Green	Yellow	Yellow	Green	Yellow	Yellow	

Figure 10. Alignment of Business Management DOD PM Category by PMI Standard. Source: Karnes (2020).

Unit of Competency	Element #	PMBOK Guide			TSP _g M		TSP _f M	All PMI Standards		
		Basic	Int	Adv	Int	Adv	Adv	Basic	Int	Adv
Engineering Management	1.1.1									
	1.1.2									
	1.1.3									
	1.1.4									
	1.1.5									
	1.2.1									
	1.2.2									
	1.2.3									
	1.2.4									
	1.2.5									
	1.3.1									
	1.3.2									
	1.3.3									
	1.3.4									
	1.3.5									
	1.3.6									
	1.3.7									
	1.3.8									
	1.4.1									
	1.5.1									
1.5.2										
1.6.1										
1.6.2										
1.6.3										
1.6.4										
1.7.1										
Defense Business Systems	2.1.1									
	2.2.1									
Test and Evaluation Management	3.1.1									
	3.1.2									
	3.1.3									
	3.1.4									
	3.1.5									
	3.1.6									
	3.1.7									
	3.2.1									
3.2.2										
Manufacturing Management	4.1.1									
	4.1.2									
	4.1.3									
	4.1.4									
4.2.1										
4.2.2										
Product Support Management	5.1.1									
	5.1.2									
	5.2.1									
	5.2.2									
	5.2.3									
	5.2.4									
	5.2.5									
	5.2.6									
	5.3.1									
	5.3.2									
5.3.3										

Figure 11. Alignment of Technical Management DOD PM Category by PMI Standard. Source: Karnes (2020).

Unit of Competency	Element #	PMBOK Guide			TSPgM		TSPfM	All PMI Standards		
		Basic	Int	Adv	Int	Adv	Adv	Basic	Int	Adv
Foundational Competencies	1.1.1									
	1.1.2									
	1.2.1									
	1.3.1	█						█		
	1.3.2									
	1.3.3									
	1.4.1				█					
	1.4.2				█					
	1.4.3				█					
	1.5.1				█	█				
	1.6.1					█				
	1.6.2				█					
Leading Change	2.1.1	█	█	█	█	█		█	█	
	2.1.2	█			█			█		
	2.2.1		█	█	█				█	
	2.3.1									
	2.3.2									
	2.4.1									
2.4.2										
Leading People	3.1.1									
	3.2.1	█								
	3.2.2									
	3.3.1	█								
	3.4.1									
Results Driven	4.1.1									
	4.1.2									
	4.2.1	█	█	█	█			█	█	
	4.2.2	█	█	█	█			█	█	
	4.2.3	█	█	█	█			█	█	
	4.3.1	█	█	█	█			█	█	
	4.3.2									
	4.3.3									
	4.3.4	█	█	█	█			█	█	
	4.4.1									
4.5.1										
4.5.2										
4.5.3										
Building Coalitions	5.1.1	█	█	█	█	█		█	█	
	5.1.2		█	█	█				█	
	5.1.3									
	5.2.1									
	5.2.2									

Figure 12. Alignment of Executive Leadership DOD PM Category by PMI Standard. Source: Karnes (2020).

These figures provided by Karnes allowed us to see which DOD PM Categories were most aligned and least aligned with the three PMI standards. That document lists all the PM competencies and provides a rating of good mapping, partial mapping, or no mapping for how well each aligns to the PMI standards. We created survey questions for only those competencies that were designated as having good or partial mapping. The Acquisition Management DOD PM category in Figure 9, by visualization is the least aligned with the three PMI standards. This allows us an area to focus our beta testing on when the survey tool is released. The Executive Leadership DOD PM category in Figure 12 looks to be the most aligned with the three PMI standards and allows us to focus less of our attention on that competency. The next chapter will present the survey tool that was created during our research.

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IV. SURVEY TOOL

Upon completion of the literature review of PMI industry standards and DOD PM career competencies, we developed a survey tool to answer our research questions. The purpose of this study is to develop a questionnaire that can be used by future researchers to measure the applicability of the three PMI standards to the current DOD workload. The survey created will not be distributed to the target audience as part of this thesis. We conducted beta testing with selected subject matter experts to improve the performance of the survey tool.

A. RESEARCH PLAN

We examined four areas of interest from the DOD Program Management Career Field Functional Competencies to determine the applicability of the three PMI standards to current DOD workload (Office of the Assistant Secretary of Defense, 2021, 1). The areas are (a) acquisition management, (b) business management, (c) technical management, and (d) executive leadership. By measuring the competency of DOD acquisition personnel in the four areas, we can determine how impactful the PMI standards are to current program management work.

According to Radhakrishna's 2007 "Tips for Developing and Testing Questionnaires/Instruments," five steps are necessary for the development of a valid and reliable questionnaire. These steps are the following: background, questionnaire conceptualization, format and data analysis, establishing validity, and establishing reliability. Figure 13 shows a flow chart of the sequence for questionnaire development/instrument development (Radhakrishna, 2007, 1). We based our methodology on Radhakrishna's work.

