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14. ABSTRACT

The recently approved Intelligence Simulation Center will build DIA's capabilities to develop innovative approaches to complex problems. Better capabilities to train, challenge assumptions, and plan for the future will position DIA to meet its mission "to provide intelligence … that delivers decision advantage to prevent and decisively win wars."

DIA's first priority of effort with the Intelligence Simulation Center should be to improve DIA as an organization. A secondary priority for the Intelligence Simulation Center should be to improve direct support to senior decision-makers and warfighters.

The end state for the Intelligence Simulation Center is to become a dedicated wargaming center within the intelligence community that enhances DIA's ability to inform, anticipate, and respond to national and Defense guidance and needs, and improves collaboration across the intelligence community to deliver actionable intelligence to the nation's decision-makers.

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NATIONAL DEFENSE UNIVERSITY

JOINT FORCES STAFF COLLEGE

JOINT ADVANCED WARFIGHTING SCHOOL

Want to Play a Game? How Should DIA use the Intelligence Simulation Center to Think About its Future?

by

John R. Wilkinson

Defense Intelligence Agency

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A paper submitted to the Faculty of the Joint Advanced Warfighting School in partial satisfaction of the requirements of a Master of Science Degree in Joint Campaign Planning and Strategy. The contents of this paper reflect my own personal views and are not necessarily endorsed by the Joint Forces Staff College or the Department of Defense.

This paper is entirely my own work except as documented in footnotes.

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Abstract

Lieutenant General Stewart, the Director of the Defense Intelligence Agency (DIA) recently approved the creation of an Intelligence Simulation Center. The Center will build DIA's capabilities to develop innovative approaches to complex problems. Better capabilities to train, challenge assumptions, and plan for the future will position DIA to meet its mission "to provide intelligence … that delivers decision advantage to prevent and decisively win wars."

DIA's first priority of effort with the Intelligence Simulation Center should be to improve DIA as an organization. With over 16,000 employees, DIA should focus on improving its corporate functions, such as enhancing the talent management system and training officers to frame approaches to knotty problems. DIA should use innovation to help the organization inform, shape, and accelerate decision-making.

DIA currently provides intelligence support to building Department of Defense (DoD) and combatant command orders, and it supports wargames and exercises. A secondary priority for the Intelligence Simulation Center should be to improve direct support to senior decision-makers and warfighters. Building upon the cadre of subject matter experts to create greater expertise will enhance DIA's capability to provide predictive analysis and to supply wargame and exercise red teams to act as thinking adversaries.

The end state for the Intelligence Simulation Center is to become the premier, dedicated wargaming center within the intelligence community that enhances DIA's ability to inform, anticipate, and respond to national and Defense guidance and needs, and improves collaboration across the intelligence community to deliver actionable intelligence to the nation's decision-makers.

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To Karel

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None of my efforts would have been rewarding without the love and support of my wife.

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Chapter 1. Introduction

In September 2016, the Director of the Defense Intelligence Agency (DIA) approved the creation of an Intelligence Simulation Center. This initiative endeavors to assist DIA in establishing "a strategically coherent framework that maintains unity of effort in the face of increasing strategic ambiguity, continuing fiscal uncertainty, and accelerated demands for accurate, exquisite, and timely intelligence."[1] The Intelligence Simulation Center will advance the Secretary of Defense's (SECDEF) "2014 Defense Innovation Initiative" that called for pursuing innovative ways to sustain and advance U.S. military superiority. It also will move DIA toward meeting one of the SECDEF's specific initiatives to "develop and test alternative ways of achieving our strategic objectives and help us think more clearly about the future security environment."[2]

The current and previous DIA Directors pursued initiatives to strengthen the corporate and mission-related functions of the agency through innovation. Lieutenant General Flynn began the integration of collection, analysis, mission services, and science and technology functions into collaborative, cross-functional regional intelligence centers. Lieutenant General Stewart has continued to develop the regional intelligence center concept, has driven expansion of the Innovation Office, and has pressed his staff to make the Intelligence Simulation Center a reality. DIA planning documents describe simulation, wargaming, and innovation as tools the Intelligence Simulation Center will use to assess issues, explore futures, train the workforce, and inform decision-making.

[1] Defense Intelligence Agency, *2016 Defense Intelligence Agency Strategy*, LtGen Vincent Stewart, Defense Intelligence Agency (Washington, DC, 2016), 3.
[2] U.S. Department of Defense, *The Defense Innovation Initiative*, Chuck Hagel, Secretary of Defense Memorandum (Washington, DC, 15 November 2015).

DIA is working to determine how it intends to use these capabilities and prioritize its work at the Intelligence Simulation Center.

Lieutenant General Stewart recently published his "2017 Priorities" to the DIA workforce. He emphasized corporate priorities, including improving the talent management system, improving the responsiveness of integrated intelligence, and inaugurating an innovation hub that will help DIA inform, shape, and accelerate decision-making. He also called attention to the creation of the Intelligence Simulation Center, which will help "assess risk, evaluate options, test concepts, challenge assumptions, and inform decision-making."[3] As a response to the Directors' drive to innovate, this thesis discusses wargaming, exercises, and analysis in a defense context to provide an overview of techniques DIA could use in the Intelligence Simulation Center to improve its support to Department of Defense (DoD) planning and strategy development and enhance its intelligence input to operation plans. It examines DIA's intent to improve its innovation, training, identification and assessment of issues, and futures planning; it also discusses DIA's efforts to enhance its support to warfighters and policy makers through corporate planning-type "wargaming". It concludes with recommendations for the next steps in its establishment and a recommendation for the mission, vision, goals, and end state for the Intelligence Simulation Center. This study argues that, as the first priority, DIA should develop innovative capabilities in the Intelligence Simulation Center to improve DIA as an enterprise to support DoD in thinking more clearly about the future security environment and in advancing U.S. military superiority. DIA should expand the Intelligence Simulation Center's capabilities in subsequent phases to improve DIA's

[3] Vincent Stewart, e-mail to DIA internal distribution list, "My 2017 Priorities," February 1, 2017.

ability to meet its mission of providing intelligence on foreign militaries and operating environments, a task it already does.

