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Exploring the Use Case of Wargaming Tools Across the Contracting Life Cycle

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Exploring the Use Case of Wargaming Tools Across the Contracting Life Cycle

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Abstract

From the receipt of a requirement to the close of a contract, there are numerous activities that occur throughout the contract life cycle. These activities are performed by contracting professionals who are faced with making business judgements that balance multiple tradeoffs such as awarding contracts with speed at a fair and reasonable price, meeting the mission's needs in a timely manner, mitigating risks, and adhering to laws and regulations. Nonetheless, contracting professionals are required to be not only technically proficient but professionally competent as well. To develop these requisite competencies, incorporating wargaming tools into the education and training fabric of Defense contracting offers a plausible path for helping contracting professionals attain these important skills. This exploratory and conceptual research focuses on how the use of wargaming tools can be integrated into the contracting enterprise. Through a review of extant literature, a framework is proposed for developing educational wargames and describing how a wargame's objectives can be crafted for contracting specific games. A notional use case is developed showing how a wargame can be developed to "battle test" an acquisition plan.

Introduction

From the receipt of a requirement to the close of a contract, there are numerous activities that occur throughout a Defense contract's life cycle. These activities are performed by contracting professionals that are trained to a standard of competencies governed by the Department of Defense Contracting Competency Model (DoDCCM; DoD, 2024). Contracting professionals are faced with making business judgements that balance multiple tradeoffs such as awarding contracts with speed at a fair and reasonable price, meeting the mission's needs in a timely manner, mitigating risks, and adhering to laws and regulations (Federal Acquisition Regulation1.602-1, 2026). Also noting, these tradeoffs are made within the context of a dynamically shifting acquisition environment.

Nonetheless, contracting professionals are required to be not only technically proficient but professionally competent as well. Professional competencies include creativity and innovation, critical thinking, problem solving, risk management and strategic thinking, to name a few (DoD, 2024). To develop these requisite competencies, incorporating wargaming tools into the education and training fabric of Defense contracting offers a plausible path for helping contracting professionals attain these important skills. Meticulously crafted wargames can

facilitate learning, training and testing of human judgement in a fail-safe environment (Lorusso, 2024), thus allowing contracting professionals to practice their decision-making in a low-stakes environment and before decisions must be made. Furthermore, wargames are tailorable to the specific needs of the sponsor, or to meet training objectives (Appleget et al., 2020) like those that could be derived from the DoDCCM's prescribed competencies. To explore the mechanism that could enable such a process, this research examines the following research questions:

RQ1: How can wargaming tools be integrated into contracting life cycle processes?

RQ2: How can wargaming be utilized as a training and preparedness tool for contracting professionals?

To address these research questions, this paper begins with a review of pertinent literature on the contracting life cycle, contracting competencies, and wargaming. After the literature review, the framework will be presented followed by an example application. The paper concludes with future research recommendations.

Literature Review

Contract Life Cycle and Contracting Competencies

The DoDCCM is the governing source for competency standards for Department of War (DoW) contracting professionals. The DoDCCM adopted the National Contract Management Association's (NCMA) Contract Management Standard™ (CMS) as its basis for developing a standardized contracting workforce (DoD, 2024). There are five components within the DoDCCM, of which the contract life cycle phases, competencies, and tasks are most applicable to this paper. The contract life cycle represents the three phases of a contract as it moves from pre-award to award, then subsequently post-award. Within each of the phases there are five domains that capture the breadth of actions performed by contract professionals (Commerce and Contract Management Institute, 2019). Each domain consists of several common contracting competencies that all contracting professionals within the DoW should understand along with accompanying job tasks that enable the achievement of the competencies. Figure 1 is the DoDCCM. The blue rectangles represent the contract life cycle phases, the green rectangles represent the domain, and the purple rectangles are the competencies. Figure 2 is an example of an extended Figure 1 that includes the tasks for the Develop Offer domain.