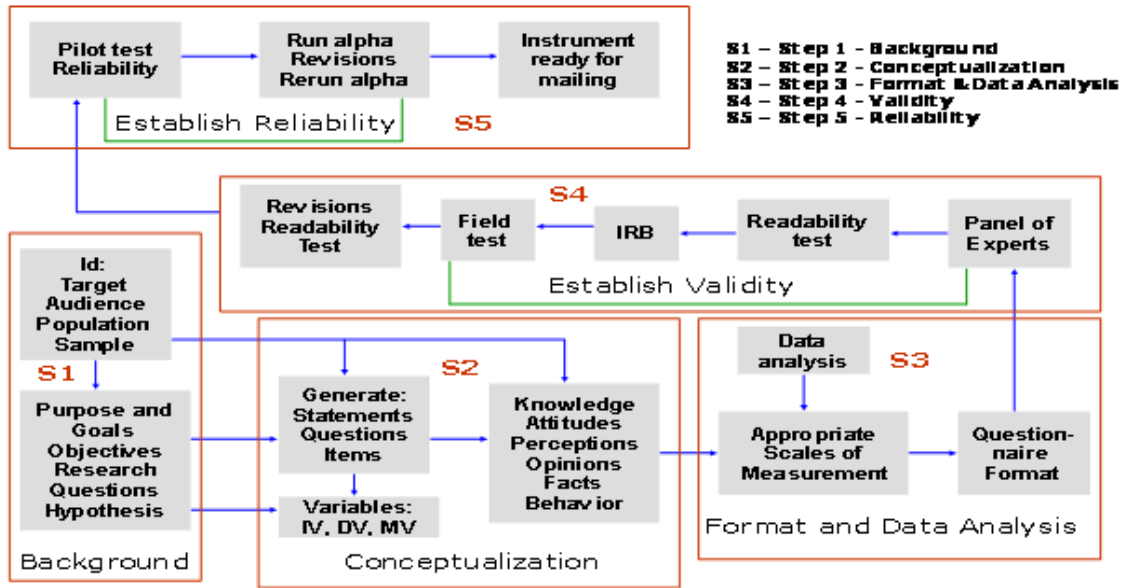


Figure 13. Sequence of Questionnaire/Instrument Development.
Source: Radhakrishna, 2007.

1. Step 1: Background

In this step, we examined the purpose, objective, research questions, hypothesis of the proposed research (Radhakrishna, 2007, 1). We selected the target audience based on the experience level, qualifications and background as well as defined a process for selection.

2. Step 2: Questionnaire Conceptualization

For step 2, we established “a link among the objectives of the study and their translation into content” (Radhakrishna, 2007, p. 1). To do this, we based our survey questions on the DOD Program Management Career Field Competencies and their applicability to the PMI industry standards.

3. Step 3: Format and Data Analysis

In this step, we created competency statements with responses using the Likert scale. The respondents rate their competency in various program management tasks that are divided into four sections, acquisition management, business management, technical

management, and executive leadership. The survey is developed using the Naval Postgraduate School (NPS) open-source surveying tool Qualtrics ([NPS], n.d.).

4. Step 4: Establishing Validity

For Step 4, we analyzed the systematic error in measurement. “Validity is established using a panel of experts and a field test” (Radhakrishna, 2007, p. 1). There are four types of validity that can be used, based on the objectives of the study. They are content, construct, criterion, and face validity (Radhakrishna, 2007, p. 1). Addressing the following questions and conducting a readability test enhance the validity of the questionnaire: “(a) Is the questionnaire valid? In other words, is the questionnaire measuring what it intended to measure? (b) Does it represent the content? (c) Is it appropriate for the sample/population? (d) Is the questionnaire comprehensive enough to collect all the information needed to address the purpose and goals of the study? (e) Does the instrument look like a questionnaire?” (Radhakrishna, 2007, p. 1).

5. Step 5: Establishing Reliability

In the last step, the survey is presented as a pilot test to determine reliability. “Reliability refers to random error in measurement and indicates the accuracy or precision of the measurement instrument” (Norland, 1990, p. 28). The pilot test data is obtained using a subset of the target audience. Software is used to calculate a correlation matrix and alpha coefficient that represents a range of full error, alpha of 1, to total absence of error, alpha of 0 (Radhakrishna, 2007, p. 1).

B. TARGET AUDIENCE

For this research we identified the target audience to be DOD program managers. We used SurveyMonkey’s article, “5 Steps to Make Sure Your Sample Accurately Estimates Your Population” to develop the sample size, margin of error and confidence level (SurveyMonkey, n.d.c, 1). According to FederalPay.org (2022, 1), there were 9,950 program managers in the DOD as of 2020. We used that number as our population that we want to understand (SurveyMonkey, n.d.c, p. 1). We then calculated the margin of error, which describes how accurately survey results should reflect the views of the overall

population (SurveyMonkey, n.d.a, p. 1). We selected 10% as the margin of error. Next, we determined the confidence level to ensure that the sample accurately represented the population (SurveyMonkey, n.d.c, p. 1). We chose a 90% confidence level to match our margin of error and because decreasing the confidence level below 90% is not recommended (SurveyMonkey, n.d.c, p. 1). Using SurveyMonkey's (SurveyMonkey, n.d.b, p. 1) sample size calculator with our population, margin of error and confidence level, we arrived at a sample size of 68. Finally, we estimated the response rate of participants to be 10–15%. As SurveyMonkey (SurveyMonkey, n.d.c, p. 1) explains, "that is a more conservative and safer guess if you haven't surveyed your population before" (SurveyMonkey, n.d.c, p. 1).

