

# ACQUISITION RESEARCH PROGRAM Sponsored report series

## Augmenting Pre-Award Contracting Processes with AI Technology

December 2024

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Prepared for the Naval Postgraduate School, Monterey, CA 93943.

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#### ABSTRACT

This study evaluates how artificial intelligence (AI) can enhance the Department of Defense's (DoD) pre-award contracting process, with a focus on the Marine Corps. Through a review of relevant literature and an analysis of requisition data from the Defense Agencies Initiative (DAI) for the MCI-East Regional Contracting Office (RCO) during fiscal year 2024, the research identifies critical challenges in requirements generation, including documentation errors, approval delays, and inconsistent requirements. To address these challenges, the study assesses the feasibility of AI integration, considering barriers such as resistance to change, regulatory constraints, and the need for extensive training required prior to implementation. Using qualitative and quantitative analysis methods, the research suggests that AI tools could streamline documentation, reduce processing times, and improve the accuracy of requirements. Based on these findings, the study proposes AI solutions controlled pilot programs test in environment. to ิล Recommendations emphasize change management practices, tailored training programs, and updates to regulatory policies to support AI adoption. The results suggest AI has potential to significantly improve efficiency, reduce errors, and modernize the pre-award contracting process, offering actionable insights for the DoD's contracting community.



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## **TABLE OF CONTENTS**

I.	INT	RODUCTION	1
	А.	BACKGROUND	1
	B.	PURPOSE STATEMENT	3
	C.	RESEARCH OBJECTIVE AND QUESTIONS	3
	D.	METHODOLOGY	4
	E.	THESIS ORGANIZATION	4
	F.	SUMMARY	5
II.	LIT	ERATURE REVIEW	7
	А.	STUDIES IN ADOPTION OF NEW INNOVATION WITHIN	7
	R	BARRIERS TO INNOVATION	
	D. C	FUNDAMENTAL ISSUES IN INNOVATION	12
	D.	AI AND MORE RECENT AI INNOVATION STUDIES IN	10
	υ.	DOD	18
	E.	ASSOCIATED RISKS	20
	F.	SUMMARY	22
III.	OR	GANIZATIONAL PROCESS STRUCTURE OF THE MARINE C	ORPS
-	REC	GIONAL CONTRACTING OFFICES	25
	А.	LEGAL FRAMEWORK FOR CONTRACT AWARD PROCESS	5 25
	B.	<b>OVERVIEW OF REGIONAL CONTRACTING OFFICES</b>	28
	C.	CHALLENGES AND CONSIDERATIONS	31
	D.	SUMMARY	31
IV.	ME	THOD AND ANALYSIS	33
	А.	METHOD	33
	B.	KEY FINDINGS	34
		1. Analysis of Requisition Data	34
		2. Rejection Trends	35
	C.	UNDERSTANDING COMMON CHALLENGES	37
	D.	SUMMARY	38
V.	CON	NCLUSION	41
	A.	FINDINGS AND RECOMMENDATIONS	41
	<b>B.</b>	RESEARCH OUESTIONS	43
	· •		



С.	FUTURE AREAS OF RESEARCH AND PILOT PROGRAMS	13
D.	SUMMARY	4
LIST OF RE	FERENCES	17



#### LIST OF FIGURES

Figure 1.	Customer Process Flowchart – Contracting for Services	8
Figure 2.	Fiscal Year 24 Contract Execution And Purchase Request Guidance 3	6



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#### LIST OF TABLES

Table 1.	Legal Federal Guidance Information	27
Table 2.	Key Steps in Marine Corps Pre-Award Contracting Process	29
Table 3.	Information from Study	34
Table 4.	Chapter IV Findings and Recommendations	42
Table 5.	Information for Pilot Program Focus	44



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## LIST OF ACRONYMS AND ABBREVIATIONS

AI	Artificial Intelligence
CDAO	Chief Digital and AI Officer
COR	Contracting Officer's Representatives
DAI	Defense Agencies Initiative
DoD	Department of Defense
DFARS	Defense Federal Acquisition Regulation Supplement
FAR	Federal Acquisition Regulation
FY	Fiscal Year
GAO	Government Accountability Office
GSA	General Services Administration
HHS	Health and Human Services
HQMC	Headquarters Marine Corps
I&L	Installations and Logistics
КО	Contract Officer
MAPS	Marine Corps Acquisition Procedures Supplement
MCI-EAST	Marine Corps Installations-East
MEF	Marine Expeditionary Force
NAVFAC	Naval Facilities Engineering Systems Command
NDAA	National Defense Authorization Act
NMCARS	Navy-Marine Corps Acquisition Regulation Supplement
PIEE	Procurement Integrated Enterprise Environment
PR	Purchase Request
RA	Requiring Activities
RCO	Regional Contracting Offices
SAT	Simplified Acquisition Threshold



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## I. INTRODUCTION

Like war itself, our approach to warfighting must evolve. If we cease to refine, expand, and improve our profession, we risk becoming outdated, stagnant, and defeated.<sup>1</sup>

#### A. BACKGROUND

The process of acquiring goods and services for defense purposes, commonly known as military procurement, is an indispensable element of the armed forces. As noted by Butler and Velasco, Military organizations must diligently plan, source, and evaluate procurement to meet operational needs.<sup>2</sup> One of the most important aspects of this process is contracting, which involves establishing agreements with external entities to fulfill specific requirements. The contracting process is made up of three distinct phases: pre-award, award, and post-award, each with its own set of objectives and tasks to accomplish.<sup>3</sup> In the pre-award contracting phase, planning, solicitation, and bid or proposal evaluation are carried out to identify the most appropriate vendor.<sup>4</sup> During the pre-award process, the agency must perform acquisition planning to include providing documents such as performance to be conducted and market research to ensure that the agency is promoting and providing full and open competition.

Historically, this acquisition planning in the pre-award contracting phase has been manual and labor-intensive, relying heavily on manual inputs of data from the acquisition

<sup>&</sup>lt;sup>4</sup> U.S. General Services Administration, *Federal Acquisition Regulation (FAR), Part 7: "Acquisition Planning,"* (U.S. General Services Administration, Washington, DC, 2024), https://www.acquisition.gov/far/part-7.



<sup>&</sup>lt;sup>1</sup> United States Marine Corps, *Warfighting*, MCDP 1 (Washington, DC: Headquarters, U.S. Marine Corps, 1997), Preface, 8.

<sup>&</sup>lt;sup>2</sup> Titus A. Butler and Aaron Velasco, "Analysis of the Department of Defense Pre-Award Contracting Process," (MBA Professional Report, Naval Postgraduate School, Monterey, CA, 2014), 19–21. https://apps.dtic.mil/sti/citations/ADA619682.

<sup>&</sup>lt;sup>3</sup> U.S. Department of Defense, *DoD Contracting Competency Model Narrative*, (Department of Defense, Washington, DC, 2020), 10, https://www.acq.osd.mil/asda/dpc/cp/policy/docs/wd/DoD-Contracting-Competency-Model-Narrative-%282020%29.pdf.

planning team's Requiring Activities (RA).<sup>5</sup> According to Butler and Velasco, the process of handling intricate contract documentation and vendor evaluations during market research can be both time-consuming and error-prone, which can result in inefficiencies and delays.<sup>6</sup> However, with technological advancements in recent years, there has been a noticeable shift towards trying to innovate by leveraging technology to enhance military procurement.<sup>7</sup>

One such technology has been artificial intelligence (AI), which has been emphasized by DoD data analytics and AI adoption strategy. In this strategy, AI refers to the creation of algorithms and systems capable of performing tasks that would ordinarily require human labor. This broad field encompasses various technologies such as robotic process automation, machine learning, and natural language processing, which have been developed to tackle a range of tasks, from intelligence analysis and planning optimization to threat detection and processing.<sup>8</sup>

DoD has focused on expanding its AI capability so much that recently DoD has introduced a Chief Digital and AI Officer (CDAO) to help manage AI field in the department. The CDAO has launched programs such as Advana data analytics platform, which analyzes vast amounts of data from diverse sources to improve decision-making and integration to military agencies.<sup>9</sup> This integration of AI line ups with broader modernization initiatives to improve operational effectiveness, as outlined in the 2022 National Defense Strategy.<sup>10</sup>

<sup>&</sup>lt;sup>10</sup> Joseph R. Biden Jr., *National Security Strategy of the United States of America* (Washington, DC: White House, 2022), 32–33, https://www.whitehouse.gov/wp-content/uploads/2022/10/Biden-Harris-Administrations-National-Security-Strategy-10.2022.pdf.



<sup>&</sup>lt;sup>5</sup> Anthony J. Rego, "An Analysis of the Consolidation of Marine Corps Purchasing and Contracting Services Through a Geographical Regional Office" (Master's thesis, Naval Postgraduate School, Monterey, CA, 2001), 7, https://hdl.handle.net/10945/10977.

<sup>&</sup>lt;sup>6</sup> Butler and Velasco, "Analysis of the DoD Pre-Award Contracting Process."

<sup>&</sup>lt;sup>7</sup> Rego, "An Analysis of the Consolidation of Marine Corps Purchasing and Contracting Services."

<sup>&</sup>lt;sup>8</sup> U.S. Department of Defense, "Chief Digital and Artificial Intelligence Officer," *DoD Directive* 5105.89 (Department of Defense, Washington, DC, 2024), https://www.esd.whs.mil/DD/.

<sup>&</sup>lt;sup>9</sup> DoD, *DoD Directive 5105.89*, 2019.

Nevertheless, even with this focus from DoD, integrating AI into military preaward contracting process will require serious considerations, particularly concerning biases and the need for transparent, accountable decision-making during protest. The executive branch addressed these concerns in the White House executive order on the safe and secure use of AI.<sup>11</sup> Accordingly, further research is necessary to refine AI application's considerations, address concerns, and ensure this recent technology does achieve optimal outcomes in this pre-award contracting phase.

#### **B. PURPOSE STATEMENT**

This thesis aims to identify potential areas where AI can effectively augment RA generation requirements in the pre-award contracting phase for the DoD. This study also seeks to determine ways to improve efficiency, particularly in contemporary areas where technology can help the acquisition planning process by analyzing the Marine Corps' process for contracting RA generation requirements in the DoD's pre-award contracting phase.

#### C. RESEARCH OBJECTIVE AND QUESTIONS

This study intends to identify and mitigate errors during the pre-award contracting phase. By conducting a literature review, the study provides insights into DoD innovation and how a recent technology like AI technology can be implemented, focusing on the DoD pre-award contracting process.