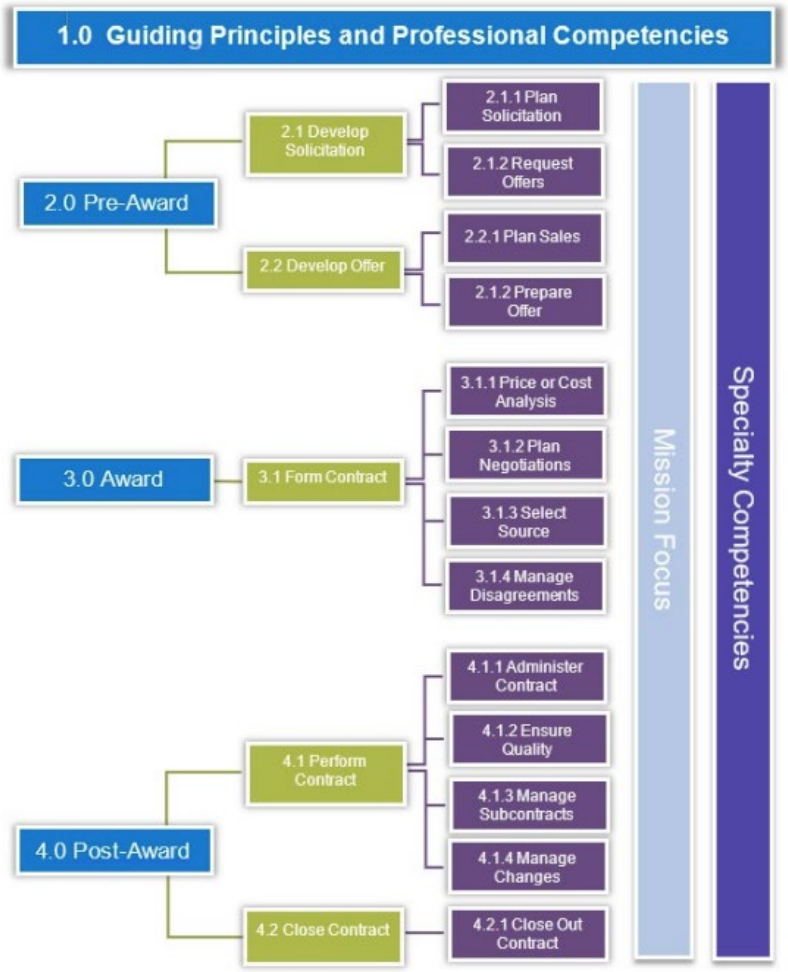

Figure 1. DoDCCM (DoD, 2024)

2.2 Develop Offer	2.2.1 Plan Sales *[Seller Job Tasks]*	2.2.1.1 Conduct Pre-Sales Activities 2.2.1.1.1 Assess Customer Relationships 2.2.1.1.2 Develop Marketing Strategy 2.2.1.1.3 Assess Competition 2.2.1.1.4 Determine Supply Chain Support
		2.2.1.2 Evaluate Solicitation 2.2.1.2.1 Request Clarification 2.2.1.2.2 Propose Solicitation Changes
		2.2.1.3 Conduct Offer / No-Offer Analysis
		2.2.1.4 Finalize Sales Plan
	2.2.2 Prepare Offer *[Seller Job Tasks]*	2.2.2.1 Execute Sales Plan
		2.2.2.2 Develop Execution Plan 2.2.2.2.1 Understand Unique and Special Requirements 2.2.2.2.2 Assess Capability to Satisfy All Solicitation Requirements
		2.2.2.3 Develop Risk Mitigation Plans 2.2.2.3.1 Develop Pricing Strategy 2.2.2.3.2 Develop Terms to Manage Risk 2.2.2.3.3 Develop Technical Approach 2.2.2.3.4 Develop Offer Evaluation Strategy
		2.2.2.4 Assess Teaming Options and Partners 2.2.2.4.1 Negotiate Nondisclosure Agreements 2.2.2.4.2 Negotiate Agreements 2.2.2.4.3 Make Teaming Decisions
		2.2.2.5 Participate in Pre-Offer Conference
		2.2.2.6 Finalize Offer 2.2.2.6.1 Submit Offer and Verify Receipt

Figure 2. DoDCCM Domain, Competencies, and Tasks for Develop Offer Domain (DoD, 2024)

Each phase of the contract life cycle is uniquely characterized by a variety of processes that move the contract along the life cycle. The phases build on each other, making it vitally important for the processes within each phase to be conducted as effectively and efficiently as possible. According to the DoDCCM, the pre-award phase consists of all the processes that support contract planning which range from market research and contracting strategy development to requesting bids. The award phase includes all the effort from the buyer and the seller to produce a contract award. Evaluating an offer, selecting a contractor, and debriefing the offerors are a few examples of the activities that occur in this phase. Lastly, the post-award phase consists of all activities and processes that support the administration of the contract until the contract comes to an end and is ready to be closed out. The DoDCCM contends that a contracting workforce that possesses the competencies within this model are key to enabling contracting to deliver the critical needs of the Department.