C. QUESTION STRUCTURE AND DESIGN

The survey consists of fixed response questions divided into five sections: Demographics, Acquisition Management, Business Management, Technical Management, and Executive Leadership. The Demographics section provides critical information pertaining to the target audience such as DOD Program Management Certification Level, years of acquisition experience, and any other program management professional certifications. The remainder of the survey is designed for participants "to respond to competency statements regarding self-assessed proficiency levels in performing tasks within each associated domain" (Hayashi & Pfannenstiel, 2021, p. 35). Within each section we chose only those tasks that directly mapped to PMI project management knowledge areas. The criteria we used to select which competencies to include was based on the DOD Program Management Career Field Competencies (DAU, 2020). That document lists all the PM competencies and provides a rating of good mapping, partial mapping, or no mapping for how well each aligns to the PMI standards. We created survey questions for only those competencies that were designated as having good or partial mapping. The survey can be found in its entirety in the Appendix.

The survey is developed using the Naval Postgraduate School (NPS) open-source surveying tool Qualtrics ([NPS], n.d.). Qualtrics is an online survey creation, delivery and management tool. Survey email links direct participants to the Qualtrics website where

responses are recorded, data is analyzed and results distributed to researchers. The survey uses a “Likert scale, ranging from values 1 through 5, to express proficiency and knowledge levels when answering the competency statements” (Rendon & Schwartz, 2020, p. 127). The Likert scale proficiency ratings for this survey developed by Rendon and Schwartz (2020) are as follows:

1. Aware: Applies the competency in the simplest situations and requires close and extensive guidance.
2. Basic: Applies the competency in somewhat difficult situations and requires frequent guidance.
3. Intermediate: Applies the competency in difficult situations and requires little or no guidance.
4. Advanced: Applies the competency in considerably difficult situations and generally requires no guidance.
5. Expert: Applies the competency in exceptionally difficult situations and serves as a key resource and advises others.
6. N/A: Not applicable/not needed in my job. (Hayashi & Pfannenstiel, 2021, p. 37)

The acquisition management section contains competency statements about capability integration planning and program execution. The competency statements were developed from the DOD Program Management Career Field Functional Competencies, which designates the acquisition management competencies directly related to PMI standards (DAU, 2020). There are eight total competencies that meet the criteria within the acquisition management, two from the topic of capability integration planning and six from the topic program execution. Example questions from the survey are shown as follows in figures 14 and 15:

Topic: Capability Integration Planning (AM 1)

	Proficiency Level					
	(1) Aware	(2) Basic	(3) Intermediate	(4) Advanced	(5) Expert	N/A
1. Supervise the requirements management effort to derive, feasible program and portfolio requirements from the user capability needs statement and CONOPs per Joint Capabilities Integration and Development System (JCIDS) outputs or functional problem statements (for business systems) to establish the Acquisition Program Baseline (APB).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1a. Implement a process, in coordination with user(s), to create and manage program requirements baseline (including interfaces) across the program life cycle.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1b. Establish a time-sensitive process for implementing requirements changes resulting from emerging intelligence information or other sources.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1c. Supervise identification and articulation of rapid response situations; ensure use of unique documents and procedures needed to support urgent warfighter needs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1d. Guide requirements process together with user(s) to meet "customer needs" and support decisions in context of system-of-systems architecture.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1e. Identify and incorporate best practices in trade-off analysis and system engineering to make requirements related program decisions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1f. Ensure the DOD Information Enterprise Architecture is implemented.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure 14. Acquisition Management, Capability Integration Survey Question

Topic: Program Execution (AM 3)

	Proficiency Level					
	(1) Aware	(2) Basic	(3) Intermediate	(4) Advanced	(5) Expert	N/A
3. Establish, specify, and manage an integrated risk, issue and opportunity management process.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3a. Ensure various techniques are understood and used to identify or forecast program related risks, issues and opportunities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3b. Exercise various techniques to analyze program related risks, issues and opportunities in order to support decision making.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3c. Based on program conditions and analysis results, provide guidance for and select the optimal risk, issue and opportunity handling technique.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3d. Create an organizational culture/ structure/method that tracks and manages risk/opportunities associated with any acquisition environment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure 15. Acquisition Management, Program Execution Survey Question

The business management section contains competency statements about contract management and financial management. The competency statements were developed from the DOD Program Management Career Field Functional Competencies, which designates the business management competencies directly related to PMI standards (Office of the Assistant Secretary of Defense, 2021, p. 1). There are nine total competencies that meet

the criteria within the business management section, five from the topic of contract management and four from the topic financial management. Example questions from the survey are shown as follows in figures 16 and 17:

Unit of Competency: Business Management (BM)

Topic: Contract Management (BM 1)

	Proficiency Level					
	(1) Aware	(2) Basic	(3) Intermediate	(4) Advanced	(5) Expert	N/A
9. Plan and lead a market research effort to define the industry/ procurement environment and gather and apply relevant market research information to initiate and execute the program. Utilize PCO advice on source selection sensitive information in scenarios involving contractors to prevent future conflict of interest or potential competitive advantage.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9a. Analyze key attributes of the defense industry to meet acquisition needs. Includes awareness of issues of international sourcing vs. domestic preferences, Buy American Act, Berry Amendment, Canadian inclusion, small business statutes, etc., that restrict sources.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9b. Supervise a multifunctional team in developing and assessing the validity of an appropriate sourcing approach (including competitive and non-competitive).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure 16. Business Management, Contract Management Survey Question

Topic: Financial Management (BM 2)

	Proficiency Level					
	(1) Aware	(2) Basic	(3) Intermediate	(4) Advanced	(5) Expert	N/A
14. Analyze requests, provide inputs and priority recommendations (from the perspective of capability and projected IOC date) to support sound budget decisions including inputs to a Service's budget for the DoD POM process.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14a. Recognize the role of the Planning, Programming, Budgeting and Execution (PPBE) System in acquisition management.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14b. Provide inputs and priority recommendations (from the perspective of capability and projected IOC date) to support sound budget decisions including inputs to a Service's budget for the DoD POM process.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure 17. Business Management, Financial Management Survey Question

The technical management section contains a competency statement about product support management. The competency statement was developed from the DOD Program Management Career Field Functional Competencies which designates the technical management competencies directly related to PMI standards (Office of the Assistant Secretary of Defense, 2021, p. 1). There is one competency that meets the criteria within

the technical management section; it is from the topic product support management. Example questions from the survey are shown as follows in Figure 18:

Unit of Competency: Technical Management (TM)

Topic: Product Support Management (TM 5)

	Proficiency Level					N/A
	(1) Aware	(2) Basic	(3) Intermediate	(4) Advanced	(5) Expert	
18. Evaluate and optimize the logistical burden (footprint) that an item/system will place on the user.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18a. Develop and implement a software support plan, including development, modification, upgrades, and retirement or replacement of software and/or information technology products.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18b. Develop and implement a performance based agreement for a hardware, hardware/software, or information technology based program.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18c. Manage ongoing sustaining engineering assessments of the fielded item/system and facilities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18d. Implement and oversee program activities to identify, track, fund, and correct obsolescence and DMSMS risks, opportunities and issues.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18e. Manage the engineering and test of technical or procedural solutions to neutralize any harmful aspects of an item/system and its disposal.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure 18. Technical Management, Product Support Management Survey Question

The executive leadership section contains competency statements about effective communications. The competency statements were developed from the DOD Program Management Career Field Functional Competencies, which designates the executive leadership competencies directly related to PMI standards (Office of the Assistant Secretary of Defense, 2021, p. 1). There are five total competencies that meet the criteria within the executive leadership section, one from the topic foundational competencies, two from the topic results driven, and two from the topic building coalitions. Example questions from the survey are shown as follows in figures 19–21:

Unit of Competency: Executive Leadership

Topic: Foundational Competencies (EL 1)

	Proficiency Level					
	(1) Aware	(2) Basic	(3) Intermediate	(4) Advanced	(5) Expert	N/A
19. (Communicate Effectively) Plan for the dissemination of information both internally and externally with emphasis on ensuring all work groups, project oriented teams, IPPTs, PM Staff and several layers of contractor/sub-contractor employees have comprehensive macro view of the program priorities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19a. Write in a clear, concise, organized, and convincing manner for the intended audience.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19b. Make clear and convincing oral presentations. Listen effectively; clarify information as needed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure 19. Executive Leadership, Foundational Competencies Survey Question

Topic: Results Driven (EL 4)

	Proficiency Level					
	(1) Aware	(2) Basic	(3) Intermediate	(4) Advanced	(5) Expert	N/A
20.(Accountability) Hold self and others accountable for measurable high-quality, timely, and cost-effective results by monitoring progress and evaluates outcomes to improve organizational efficiency and effectiveness.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20a. Hold self accountable for measurable high quality, timely, and cost-effective results by supporting means to improve organizational efficiency and effectiveness.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20b. Foster and ensure an environment that administers all resources in a manner that instills public trust while accomplishing the mission.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure 20. Executive Leadership, Results-Driven Survey Question

Topic: Building Coalitions (EL 5)

	Proficiency Level					
	(1) Aware	(2) Basic	(3) Intermediate	(4) Advanced	(5) Expert	N/A
22. (Influencing /Negotiating) Establish and maintain relationships with key individuals/groups	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22a. Understand what motivates others to reach consensus.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22b. Gain cooperation from others to obtain information, find solutions, and accomplish goals.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure 21. Executive Leadership, Building Coalitions Survey Question

D. RESEARCH LIMITATIONS

The survey was not distributed to the DOD PM acquisition workforce (the target audience) as part of this research. The survey is a tool for future researchers to deliver to DOD program managers to measure the applicability of the three PMI standards to the current DOD workload.