The primary research question is: Can AI technologies improve the process of generating RA requirements for pre-award contracting within the DoD?

The secondary research question is: What are the challenges and areas of opportunity associated with integrating AI technologies into the pre-award contracting process of the DoD?

<sup>&</sup>lt;sup>11</sup> Joseph R. Biden Jr., *Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence* (Washington, DC: White House, 2023), https://www.whitehouse.gov/briefing-room/presidential-actions/2023/10/30/executive-order-on-the-safe-secure-and-trustworthy-development-and-use-of-artificial-intelligence/.



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#### D. METHODOLOGY

The study will examine RA requisition processing requirements within the DoD's Marine Corps Contracting process. Furthermore, as a case study, I will evaluate the requisition process in the context of DoD's Marine Corps Regional Contracting Office Installation East. This is done by assessing workflow and common errors within Defense Agencies Initiative (DAI) contracting data to identify opportunities and challenges in the contracting process. By exploring this organization's RA pre-award contracting phase, I will identify some solutions that may improve the efficiency and effectiveness by being augmented by AI into the pre-award contracting process. The findings of this research can contribute to the body of knowledge on integrating modern technologies into the contracting processes in the context of DoD.

It is important to note that certain limitations may affect the scope of the data I collect and analyze. Due to biases in the sample size, since I will only cover the pre-award contracting phase, careful consideration implementing any recommendations. Furthermore, I sourced my data from open sources and obtained information or sources from the Naval Postgraduate School library, which may need to be revised for accuracy and reliability. The limited ability to interview experts may also affect this study's depth.

#### E. THESIS ORGANIZATION

The research was organized into multiple chapters, starting with Chapter I, incorporating the introduction, which laid out the problem statement, background, research questions, methodology, limitations, and scope. Chapter II provides a literature review with analysis of innovations, and barriers to integrating recent technologies. Chapter III provides an overview of the Marine Corps Regional Contracting Office Installation East pre-award contracting process. Chapter IV provides the methodology's analysis with data from DAI and literature review analysis, and Chapter V answers the research questions and includes conclusions and recommendations for future studies with pilot programs.



#### F. SUMMARY

The acquisition planning in the pre-award contracting phase involves manual and labor-intensive process leading to errors, inefficiencies, and delays. The military has shifted towards innovation, focusing on gaining an advantage through technology. Still, incorporating AI requires understanding the possible downsides of AI and careful consideration of biases and transparency in the contracting process. This study will explore ways that impending AI technology can improve RA requirement generation in the preaward contracting process. The upcoming chapter will analyze recent literature on AI augmentation in the contracting process, including developments in innovation and barriers.



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## II. LITERATURE REVIEW

One major catalyst of change is the advancement of technology. As the hardware of war improves through technological development, so must the tactical, operational, and strategic usage adapt to its improved capabilities both to maximize our own capabilities and to counteract our enemy's.<sup>12</sup>

The previous chapter discussed the DoD pre-award contracting background with focus on leverage recent technology and research objectives. This chapter will review relevant research that addresses the barriers and considerations for adopting recent technology, such as AI, within the DoD. Lastly, this literature review will review available open-source material to understand the risks associated with recent technology adoption into DoD contracting.

#### A. STUDIES IN ADOPTION OF NEW INNOVATION WITHIN DOD

To assess the effect of implementing new capabilities to the DoD pre-award contracting process, it is imperative first to gain an understanding of the underlying attitude in the DoD for innovations.<sup>13</sup> From perspective of viewing DoD's adoption from Rogers' Diffusion of Innovations theory, the DoD's mindset would be cautious, risk-averse approach places it in the "late majority" or "laggard" categories.<sup>14</sup> These groups typically adopt recent technologies only after they have been tested and proven by early adopters. However, this slower rate of adoption can put the DoD at a disadvantage in rapidly evolving technological environments, allowing competitors to gain an edge.

<sup>&</sup>lt;sup>14</sup> Everett M. Rogers, *Diffusion of Innovations*. 5th ed. New York: Free Press, 2003. The theory articulates several approaches and concepts to understanding the adoption of technology. The concepts included classifying individual organizations into five adopter categories: innovators, early adopters, early majority, late majority, and laggards. In the context of innovation adopters, categories such as late adopters and laggards, like the DoD, exhibit a more cautious stance towards innovation and necessitate a longer lead time for adoption.



<sup>&</sup>lt;sup>12</sup> Marine Corps, MCDP 1: Warfighting, 16.

<sup>&</sup>lt;sup>13</sup> Dmitry M. Kochetkov, "Innovation: A State-of-the-Art Review and Typology," *International Journal of Innovation Studies* 7, no. 4 (2023): 263–272, https://doi.org/10.1016/j.ijis.2023.05.00. It is important to note term innovation can cover various areas of literature, including organizational behavior, technology adoption, and strategic management. It is also important to note that innovation itself is not a standalone academic discipline but rather an evolving concept studied within many fields.

Moreover, a study on the DoD's commercial solutions openings conducted by Washburn and Colavito found that the DoD operates like a company competing in a global market and positions itself as a Knowledge Management Firm.<sup>15</sup> As a 2018 study by Sean Barrett points out that some scholars "argue that states react to innovation in another state's military doctrine if this foreign innovation is seen to alter the environment or calculus of the future significantly battle".<sup>16</sup> This observation in the study suggests that when in DoD's competitive landscape, innovation becomes important if other nations are using it to gain and maintain a strategic advantage in future conflicts.<sup>17</sup> These studies highlight that the DoD, like private companies, is in a race with other nations to acquire resources and advance its capabilities through rapid modernization.

Washburn and Colavito argue that to stay competitive, the DoD must develop a deeper understanding of the diverse perspectives on business modernization and apply them to its context.<sup>18</sup> This involves recognizing that innovation is not just about adopting modern technologies but also about creating a supportive organizational culture, reducing barriers to adoption, and fostering an environment where latest ideas and implementations can thrive. By applying innovation theories effectively, the DoD can accelerate its adoption of modern technologies and close the gap between itself and faster-moving competitors, thereby improving its overall operational efficiency and strategic edge.

The adoption of recent technologies within the DoD contracting process is challenging, due to a traditional mindset that resists change. As the research by Washburn and Colavito noted with the application of Everett Rogers's Diffusion of Innovations theory to integrating new processing and analysis technologies through the Commercial

<sup>&</sup>lt;sup>18</sup> Washburn and Colavito, "Commercial Solutions Openings," 11.



<sup>&</sup>lt;sup>15</sup> Eric W. Washburn and Mary Colavito, "Analysis of Department of Defense Commercial Solutions Openings (Joint Applied Project report, Naval Postgraduate School, Monterey, CA, 2023), https://hdl.handle.net/10945/72289.

<sup>&</sup>lt;sup>16</sup> Washburn and Colavito, "Commercial Solutions Openings," 11.

<sup>&</sup>lt;sup>17</sup> Kimberly Marten Zisk, *Engaging the Enemy: Organization Theory and Soviet Military Innovation*, 1955–1991 (Princeton, NJ: Princeton University Press, 1993), 13, 18. https://doi.org/10.2307/ j.ctt7rjc7Work was cited by Sean Barret as refered. The work also explains that "Reaction to foreign innovation foes not always demand reactive innovation in doctrine (p. 13). DoD does not necessarily require introducing new technologies, like AI; instead, it can enhance its strategic position by modernizing or upgrading existing structures.

Solutions Opening within the DoD contracting process. It emphasizes that the DoD's intricate regulatory landscape, bureaucratic structure, security concerns, the intricacy of the contracting process, risk aversion, and resource constraints can all contribute to the slower adoption of new machineries.

The decision to implement AI in pre-award contracting involves assessing its compatibility with existing systems and its capacity enhance strategic outcomes.<sup>19</sup> Each stage is affected by DoD's unique regulatory restrictions and the high risks of military operations, where the need for reliability, security, and compliance with stringent standards can significantly slow down the adoption process.<sup>20</sup> Effective navigation of these needs, informed by an understanding of DoD's mindset of "late majority" adaptor, is essential for successfully augmenting AI into DoD's contracting operations.<sup>21</sup>

The 2023 report by the Government Accountability Office (GAO), "Artificial Intelligence: Agencies Have Begun Implementation but Need to Complete Key Requirements," highlights effective navigation need with information on the implementation of technology's challenges.<sup>22</sup> The report reviewed federal agencies' AI implementation, focusing on government-wide roles and CFO Act agencies. The GAO analyzed agency-reported AI inventories and assessed compliance with federal policies and guidance. The review found that some agencies must improve reporting and comply better

<sup>22</sup> U.S. Government Accountability Office (GAO), *Artificial Intelligence: Agencies Have Begun Implementation but Need to Complete Key Requirements*, GAO-24-105980 (U.S. Government Accountability Office, Washington, D.C., U.S, 2023), https://www.gao.gov/assets/gao-24-105980.pdf.



<sup>&</sup>lt;sup>19</sup> Washburn and Colavito, "Commercial Solutions Openings," 11.

<sup>&</sup>lt;sup>20</sup> U.S. Government Accountability Office (GAO), *Artificial Intelligence: DoD Needs Department-Wide Guidance to Inform Acquisitions*, GAO-23-105850 (U.S. Government Accountability Office, Washington, D.C., 2023), https://www.gao.gov/assets/gao-23-105850.pdf.

<sup>&</sup>lt;sup>21</sup> Rebecca Louise Miller, "*Rogers' Innovation Diffusion Theory (1962, 1995)*," Information Seeking Behavior and Technology Adoption: Theories and Trends, ed. D. Al-Suqri and A. Al-Aufi (Hershey, PA: IGI Global, 2015), 14–28, https://doi.org/10.4018/978-1-4666-8156-9.ch016. In the study the author highlights the strength and limitations of Rogers' innovation diffusion theory. As written by the author, "One of the most serious shortcomings of diffusion research is the pro-innovation bias. This is the bias to assume that an innovation is a positive thing and should be adopted by a population, without any reinvention or rejection (p. 269)." Author is making a point that sometimes it's just "poor" and "bad" innovation not being adopting. As a result, in the Rogers' innovation diffusion theory, those who choose not to adopt are often labeled negatively as laggards and resistant to change without context towards the actual technology. (pp. 268–269)

with federal policies. The GAO report also addresses ethical and governance issues, emphasizing the need for responsible development and deployment to maximize benefits while minimizing risks.