Wargaming Overview

The pool of literature that recognizes the usefulness of wargaming both in military (Perla, 1990; Work & Selva, 2015) and non-military (Augier et al., 2018) contexts is extensive. Whether being used as a research (Rubel, 2006), educational (Appleget et al., 2020), learning (U.S. Naval War College, 2026), planning (Lorusso, 2024), strategy development (Augier et al., 2018), training (Perla & McGrady, 2011), or innovation spurring tool (Bartels, 2019; Bartels, 2021), wargaming offers its partakers an opportunity to explore the impact of decisions made in complex and uncertain situations (Augier et al., 2018). As aptly described by Lorusso (2024), "Wargaming provides players with the opportunity to practice their decision making, make critical mistakes, and learn from them, in [a] fail-safe environment, so as, to gain valuable insights when doing so" (p. 6-22). The fortuitous ability to make decisions and learn from the consequences of those decisions in the simulated safe space that a wargame creates,

encourages participants to take risks and be better prepared for real-world conditions (Caffrey, 2019).

Although there is no standard definition of a wargame, the conceptualization of a wargame has evolved and has begun converging on a few common themes (Appleget et al., 2020; U.S. Naval War College, 2026). In 1990, Peter Perla, the author of *The Art of Wargaming* and a recognized wargaming expert (*CNA*, 2024), offered the following definition of a wargame, "A warfare model or simulation, using rules, data and procedures, not involving actual military forces, and in which the flow of events is affected by, and in turn affects, decisions made during the course of those events by players representing the opposing sides" (p. 274). Over time, Perla updated his definition to better capture the changes in wargaming philosophy since the 1990s (Appleget et al., 2020). His definition, which is similarly reflected in Joint Publication 5-0—Joint Planning Process, is, " A dynamic representation of conflict or competition in a synthetic environment in which people make decision and respond to the consequences of those decisions" (King's Wargaming Network, 2019; Joint Chiefs of Staff [JCS], 2025). This definition, in conjunction with a variety of others, converge on the conceptualization that "wargames involve people making decisions in a context of competition or conflict (with themselves, other people, or their environment)" (U.S. Naval War College, 2026). Of particular interest in this paper is drawing on the theme of human decision-making in the context of conflict with other people, namely stakeholders, and the environment, namely the external and internal factors that shape an acquisition environment.

Before a wargame can begin to facilitate the examination of human decision-making, the purpose and objectives of the wargame must be clearly articulated (Bartels, 2019). This is a necessary first step to ensure the wargame is designed in an appropriate manner. Appleget et al. (2020), suggests that the main purpose of a game is rooted in either the intent to "convey knowledge or create knowledge" (p. 5) and once that is known, there are three main approaches for attaining that purpose: educational, experiential, and analytical. For example, if the purpose of the game is to have the participants learn from the game, thereby using the game to facilitate imparting knowledge on the participants, then educational and experiential games are the best fit. If the purpose of the game is to extract knowledge from the participants to help generate new information, then analytical games are the most appropriate. It is worth acknowledging that there is a fourth approach called entertainment (Pournelle, 2017); however, that approach is outside of the focus of this paper.

Educational and experiential wargames require the development of learning objectives and linking those learning objectives to the outcomes of the game (Appleget et al., 2020). Through the deliberate design of scenarios, educational wargames have the goal of leaving players with a better understanding of a subject area (Lorusso, 2024) and offer participants the opportunity to apply concepts learned throughout a course, in a realistic but safe environment (Alme & Hvidsten, 2022). Collaboration, creativity, critical thinking, and innovation can also be a byproduct of an educational wargame (Alme & Hvidsten, 2022; Bartels, 2021). Outside of a college or university setting, educational wargames are useful for helping units analyze new areas of operation, evaluate threats from emerging technologies or explore the impacts of new doctrine or proposed force compositions (Appleget et al., 2020).