E. BETA TESTING RESULTS

We received two responses to our beta testing. It is difficult to perform an analysis of the DOD Program Manager competency and the relation to PMI industry standards with so few data points. Both responses held advanced certification level in DAWIA, and we expected practitioner to be the majority certification based on the current requirements. Both respondents held professional certifications, and this is accurate with our expectations of the target audience. The respondents reported high competency level overall. Each question had one answer of at least advanced or expert, with an average competency of advanced at 4.15.

The respondents provided was feedback on how to improve the layout, content, and structure to better suit the research questions. We must organize the survey differently to derive the applicability to the PMI standards. Currently the questions are arranged to verify the previous gap analysis completed by Mortlock and Karnes (Karnes, 2021). We also must update the tool with the most recent DOD PM career competencies, the current version uses information from 2020. The change from DAWIA's three-tiered system to the Back-to-Basics two-tiered system requires updating to career competencies.

The current survey tool provides insight of the ability of PMs with DOD career competencies. The missing component in our analysis is how that compares to competency in the PMI standards for project, program, and portfolio management. To accomplish this, we must add a second section to the survey with competency statements concerning the twelve knowledge areas from the PMBOK guide, the five performance domains from the TSPgM, and the seven performance domains from the TSPfM. The survey can then be redistributed to the target audience to provide responses. By comparing the answers from PMs in the two sections, we can determine which DOD career competencies best align

with the PMI standards. The final step would be to use this information to recommendation changes to the DOD PM career competencies and proposed an updated DOD PM competency model.

Figure 22 shows the steps to take in order to make the comparisons and propose updates to the DOD PM competency model.

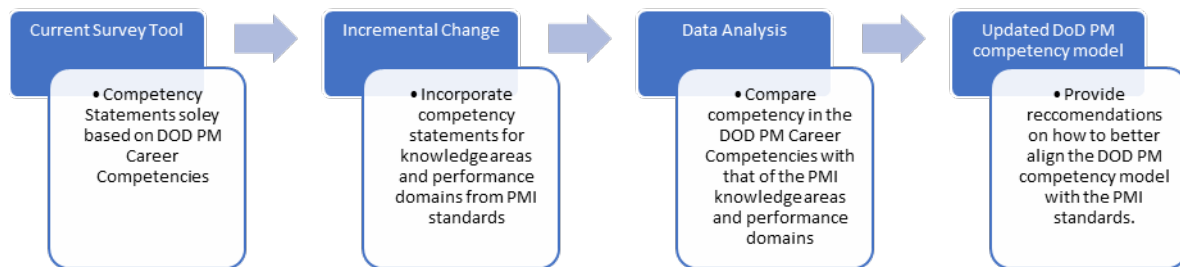


Figure 22. Survey Tool Development Plan

In order to achieve these goals, further research will take the existing tool and modify it to reflect competency statements for knowledge areas and performance domains from PMI standards. The data analysis will then include a comparison between the existing PMI knowledge areas and performance domains to the results from the new survey. The results will provide data from working project managers that will, hopefully, provide weight in future decisions for the DOD. With those results, we are hoping that recommendations can be provided to senior leadership in order to implement change in the current DOD PM competency model to better serve the warfighter.

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V. CONCLUSION AND RECOMMENDATION FOR FURTHER RESEARCH

This research project was intended to provide the DOD with a survey tool, where they can effectively gauge the acquisition community's correlation between the three PMI standards and the current DOD workload. We used the three globally recognized standard from PMI, the PMBOK guide, TSPgM, and the TSPfM. These three guides serve as the standard for project management in industry and in the DOD. The following section will consist of our conclusion of our findings and our recommendations for future research.

A. CONCLUSION

In conclusion, we were able to develop a survey tool that can be used by future researchers in order to effectively gauge the acquisition community's correlation between the three PMI standards and the current DOD workload. Our intentions were to answer the following research questions:

- 1. Can a Web-Based Survey Tool Be Developed that Will Allow Acquisition Professionals to Identify the Applicability of the Three PMI Standards to Current DOD Workloads?**

The goal is to use the survey created to answer question 1, and provide the Acquisition community with correlations between current DOD workloads and PMI standards. With our beta-test results, along with future research, we can answer the question we sought out to answer.

- 2. Which Areas of the DOD Program Management Competency Model would Benefit Most from Improvement?**

The Acquisition Management DOD PM category, depicted in Figure 9, is the least aligned with the three PMI standards. By using previous research done in competency alignment, we can use our survey tool created to focus on areas in which the DOD is further away from alignment with PMI standards.