As noted by the 2022 report by the GAO "Artificial Intelligence: DoD Should Improve Strategies, Inventory Process, and Collaboration Guidance" adapting these new tools are necessitates that the systems not only facilitate administrative roles but also comply with the highest security and data integrity standards.<sup>23</sup> Consequently, as noted in Washburn and Colavito's research highlighting Everett Rogers's Diffusion of Innovations theory, an ongoing evaluation of systems is needed to assess their impact.<sup>24</sup> The research often necessitates iterative testing and refinement to support functionalities, which this study will incorporate the contracting augmentation functionality requirements. Washburn and Colavito's research also show feedback, which is essential for continuous improvement, ensuring that AI tools efficiently meet the evolving needs of the DoD and uphold its strategic objectives.

According to GAO reports adopting new AI technologies is complicated by unique features such as the need for capability and reliability, as well as high priority in security.<sup>25</sup> The GAO reports noted that these technologies often require extensive testing and evaluation to ensure compliance with business standards, further impeding adoption. To assimilate recent technologies into their procurement strategies effectively, decisionmakers and military leaders must recognize and navigate these complexities.

Christopher Lynn's 2018 study, "Organized for Innovation: An Empirical Observation of Innovation Adoption within Defense Organizations," provides guidance for DoD organizations interested in adopting innovative practices, particularly AI.<sup>26</sup> This

<sup>&</sup>lt;sup>26</sup> Christopher A. Lynn, "Organized for Innovation: An Empirical Observation of Innovation Adoption within Defense Organizations," (Master's Thesis, Naval Postgraduate School, Monterey, CA, June 2018). https://hdl.handle.net/10945/59714



<sup>&</sup>lt;sup>23</sup> U.S. Government Accountability Office (GAO), *Artificial Intelligence: DoD Should Improve Strategies, Inventory Process*, and Collaboration Guidance (U.S. Government Accountability Office, Washington, D.C. 2022), https://www.gao.gov/assets/gao-22-105834.pdf

<sup>&</sup>lt;sup>24</sup> Washburn and Colavito, "Commercial Solutions Openings",

<sup>&</sup>lt;sup>25</sup> GAO, Artificial Intelligence: DoD Needs Guidance, 2023.

guidance offers a path that DoD organizations that would like to employ these technologies can follow to integrate for its required solutions. As a "late majority" adaptor, most DoD organizations often wait for sufficient evidence of a technology's reliability and benefit before augmenting the process.

Another observation from Christopher Lynn's study, "Organized for Innovation: An Empirical Observation of Innovation Adoption within Defense Organizations," DoD faces additional challenges like organizational regulations and compatibility with existing systems, which can further slow the rate of adoption process.<sup>27</sup> Lynn highlights that the DoD must navigate stringent regulations while ensuring technologies, like AI, associate with operational objectives and security protocols.<sup>28</sup> Christopher Lynn's study also guides the adoption of innovative contracting mechanisms like Other Transaction Authority (OTA), which has been used by the DoD's Chief Digital and AI Office to collaborate with Tradewinds Analytics in developing an AI contract writing system. This system is aimed at improving the efficiency and accuracy of drafting contract documents by ensuring all requirements are met.

Applying Rogers' innovation theory to AI adoption in DoD contracting, it becomes clear that the DoD operates within the "late majority" adopter categories. This means that while the benefits of AI are acknowledged, the DoD's contracting personnel will require proven success and considerable risk mitigation before any full-scale adoption. Christopher Lynn's study underlines the importance of augmenting AI technologies and addressing organizational and cultural readiness. Christopher Lynn's study advocates for programs that educate and train staff, modify existing processes, and foster a culture open to new adoption and augmentation of technologies. This approach is necessary for overcoming the DoD's bureaucratic and regulatory challenges, aligning with GAO report "Artificial Intelligence: DoD Should Improve Strategies, Inventory Process, and Collaboration Guidance," where augmentation by an organization with a "late majority" attitude will

<sup>27</sup> Lynn, "Organized for Innovation."

<sup>28</sup> Lynn, "Organized for Innovation."



require both more technological advancements and the readiness of people and processes to embrace the adoption.<sup>29</sup>

#### **B. BARRIERS TO INNOVATION**

The research study "Barriers, Drivers, and Social Considerations for AI Adoption in Supply Chain Management: A Tertiary Study" by Hangl, Behrens, and Krause provides some understanding into the challenges the DoD will have in adopting AI within its preaward contracting processes.<sup>30</sup> According to the study, adopting AI in supply chain management and, by extension, DoD contracting has various barriers, particularly for "late majority" adopters. Changing culture is one of the most significant obstacles for organizations like the DoD, which tend to be risk averse to technology adoption. Hangl, Behrens, and Krause study highlights organizational resistance to change and the need for interdepartmental alignment as major barriers to integrating AI. These challenges are particularly relevant to the DoD's complex contracting process, where bureaucratic aversion and rigid organizational regulatory can slow the rate of adoption.

In addition to organizational resistance, technical barriers also hinder AI adoption. These include difficulties with data integration, the need for infrastructure upgrades, and skepticism or lack of trust in AI from personnel. As previously acknowledged, for "late majority" adopters like the DoD, these technical obstacles are compounded by a cautious approach prioritizing reliability and security over adoption. However, despite these challenges, the primary drivers for AI adoption remain improving will be "Satisfy the customer in terms of cost, quality, and timeliness of the delivered product or service" and "Minimize administrative operating costs," goals that are particularly relevant in the resource-constrained environment of DoD contracting.

The RAND Institute's 2021 study, "Can AI Help Improve Air Force Talent Management?: An Exploratory Application," further explores the barriers to AI adoption

<sup>&</sup>lt;sup>30</sup> Johannes Hangl, Viktoria Joy Behrens, and Simon Krause, "Barriers, Drivers, and Social Considerations for AI Adoption in Supply Chain Management: A Tertiary Study," *Logistics 6, no. 3* (MDPI, Basel, Switzerland, 2022): 63, https://doi.org/10.3390/logistics6030063.



<sup>&</sup>lt;sup>29</sup> GAO, Artificial Intelligence: DoD Should Improve Strategies, 2023.

in a DoD setting.<sup>31</sup> RAND Institute study examines how AI can streamline recruitment, training, and personnel allocation within the Air Force, identifying the challenges associated with AI integration. One key finding is that AI adoption does not necessarily replace human roles but alters their roles and responsibilities, highlighting the need for skill upgrades and retraining.

Similarly, the research "How AI Revolutionizes Innovation Management— Perceptions and Implementation Preferences of AI-based Innovators" by Füller et al. identifies the importance of aligning AI initiatives with organizational capabilities and modernization goals.<sup>32</sup> In the context of the DoD, this stresses the need for AI technologies to fit within the existing regulatory and focus of primary drivers. Füller's research emphasizes the usefulness of early engagement with technology and ongoing personnel training, two key strategies for overcoming the resistance typical for "late majority" adopters. For DoD contracting, this could involve pilot projects integrating AI in controlled environments, allowing for real-world learning of satisfy RA requests and timelines, while observing risk mitigation to any protest.

The research conducted by Hangl, Behrens, and Krause in "Barriers, Drivers, and Social Considerations for AI Adoption in Supply Chain Management: A Tertiary Study" offers valuable insights into the barriers confronted by any technology application in a regulatory structure and culture, like the DoD contracting process. Organizational resistance to change, a common trait of "late majority" adopters like DoD contracting, is a significant obstacle to AI adoption.<sup>33</sup> This resistance is compounded by the need for regulatory requirements, where the complexity of DoD contracting operations can be a obstruct to any smooth transition or integration of technologies. Additionally, technical barriers such as data integration, infrastructure upgrades, and skepticism among personnel

<sup>&</sup>lt;sup>33</sup> Hangl, Behrens, and Krause, "AI Adoption in Supply Chain Management," 63.



<sup>&</sup>lt;sup>31</sup> David Schuler, Nelson Lim, L. J. Matthews, G. E. Grimm, A. Lawrence, and P. Shameem Firoz, "Can AI Help Improve Air Force Talent Management? An Exploratory Application" (RAND Corporation, Santa Monica, CA, 2021), https://www.rand.org/pubs/research\_reports/RRA812-1.html.

<sup>&</sup>lt;sup>32</sup> Johann Füller et al., "How AI Revolutionizes Innovation Management: Perceptions and Implementation Preferences of AI-Based Innovators," *Technological Forecasting and Social Change* 188 (2023): 122318, https://doi.org/10.1016/j.techfore.2022.122318.

are substantial hurdles. For most late adopters like the DoD contracting, these barriers often delay adoption or technology augmentation, even though those technologies may be able to be supported by regulatory and overall contracting process framework such as FAR.

These barriers align with the insights from Füller and colleagues' research, which connects AI adoption in the DoD with contemporary initiatives such as the "AI Training for the Acquisition Workforce Act" of 2022.<sup>34</sup> The Act emphasizes the importance of specialized AI training for acquisition professionals, equipping them with the knowledge and skills to procure, deploy, and oversee AI systems effectively.<sup>35</sup> This initiative addresses the primary drivers for AI adoption, the need to upskill the workforce to build confidence in AI adoption and usage. Without proper training, acquisition professionals may struggle with the complexities of integrating AI into their operations, further delaying adoption.

This is especially relevant in DoD contracting, where the ventures must be scrubbed to high levels, and reliability and compliance are paramount to a successful contract. The 2022 Act highlights the importance of training and education, providing the necessary tools to help acquisition professionals overcome the technical and organizational barriers to AI adoption. Programs like the AI Training for the Acquisition Workforce Act are designed to address these issues by providing acquisition professionals with a deeper understanding of AI systems, enabling informed decision-making that adheres to federal regulations and policies.

In addition, the study "AI and Innovation Management: A Review, Framework, and Research Agenda" by Haefner, Wincent, Parida, and Gassmann focuses on the need for collaboration between technical experts and domain specialists in any implementation of AI. This collaboration is important for overcoming the challenges of technology and human barriers, attempting to focus on the primary drivers for AI adoption in DoD contracting. Companies and government organizations often lack the technical skills

<sup>34</sup> Füller et al., "How AI Revolutionizes Innovation Management."

<sup>&</sup>lt;sup>35</sup> Artificial Intelligence Training for the Acquisition Workforce Act, Pub. L. No. 117–207, 136 Stat. 1000 (2022). https://www.congress.gov/117/plaws/publ207/PLAW-117publ207.pdf.



necessary to implement AI and may struggle to foster collaboration between technology experts and contracting professionals. This is especially true in the DoD, where rigid processes and a focus on compliance can slow the rate of adoption and remove focus from the primary drivers of recent technologies.