While similar in purpose to an educational wargame, experiential wargames aim to prepare participants for a specific task or job function (Lorusso, 2024). These games immerse a participant in an environment that replicates the decision-making challenges that the participants may face in their current or future job. A training game is an example of how experiential wargames can be operationalized to help units train their members on standardized job requirements. Experiential games can utilize established training standards as a metric for

measuring the level of proficiency a participant attained from the wargame (Appleget et al., 2020).

Both educational and experiential wargames may be used as precursors to an analytic wargame (Appleget et al., 2020). The insights derived from the participants in an educational or experiential wargame may be intentionally captured, or perhaps unintentionally observed and integrated into a future analytic wargame. Analytic wargames are distinct from educational and experiential wargames because they focus more on the outcome or product that is derived from the decisions made by the wargames' participants, such as contingency plans, courses of action or a concept of operations (Appleget et al., 2020; Lorusso, 2024). An analytic wargame works well for structured problems (Pournelle, 2017) and is characterized as a game that is "designed to collect and analyze information from wargame play, with results feeding directly into a decision, being used to develop additional analytic products or helping to create additional research hypotheses or theories of victory for additional analysis" (Appleget et al., 2020, p. 16). The idea that an analytic game should be an input for further analysis, reemphasizes Perla's (2022) commentary on the cycle of research, to which wargaming is one input of several other activities geared toward better understanding the full scope of a national security challenge.

In addition to wargames having a specific purpose, they are also designed with a certain style in mind. These styles fall on a continuum from seminar style games which are the most flexible and enable the most creativity, to more rigorous games like rigid Kriegsspiel which favor predictability over creativity. Other games that fall along the spectrum are matrix and free Kriegsspiel (Appleget et al., 2020; Pournelle, 2017). Careful thought is placed in determining the appropriate alignment between purpose, style and the wargame's objective(s).

Although the thought of playing a wargame can evoke visions of a high stake, blue verse red military operations game, wargaming's usefulness extends beyond military warfare strategy, to any industry that faces dynamic and complex situations (Fedina & Lucas, 2025). Fedina and Lucas (2025) contend that "from preparing for natural disasters to safeguarding supply chains, wargaming is helping organizations across industries anticipate crises, test strategies, and strengthen their response capabilities" (p.1). This expanded application of wargaming synergizes with the idea that wargaming is inherently focused on human decision-making and can be evaluated within a context where conflict stems from the environment, as could be the case in a natural disaster or humanitarian situation (U.S. Naval War College, 2026). In a similar manner, this paper encourages mission support organizations such as contracting, to utilize the principles of wargaming in a similar manner.

Yet, there is limited academic research that details how mission support functions can incorporate the wealth of wargaming tools into their mission and mission enabling functions. One practical example comes from an Army logistics team who mentions how wargaming was integrated into their logistics operations in AFRICOM (Bennett, 2026). Bennett (2026) describes the concept and need for resilient logistics and discusses the core strategies that enable this concept's proactive foundation. Resilient logistics, defined as "the capacity and capability to absorb, adapt, and respond to disruptions, challenges, and uncertainties in the operational environment, regardless of the cause" (p.2), is proposed as an imperative for helping the logistics function sustain support despite challenges such as, geopolitical changes, dynamic contested environments and unreliable infrastructure. Of the five core strategies that would enable resilient logistics, the strategy of proactive risk management would be when wargaming is implemented. Wargaming would be used to test the contingency plans developed from the risks identified during continuous risk monitoring, with the advantage of testing these plans in advance of an actual crisis situation.

This example underscores how analytical wargaming can be integrated into support function operations. Fictionally extending this example, there could also be educational and experiential games developed to support this shift to resilient logistics. From an educational wargame perspective, a game could be developed around a learning objective that helps logistics professionals understand the challenging and unpredictable nature of the logistics environment for a certain area of responsibility. From an experiential perspective, logistics professionals could engage in a training game with the objective of role playing to understand the challenges of managing joint efforts to maintain logistics operations in a contested logistics environment. Collectively, wargames like these could help support the logistics enterprise's strategic endeavor to shift towards resilient logistics operations.