1.1 Background

Early discussions about the concept of the Intelligence Simulation Center proposed that it would enhance DIA's understanding of complex problems and the risks associated with different contexts, contingencies, or approaches to problems. In pre-decisional meetings, DIA senior officers expressed a range of opinions about the functions of the Intelligence Simulation Center. Their opinions generally supported either exploring options for informing analytic assessments, resource judgements, and key policy decisions within DIA, or developing a capability to improve intelligence support to combatant commands (CCMD) and joint task forces' (JTF) operation plans (OPLAN). For example, the Director might task the Intelligence Simulation Center to help prepare for crisis response events, and he might use the it to develop a cadre of master scenario events list (MSEL) scripters and red team (or adversary role-playing) participants to support wargames by the CCMDs, Joint Staff J7, or others. Resource availability seems to be the limiting factor in the amount of capability the Intelligence Simulation Center will be able to provide when it reaches initial operating capability.

In November 2016, the DIA Office of the Chief of Staff described the purpose of the Intelligence Simulation Center as "a space to conduct wargames and simulations, Department of Defense and IC [intelligence community] exercises, Senior Leader Seminars (SLS), symposia, and other staff- and high-level events."[4] Goals for the

[4] Defense Intelligence Agency, "DIA Priority: Intelligence Simulation Center – DRAFT," November 2016.

Intelligence Simulation Center included driving analytic and intelligence innovation; serving as a training and education resource; driving DIA, DoD, IC, and U.S. Government decision-making; informing DIA program, structure, and resource decisions; and enhancing DIA support to DoD planning and strategy development.[5] These goals support improving DIA's futures planning and organizational function, improving DIA's support to CCMDs, or both, though the majority of the goals aim towards improving DIA as an organization.

1.2 Definitions of Wargame

The use of the term "wargaming" as a function of the Intelligence Simulation Center can be a source of confusion. Peter Perla, a wargaming expert from the U.S. Naval War College, defined a *wargame* as "any type of warfare modeling, including simulation, campaign and systems analysis, and military exercise."[6] Many people associated with DoD will understand a narrower definition, like the refined one Perla proposed and the U.S. Naval War College uses. "A wargame is a warfare model or simulation whose operation does not involve the activities of actual military forces, and whose sequence of events affects and is affected by the decisions made by players representing the opposing sides. In the end, a wargame is an exercise in human interaction, and the interplay of human decisions."[7] This is more in line with the description in Joint Publication 5-0 *Joint Operation Planning* that describes wargaming as a primary means to conduct course of

[5] Ibid.
[6] Peter P. Perla, *The Art of Wargaming: A Guide for Professionals and Hobbyists* (Annapolis, MD: Naval Institute Press, 1990), 163.
[7] Ibid., 164.

action (COA) analysis for a plan.[8] DIA's role in Joint Planning Process (JPP) wargaming supports combatant commands' COA analysis by preparing intelligence assessments that inform those OPLANs. DIA also assists in preparing combatant command intelligence annexes as part of these and other OPLANs and writes its own plans.

However, organizations, including DoD, frequently use the term "wargaming" or "gaming" to refer to non-warfare-related modeling and simulation, analysis, and exercises. In his 2015 memo on wargaming and innovation, Deputy Secretary of Defense (DEPSECDEF) Work used a broad definition of wargaming, to include workshops, tabletop exercises, seminar-style wargames, and modeling and simulation.[9] The objectives of wargaming, aside from the JPP COA analysis, can include those listed above in the DIA planning document, such as assessing issues, exploring futures, and informing decision-making.

1.3 Shaping the Intelligence Simulation Center

DIA provides intelligence input to scores of wargames and exercises annually across the Department of Defense, and the Intelligence Simulation Center has the potential to improve that input. Even without the Intelligence Simulation Center, though, DIA will continue to provide intelligence input to OPLAN and other plan development, as well as red team participation to exercises. However, DIA is a large organization with over 16,000 employees and would benefit from deliberate futures planning as it manages human capital, budget, and facilities, and creates policy to guide the agency. The DIA

[8] U.S. Joint Chiefs of Staff, *Joint Operation Planning*, Joint Publication 5-0 (Washington DC: Joint Chiefs of Staff, August 11, 2011), IV-27.
[9] U.S. Department of Defense, *Wargaming and Innovation*, Robert Work, Deputy Secretary of Defense Memorandum (Washington, DC, February 9, 2015).