Accordingly, primary drivers for AI adoption will have several restraints with contracting social barriers, such as the uncertainty of personnel who may view AI as not required for acquisition planning or in adding untested technology to the process. Thus, Füller's research stresses that building confidence through pilot programs, early engagement, and ongoing training is essential for overcoming these barriers.<sup>36</sup> For the DoD, initiating controlled AI pilot projects, which will be suggested with some focused areas in Chapter V of this study, in pre-award contracting can help mitigate risks while providing real-world experience that builds trust and demonstrates the tangible benefits of the new technology.

#### C. FUNDAMENTAL ISSUES IN INNOVATION

A major challenge that may come from a DoD approach to AI and emerging technologies lies if the department overemphasis technical aspects, overlooking and neglecting critical human and organizational factors. As highlighted in research "Innovation: People are More Important than Technology" by Anthony Zinni, Mie Augier, and Sean Barrett, successful innovation in military organizations like the DoD is not solely driven by technology.<sup>37</sup> Instead, the research argues that human factors, such as leadership, deliberate thinking, and organizational culture, are important for meaningful change and sustainable innovation.

Anthony Zinni, Mie Augier, and Sean F. Barrett research challenges the belief that technology alone is the key to innovation, especially within military structures.<sup>38</sup> It



<sup>&</sup>lt;sup>36</sup> Füller et al., "How AI Revolutionizes Innovation Management."

<sup>&</sup>lt;sup>37</sup> Anthony Zinni, Mie Augier, and Sean Barrett, "Innovation: People Are More Important than Technology," U.S. *Naval Institute Proceedings* 148, no. 8 (2022), U.S. Naval Institute Press, https://hdl.handle.net/10945/72081.

<sup>&</sup>lt;sup>38</sup> Zinni, Augier and Barrett, "Innovation."

accentuates that while technological advancements are necessary, the people within an organization are the true catalysts for change. The authors explore innovation's positive and negative aspects, laid emphasis on that a human-centric approach and leadership are important in fostering a culture that supports advancements.<sup>39</sup> Leaders must set a vision that integrates technology with human aptitude, ensuring the department can tackle complex challenges effectively.

Anthony Zinni, Mie Augier, and Sean Barrett also caution against an overreliance on technology, noting that this can lead to underutilization or a failure to achieve the intended impact.<sup>40</sup> When augmentation is too focused on technical solutions, organizations may ignore the importance of cultivating a supportive culture that values creativity, and continuous learning. Even the most advanced technologies may only deliver their full aptitude with this human-centric element.

The emphasis on human-driven AI augmentation aligns with the findings in another 2017 research, "The Evolutionary Nature of Innovation and Disruptive Change" by Mie Augier and Jerry Guo, which examines the complexities of innovation and disruptive change within organizations like the DoD.<sup>41</sup> The authors identify four key elements for successful innovation: strategic innovation management, managerial support, long-term focus, and a people-centric approach. These elements are necessary to ensure that innovations are adopted and sustained over time. The study also highlights individuals' critical role in driving and managing change, pointing out the importance of supporting any modern technology with organizational culture and leadership.

These fundamental issues become even more pronounced for "late majority" adopters like the DoD. Applying Rogers' Diffusion of Innovations theory, late adopters tend to be more cautious and skeptical about recent technologies, often requiring more

<sup>&</sup>lt;sup>41</sup> Mie Augier and Jerry Guo, "The Evolutionary Nature of Innovation and Disruptive Change: The Interrelatedness of Technology, Leadership, and Organizations," Technology *and Leadership International Perspectives*, ed. D.J. Watola and A. Macintyre (Canadian Defence Academy Press, Kingston, 2017), 127–148, https://hdl.handle.net/10945/65760.



<sup>&</sup>lt;sup>39</sup> Zinni, Augier and Barrett, "Innovation."

<sup>&</sup>lt;sup>40</sup> Zinni, Augier and Barrett, "Innovation."

evidence of their success before fully committing.<sup>42</sup> The DoD's heavy focus on technical solutions can compound this risk-averse attitude, neglecting the cultural and organizational adaptations needed to support AI integration.

Additionally, as highlighted in Haefner, Wincent, Parida, and Gassmann's study, "AI and Innovation Management: A Review, Framework, and Research Agenda," organizations often lack the technical skills to implement AI and struggle with collaboration between domain specialists and technical experts.<sup>43</sup> As noted by the presence of "AI Training for the Acquisition Workforce Act" of 2022, this gap is particularly relevant in the DoD, where aligning technical advancements with human and organizational needs is critical for overcoming barriers to AI augmentation.

Both research by Zinni, Augier, and Barrett "Innovation: People are More Important than Technology" in 2022 and "The Evolutionary Nature of Innovation and Disruptive Change" by Augier and Guo in 2018, emphasize that successful adoption requires more than just technology, it requires a broader shift that embraces long-term continues improvement thinking, leadership, and a human-centric approach.<sup>44</sup> The DoD contracting process can focus on integrating advanced any new technologies like AI and fostering an environment where modernization and adaptability are valued. Without this balance, even the most promising technologies may fail to produce sustainable and impactful change.

As observed in the central topics of these research, especially Haefner, Wincent, Parida, and Gassmann's 2021 study, "AI and Innovation Management: A Review, Framework, and Research Agenda," the fundamental issues with AI augmentation in the DoD contracting process lie in any overstressing technology at the expense of human and



<sup>&</sup>lt;sup>42</sup> Rebecca Louise Miller, "Rogers' Innovation Diffusion Theory (1962, 1995)," in Information Seeking Behavior and Technology Adoption: Theories and Trends, ed. D. Al-Suqri and A. Al-Aufi (Hershey, PA: IGI Global, 2015), 14–28. DOI: 10.4018/978-1-4666-8156-9.ch016.

<sup>&</sup>lt;sup>43</sup> Niklas Haefner, Joakim Wincent, Vinit Parida, and Oliver Gassmann, "AI and Innovation Management: A Review, Framework, and Research Agenda," Technological Forecasting and Social Change 162 (2021): 8, https://www.sciencedirect.com/science/article/pii/S004016252031218X

<sup>&</sup>lt;sup>44</sup> Zinni, Augier and Barrett, "Innovation".; Augier and Guo, "Evolutionary Nature of Innovation."

organizational factors.<sup>45</sup> A balanced approach that shares technology with human effort, continue improvement thinking of leadership, and organizational culture is essential for overcoming the barriers to innovation and ensuring sustained programs. This placement of human and technological elements will be indispensable for the DoD as it modernizes its contracting processes with AI and/or other emerging technologies.

#### D. AI AND MORE RECENT AI INNOVATION STUDIES IN DOD

Government agencies have already begun incorporating AI into the government contracting process, as demonstrated in the General Services Administration (GSA) inventory.<sup>46</sup> AI is being used to simplify tasks such as market research, preparing solicitation documents, reviewing contract documents, and evaluating initial proposals, as highlighted in Moses and Johantgen's article, "The Robots Are Coming—Driving Efficiencies in Contracting." The General Services Administration's Market Research as a Service (MRAS) provides federal agencies with comprehensive market data, showcasing how AI can improve efficiency in pre-award contracting.<sup>47</sup> Similarly, the Internal Revenue Service (IRS)'s AI-based Contract Clause Review Tool has said IRS have reduced the time required to review contract documents, further demonstrating AI's capability in contracting processes.<sup>48</sup>

However, despite these advancements, the DoD operates within the "late majority" categories of Rogers' Diffusion of Innovations theory, characterized by a slower rate of adoption.<sup>49</sup> As previously mentioned, the "late majority" tends to adopt innovations only

<sup>&</sup>lt;sup>49</sup> Miller, "Rogers' Innovation Diffusion Theory," 268.



<sup>&</sup>lt;sup>45</sup> Haefner et al., "AI and Innovation Management," 8.

<sup>&</sup>lt;sup>46</sup> U.S. General Services Administration, "AI Inventory – Tech at GSA," *AI Inventory* (U.S. General Services Administration, Washington, DC, 2024), https://www.gsa.gov/technology/government-it-initiatives/artificial-intelligence/how-were-using-ai/ai-use-case-inventory.

<sup>&</sup>lt;sup>47</sup> Rachel Moses and Andrew Johantgen, "The Robots Are Coming—Driving Efficiencies in Contracting," *Contract Management Monthly* (National Contract Management Association, Boston, MA, March 2024), http://ncmaboston.org/wp-content/uploads/2024/03/MW-24-TheRobotsareComing.pdf.

<sup>&</sup>lt;sup>48</sup> Jason Miller, "IRS, Army Using Automation to Cut Hours Out of the Acquisition Process," *Federal News Network* (Federal News Network, Washington, DC, October 14, 2020), https://federalnewsnetwork.com/reporters-notebook-jason-miller/2020/10/irs-army-using-automation-to-cut-hours-out-of-the-acquisition-process/.

after they have been proven by earlier adopters, reflecting the DoD's cautious approach to integrating recent technologies, like AI. This hesitancy is often due to the complex regulatory, high risk, and rigorous security requirements that dominate DoD contracting process.

The GAO study "Artificial Intelligence: Agencies Have Begun Implementation but Must Complete Critical Requirements" points out that while AI projects are underway, concerns about data gaps and inventory inaccuracies are prevalent, further slowing the rate of adoption within the DoD.<sup>50</sup> Thus, these pointed gaps can lead DoD contracting process to continue this "late majority" approach to AI implementation, which reflects the need for thorough testing, proven success, and a guarantee that the technology can be guided by contracting's vast regulatory and required operational standards to contest any future protest.

As emphasized in Kory Krebs' 2020 study, "How Can the DoD Adopt Commercial-Style AI for Procurement?," AI holds the possibility to automate data-intensive tasks in procurement, such as market research, contract management, and form pre-population.<sup>51</sup> However, Krebs '2020 study also notes several challenges for the DoD, such as a lack of clarity on AI's capabilities, organizational resistance, and technical difficulties with data integration. These challenges are particularly relevant for "late majority" adopters, like a DoD, as they tend to require a higher degree of certainty before embracing modern technologies. Thus, DoD contracting places a greater importance on cultural and organizational hurdles, especially when existing systems and processes may resist change until necessary.

In addition, "Analysis of the Department of Defense Pre-Award Contracting Process" by Titus Butler and Aaron Velasco in 2014 emphasizes the importance of adopting commercial best practices to improve efficiency in DoD contracting.<sup>52</sup> Their study advocates for performance metrics and agile procurement methodologies that could

<sup>52</sup> Butler and Velasco, "Analysis of the DoD Pre-Award Contracting Process",11-13.