Framework

To assist with the development of a wargame, Appleget et al. (2020) propose a five-phase process. The process consists of the following five phases: Initiate, Design, Develop, Conduct, Analyze. The Initiate phase is focused on sponsor engagement and appropriately scoping the wargame to enable the creation of documents such as the Data Collection and Management Plan (DCMP). During the Design phase, the wargame begins to come together with specific details such as the development of the scenarios and adjudication methods. In the third stage, Develop, the wargame's initial design is tested, and through an iterative process with elements of the design phase, the wargame is ready for execution. During the Conduct phase, the wargame is played and once complete, a post wargame analysis and finalization of the findings round out the Analysis phase. For specific details on the key tasks for each phase reference, *The Craft of Wargaming* by Appleget et al. (2020).

While initially developed for analytic wargames, this five-phase process can be used for the development of educational and experiential wargames. Appleget et al. (2020) offer guidance on how to adapt the five phases for each game. Table 1 shows both overlapping and unique tasks for each phase where the underlined tasks are those specific to either an educational or experiential wargame. The preponderance of differences between analytic and educational/experiential wargames occurs during the initiate phase. Instead of having a sponsor to guide the objective(s) of the wargame, learning objectives for educational games and tasks for experiential games serve as the foundation of the game. During the design phase, pre- and post-wargame assessments should be designed to measure the extent to which the wargame enabled the participants to achieve educational or experiential objectives. In the conduct phase, a pre-wargame assessment helps to establish the baseline knowledge of the participants while a debrief at the conclusion of the game is an opportunity to revisit any learning objectives or tasks that were not sufficiently addressed. Lastly, the pre-wargame and post-wargame assessment are evaluated during the analysis phase.

Table1. Five Phases of Wargame Development (adapted from Appleget et al., 2020)

Phase	Educational	Experiential
Initiate	• Goal: Build wargame around learning objectives • Form core wargaming team as applicable • Scope problem • Develop learning objectives • Develop DCMP linked to learning objectives	• Goal: Build wargame around the intended participant experience • Problem scoping includes identifying tasks (training tasks if doing a training wargame) that the wargame will center around • Form core wargaming team as applicable • Develop DCMP linked to tasks
Design	• Determine scenario(s) • Select adjudication approach (models, methods, tools) • Determine player roles • Determine wargame data requirements • Iterate with development phase as needed • Pre- and post-wargame assessment	• Determine scenario(s) • Select adjudication approach (models, methods, tools) • Determine player roles • Determine wargame data requirements • Iterate with development phase as needed • Pre- and post-wargame assessment
Develop	• Play-test all components of wargame (multiple times as necessary) • Blind play-test wargame • Full dress rehearsal	• Play-test all components of wargame (multiple times as necessary) • Blind play-test wargame • Full dress rehearsal
Conduct	• Pre-wargame assessment • Collect data • Manage players • Exercise contingencies (as necessary) • Debrief	• Pre-wargame assessment • Collect data • Manage players • Exercise contingencies (as necessary) • Debrief
Analyze	• Post-wargame assessment	• Post-wargame assessment

The five-phase wargame development process in Table 1, provides a solid framework for overlaying contracting specific educational and experiential wargame objectives. To this end, Table 2 provides examples of pre-award, award, and post-award wargame objectives. These objectives are separated into example objectives for educational, experiential, and analytical wargames. The educational and training objectives stem from the activities and competencies associated with each phase of the contract life cycle and as outlined in the DoDCCM (2024). For example, Task 2.1.1.3 Perform Risk Assessment in the Pre-Award phase requires contracting professionals to perform a risk analysis related to the development of a solicitation. To achieve that task, an experiential wargame can be developed that immerses a contingency contracting officer into a contingency environment where they are provided scenarios centered around conducting risk analysis activities. Each example objective also has a target audience to help frame the level of the game in terms of tactical, operational or strategic focus.