B. RECOMMENDATIONS FOR FURTHER RESEARCH

Our recommendation for future research teams is to distribute the survey tool created in this research paper to effectively gauge the acquisition community's correlation between the three PMI standards and the current DOD workload. The information gathered can be useful to not only DOD acquisition communities, but also to the other functional areas of contracting, engineering and technical management, financial management/cost estimating, test and evaluation management, and life cycle logistics management. Next step is to add a second section to the survey with competency statements concerning the twelve knowledge areas from the PMBOK guide, the five performance domains from the TSPgM, and the seven performance domains from the TSPfM. After that, the survey can then be redistributed to the target audience provide responses. The responses can then help formulate a response on updating the DOD PM competency model.

APPENDIX. PROGRAM MANAGEMENT SURVEY TOOL

Please select the highest DAWIA certification level that you have completed.

None

Practitioner

Advanced

How many years government experience do you have as a Program and Project Manager?

Less than 1 Year

1-3 Years

4-5 Years

6-10 Years

11-20 Years

21 Years or More

Please indicate the professional certification(s) that you hold. If "Other" please specify.

Project Management Professional (PMP)

Program Management Professional (PgMP)

Portfolio Management Professional (PfMP)

Other

Please indicate your current proficiency on each technical competency and its set of aligned skills. **Each technical competency is bolded** and its aligned skills are listed beneath it with corresponding number and letter.

Use the following scale when rating each technical competency and skill:

Proficiency Scale

(1) Aware: Applies the competency in the simplest situations and requires close and extensive guidance.

(2) Basic: Applies the competency in somewhat difficult situations and requires frequent guidance.

(3) Intermediate: Applies the competency in difficult situations and requires little or no guidance.

(4) Advanced: Applies the competency in considerably difficult situations and generally requires no guidance.

(5) Expert: Applies the competency in exceptionally difficult situations and serves as a key resource and advises others.

N/A: Not applicable/not needed in my job.

Unit of Competency: Acquisition Management (AM)

Topic: Capability Integration Planning (AM 1)

	Proficiency Level					
	(1) Aware	(2) Basic	(3) Intermediate	(4) Advanced	(5) Expert	N/A
1. Supervise the requirements management effort to derive, feasible program and portfolio requirements from the user capability needs statement and CONOPs per Joint Capabilities Integration and Development System (JCIDS) outputs or functional problem statements (for business systems) to establish the Acquisition Program Baseline (APB).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1a. Implement a process, in coordination with user(s), to create and manage program requirements baseline (including interfaces) across the program life cycle.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1b. Establish a time-sensitive process for implementing requirements changes resulting from emerging intelligence information or other sources.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1c. Supervise identification and articulation of rapid response situations; ensure use of unique documents and procedures needed to support urgent warfighter needs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1d. Guide requirements process together with user(s) to meet "customer needs" and support decisions in context of system-of-systems architecture.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1e. Identify and incorporate best practices in trade-off analysis and system engineering to make requirements related program decisions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1f. Ensure the DOD Information Enterprise Architecture is implemented.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Proficiency Level					
	(1) Aware	(2) Basic	(3) Intermediate	(4) Advanced	(5) Expert	N/A
2. Supervise the acquisition program strategic planning process to develop and document the organization's mission, vision of success, and fundamental values as they relate to achieving successful acquisition outcomes.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2a. Supervise and approve the development of an acquisition program baseline.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2b. Frame an Acquisition Strategy that addresses the JCIDS requirements given the PPBE resourcing constraints and relevant risks & opportunities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2c. Crosswalk and validate supporting technical, financial, and contract planning documents against the Acquisition Strategy goals and objectives.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Topic: Program Execution (AM 3)