<sup>&</sup>lt;sup>50</sup> GAO, Artificial Intelligence: Agencies Have Begun Implementation.

<sup>&</sup>lt;sup>51</sup> Krebs, "How Can the DoD Adopt Commercial-Style Artificial Intelligence."

aid in streamlining DoD contracting. However, for the "late majority," this transition to more flexible practices and advanced technologies often occurs only when pressure from external factors or proven benefits become undeniable. The DoD contracting process, operating in this phase of innovation adoption, must balance regulatory compliance with the flexibility seen in the commercial sector to successfully integrate AI and other emerging technologies.

Finally, the study "A Model for Evaluating the Vital Factors Affecting Cloud Computing Adoption" by Cheng Jianwen and Karzan Wakil offers an outline for understanding the key drivers and barriers to technology adoption.<sup>53</sup> Cheng Jianwen and Karzan Wakil findings, although focused on cloud computing, are applicable to AI adoption within the DoD's pre-award contracting processes. As Cheng Jianwen and Karzan Wakil study cited, organizations often require not only technological solutions but also organizational readiness, technical infrastructure, and a supportive regulatory environment to overcome resistance and integrate innovations successfully.

#### E. ASSOCIATED RISKS

Numerous studies have highlighted the likely hazards and obstacles associated with augmenting AI into any process, expressly the DoD contracting process, particularly in the pre-award stage. A significant concern for "late majority" adopters, such as DoD contracting, is the risk of data bias within AI systems and the lack of transparency in processes, raising ethical concerns about automated contracting. According to Rogers' Diffusion of Innovations theory, "late majority" adopters typically exhibit caution and skepticism, often waiting for innovations to be tested and proven in other contexts before embracing them.<sup>54</sup> This cautious approach is evident in the DoD's slow rate of adoption, as apprehensions surrounding data bias and ethical transparency make personnel hesitant to fully augment AI, especially into contracting processes.

<sup>&</sup>lt;sup>54</sup> Miller, "Rogers' Innovation Diffusion Theory," 268.



<sup>&</sup>lt;sup>53</sup> Cheng Jianwen and Karzan Wakil, "A Model for Evaluating the Vital Factors Affecting Cloud Computing Adoption: Analysis of the Services Sector," *Kybernetes* 49, no. 10 (Emerald Publishing, Bingley, UK,2020): 2475–2492, https://doi.org/10.1108/K-06-2019-0434.

To complement the assessment of risks, the study by Kendall and Das, titled "Blockchain and AI Technology in Support of Transparent Navy Logistics and Global Supply Chains," explores the synergistic integration of these types of technologies within Navy logistics.<sup>55</sup> This research demonstrates how the convergence of these types of technologies can help mitigate risks while simultaneously augmenting opportunities within procurement frameworks. By enhancing transparency, accountability, and operational security, technologies, like blockchain and AI, may streamline supply chains, which is particularly critical in DoD contracting processes. However, from the perspective of "late majority" adopters, like the DoD, the addition of these technologies is often approached with caution, as the organizational culture tends to be risk-averse, waiting for proven success before fully embracing innovations.<sup>56</sup>

Also, as the study by Kendall and Das explored integrating these new and emergent technologies, such as AI and blockchain, particularly in naval logistics will require these technologies to confirm data integrity, streamline operations, and enhance collaboration across Navy's complex logistical networks.<sup>57</sup> However, as the authors details that market pressures and regulatory environments influence managers' attitudes toward adopting such technologies. For "late majority" adopters like the DoD, these external pressures can be a double-edged sword, driving the need to innovate while reinforcing the cautious, risk-averse approach typical of DoD.

Similarly, a study by Rodríguez-Espíndola and colleagues offers valuable recommendations for DoD contracting personnel, managers, and officials on successfully augmenting technologies, such as Industry 4.0 technologies (AI, blockchain, cloud



<sup>&</sup>lt;sup>55</sup> Walter A. Kendall and Arijit Das, "Blockchain and AI Technology in Support of Transparent Navy Logistics and Global Supply Chains (Continuation)" (NPS NRP Executive Summary, Naval Postgraduate School, Monterey, CA, 2021), https://hdl.handle.net/10945/69783.

<sup>&</sup>lt;sup>56</sup> Devi Thirupathi and P. *Kaliraji, Securing IoT in Industry 4.0 Applications with Blockchain*, 1st ed. (CRC Press, 2022), https://doi.org/10.1201/9781003175872. Book demonstrates a 2 percent improvement in forecasting and supply chain efficiency through AI, highlighting the opportunity to optimize resource management and cost efficiency with this new technology.

<sup>&</sup>lt;sup>57</sup> Kendall and Das, "Blockchain and AI Technology."

computing, and big data).<sup>58</sup> The authors emphasize that active contribution and leadership are central to overcoming barriers to adoption, particularly in organizations like the DoD contracting that fall within the "late majority" adopter. The study draw attention to the importance of regulations and innovation incentives, which can help improve the concerns DoD contracting personnel has and provide a more straightforward pathway for augmenting these technologies to gain a competitive advantage.

In the context of the DoD's contracting processes, these regulatory, security concerns, and the complexity of integrating new systems require a cautious and risk-averse focused framework. As Himes and Salisbury 2008 research "Naval Surface Warfare Center Dahlgren Division: Application of Lean Six Sigma in the Pre-Award Procurement Process" stresses the importance of incorporating strategic frameworks such as Lean Six Sigma to enhance process efficiency and effectiveness, aligning with the "late majority" preference for proven methodologies that reduce risk.<sup>59</sup> Also, Himes and Salisbury's 2008 research reveals that "late majority" adopters, like the DoD, benefit from a structured approach that balances new methods to pre-award contracting with processive improvement techniques.<sup>60</sup> As author stressed that for these organizations, adopting recent technology requires an assessment of the technological benefits and risks and a deep understanding of how these technologies can be associated with established processes and technologies to ensure smooth integration.

#### F. SUMMARY

The literature discussed highlights barriers to integrating AI into the DoD's processes and systems, including regulatory, culture resistance and fundamental



<sup>&</sup>lt;sup>58</sup> Oscar Rodríguez-Espíndola, Soumyadeb Chowdhury, Prasanta Kumar Dey, Pavel Albores, and Ali Emrouznejad, "Analysis of the Adoption of Emergent Technologies for Risk Management in the Era of Digital Manufacturing," *Technological Forecasting and Social Change 178* (2022): 121562, 4. https://doi.org/10.1016/j.techfore.2022.121562.

<sup>&</sup>lt;sup>59</sup> Kristy M. Himes and Constance M. Salisbury, "Naval Surface Warfare Center Dahlgren Division: Application of Lean Six Sigma in the Pre-Award Procurement Process," (Joint Applied Project, Naval Postgraduate School, Monterey, CA, 2008), https://calhoun.nps.edu/handle/10945/10376.

<sup>&</sup>lt;sup>60</sup> Himes and Salisbury, "Application of Lean Six Sigma."

compatibility issues. I argued that combining insights from Roger's diffusion of innovation theory with other studies and reports can help shed light on the benefits, barriers and possibilities involved with adopting modern technologies. The discussion also shows that any strategy for augmentation must include training personnel and supporting technology initiatives with a DoD's position as being a "late majority" adopter. Also, a literature review has stressed the importance of cultural training within the DoD contracting process to augment not only AI, but any recent technologies successfully.<sup>61</sup>

<sup>&</sup>lt;sup>61</sup> Füller et al., "How AI Revolutionizes Innovation Management." As noted in this article, "AI may assist innovation teams by providing rich and unbiased data. Humans will be irreplaceable in building AI tools –developing algorithms and training procedures – but less absorbed by repetitive tasks that require one-second thinking (Ng, 2016)." In contracting, while AI can effectively generate statements such as performance of work (PoW), or Statements of Objectives (SOO), human oversight remains critical for refining, developing, and ensuring the completion of these documents to meet required standards.



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# **III. ORGANIZATIONAL PROCESS STRUCTURE OF THE MARINE CORPS REGIONAL CONTRACTING OFFICES**

Acquisition should be a complementary, two-way process based on established operating and functional concepts. Especially for the long term, the process identifies combat requirements and develop equipment to satisfy these requirements.<sup>62</sup>

The previous chapter discussed existing literature in terms of recent technology augmentation in the DoD pre-award contracting. This chapter will provide an outline and overview of the structure of pre-award contracting phase in the DoD, especially within the United States Marine Corps. To evaluate the possibility of augmenting AI in the pre-award contracting process, I analyzed the "Requirements Generation and Acquisition Planning phase" of the requisition process during the pre-award contracting stage at MCI-EAST RCO.

The DoD pre-award contracting phase involves defining requirements, market research, solicitation preparation, and proposal evaluation. Examining the organizational structure of the Marine Corps Regional Contracting Offices (RCO) can provide insights into how AI technologies can or cannot be integrated to innovate and optimize these processes. This study examined a six-month cycle of the requisition process in DAI and identified trends with common pre-award RA requirement generation errors. Based on the available data, I decided to narrow the focus of the study to data related to compliance with FAR Parts 12 and 13, which oversee commercial items and simplified acquisition procedures.

#### A. LEGAL FRAMEWORK FOR CONTRACT AWARD PROCESS

The contract process is governed by lengthy legal structure intended to provide fairness, transparency, and efficiency. In any study for contracting, especially the Marine Corps contract pre-award process, it is based on FAR Parts 12 and 13 and other pertinent legal and regulatory stipulations.

FAR Part 12 establishes policies and procedures for acquiring commercial items. The primary goal is to leverage the efficiencies and advancements of the commercial marketplace

<sup>62</sup> United States Marine Corps, MCDP 1: Warfighting (Department of the Navy, 1997), 66.



ACQUISITION RESEARCH PROGRAM Department of Defense Management Naval Postgraduate School to fulfill government needs.<sup>63</sup> FAR 12.101 emphasizes the importance of conducting thorough market research to determine if commercial items that meet government requirements are available. FAR 12 also requires commercial items to be reviewed to the maximum extent practicable in solicitations and contracting. Offers are evaluated based on price and other metrics, such as past performance and technical capability, to ensure the best value for the government.<sup>64</sup> Additionally, contracts include clauses consistent with standard commercial practices, while ensuring compliance with statutory requirements.

FAR Part 13 outlines simplified acquisition procedures to reduce administrative burdens, provide opportunities for small businesses, and promote efficiency.<sup>65</sup> Per FAR 13.005, the established threshold for which simplified procedures can be used is below \$250,000. Additionally, FAR 13 enables quick and efficient transactions through purchase orders, blanket purchase agreements, and government-wide commercial purchase cards. It encourages maximum competition but allows non-competitive purchases under specific conditions, such as sole source procurements.