Director recently observed that complexity pervades the DIA mission, and he set an agency goal "to foster a culture that continuously finds new and better ways to execute the mission."[10] Wargaming, exercise, and analysis techniques can assist DIA's leadership in thinking more clearly about the future, planning to meet challenges, and improving intelligence that delivers "decision advantage".[11]

Planning for the Intelligence Simulation Center is in the early stages in what is likely to be a multi-month or multi-year development process. Personnel, physical facilities, and funding probably will have to come from existing resources. The long planning timeline will allow DIA to develop a vision, mission, goals, and an end state for the Intelligence Simulation Center in a thoughtful manner. DIA leadership will have time to shape the lines of effort and ensure the Intelligence Simulation Center functions to support the *DIA Strategy* and the *DIA Innovation Implementation Plan*. A clear vision with a defined end state will enable DIA to apply or develop operational models for conducting simulations, wargames, exercises, analysis, and innovation efforts. The Intelligence Simulation Center mission owners will be able to explore best practices from similar centers within the Department of Defense and from commercial and academic entities. That knowledge will prepare the mission owners to recommend resource solutions for developing subject matter expertise, creating a workable facilities availability plan, and forecasting budget needs.

The methodology used to explore the Intelligence Simulation Center's possibilities and make recommendations for bringing the Intelligence Simulation Center from concept to operation involved a combination of reviewing literature about

[10] Defense Intelligence Agency, *2016 Defense Intelligence Agency Strategy*, 2.
[11] Ibid., 3.

wargaming, exercises, and analysis, and interaction with wargaming experts in Department of Defense, Joint Staff, NATO, and RAND. Chapter 2 explores the use of wargaming, exercises, and analysis for improving corporate functions, planning for the future, and identifying and mitigating risks. Chapter 3 discusses the benefits of wargaming, exercises, and analysis to support DoD decision-making and combatant command planning and exercises. Chapter 4 develops an argument for DIA to leverage the corporate type of wargaming, exercises, and analysis to enhance its planning for growth of expertise, management of the risks associated with a large enterprise, and positioning DIA as the leader in providing defense intelligence to DoD and other U.S. Government officials. A focus on improving the ways DIA functions as an enterprise as the first priority will create a solid foundation for subsequently using the Intelligence Simulation Center to improve intelligence support to the Office of the Secretary of Defense and combatant commands.

Chapter 2. Wargaming, Exercises, and Analysis to Improve DIA as an Organization

As in any large organization, DIA would benefit from improving its core operations and its management and leadership functions. The Intelligence Simulation Center could assist DIA leaders in exploring options for encouraging innovation, improving professional development and training, addressing risks, challenging assumptions, and conducting planning for the future through wargaming, exercises, and analysis. As resource constraints continue, the Intelligence Simulation Center would provide a valuable tool for DIA leaders to plan for future corporate needs like the composition of the workforce and digital transformation, gain insights into areas in which DIA can improve its provision of intelligence on foreign militaries, develop leaders to make decisions in complex situations, and identify areas of risk and plan to manage or mitigate them.

DEPSECDEF Work's directive for DoD to reinvigorate, institutionalize, and systematize wargaming used a broad definition of wargaming described earlier. He called for wargaming, operations analysis, and experimentation to feed strategy development and the Planning, Programming, Budgeting and Execution process, which would then inform portfolio-rebalancing exercises, competitive strategy path games, and senior leader decision-making.[1] DIA has an integral role in all the areas the Deputy Secretary mentioned.

[1] U.S. Department of Defense, *Wargaming and Innovation*.

2.1 Innovation

The DIA Director's support for the Innovation Office and the newly created innovation hub is an expression of the high priority DIA places on innovation. The Innovation Office seeks to improve efficiency, effectiveness, and security through innovation as resources continue to diminish and demands for DIA's products and services continue to climb.[2] The innovation hub will encourage officers to find or create new business process, technologies, and mission solutions to advance DIA's mission accomplishment.[3] The *2015-2016 DIA Innovation Implementation Plan* defines innovation as a new product, service or way of doing business that gives an organization a competitive advantage.[4] The *Plan* envisions an environment in DIA that empowers employees to solve problems and improve performance through innovation, and it seeks to meet the vision by inculcating the values of leadership, empowerment, agility, and partnerships.[5]

As a DoD combat support agency, DIA must innovate and prepare to support military forces for the next war that will occur sometime in the future against an adversary not yet identified in an undetermined political environment,[6] and it must do so with declining resources. Innovation has a role in guiding DIA's improvement as an enterprise in addition to finding more effective ways to provide defense intelligence to DoD and other U.S. Government officials. Numerous internal and external actors, complex technologies, and the uncertainties of conflict and human relations characterize

[2] Defense Intelligence Agency, *2015-2016 DIA Innovation Implementation Plan*, LtGen Vincent Stewart, Defense Intelligence Agency, Washington, DC, 2015, 1.
[3] Stewart, e-mail, "My 2017 Priorities."
[4] Defense Intelligence Agency, *DIA Innovation Implementation Plan*, 11.
[5] Ibid., 1.
[6] Williamson Murray, "Innovation: Past and future," in *Military Innovation in the Interwar Period*, ed. Williamson Murry and Allan R. Millett (New York: Cambridge University Press, 1996), 301.

the DIA operational environment. Within this environment, the interplay of hundreds of independent variables make innovation more of an art than a science.[7]

Innovation normally is a long process that requires organizational focus over a long period. The process usually transcends the tenure of a single leader or visionary, thus requiring the leadership at all levels, and preferably the entire workforce, to share the vision of innovation.[8] Successful innovation in the military during interwar periods has involved specific problems, the solutions to which provided notable advantage to advancing the national strategy.[9] Innovative officers recognize mistakes and seek to learn from them.[10] This critical examination of DIA's support to policymakers and warfighters not only advances innovation, but it also helps in training the workforce to examine its procedures and products. Through wargames and exercises, officers benefit from the process of framing approaches to knotty problems and suggesting factors they should consider when facing similar situations in their jobs.