	Proficiency Level					
	(1) Aware	(2) Basic	(3) Intermediate	(4) Advanced	(5) Expert	N/A
3. Establish, specify, and manage an integrated risk, issue and opportunity management process.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3a. Ensure various techniques are understood and used to identify or forecast program related risks, issues and opportunities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3b. Exercise various techniques to analyze program related risks, issues and opportunities in order to support decision making.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3c. Based on program conditions and analysis results, provide guidance for and select the optimal risk, issue and opportunity handling technique.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3d. Create an organizational culture/ structure/method that tracks and manages risk/opportunities associated with any acquisition environment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Proficiency Level					
	(1)	(2)	(3)	(4)	(5)	N/A
	Aware	Basic	Intermediate	Advanced	Expert	
4. Analyze an integrated master plan (IMP) confirming measures of effectiveness, measures of performance, technical performance measures and accomplishment criteria accurately define the program architecture consistent with the acquisition strategy, SEP and TEMP.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4a. Supervise the development of a WBS and evaluate the degree to which the program WBS captures program requirements.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4b. Supervise the development and evaluate an IMS that reflects best practices in schedule development and analysis.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Proficiency Level					
	(1)	(2)	(3)	(4)	(5)	N/A
	Aware	Basic	Intermediate	Advanced	Expert	
5. Organize, manage, coach, lead and evaluate program teams (working groups, IPTs, project-oriented teams, support contractor teams, system integrator/supplier teams) to maximize efficiency within the program/portfolio.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5a. Identify, develop, and optimize government, FFRDC, and industry partner relationships to enhance program execution.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5b. Interpret and advise on how contractors develop and implement strategies for priming, subcontracting and teaming and how those strategies reflect a variety of desired outcomes.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5c. Anticipate, meet and oversee the needs of both internal and external customers and stakeholders.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Proficiency Level					
	(1)	(2)	(3)	(4)	(5)	N/A
	Aware	Basic	Intermediate	Advanced	Expert	
6. Develop strategies for effectively conducting program reviews and assessments regarding cost, schedule, and performance of the program.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6a. Ensure that the program prepares for and conducts technical assessments of prime and subcontractors.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6b. Analyze strategies for conducting Financial and Budget Reviews and assessments.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6c. Analyze strategies for conducting Contractor Performance Reviews and assessments.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6d. Analyze the effectiveness of metrics and measures used on a recurring basis to drive appropriate government and contractor behavior. Conduct and evaluate trend analysis to make improvements to program.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6e. Provide timely, appropriate and accurate external program assessments and reports regarding the execution of the program.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Proficiency Level					
	(1)	(2)	(3)	(4)	(5)	N/A
	Aware	Basic	Intermediate	Advanced	Expert	
7. Build and manage an acquisition workforce/team based on organizational goals, budget considerations, and staffing needs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7a. Allocate resources across business units and programs to ensure that the strategic goals are met.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7b. Set up an automated system to provide program status.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7c. Enable and advise regarding to Business Process Reengineering (BPR) efforts within a program office environment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Proficiency Level					
	(1) Aware	(2) Basic	(3) Intermediate	(4) Advanced	(5) Expert	N/A
8. Stakeholder Management--Appraise the internal and external politics that impact the work of the organization. Perceive organizational and political reality and act accordingly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8a. Maintain awareness of the environment external to an acquisition program simultaneously from (including) historical, current, and future perspectives.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8b. Apply the media related policies contained in Agency directives/publications in addressing public affairs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Unit of Competency: Business Management (BM)

Topic: Contract Management (BM 1)

	Proficiency Level					
	(1) Aware	(2) Basic	(3) Intermediate	(4) Advanced	(5) Expert	N/A
9. Plan and lead a market research effort to define the industry/ procurement environment and gather and apply relevant market research information to initiate and execute the program. Utilize PCO advice on source selection sensitive information in scenarios involving contractors to prevent future conflict of interest or potential competitive advantage.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9a. Analyze key attributes of the defense industry to meet acquisition needs. Includes awareness of issues of international sourcing vs. domestic preferences, Buy American Act, Berry Amendment, Canadian inclusion, small business statutes, etc., that restrict sources.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9b. Supervise a multifunctional team in developing and assessing the validity of an appropriate sourcing approach (including competitive and non-competitive).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Proficiency Level					
	(1) Aware	(2) Basic	(3) Intermediate	(4) Advanced	(5) Expert	N/A
10. Assess and exercise pre-solicitation communications with industry and the government team.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10a. Supervise and participate in pre-award actions required by the FAR.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10b. Based on the risks and opportunities described in the acquisition strategy, jointly develop a contracting strategy with the PCO.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10c. Understand the use and ramifications of Interagency Acquisitions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10d. Evaluate the intent of the capability or service acquisition and assure the strategy(s) are aligned.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10e. Demonstrate how incentives at the portfolio, program and/or project level (to include contract incentives) drive desired and/or undesired contractor behavior.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10f. Account for the impact of the government and contractor rights under the appropriate data rights categories.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10g. Explain the potential program impact and appropriate response procedures regarding a contractor's right to protest.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Proficiency Level					
	(1) Aware	(2) Basic	(3) Intermediate	(4) Advanced	(5) Expert	N/A
11. Source Selection and Negotiations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11a. Plan and execute a source selection and contract award process.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11b. Plan and execute a contract negotiation and award in a sole source arrangement.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Proficiency Level					
	(1) Aware	(2) Basic	(3) Intermediate	(4) Advanced	(5) Expert	N/A
12. Prepare and evaluate a plan for executing the program's contract administration process.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12a. Oversee the establishment of a negotiated baseline of performance between the program office and the selected contractors.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12b. Comprehend the contract modification process, receipt of contractor change proposals, ECP and Value Engineering requirements, risk analysis, and contractor financing requirements.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12c. Direct and advise on exercising options; issuing task or delivery orders; and claims.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12d. Monitor, assess, and manage contractor performance in their execution of the contract.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12e. Resolve contract issues related to contractor's responsibilities for performance of the contract or a change in the users requirements.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12f. Understand the unique requirements and management actions required of Agency PM's when engaged in the acquisition of services.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Proficiency Level					
	(1) Aware	(2) Basic	(3) Intermediate	(4) Advanced	(5) Expert	N/A
13. Understand procedures for contract close-out and/or termination in a manner consistent with FAR Part 49 (as applicable)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13a. Recognize the requirement for contract close-out and the possibility for contract termination consistent with FAR Part 49.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13b. Understand procedures for contract close-out and/or termination in a manner consistent with FAR Part 49 (as applicable)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Topic: Financial Management (BM 2)