In addition to FAR 12 and 13, several other regulations and policies guide the Marine Corps contract award process. The Defense Federal Acquisition Regulation Supplement (DFARS) provides DoD regulations that supplement the FAR, addressing unique defense procurement requirements. The Navy-Marine Corps Acquisition Regulation Supplement (NMCARS) supplements the FAR and DFARS, providing additional guidance while establishing policy and procedures for acquisitions within the Department of the Navy and Marine Corps.

After reviewing FAR Parts 12 and 13, along with the DFARS, NMCARS, and other regulatory guidance, these legal frameworks form the principles of Marine Corps contract award process. This is summarized in Table 1, which provides an overview of guidelines and

<sup>&</sup>lt;sup>65</sup> U.S. General Services Administration, *Federal Acquisition Regulation (FAR), Part 13, "Simplified Acquisition Procedures,"* (U.S. General Services Administration, Washington, DC, 2024), https://www.acquisition.gov/far/part-13.



<sup>&</sup>lt;sup>63</sup> U.S. General Services Administration, *Federal Acquisition Regulation (FAR), Part 12,* "Acquisition of Commercial Products and Services," (U.S. General Services Administration, Washington, DC, 2024), https://www.acquisition.gov/far/part-12.

<sup>&</sup>lt;sup>64</sup> FAR, Part 12, "Commercial Products and Services."

how they are implemented in the process. Adhering to these "guiding principles" ensures that the procurement process is "fair, transparent, and efficient," supporting the Marine Corps' operational readiness and effectiveness.

Legal Federal Guidelines				
Topic/Section	Description			
Federal Acquisition Regulation	(FAR)			
Part 12	Acquisition of Commercial Items: Emphasizes leveraging commercial marketplace efficiencies, thorough market research, use of standard commercial practices, and evaluation based on price and other factors.			
Part 13	Simplified Acquisition Procedures: Outlines procedures for reducing administrative costs, improving small business opportunities, and promoting efficiency. Establishes thresholds for simplified procedures and micro-purchases, allowing for the use of purchase orders, blanket purchase agreements, and government-wide commercial purchase cards.			
Other Regulations and Policies				
Defense Federal Acquisition Regulation Supplement (DFARS)	Provides DoD-specific acquisition regulations that supplement the FAR, addressing unique defense procurement requirements.			
Marine Corps Acquisition Procedures Supplement (MAPS)	Tailors acquisition policies and procedures to the specific needs of the Marine Corps, ensuring alignment with operational requirements and objectives.			
Navy Marine Corps Acquisition Regulation Supplement (NMCARS)	Supplements both the FAR and DFARS, providing additional guidance for acquisitions within the Department of the Navy and Marine Corps.			
Service Contract Act (SCA)	Ensures fair wages and benefits for service employees performing under government contracts.			
Small Business Act	Promotes the use of small businesses in federal procurement.			
Implementing Regulations within	n the Marine Corps Contracting Process			
Pre-award planning	Conducting comprehensive market research and clearly defining requirements.			
Solicitation development	Preparing solicitation documents incorporating relevant clauses and provisions.			
Evaluation and selection	Using established criteria to evaluate proposals and select contractors.			
Contract administration	Monitoring contract performance, conducting audits, and addressing any issues.			
Closeout	Ensuring all contractual obligations are met and proper documentation is maintained.			

 Table 1.
 Legal Federal Guidance Information<sup>66</sup>

<sup>66</sup> Adapted from Marine Corps, II Marine Expeditionary Force, *II MEFO 4200.1: Operational Contract Support Procedures* (Department of Defense, Camp Lejeune, NC, 2019), https://www.iimef.marines.mil/Staff-Offices/Adjutant/Orders/4000/.



#### **B.** OVERVIEW OF REGIONAL CONTRACTING OFFICES

Per Bradley Hoover, The Regional Contracting Office (RCO), such as the Marine Corps Installations-East (MCI-East) RCO at Camp Lejeune, is central for base operations within the broader Marine Corps contracting framework. The RCO's primary objective is facilitating the Marine Corps' "non-deployed environments" and training needs through efficient and effective procurement processes. As noted in Figure 1, this entails close coordination with various contracting support entities, including Expeditionary Contracting Platoons (ECP) and other Operational Contract Support (OCS) offices within the II Marine Expeditionary Force (MEF).



Figure 1. Customer Process Flowchart – Contracting for Services.<sup>67</sup>

<sup>67</sup> Source: Marine Corps Installations Command East, Regional Contracting Office MCIEAST Customer Handbook (Department of Defense, Camp Lejeune, NC, December 2019), https://www.mcieast.marines.mil/Portals/33/MCIEAST%20CUSTOMER%20HandBook%202019.pdf.



In a structured organization like MCI-EAST RCO, the management of pre-award contracting requirements follows a well-defined process outlined in Annex A of the "MCIEAST CUSTOMER Handbook 2019."<sup>68</sup> As noted in Table 2, the pre-award process within the Marine Corps involves several key steps that RA must follow to identify supply and service requirements for contracting.

	Key Steps in Marine Corps Pre-award C	Contracting Process	
Step	Description	User(s) Involved	Actions
1. Requirement Identification	Clearly define the need for a product, service, or support.	Requirement Owner	Describe the need (specifications, performance standards), quantity/scope, timeline, funding source, and relevant regulations/policies
2. Initial Coordination (Optional)	Discuss the requirement with the RCO early on to confirm suitability, get feedback, and identify likely issues.	Requirement Owner, RCO	Discuss feasibility, cost estimates, timeline, and potential risks
3. Purchase Request (PR) Preparation	Prepare a formal PR package with detailed information and supporting documentation.	Requirement Owner, Resource Manager	Prepare detailed requirement description, justification, funding documentation, market research (if applicable), and required approvals
4. PR. Submission	Submit the completed PR package to the RCO.	Requirement Owner	Submit PR package to RCO (e.g., via DAI).
5. RCO Review & Processing	Review the PR for completeness, accuracy, and compliance, then develop a contracting strategy and prepare solicitation documents.	Contracting Officer (KO) or Contract Specialist	Review PR, request clarification, develop contracting strategy, prepare solicitation documents (e.g., RFP, IFB).
6. Solicitation & Award	Release the solicitation, evaluate proposals/bids, negotiate (if applicable), and award the contract	Contracting Officer (KO)	Release solicitation, evaluze proposals/bids, conduct negotiations, award contract.
7. Contract Administration	Monitor contractor performance, ensure deliverables meet requirements and manage any contract modification or issues.	Contracting Officer Representative (COR), with oversight by KO	Monitor performance, ensuæ deliverables, manage modifications/issues
Key Points: Early Engagement Early communication with the RCO i Documentation: Thorough document and Times: Plan for the contracting	s highly recommended. ation at each step is crucial.		

 Table 2.
 Key Steps in Marine Corps Pre-Award Contracting Process<sup>69</sup>

<sup>68</sup> Marine Corps Installations Command East, Regional Contracting Office MCIEAST Customer Handbook (Department of Defense, Camp Lejeune, NC, December 2019), https://www.mcieast.marines.mil/Portals/33/MCIEAST%20CUSTOMER%20HandBook%202019.pdf.

<sup>69</sup> Adapted from MCIEAST, Customer Handbook, 2019.



During acquisition planning phase in pre-award contracting, RA are responsible for conducting independent market research to determine the essential characteristics of the requirement and obtain an initial cost estimate.<sup>70</sup> This step ensures that the Marine Corps contracting office "Acquire commercial products, commercial services, or non-developmental items when available to meet the needs" for the specific requirement, facilitating a cost-effective and efficient procurement process.<sup>71</sup>

Following this, the RA is tasked with filling out a requisition form and creating an Independent Government Cost Estimate form that includes a description of the work or service to be provided. This form contains detailed information about the goods or services needed, such as specifications, quantities, delivery schedules, market research prices and the purpose of the request.<sup>72</sup> This requirement complies with FAR 37.602, which states that" agencies shall, to the maximum extent practicable, describe the work in terms of the required results rather than the methods of performance."<sup>73</sup> In the case when only one option is available, a Justification for Other than Full and Open Competition must be provided to ensure that it meets FAR 6.3 requirements. These documents should clearly explain the necessity of the request and how it aligns with operational objectives.

Following this, per the MCIEAST Customer Handbook, RA must attach relevant supporting documentation to the RCO checklist and submit the purchase request for contracting in the DAI.<sup>74</sup> The requisition then goes through DAI to the designated approving authority and undergoes multiple levels of review and approval. The Marine Corps base contracting office reviews the requisition several times, ensuring alignment with contracting requirements and Local office documents submission policy. The RCO

<sup>&</sup>lt;sup>74</sup> MCIEAST, Customer Handbook, 2019.



<sup>&</sup>lt;sup>70</sup> MCIEAST, Customer Handbook, 2019.

<sup>&</sup>lt;sup>71</sup> FAR, Part 12, Commercial Products and Services.

<sup>&</sup>lt;sup>72</sup> Jason R. Griffin, "An Organizational Analysis of Marine Corps Installations National Capital Region – Regional Contracting Office's Contract Closeout Process" (Joint Applied Project report, Naval Postgraduate School, September 2018).

<sup>&</sup>lt;sup>73</sup> U.S. General Services Administration, *Federal Acquisition Regulation (FAR), Part 37.602, "Performance-Based Acquisition,"* (U.S. General Services Administration, Washington, DC, 2024), https://www.acquisition.gov/far/37.602.

Purchase Request (PR) Checklist is a mandatory document throughout this process, and RA must ensure that all steps align with this checklist. This checklist lists questions to confirm thorough preparation, compliance, and proper authorization before formal pre-award contracting process is conducted.<sup>75</sup>

Furthermore, per the MCIEAST Customer Handbook, the RA must provide a copy of the PR checklist and the documents to the office outside of DAI to verify the accuracy of the requirement was inputted in DAI.<sup>76</sup> After the PR Checklist is fully approved in DAI, the contracting office's specialist will conduct an initial compliance review of documents and start the procurement timeline. At this point, the Marine Corps contracting specialists take on the responsibility and use various systems within the Procurement Integrated Enterprise Environment (PIEE) to conduct comprehensive market research and develop the request for a proposal.<sup>77</sup>

#### C. CHALLENGES AND CONSIDERATIONS

Key challenges involve navigating the intricate regulatory landscape and ensuring legal and procedural framework adherence. Formulating purchase requests accurately and thoroughly is essential to prevent delays. Furthermore, MCIEAST-RCO must consistently adjust to evolving market conditions and technological advancements to effectively support the Marine Corps mission.