Table 2. Wargame Objectives Across the Contract Life Cycle

Contract Life Cycle Stage	Wargame Type	Example Objective	Target Audience
Pre-Award	Educational	Apply business acumen to evaluate the impact of market trends, geopolitical issues and Defense objectives to battle test an acquisition plan	Junior to mid-level contracting professionals
	Experiential	Demonstrate the ability to conduct a risk analysis in a contingency environment	Contingnecy contracting officers
	Analytical	Determine which theater support contract approach, is most effective for a new Area of Operations (AO)	Senior leaders
Award	Educational	Demonstrate an understanding of how a contract award affects a mission partners ability to carry out the mission in a contingency environment	Contingency contracting officers
	Experiential	Role play as a contingency contracting officer and identify indicators of fraud and malicious intent during source selection evaluation	Contingency contracting officers
	Analytical	Analyze the effectiveness of a novel contract award policy	Senior leaders
Post-Award	Educational	Demonstrate understanding of the impact of cost, schedule and performance tradeoffs on stakeholders for a given contract action	Junior to mid-level contracting professionals
	Experiential	Demonstrate the ability to identify at least two courses of action for a post award crisis that make good business sense and calculate/mitigate the risks of the various courses of action	Junior to mid-level contracting professionals
	Analytical	In collaboration with government partners, test contingency plans for alternate sourcing strategies in a contested logistics environment	Mid- to senior level contracting professionals

Example Wargame

As previously mentioned, there are numerous activities that occur throughout the contracting life cycle. One such activity that occurs during the pre-award phase is the development of the acquisition plan. An acquisition plan is the road map for an acquisition and

"must address all the technical, business, management, and other significant considerations that will control the acquisition" (Federal Acquisition Regulation 7.105, 2026). An educational wargame centered around stress testing the acquisition plan before it is employed is the main objective of the game. In this example, the opposing forces against the acquisition plan stem from the acquisition environment and include factors such as, but not limited to market trends, geopolitical issues, intellectual property challenges, and supply chain risks. Extensive research into each of these factors is conducted to properly contextualize the scenario.

Utilizing the five-phase framework for an educational wargame, Table 3 provides an overview of the development of the following scenario: The Air Force FLYT office is procuring communications equipment and associated installation/integration services for the STARS Communications Program. A draft acquisition strategy is provided to each team. In the Initiate phase, two lesson objectives (LO) are identified that are focused on testing the acquisition plan and updating the plan as gaps are identified. Data collection occurs in the form of a decision document that each team populates with the rationale for their decisions along with any assumptions that were made. The final deliverable is an updated acquisition plan. During the Design phase, the scenario and vignettes are designed to leverage extensive research conducted on market trends, geopolitical issues, and Defense objectives with the potential to impact communications equipment and services. The facilitator is the adjudication method, and both the pre-award and post-award assessments are designed. In the Development phase, play-testing, blind-testing, and a full rehearsal of all elements of the game is conducted. During the Conduct phase, pre-wargame assessments were collected the day before, and the game commences. At the end of the Conduct phase, a debrief is provided by the students summarizing the changes that were made to the acquisition plan followed by an open discussion facilitated by the faculty member. The Analysis phase concluded the game with a post-wargame assessment to assist with analyzing how much learning was achieved. It is worth noting that the post-wargame assessment could also be completed before the discussion with the faculty member.

Table 3. Example Wargame Development

Phase	Educational	Notional Application
Initiate	• Goal: Build wargame around learning objectives • Form core wargaming team as applicable • Scope problem • Develop learning objectives • Develop DCMP linked to learning objectives	• Goal: Build wargame around learning objectives • Core team consists of faculty member and assistant • Acquisition plans are an important part of the acquisition process, yet limited time is spent testing these strategies to see to what extent they can handle a variety of potential future issues • LO 1: Apply business acumen to evaluate the impact of market trends, geopolitical issues and Defense objectives to battle test an acquisition plan • LO 2: Identify gaps in an acquisition plan and update the plan with appropriate information to fill the gaps • Data collection includes the use of a decision document provided to each