The Intelligence Simulation Center cadre will be able to partner with the Innovation Office to guide leaders and other officers to explore the complexities of their environment. Innovation requires an educated and encouraged officer corps,[11] and wargames, exercises, and analysis will contribute to that education. The Center's cadre will facilitate ways to encourage innovation sessions, including establishing a realistic scenario with a real adversary with real capabilities and with real strategic and political objectives.[12] DIA must strive to create an experience in which participants are

[7] Murray, "Innovation," 303.
[8] Ibid., 308-309.
[9] Ibid., 311.
[10] Ibid., 314.
[11] Ibid., 325.
[12] Ibid., 326.

encouraged to try new options and then continue to play the wargame or exercise with the consequences of their decisions. Afterwards, the Center's cadre must guide participants through a critical review of what went well and what went wrong.[13] A small, but consistent number of challenging sessions in the Intelligence Simulation Center where officers explore different and non-traditional approaches to complex problems and learn from the experience without being "punished" for innovative and creative ideas will build a desire for others to participate in future events. Willingness to suspend disbelief in the scenario, participate fully, and critically review decisions and consequences will set the conditions for innovation throughout DIA.

2.2 Train the Workforce

The partnering of the Intelligence Simulation Center with DIA's innovation initiatives will provide a resource to train officers. The training will not be about tradecraft, but it will encompass the less tangible concepts of critical and creative thinking in the development of approaches to complex problems. Wargames, exercises, and analysis can help participants gain insights into future possibilities and prospects. As an exploratory tool, wargaming can give players, analysts, and other observers and participants new insights, which can lead them to further investigation of the validity and sources of their beliefs. Questions and issues that arise in a wargame or exercise that uses well-known factors in its design will assist the participants in discovering other important factors that previously might have been dismissed or counted of little value.[14] Familiarity

[13] Murray, "Innovation," 327.
[14] Perla, *The Art of Wargaming*, 181.

with the factors provides a foundation from which to launch exploration, without having to learn “exercise” or notional information.

An example of this type of wargaming has been in use for several decades. The developer, the late Dr. Lincoln Bloomfield, a professor of political science at Massachusetts Institute of Technology and State Department officer, called it the "reality game." He used his expertise in U.S. foreign policy and international politics to adapt the military concept of wargames to a game that put individuals into roles of international government leaders to simulate the interaction between states.[15] The “reality game” identifies individual players as intimately as possible with the strategies and policies of real-life governments. The primary aims involve teaching people more about the way things actually happen in political conflict situations, and encouraging them to try to anticipate and pre-test the reactions of known governments to the situations that they might confront in the future.[16] One of the most useful purposes of the "reality game" is to help clarify premises that underlie thinking and planning, but are not often put to the actual test of events.[17] The game can help participants examine contingencies they might overlook in the normal policy planning process.

The value of the reality game is similar to that of wargames discussed above, namely exposing participants to realistic scenarios with a thinking opponent and the introduction of problems that are outside the normal experience. Bloomfield’s reality game remains a valid concept, and businesses have adapted it to their situations. For instance, in 2002, the leadership of Cadbury Schweppes conducted a three-day wargame

[15] Lincoln P. Bloomfield “Political Gaming,” *Proceedings 86* (September 1960): 57.
[16] Ibid., 59.
[17] Ibid., 60-61.

to consider the purchase of Adams, makers of Chiclets gum. The resultant strategy enabled Cadbury to make the purchase and increase market share 9 percent in the U.S. and 20 percent globally against Wrigley's gum.[18]

The process of discovering new insights and ideas helps develop ways or processes of thinking that participants can use when confronted with complicated and unresolved situations. Paul Vebber observed,

> Innovation comes from inspiring and empowering people to draw deeply from within their own talents and experience. Wargames challenge players to go beyond their talents and experience to come up with innovative ways to overcome living opponents during the game, opponents who are striving to do the same to them. It is this process of competitive challenge and creativity that can produce insights and identify innovative solutions to both known and newly discovered problems.[19]

Wargaming, exercises, and analysis in the Intelligence Simulation Center should help develop DIA officers to practice decision-making in complex situations. This skill will have application in wrestling with evaluating options across a range of fields, assessing risk, challenging assumptions, supporting decision makers in crisis response, and in planning for the future.

The Cost Assessment and Program Evaluation (CAPE) office within the Office of the Secretary of Defense (OSD) relies on DIA to provide assessments to support its work. CAPE is the lead for OSD's evaluation of DoD strategy and programs to deliver the optimum portfolio of defense capabilities to provide the best defense for the nation.[20] At

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[18] Paul A. Roman and Fred M. Aubin, "Strategic Wargaming for Business," Deloitte Briefing (April 16, 2013): 30-32, http://www.slideshare.net/FM_Aubin/strategic-wargaming-for-business-presentation-to-deloittes-50-best-managed-companies-symposium (accessed February 3, 2017).
[19] Paul Vebber, "Peter Perla on 'Work-ing Wargaming,'" Wargaming Connection (May 14, 2015), https://wargamingcommunity.wordpress.com/2015/05/14/peter-perla-on-work-ing-wargaming/ (accessed October 2, 2016).
[20] Office of the Secretary of Defense, "CAPE's Mission," Cost Assessment and Program Evaluation homepage, http://www.cape.osd.mil/ (accessed January 3, 2017).

the strategic level, CAPE uses wargaming and analysis to explore potential new concepts of war. CAPE requests support from DIA to help understand adversary forces, their doctrine for employment, and their decision-making. CAPE uses DIA's assistance in the design, construction, and execution of its mission analysis. CAPE then shares its findings with DIA to refine the model, highlight vulnerabilities, and validate conclusions. CAPE's work to conduct analysis to answer the critical questions needed to shape and implement the SECDEF's priorities and direction is an example of the strategic use of wargaming and analysis.[21] Rigorous exercises involving decision-making in complex situations will enhance DIA's training and will facilitate effective participation and input to CAPE's efforts.