#### D. SUMMARY

The Marine Corps has a structured approach for RA's acquisition planning in the pre-award contracting process. The MCI-EAST RCO manages this contracting process for base operations and training, which works closely with the acquisition planning team to ensure that requirements are met. It also focuses on compliance with FAR Parts 12 and 13, which govern the acquisition of commercial items and streamline purchases. Also, regulations and supplemental guidance, like DFARS and NMCARS, provide other legal

<sup>75</sup> MCIEAST, Customer Handbook, 2019.
<sup>76</sup> MCIEAST, Customer Handbook, 2019.
<sup>77</sup> MCIEAST, Customer Handbook, 2019.



ACQUISITION RESEARCH PROGRAM Department of Defense Management Naval Postgraduate School context to ensure transparency, efficiency, and best value in the DoD and Marine Corps contracting process. Chapter IV will focus on the methods and analysis of the Requirements Generation phase during the pre-award contracting at MCI-EAST RCO. The chapter will identify areas of intervention and error that AI technology can focus on to be implemented to best contribute to the pre-award process.



### IV. METHOD AND ANALYSIS

We must shed outdated management practices while adopting the best practices of the American industry. Our management structure and processes are not engraved in stone.<sup>78</sup>

#### A. METHOD

From December 19, 2023, to September 9, 2024, I reviewed 300 PRDS requests within the DAI for the agency code M6700, corresponding to MCI-EAST RCO, and this period highlighted various challenges related to RA document requirements and data input completeness. The data collected offered an analysis of RA's understanding of requisition processing associated with DoD contracting process (see Table 3). The analysis focuses on various aspects of the pre-award process, including requisition purpose descriptions, total and remaining quantities, creation dates, requisition statuses, contract awards, issuing offices, approval timelines, and comments.

Per fiscal year 2024's MCIBUL 4200, This acquisition planning process involved reviewing requirements submitted through the DAI system's USMC Contract Request PRDS process, which directs requests to SPS-MC, NAVSUP, or NAVFAC to generate a purchase request (PR) for the MCI-EAST RCO contract office M6700. The RA must select the correct DoDAAC to ensure the PR is properly routed to the appropriate contract writing system, such as SPS-MC, SPS-NAVSUP, or SPS-NAVFAC.

On March 18, 2024, June 4,2024, and September 9, 2024, PRDS request through DAI from the issuing office M67001 examined for trends and common errors in the requisitions. This approach was also applied to the requisitions from June 6 through March 11, providing a view of the rest of the (Q2) and third quarter (Q3) requests with September 9 being collected as follow-up for those PRDS requests.

<sup>&</sup>lt;sup>78</sup> James N. Mattis, "Remarks by Secretary Mattis on the National Defense Strategy." U.S. Department of Defense, January 19, 2018. https://www.defense.gov/News/Transcripts/Transcript/Article/ 1419045/remarks-by-secretary-mattis-on-the-national-defense-strategy/.



After collecting this data, I noted the differences and similarities between requests for both quarters, observing approved, incomplete, or rejected requisitions. Reviewing the approval comments, I annotated the similarities and reasoning for any delay or rejections processes, ensuring an initial RA requirement process for the pre-award stage associated with workflow and PALT published by the MCI-EAST RCO office.

Table 3.	Information	from	Study
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Requisition Analysis	Number of requisitions
"Approved" PR	269
PR "Approved," and Contract "Awarded"	213
PR "Rejected," "Cancelled" or "Incomplete"	31

#### B. KEY FINDINGS

The analysis has revealed some bottlenecks, delays, and repetitive issues that hinder operational efficiency within the RA's acquisition planning process in pre-award contracting.

#### 1. Analysis of Requisition Data

At the conclusion of requisition data collection on September 9, 2024, I observed Out of 269 approved PRDS requisitions, about 213 received awards in the system before the end of the fiscal year. This shows that the RCO contracting team performs well when RAs process requisitions correctly during the acquisition planning phase. However, I also noticed that 31 requisitions were not processed to completion or approved, amounting to \$1,610,967.60. The average value of these requisitions was \$73,225.80, underlining their significant impact. These rejected, incomplete, cancelled and in-process requisitions indicate holdups in the processing of RA's requirement generations in the pre-award contracting phase, thus suggests delays or inefficiencies in the contracting process acquisition planning process that can be addressed.

The revealed inefficiencies from data collected may be able to be addressed with AI technology, particularly in the initial acquisition planning and requirement generation stages. For instance, the analysis revealed a pattern of repeated rejections in early November and December 2023, with some having no responses from the RA until January and February



2024 of second fiscal year quarter. Furthermore, the data collected showed the necessity of reducing errors in data entry and expediting status updates, as observed in the transition from incomplete to approved statuses for various requisitions.

The analysis of the timeline data yields insights that can be leveraged to optimize RA's requisition processing. A noticeable approval surge occurred in late May 2024, attributed to the contracting office's mandate to submit all contracts by May 24, 2024. This deadline prompted RA to structure contracting requirements more closely with the fiscal year budgeting, prioritizing any remaining "wish list" items for processing before the cutoff. Employing AI to analyze this data can make improvements to this prompted uptick in RA requisitions with workforce coordination and labor hour management, thereby reducing errors stemming from missing information and documentation. This approach would enhance accuracy and ensure adherence to procurement guidelines.

#### 2. Rejection Trends

Over 117 PRDS requests were rejected at some point in the routing process, negatively impacting RA's requisition processing efficiency. The most common rejections were often declined due to inaccurate delivery locations, missing documents, and errors in DAI's contracting routing details. Notable comment for these rejections were "The Inherently Governmental Functions Determination states these services are Critical Functions but at best they should be Other Functions," which "Critical Functions" would mean the Government should have personnel available to meet or complete RA's required services and "Other Functions" would mean that the expertise of this service is not resident within the Government and therefore a contract may be required to complete the service. These rejections show the need for improved procedural adherence, collaboration and may require a better verification mechanism when RAs are submitting requirements to the contracting office. This information also points out the need for better training and procedural adherence to avoid such rejections and emphasizes the importance of efficient and accurate processing to avoid financial implications.

Over 12 PRDS requests experienced prolonged approval times PALT established by MCI-EAST RCO (Figure 2), negatively impacting that RA's pre-award phase operational



efficiency. For example, rejection of PRDS- QSC Speaker request due to the unrealistic PALT timeline of under 30 days for a supply being submitted to the contracting office without proper urgency statements or supporting documentation. This issue was consistently observed during the routing process.

Vladislav Skots emphasized the importance of "The high standard of developmental and operation testing, which moves at the speed of reliability, ensures high quality procurements, and should not be jeopardized over perceived, but unrealized threats."<sup>79</sup> Augmenting technology for these common rejection trends, such as automate the documentation requirements for approval, can facilitate more efficient progress of requests through each pre-award contracting phase stage and help with timely attention from relevant acquisition planning team personnel.

PROCUREMENT ACQUISITION LEAD TIMES				
Total Acquisition Value	Supplies	Services*		
\$5K ~ \$250K	30 days	60 days		
\$250K ~ \$7M (CI)	120 days	150 days		
\$250K ~ \$10M (non-CI)	190 days**	240 days**		
\$7M ~ \$10M (CI)				
\$10M~\$50M	270 days**	290 days**		
>\$50M	365 days**	365 days**		

\* Extra time is required for services due primarily to: additional required regulatory documentation; contractor preparation of proposals; and evaluation of proposals.

\*\*Requirements in excess of \$10M require additional review periods and approvals from higher headquarters prior to solicitation release and prior to award.

# Figure 2. Fiscal Year 24 Contract Execution And Purchase Request Guidance.<sup>80</sup>

<sup>79</sup> Vladislav Skots, "Application of Artificial Intelligence in the Department of Defense to Enhance the Contracting Process Timeline" (Master's thesis, Naval Postgraduate School, Monterey, CA, 2019), https://calhoun.nps.edu/handle/10945/64067.

<sup>80</sup> Marine Corps Installations Command, *MCICOM Bulletin 4200: Contracting Guidance and Policy for Fiscal Year 2025* (Marine Corps Installations Command, Quantico, VA, 2024), https://www.quantico.marines.mil/Portals/147/Offices\_and\_Staff/Regional\_Contracting\_Office/RCO/MCICOMBul%204200%20-%20FY25.pdf.



ACQUISITION RESEARCH PROGRAM Department of Defense Management Naval Postgraduate School

#### C. UNDERSTANDING COMMON CHALLENGES

The analysis of RA requisition processes during pre-award process in MCI-EAST RCO during the second and third quarters of FY24 revealed several common challenges related to documentation accuracy and administrative processes. Both quarters DAI requisition processing presented issues with missing or inaccurate documentation, incorrect information on documents, such as period of performance and delivery locations, and contracting office designations. These persistent challenges detected the need for better training programs or the implementation of automated processes to improve the accuracy and completeness of initial RA submissions.

In Q2 FY24, the data from approval comments in DAI about RA requisition submission revealed a major challenge of the frequent need for additional documentation and corrections. Numerous comments in DAI workflows highlighted the absence of prerequisite attachments, such as certifications for non-personal services, and performance work statements. Additionally, administrative rejections were often due to errors in processing requisitions in DAI like incorrect delivery locations and contracting office designations. These trends give emphasis to the critical importance MCI-EAST RCO placed on precise documentation and adherence to administrative protocols in the contracting process. Without the acquisition planning team and RA accounting for this importance, the risk of delays and inefficiencies increased, which could have impacted on the overall effectiveness of the pre-award contracting process.

In Q3 FY24, noted approval comments in DAI shifted more toward the timelines and functions. Like in Q2 FY24, there were ongoing issues with needing more accurate documents and statements, particularly regarding the "Non-Personal Services Certification" and the "Inherently Governmental Functions Determination." As already laid out, a prevalent theme by MCI-EAST RCO in DAI's requestion process for pre-award contracting was the emphasis on distinguishing between critical and other functions, with many comments stressing that RA provided accurate "Inherently Governmental Functions Determination" when it comes to this submitted documentation. This highlights the need for clear guidelines and classifications understanding to ensure that RA comprehends essential functions and if required manages appropriately.