		team to capture the rationale for each decision, noting any assumptions. Collection also stems from the final deliverable of the revised acquisition plan.
Design	• Determine scenario(s)	• Main Scenario: The Air Force FLYT office is procuring communications equipment and associated installation/integration services for the STARS Communications Program. A draft acquisition strategy is provided to each team. • Vignettes: Developed from extensive research into market trends, geopolitical issues and Defense objectives with the potential to impact communications equipment and services
	• Select adjudication approach (models, methods, tools)	• Facilitator adjudication method
	• Determine player roles	• Contracting Officer for procurement of the STARS requirement. Participants are placed in teams to leverage varying degrees of experience
	• Determine wargame data requirements	• Participants provided with an acquisition strategy and computer access to the FAR and other pertinent regulations
	• Iterate with development phase as needed	• Iterate with development phase as needed
	• <u>Pre- and post-wargame assessment</u>	• Pre-award assessment provides insight into each player's level of experience with developing acquisition plans and experience in contracting in general • Post-award assessment provides insights into how much each participant learned from the game through post-game interviews and debriefings
Develop	• Play-test all components of wargame (multiple times as necessary)	• Play-test vignettes, game flow, and contingency plans
	• Blind play-test wargame	• Conduct test with non-participants with contracting experience
	• Full dress rehearsal	• Full dress rehearsal
Conduct	• <u>Pre-wargame assessment</u>	• Provided participants with the pre-wargame assessment the day prior to the game to allow time to process the information

	• Collect data • Manage players • Exercise contingencies (as necessary) • Debrief	• Collect data throughout the game • Once facilitator per team • Exercise contingencies (as necessary) • Participants debriefed a summary of the changes to their strategy along with their rationale. Upon completion of the debriefs the faculty member provides an overview of the game's objectives, facilitates an open discussion of the overall lessons learned
Analyze	• Post-wargame assessment	• Participants given post-wargame assessments and analysis between the pre- and post-wargames assessments is analyzed

Future Research

There are several opportunities for future research that can continue the discussion on how wargaming can be utilized in not only contracting but more broadly, acquisitions. The acquisition team consists of multiple players across functional specialties (FAR 1.102-4, 2026). Wargames that include members of the entire acquisition team could facilitate collective decision-making and collaboration. Future research could also examine how acquisition wargames could inform an acquisition focused exercise thereby creating what Peter Perlas called a cycle of research (Perla, 2022). Furthermore, exploring how to structure a wargaming ecosystem as part of the training and equipping of contracting and acquisitions professionals is a worthwhile endeavor. Additionally, another area for future research is to examine opportunities to create wargames that may not fall directly within one phase of the contracting life cycle. While the contracting life cycle model is useful for linking tasks to objectives, a sponsor may be interested in understanding organizational or manpower problems which may not be directly captured in the contracting life cycle

As with any tool, wargaming has inherent limitations. A wargame is most useful when the question or objective is exploratory and not seeking validation (Bartels, 2019). Ensuring there is alignment between the desired objectives, and the game design is an imperative which may require a significant time investment to complete the appropriate level of iteration and testing (Appleget, 2020). Nonetheless, the advantage of creating a fail-safe environment to test human-decision making is worth the investment.

Conclusion

"Innovation thrives in a culture that embraces experimentation and tolerates—better yet, encourages—dissent and risk-taking. We must create an environment in the Department of Defense that encourages exactly this type of thinking. Building a reinvigorated wargaming enterprise is a major step toward that goal" (Work & Selva, 2015, p. 3).

This quote embodies one of the intents of this paper, to examine how wargaming could be incorporated into the contracting enterprise as a tool for spurring innovation while creating a safe place for risk-taking. Given the type of competencies required of contracting professionals, developing educational, experiential and/or analytic wargames may be a useful investment in the training and equipping ecosystem for contracting professionals. The proposed framework shows how wargames can be crafted to meet certain objectives or accomplish required training tasks. Overall, the complex and dynamic Defense acquisition landscape is driving the need for

contracting professionals to exercise the competencies in the DoDCCM. Integrating wargaming into the contracting enterprise can stimulate critical thinking and prepare contracting professionals for future challenges.

References

Alme, V., & Hvidsten, A. (2022). To learn or not to learn: On the importance of mode switching in educational wargames. *Scandinavian Journal of Military Studies*, *5*(1), 269–281. https://doi.org/10.31374/sjms.123

Appleget, J., & Burks, R. (2020). *The craft of wargaming*. Naval Institute Press.