Another example of DoD's use of wargaming for education is the Army's annual Title 10 game, Unified Quest. The Army uses Unified Quest to identify challenges and opportunities that will test the future force and to socialize major capstone concepts. Unified Quest focuses on the educational aspects of exploring concepts more than on assessment of future capabilities.[22] The Air Force conducts two games in its Title 10 series. One of the games, Unified Engagement, balances educational and analytical purposes to address questions of concern to operational commanders.[23] When used as educational devices, wargames force the participants to begin translating what they have studied about strategy, tactics, or administration into something they can use in carrying out their mission or in understanding reality. As an exploratory tool, wargaming can give

[21] Office of the Secretary of Defense, "Introduction," Cost Assessment and Program Evaluation homepage, http://www.cape.osd.mil/ (accessed January 3, 2017).
[22] Douglas Ducharme, "Approaches to Title 10 Gaming," *Wargaming*, U.S. Naval War College (January 2014): 2-3.
[23] Ibid., 4.

players, analysts, and other observers and participants new insights, which can lead them to challenge the validity and sources of their beliefs. [24] The Intelligence Simulation Center could design similar wargames to educate DIA officers.

Clausewitz said that only combat experience prepares leaders and their armies for war, but combat experience will not always be available, so commanders should try to execute training events that are as close to war as possible.[25] The Intelligence Simulation Center will prepare officers to operate in conditions of uncertainty and stress. Though not war, properly designed and executed wargames and exercises will provide training events that simulate demanding, realistic scenarios DIA officers might face.

2.3 Challenge Assumptions and Manage Risk

Wargames, exercises, and analysis can provide scenarios in which participants build relationships and networks to collaboratively employ critical thinking skills to challenge assumptions and assess risk. An important benefit of wargames and exercises is human interaction, both in building a team to develop an approach to a complex problem and in being forced to interact with other adversary or neutral players who provide thoughtful and perhaps unexpected responses and inputs. The wargame or exercise allows participants to explore questions of strategy and human decision-making, gain a more operational focus, and communicate historical, operational, and analytical insights.[26] Robert Haffa and James Patton, writing in *Parameters*, asserted the key to success is a

[24] Perla, 180-181.
[25] Carl Von Clausewitz, *On War*, trans. and ed. Michael Howard and Peter Paret (New York: Knopf, 1993), 141.
[26] Perla, 164.

willingness to experiment and learn from one's mistakes.[27] This is also the lesson of innovation writ large and specifically of successful military innovation, as demonstrated by the Germans in the late 1930s as they learned from mistakes and problems in using new equipment and procedures.[28]

The Intelligence Simulation Center can bring together DIA and intelligence community leaders and other officers who might otherwise not interact. Interaction as participants provides the benefits of sharing ideas with other participants, but also examining various points of view, as the participants play the roles of different actors. Involving multiple players in their actual roles brings different intentions, equities, interests, and tools to the game.[29] The interaction can encourage participants to seek innovative results, new insights, or new ideas and apply them to organizational change, changes in roles and responsibilities, or changes in policies. These conditions allow participants to challenge assumptions. Shell International has been using wargaming in its *New Lens Scenarios* for more than 40 years to challenge Shell leaders' assumptions and perspectives on the future business environment and to enable individual and group exploration and discovery.[30]

The Intelligence Simulation Center can provide a platform to challenge assumptions deliberately. Identifying assumptions and comparing them to current and possible future realities is a difficult task. Historically, officers have challenged assumptions through efforts they organized themselves. A facilitated wargame or

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[27] Robert Haffa and James Patton, "Gaming the 'System of Systems'," *Parameters* XXVIII, no. 1 (Spring 1998), 110.
[28] Murray, "Innovation," 314.
[29] Courtney Weinbaum, interview by author, Arlington, VA, December 13, 2016.
[30] Shell International BV, "New Lens Scenarios: A Shift in Perspective for a World in Transition," 2013, i, 7, http://www.shell.com/energy-and-innovation/the-energy-future/scenarios.html (accessed February 3, 2017).

exercise can help move beyond what is often a brainstorming session to a deliberately planned scenario to ensure a comprehensive review of assumptions and an examination of internal and external factors that might not be readily apparent to the participants. Senior analysts periodically guide their analytic community of interest to challenge assumptions about particular assessments. A notable example of this is during the revision or development of a national intelligence estimate. The Center would assist senior analysts and their teams in this process by using wargaming practices and facilitators.