	Proficiency Level					
	(1) Aware	(2) Basic	(3) Intermediate	(4) Advanced	(5) Expert	N/A
14. Analyze requests, provide inputs and priority recommendations (from the perspective of capability and projected IOC date) to support sound budget decisions including inputs to a Service's budget for the DoD POM process.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14a. Recognize the role of the Planning, Programming, Budgeting and Execution (PPBE) System in acquisition management.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14b. Provide inputs and priority recommendations (from the perspective of capability and projected IOC date) to support sound budget decisions including inputs to a Service's budget for the DoD POM process.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Proficiency Level					
	(1) Aware	(2) Basic	(3) Intermediate	(4) Advanced	(5) Expert	N/A
15. Oversee the program office organization's financial processes and procedures.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15a. Supervise and advise on the formulation of budget documents.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15b. Evaluate financial budget implications of international partnering (international agreements, dependable undertaking, handling foreign funds, etc.).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Proficiency Level					
	(1) Aware	(2) Basic	(3) Intermediate	(4) Advanced	(5) Expert	N/A
16. Execute and advise/direct Earned Value Management (EVM) plan to evaluate status and performance of program	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16a. Plan and implement execution year adjustments or make contingency plans in response to program progress (vs plan), anticipated requirements changes, or external resource adjustments (Congressional/OMB/Service or Agency).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16b. Advocate for program equities; prepare, justify, and administer the program budget.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16c. Execute and advise on budget reviews.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Proficiency Level					
	(1) Aware	(2) Basic	(3) Intermediate	(4) Advanced	(5) Expert	N/A
17. Understand how an interdisciplinary Cost Estimate is executed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17a. As part of an interdisciplinary program team, select and apply the appropriate method to estimate the cost of an acquisition program.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17b. Understand Congressional legislated and DoD expectations and applications as applied to the general categories of Business Case Analyses (BCA) and Lifecycle Cost Estimates (LCCE) based on analogy, parametric and/or bottoms-up (engineering) approach.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Unit of Competency: Technical Management (TM)

Topic: Product Support Management (TM 5)

	Proficiency Level					
	(1) Aware	(2) Basic	(3) Intermediate	(4) Advanced	(5) Expert	N/A
18. Evaluate and optimize the logistical burden (footprint) that an item/system will place on the user.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18a. Develop and implement a software support plan, including development, modification, upgrades, and retirement or replacement of software and/or information technology products.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18b. Develop and implement a performance based agreement for a hardware, hardware/software, or information technology based program.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18c. Manage ongoing sustaining engineering assessments of the fielded item/system and facilities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18d. Implement and oversee program activities to identify, track, fund, and correct obsolescence and DMSMS risks, opportunities and issues.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18e. Manage the engineering and test of technical or procedural solutions to neutralize any harmful aspects of an item/system and its disposal.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Unit of Competency: Executive Leadership

Topic: Foundational Competencies (EL 1)

	Proficiency Level					
	(1) Aware	(2) Basic	(3) Intermediate	(4) Advanced	(5) Expert	N/A
19. (Communicate Effectively) Plan for the dissemination of information both internally and externally with emphasis on ensuring all work groups, project oriented teams, IPPTs, PM Staff and several layers of contractor/sub-contractor employees have comprehensive macro view of the program priorities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19a. Write in a clear, concise, organized, and convincing manner for the intended audience.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19b. Make clear and convincing oral presentations. Listen effectively; clarify information as needed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Topic: Results Driven (EL 4)

	Proficiency Level					
	(1) Aware	(2) Basic	(3) Intermediate	(4) Advanced	(5) Expert	N/A
20.(Accountability) Hold self and others accountable for measurable high-quality, timely, and cost-effective results by monitoring progress and evaluates outcomes to improve organizational efficiency and effectiveness.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20a. Hold self accountable for measurable high quality, timely, and cost-effective results by supporting means to improve organizational efficiency and effectiveness.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20b. Foster and ensure an environment that administers all resources in a manner that instills public trust while accomplishing the mission.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Proficiency Level					
	(1) Aware	(2) Basic	(3) Intermediate	(4) Advanced	(5) Expert	N/A
21. Understand Customer Service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21a. Anticipate and meet the needs of both internal and external customers by delivering high quality products and services.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21b. Understand and contribute to the needs of both internal and external customers by delivering high quality products and services.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Topic: Building Coalitions (EL 5)

	Proficiency Level					
	(1) Aware	(2) Basic	(3) Intermediate	(4) Advanced	(5) Expert	N/A
22. (Influencing /Negotiating) Establish and maintain relationships with key individuals/groups	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22a. Understand what motivates others to reach consensus.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22b. Gain cooperation from others to obtain information, find solutions, and accomplish goals.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Proficiency Level					
	(1) Aware	(2) Basic	(3) Intermediate	(4) Advanced	(5) Expert	N/A
22. Develop Partnering	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22a. Develop networks and builds alliances .	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22b. Collaborate across boundaries to build strategic relationships and achieve common goals.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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