Assistant Secretary of War (Acquisition). (n.d.). *Contract Policy.* Defense Pricing, Contracting, and Acquisition Policy (DPCAP) https://www.acq.osd.mil/asda/dpc/cp/policy/workforce-development.html

Augier, M., Dew, N., Knudsen, T., & Stieglitz, N. (2018). Organizational persistence in the use of war gaming and scenario planning. *Long Range Planning*, *51*(4), 511–525. https://doi.org/10.1016/j.lrp.2017.12.005

Bartels, E. (2019). *Getting the most out of your wargame: Practical advice for decision-makers*. War on the Rocks. https://warontherocks.com/2019/11/getting-the-most-out-of-your-wargame-practical-advice-for-decision-makers/

Bartels, E. M. (2021). *Wargames as an educational tool*. Rand. https://www.rand.org/pubs/commentary/2021/02/wargames-as-an-educational-tool.html

Bennett, M. (2026). *Resilient logistics: A blueprint for success in contested environments*. https://www.army.mil/article/290281/resilient_logistics_a_blueprint_for_success_in_contested_environments

Caffrey, M. B., Naval War College (U.S.). Press, & Naval War College (U.S.). Center For Naval Warfare Studies. (2019). *On wargaming: How wargames have shaped history and how they may shape the future*. Naval War College Press.

Commerce and Contract Management Institute. (2019). *Contract management standard*. https://cdn.prod.website-files.com/682219f2368e74799ec8747e/6852f64457c859a0dceab1e2_CCM-Institute-CMS-Edition4.pdf

CNA. (2024). *CNA wargaming reports by Peter Perla*. https://www.cna.org/centers-and-divisions/cna/ow/gaming-and-integration/peter-perla

DoD. (2024). *Department of Defense Contracting Competency Model (DoDCCM)*. https://www.acq.osd.mil/asda/dpc/cp/policy/docs/wd/DoD-Contracting-Competency-Model-(2024).pdf

FAR 1.102-4, Acquisition Team (2026). https://www.acquisition.gov/far/part-1#FAR_1_602_1

FAR 1.602, Contracting Officers (2026). https://www.acquisition.gov/far/part-1#FAR_1_602_1

FAR 7.105, Contents of written acquisition plans (2026). https://www.acquisition.gov/far/part-7#FAR_Subpart_7_1

Fedina , K., & Lucas, R. (2025). *Building societal resilience through wargaming*. RAND Corporation. https://www.rand.org/pubs/commentary/2025/04/building-societal-resilience-through-wargaming.html

King's Wargaming Network. (2019, March 29). *Peter Perla, "The art & science of wargaming to innovate & educate"* [Video]. YouTube. https://www.youtube.com/watch?v=rxLQmPA1-4o

Lorusso, L. (2024). *Introduction to wargaming*. NATO. https://publications.sto.nato.int/publications/STO%20Educational%20Notes/STO-EN-SAS-195/EN-SAS-195-06.pdf

Perla, P. (1990). *The art of wargaming : A guide for professionals and hobbyists*. Naval Institute Press.

Perla, P. (2022). Wargaming and the cycle of research and learning. *Scandinavian Journal of Military Studies*, *5*(1), 197–208. https://doi.org/10.31374/sjms.124

Perla, P., & McGrady, E. (2011). Why wargaming works. *Naval War College Review*, *64*(3). https://digital-commons.usnwc.edu/nwc-review/vol64/iss3/8

Pournelle, P. (2017). Designing wargames for the analytic purpose. *Phalanx*, *50*(2), 48–53. https://www-jstor-org.nps.idm.oclc.org/stable/pdf/26296384

Rubel, R. C. (2006). The epistemology of war gaming. *Naval War College Review, 59*(2), Article 8.

U.S. Naval War College. (2026). *About wargaming*. https://www.usnwc.edu/Research-and-Wargaming/Wargaming/About-Wargaming

Work, B., & Selva, P. (2015). *Revitalizing wargaming is necessary to be prepared for future wars*. War on the Rocks. https://warontherocks.com/2015/12/revitalizing-wargaming-is-necessary-to-be-prepared-for-future-wars/


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