Closely related to challenging and developing assumptions is the identification of risk. *Joint Operation Planning* directs commanders to consider risk, described as the chance of unacceptable consequences in performing a sequence of actions.[31] Art Lykke of the U.S. Army War College developed the three-legged stool model of strategy in which risk is the imbalance between the three "legs" of ways, ends, and means.[32] Risk assessment, management, and mitigation are important considerations for every organization. The director of DIA's Strategic Plans, Policy and Performance Management office views wargaming as a way to address things one cannot control, including adversary intent, operational environment, and executive or legislative branch decisions.[33]

DIA can look at instances in which the private sector and non-profit organizations have used wargaming and analysis to identify and manage risk and apply similar techniques in the Intelligence Simulation Center to assist in addressing its own risk. For

[31] U.S. Joint Chiefs of Staff, *Joint Operation Planning*, III-2.
[32] H. Richard Yarger, "Towards a Theory of Strategy: Art Lykke and the Army War College Strategy Model," http://www.au.af.mil/au/awc/awcgate/army-usawc/stratpap.htm (accessed January 7, 2017).
[33] Email exchange with Scott Cunningham, Defense Intelligence Agency, October 21, 2016.

instance, the consulting company, Accenture, has developed *Next Generation Wargaming* to help companies develop agility and create competitive advantage in a volatile environment.[34] To prepare fully, organizations must address preventable risks, strategy risks, and external risks. Preventable risks are internal risks, arising from within the company. Leadership can control preventable risks and should eliminate or avoid them. Strategy risks are those that the leadership voluntarily accepts in order to generate superior returns from its strategy. A risk management system should reduce the probability that the assumed risks will actually materialize. External risks arise from events outside the organization and are beyond its control. Leadership must focus on identification and mitigation of the impact of external risks.[35]

The Intelligence Simulation Center can assist in risk identification, management, and mitigation. Specifically, wargaming and exercises might guide DIA leaders to identify preventable risks, like those caused by unclear or poorly followed policies and procedures, and eliminate or avoid them through review of policies and procedures, education, and policing of the workforce. DIA leadership could address strategy risks by developing secondary portfolios for collection assets and limiting the duration of the shifting of assets from key targets during demands for those assets in crisis events. Leaders also could employ continuity of operations (COOP) rehearsals, futures scenarios development, and crisis management gaming to mitigate external risks.

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[34] Accenture, "Next Generation Wargaming: Improving strategic agility in an uncertain world," website information paper, 2. https://www.accenture.com/us-en/~/media/Accenture/Conversion-Assets/DotCom/Documents/Global/PDF/Strategy_5/Accenture-Next-Generation-Wargaming.pdf (accessed February 3, 2017).

[35] Robert S. Kaplan and Annette Mikes, "Managing Risks: A New Framework," *Harvard Business Review* (June 2012). https://hbr.org/2012/06/managing-risks-a-new-framework (accessed 24 October 2016).

2.4 Plan for the Future

DEPSECDEF Work has strived to enhance DoD's use of wargames during his tenure. He and Vice Chairman of the Joint Chiefs of Staff (VCJCS), General Selva, wrote in 2015 about the value of wargames to prepare for the future. They assert that wargames help reduce a problem's complexity in order to identify the few important factors that constrain friendly or enemy forces, and then provide a structured, measured, rigorous environment to explore what works and what does not work. Wargames seek to create an environment for applying critical reasoning techniques and diagnosing the characteristics of competition under the fog and friction of war in which incomplete and imperfect knowledge prevails. They force players to observe and live with the consequences of their actions in the face of a thinking and reacting competitor.[36]

War colleges and think tanks since the end of the Cold War have tried to imagine an environment of constrained budgets, capable adversaries, and multiple conflicts in order to gain an understanding of future hypothetical contingencies, operational concepts, and organizational structures.[37] Currently, several companies assist businesses to develop and articulate corporate strategy, vision, and direction for the future and then test the concepts through wargaming and exercises. Deloitte advertises business wargames on topics including healthcare policy, technology failure, cyber-attacks, and financial resolution, [38] all of which are applicable to DIA. RAND, the Center for Strategic Business

[36] Robert Work and Paul Selva, "Revitalizing Wargaming is Necessary to Be Prepared for Future Wars," http://warontherocks.com/2015/12/revitalizing-wargaming-is-necessary-to-be-prepared-for-future-wars/ (accessed September 1, 2016).
[37] Haffa and Patton, 111.
[38] Sara Ulrich, "Business Wargames," Deloitte briefing, September 3, 2014. http://www.professionalwargaming.co.uk/DeloitteBusinessWargamespresentationforwargamingconference030914.pdf (accessed January 7, 2017).

Wargaming, Risk Net, Business Wargaming, and Strategic Red Team Consulting are just a few of the companies listed in an internet search for "business wargaming."

Business wargaming has application in developing historic perspective, improving management, developing and testing strategies, developing public policy, conducting crisis planning and management, and preparing for change management.[39] Jeremy Benthem, the head of Shell's *New Lens Scenarios* program, asserts that the most important outcome of the wargaming Shell does is to guide participants into better choices based on the deeper understanding of the world and its complexities they gain by thinking through the scenarios.[40] The U.S. Army War College uses a strategic wargame as a structured, facilitated interaction between experts on a topic that will inform and assist in future strategic decision-making by improving understanding of the pertinent issues. The main purpose of the U.S. Army War College's wargames is to analyze select issues of strategic importance to the U.S. Army, although participants learn from the process and each other through the exposure to issues and the exchange of ideas and information as they develop approaches to the issues.[41]

Alternative analysis or alternative futures exercises can set conditions for DIA leaders to plan for future corporate needs. A current effort at DIA is a multi-year reshaping of the talent management system to adjust for changes in resources and requirements since the rapid employee build up that followed 9/11 for several years. NATO's Alternative Analysis (AltA) process is an example of an exercise tool that the

[39] Jan Oliver Schwarz, "Business Wargaming for Teaching Strategy Making," *Futures 51* (July 2013). http://www.sciencedirect.com/science/article/pii/S0016328713000864 (accessed September 7, 2016).
[40] Shell, "New Lens Scenarios," 7.
[41] James Markley, *Strategic Wargaming Series Handbook* (Center for Strategic Leadership and Development, U.S. Army War College, July 1, 2015), 2.