ACQUISITION RESEARCH PROGRAM Department of Defense Management Naval Postgraduate School Another consistent theme was the challenges of processing documents correctly for repetitive issues. Both quarters saw numerous instances of repeated instructions to correct errors and provide additional documentation or requesting clarifications. This recurring issue, where initial submissions fail to meet required standards, leads to delays and additional administrative work. The comparison indicates that while both quarters handled similar challenges, Q3 showed a marginally higher approval rate and fewer documents in the "Incomplete," "In Process," and "Rejected" statuses. This put emphasis on the importance of ongoing efforts to improve the RA's requisition submission to completeness of initial submissions during that time.

The data highlights the need to address ongoing challenges in the evaluation process, as evidenced by the repeated comments, updates, and approvals required for specific requisitions, such as MMP10045504931 and M271104503287. This continuous oversight of RA's requisitions processing creates long-term ineffectiveness of any acquisition planning team, which theoretically is in contradiction of central simplified acquisition procedures instructions requirement "Avoid unnecessary burdens for agencies and contractors.

Likewise, common hurdles like inaccurate omitted documents, and incorrect data entry inside DAI, such as delivery addresses, underline errors in the acquisition planning process for Ras in MCI-EAST RCO. Even if technology is implemented, these common challenges should be mitigated with feedback loop of continuous RA and acquisition team planning, communication, and interaction. As noted by Kory Krebs, "Prototypes should be built quickly and taken back to the user for their feedback. Prototypes should be improved based on their input. This feedback loop is critical for development and adoption." Thus, if augment ensure that AI tools meet RA objectives and operational needs by monitoring AI performance through feedback loop.

#### D. SUMMARY

The analysis revealed completeness and data accuracy, causing delays and incomplete requisition processing for RA in MCI-EAST RCO. There were bottlenecks in moving requisitions from incomplete to approved statuses, with frequent rejections due to



incorrect contract routing and missing documentation. Also, analysis noticed an approval surged in Q3 Fy24, around May 2024, due to a contract submission deadline, highlighting the better coordination during this period. 117 PRDS requests were rejected at some point in the RA's DAI requisition processing, due to stated errors in routing details or missing documents. Repeated issues like incorrect details and inaccurate delivery addresses persisted, showing the need for improved training and more accurate acquisition team planning of initial submissions to simplify the pre-award contracting process. The following chapter will evaluate the research questions of the thesis, examine these reviewed findings with some AI augmentation recommendations to improve analysis inefficiencies, propose a pilot project, and provide an overview.



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## V. CONCLUSION

Commercial support has significant potential to support military operations, and the joint force may leverage commercial capabilities to execute joint functions.<sup>81</sup>

Augmentation of AI in the DoD's pre-award contracting procedures can enhance RA submission efficiency, accuracy, and routing compliance. As previous chapter noted with analysis of FY 2024 data revealed recurring issues in documentation accuracy and administrative procedures, stressing the need for improved training programs and the adoption of automated methods. Modernizing the RA's requirement generations planning in pre-award process requires implementing compliance checks and automated documentation systems that may be investigated with AI. These trials can determine the ability to streamline tasks, reduce human error, and expedite requisition processes. As Chapter II mentioned that cultivating a culture of readiness and making organizational adjustments will have to be facilitated for any recent technology, like AI adoption, with accentuating importance of workforce training programs and continuous improvement initiatives.

#### A. FINDINGS AND RECOMMENDATIONS

To improve the pre-award contracting process effectively, the DoD contracting process should invest in AI technologies that automate and streamline RA required tasks (Table 4). This includes implementing AI tools for compliance checks and document management. Additionally, continuous training and development programs for RA and acquisition planning team are indispensable to ensure personnel are proficient in using these recent technologies. Additionally, existing research by Hangl, Behrens, and Krause highlight AI's capability to reduce errors, addressing challenges such as incomplete

<sup>&</sup>lt;sup>81</sup> Joint Chiefs of Staff, *Joint Publication 1: Joint Warfighting*, vol. 1 (Joint Chiefs of Staff, Washington, DC, August 27, 2023), 62, https://www.jcs.mil/Doctrine/Joint-Doctrine-Pubs/Capstone-Series/.



submissions and inaccurate documentation, which are prevalent in regulated environments like RA submissions to MCI-EAST RCO.<sup>82</sup>

Introducing some augmentation AI tools can address these inefficiencies. Tools like real-time document validation and automated approval routing can minimize manual errors, improve process precision, and speed up decision-making. The study's findings support this, suggesting that recent technology for automation can remedy human requisition processing errors and enhance overall pre-award contracting submission from RA. The findings also display the need to reduce processing errors by standardizing data entry. These solutions, such as a type of AI technology workflow automation, directly address documented inefficiencies like delivery location errors, approvals delays, and inconsistent requisition submissions. Also, these findings highlight the role of workforce education and continuous improvement. It exhibited the need for any augmented technology in the DoD contracting process to support with DoD risk-averse approach, requirements and recommends implementing controlled pilot programs and feedback loops from the acquisition team. Through these focused testing, RA feedback collection, and necessary adjustments, the DoD can better understand if AI tools are optimized and remove the ineffectiveness and common errors analyzed before full-scale deployment.

 Table 4.
 Chapter IV Findings and Recommendations

Study Findings			
Findings	Recommendations		
Documentation Errors and Incomplete	Implement AI tool Document Verification		
Submissions	Systems		
Delays in Approval Times	Adopt Workflow Automation		
Lack of understanding of requirements			
and Specifications for data entry	Develop automated Standardized Templates		
	Invest interactive Training for Technology		
Resistance to Technological Change	Management		
	Establish planning for Continuous Monitoring		
Need for Continuous communication	and Evaluation of RA requirements		

<sup>82</sup> Hangl, Behrens, and Krause, "AI Adoption in Supply Chain Management," 63.



#### **B. RESEARCH QUESTIONS**

(1) Can AI technologies improve the process for pre-award contracting within the DoD?

The results of this study indicate AI technologies can improve the pre-award contracting process within the DoD; however, a pilot program will be needed before fully implementing programs. Nevertheless, recent technologies, such as AI, have shown in the literature review to streamline processes, reduce administrative cost and human error while adherence to regulatory standards. Through testing pilot programs with augmentation in RA requirement generations phase pre-award contracting process, the DoD can further exam if increased efficiency, automotive processes, and enhanced operational readiness can be obtained in pre-award contracting phase.

(2) What are the challenges and areas of opportunity associated with integrating AI technologies into the pre-award contracting process of the DoD?

The key difficulties encompass navigating the DoD's contracting regulatory landscape, system interactions and overcoming any culture of resistance to change. Moreover, integrating AI and other similar technologies will require significant organizational adjustments and workforce training programs to equip personnel with the necessary skills for utilizing recent technologies. Areas of opportunity for pre-award contracting process will be in the acquisition planning's RA requirement generation phase, which was observed to have common and repetitive errors in submission.

#### C. FUTURE AREAS OF RESEARCH AND PILOT PROGRAMS

As mentioned, future research should prioritize expanding these findings and exploring additional AI applications in the RA requirement generation phase. Areas for further investigation include advanced data analysis to identify more persistent trends, developing specialized training programs to enhance documentation submission accuracy by the acquisition planning team, and implementing AI tools for automating RA document generator and compliance checks prior to DAI submission.

Pilot programs are recommended to validate and refine the proposed AI augmentation to DoD contracting process. As described in Table 5, programs should allow



for the testing of AI tools in controlled atmospheres before a full-scale deployment. The pilot programs should encompass the selection of representative sample requisitions, implementation of AI tools, targeted training and support, continuous evaluation, and feedback, while reporting and analysis of outcomes to the programs. These steps will help the DoD better supplement RA and acquisition teams process in pre-award contracting processes, achieving one of FAR 13's purpose "Promote efficiency and economy in contracting."<sup>83</sup>

Pilot program focus				
Pilot Program Focus	Description	AI Implementation		
Automated Document Verification	Ensures completeness and correct formatting of documents before submission, minimizing human error and enhancing document quality.	AI tools verify required fields and document adherence to standards.		
AI Tools for Compliance Monitoring	Verifies requisitions against real-time regulatory and procedural requirements, ensuring compliance and reducing rejection risks.	AI cross-checks requisitions with compliance standards and flags discrepancies.		
AI-Driven Training Modules	Trains contracting personnel on advanced AI technologies, ensuring optimal utilization of AI tools, and minimizing errors.	AI-driven modules provide interactive feedback and guidance.		
Natural Language Processing (NLP) Tools	Analyzes requisition descriptions to identify common issues and enable targeted process enhancements.	NLP automatically scans for keywords and patterns indicating probable problems.		
Template Standardization	Creates standardized templates for pre-award documents, ensuring consistent data entry and formatting.	Standardized templates include clear instructions and examples.		
Automated Routing	Develops AI tools workflows to automatically route spreadsheets to the appropriate approvers, accelerating the approval process.	AI directs each document to the correct individual or department.		
Real-Time Analytics and Dashboards	time analytics on requisition status, enabling timely interventions and continuous process improvements.	and offer insights into common issues.		

Table 5.Information for Pilot Program Focus.84

#### D. SUMMARY

As mentioned, any augmentation of AI into the DoD's pre-award contracting should focus on improving efficiency, accuracy, and compliance. An analysis of MCI-

<sup>83</sup> FAR 13, "Simplified Acquisition Procedures."

<sup>84</sup> Adapted from GSA, "AI Inventory – Tech at GSA."



EAST RCO Q2 and Q3 FY24 data revealed recurring challenges in documentation and administrative processes, highlighting the need for better training and the implementation of automation in requirement generation by RA such as AI tools and workflow automation, which may be able to simplify tasks, reduce human error, and expedite acquisition planning stage in DoD's pre-award contracting process. However, continuous training for acquisition planning teams would be required to apply any AI technology effectively. Due to the limitations of actual AI tools utilized in the study, recommendations and pilot programs should be initiated in a controlled setting before full-scale implementation.

Furthermore, further research should also focus on expanding AI applications in other phases of DoD contracting process, and expansion of DoD's contracting submission training programs to ensure better agency development in their acquisition planning team. Pilot programs are recommended to validate AI tools in DoD's pre-award contracting processes, thereby simplifying any improvement of these technologies and formulating approaches to ensure it meets with FAR 13 purposes. Any future implementation of AI into the DoD's pre-award contracting process requires considerable planning, employee training, and an overall cultural shift toward embracing new technological processes. There is a need to reduce errors and improve the requisition processing of the pre-award contracting phase, which can help the DoD remain competitive. Nevertheless, it necessitates substantial human input and comprehensive scrutiny, warranting careful consideration before complete integration.



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