Intelligence Simulation Center could host to help DIA with futures planning. AltA supports the inclusion of independent, critical thought and alternative perspectives to support decision-making. It offers the opportunity for exercise participants to inject additional knowledge, or knowledge perceived in a different way, into a decision-making process alongside traditional problem-solving processes. The goal is reduced risk and expanded opportunities through better decision-making.[42] Using AltA in an exercise involving analysts would provide another structured method to practice techniques DIA already uses in a different way to identify and mitigate biases.

The U.S. Army War College uses another method of addressing future possibilities. Its alternative futures games present participants with two or more scenarios of a plausible future, and players must determine key indicators that would signal the future represented by the scenario that might be emerging. An alternative futures game starts in the future and works backward to the present with results often including the identification of both unique and common indicators from across several scenarios.[43] The Intelligence Simulation Center could use a similar process to guide leaders through scenarios to explore paths to possible futures.

2.5 Iteration

Iteration or conducting multiple moves in a wargame or exercise provides cumulative benefits. DEPSECDEF Work and VCJCS Selva argued that conducting wargames in an iterative series of moves, in which decisions and their outcomes in one

[42] Andrew Williams and AnnaMaria Anghelea, "Bi-Strategic Commands' Alternative Analysis Handbook," Supreme Headquarters Allied Powers Europe/Supreme Allied Commander Transformation, North Atlantic Treaty Organization (Brussels: NATO, September 2015), iv.
[43] Markley, 16.

move inform the starting conditions for the next move, best duplicates the interaction between thinking adversaries.[44] Wargames and exercises sometimes follow a script that limits consequences, but realistic scenarios allow consequences and force participants to continue play with the constraints resulting from previous plays. A scenario that allows unscripted moves and imposes consequences may result in unexpected outcomes. In 2002, Joint Forces Command conducted the Millennium Challenge wargame to test new ideas about warfighting.[45] Almost immediately, opposing forces inflicted so much damage on friendly forces that friendly forces could not execute planned operations. The game controller reset the game so friendly forces were at their original strength, and the controller constrained opposing forces' offensive options to allow friendly forces to conduct planned operations, including actual amphibious operations.[46] Millennium Challenge participants learned some unanticipated lessons; requiring the participants to continue to wargame without resetting conditions would have forced friendly forces to adapt or withdraw.

Another useful technique involves wargames that repeat a step as many times as necessary, allowing participants to fail, experience the loss, adapt, innovate, and try again until they find a way to address a vexing problem.[47] An example of iteratively testing courses of action is *The Defence of Duffer's Drift* in which "Lieutenant Backsight Forethought" had six dreams about the defense of a river ford during the Boer War. Lieutenant Forethought committed tactical errors in each dream, but he was able to apply

[44] Work and Selva, "Revitalizing Wargaming."
[45] Malcom Gladwell, *Blink: The Power of Thinking Without Thinking*, (New York: Little, Brown and Company, 2007), 104.
[46] Ibid., 110.
[47] Ibid.

the lessons learned in each subsequent dream, with the result that at the end of the dream series he mounted a successful defense.[48] Multiple iterations in wargames and exercises allow participants to try different approaches to the problem. The control cell can change inputs and factors that contribute to fog and friction. For example, iterations of play might use different assumptions or different amounts of information about the flow of personnel, equipment, and logistics into the theater. Different assumptions and information thus would change the unfolding of the event and require alternative solutions.

Wargame turns often take from one hour to about half a day, and a turn covers from one day (for tactical level games) to several days, weeks, or months of game play (for higher level operational or strategic level games). Conducting multiple iterations is time-consuming, and many players will not commit their time to multiple iterations, although an organization might conduct more than one iteration if the iterations are separated by several weeks or months. An alternative that can provide the benefits of iteration is rapid-play games. Rapid-play games offer a method to test assumptions and other factors in different combinations and in a short period. In the extreme, short one- to two-minute turns allow players to see trends and shift priorities within 10- to 15-minute games. In an hour or two, participants can test several courses of action with a wide range

[48] Other works that follow a similar pattern of learning through iteration include "Battle of Booby's Bluff" which explored incorporating new types of warfare (tank, machine guns, and airplanes) in World War I. In *Defense of Hill 781,* Lt. Col. A. Tack Always finds himself in Purgatory (the U.S. Army's National Training Center) where he must atone for past sins by completing a successful mission through six dreamy iterations. "Defense of Duffer's Drift Brigade Support Area" sought to teach units inside of a Brigade Support Area to become more effective in defensive operations during combat. *The Defense of Jisr al-Doreaa* by Albert J. Marckwardt and Michael Burgoyne follows a young lieutenant through successive lessons while conducting stability and counterinsurgency operations in Iraq.

of friendly, enemy, and neutral party capabilities.[49] Rapid play games could allow more time, conducting 5- to 6-minute turns in an hour-long game. This timing would also allow for multiple iterations in a few hours. The high number of iterations emphasizes interaction, analysis, and decision-making. The players in rapid-play games must be subject matter experts, and they must understand the commander's intent. Rapid-play games would lend themselves to COA-development wargaming as well as corporate wargaming. Having the Intelligence Simulation Center available will allow DIA officers more opportunities to plan for the future and try out new concepts than is currently available.

[49] Robert Seater, "Combining Rapid-Play Games with Game Theory for the Evaluation of Future Technology," briefing to Military Operations Research Society (Lincoln Laboratories, Massachusetts Institute of Technology, December 2016). (received via email on December 14, 2016).

Chapter 3. Wargaming, Exercises, and Analysis to Improve DIA's Provision of Intelligence Support

Arguably wargaming can trace its origins back to Sun Tzu. In the modern sense, however, wargaming for military purposes started in the nineteenth century. Prussian Baron von Reisswitz modified wargames to use a sand table and to-scale pieces representing military units. His son substituted a topographic map for the sand table, formalized rules, and convinced the Prussian king of the utility of the game dubbed "Kriegsspiel" for training commanders.[1] DIA's best opportunities to provide intelligence support to CCMDs and JTFs lie in effective participation in the commands' wargaming for OPLAN development and in the exercises to test those plans. DIA intelligence officers who are regional or functional subject matter experts can provide insights into possible enemy and local populace's actions and reactions in both the OPLAN planning process, as part of the planning staff, and the OPLAN exercise process, as part of the red team. Many of the techniques and benefits of using wargames, exercises, and analysis described in the previous chapter for helping DIA improve as an organization apply in a similar manner when considering how the processes can help DIA improve its provision of intelligence support. The descriptions in this chapter assume a familiarity with the discussion in the previous chapter.

3.1 Innovation in Support of the Warfighter

The Intelligence Simulation Center would help prepare intelligence officers to participate in the OPLAN development and exercise processes, enhance their ability to operate at the operational and strategic levels of command, and equip them to assist

[1] Perla, *The Art of Wargaming*, 23, 25-27.

CCMDs to explore new implements and concepts of war. As an example, the Germans examined their military failures following World War I, while the French focused on garnering lessons from their successes, with the result that the German army was more tactically and operationally advanced when it fought the French in 1940. U.S. military forces today use wargaming, exercises, and analysis to teach and develop the problem solving and decision-making skills of leaders and staffs. Wargames do not predict the future, but they prepare participants to think through variations in tactical, operational, and strategic possibilities.

The Intelligence Simulation Center will allow DIA officers to hone their skills as subject matter experts and improve their abilities to perform as thinking contributors and opponents. Presenting wargame or exercise participants with challenging problems would require creative thought and collaboration to develop approaches to those problems. The process of recognizing mistakes and learning from them would enhance creative thinking and innovation. DIA red teams trained under this program would be better prepared to participate in Joint Staff J7 exercises to test CCMD and JTF plans. Commanders and their staffs would face some level of friction from red team activities during the OPLAN development and exercise process, resulting in more thoughtful plans than they would develop without an effective opponent. The Intelligence Simulation Center will be able to guide officers to explore the complexities of their environment, specifically the environment defined in an OPORD, with techniques similar to those helping DIA develop creative responses to assess issues, evaluate options, test concepts, challenge assumptions, explore futures, and inform decision-making.

3.2 Train the Workforce to Support the Warfighter

DIA supports the warfighter in innumerable ways. Among them are maintaining threat assessments, responding to requests for information, and participating in OPLAN development. DIA has also provided assistance in writing the master scenario event list to guide a wargame or exercise, and it provides red team members to deepen understanding of options available to a thinking adversary. A red team is "an organizational element comprised of trained and educated members that provide an independent capability to fully explore alternatives in plans and operations in the context of the operational environment and from the perspective of adversaries and others."[2] A red team contributes to planning and validating plans by representing the intentions, interests, and capabilities of an adversary.[3]

The Defense Science Board Task Force on The Role and Status of DoD Red Teaming Activities asserted in a 2003 report that red team members should be subject matter experts, with perspective, imagination, and critical analysis skills.[4] Two decades earlier, Peter Perla emphasized the importance of wargame controllers using well-trained red teams. He stated that red team members "must understand the technical capabilities, tactics, and doctrine of the opponent," but they must also guard against mirror imaging when they represent the opposition so as not to portray adversary actions in the way U.S. forces would act. Not only must red team members understand the opponent, but they must cultivate the creativity that would allow them to deviate from enemy doctrine when

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[2] U.S. Joint Chiefs of Staff, *DOD Dictionary of Military and Associated Terms* (Washington DC: Joint Chiefs of Staff, February 2017), 197.
[3] Micah Zenko, *Red Team: How to Succeed by Thinking Like the Enemy (*New York: Basic Books, 2015), xi.
[4] U.S. Department of Defense, *Defense Science Board Task Force on The Role and Status of DoD Red Teaming Activities*, Under Secretary of Defense for Acquisition, Logistics and Technology (U.S. Department of Defense: Washington, DC, September 2003), 2-4.

the situation might suggest such a deviation, and they must be able to explain the rationale in which the exercise play might not be strictly in accordance with intelligence interpretations of threat behavior. [5]

Red teams can be surrogate adversaries, devil's advocates, or sources of alternative judgment from the enterprise's "normal" processes. In the role of surrogate adversaries, red teams seek to sharpen skills, expose vulnerabilities an adversary might exploit, and increase understanding of the responses adversaries might take. Devil's advocates offer alternatives to assumptions, strategies, plans, concepts, and processes. As a source of alternative judgment, red teams act as sounding boards.[6] A well-trained red team can expose wargame participants to realistic scenarios with a thinking opponent and introduce problems that are outside the normal experience, in a similar manner to Lincoln Bloomfield's "reality games."

In addition to the value of training officers to be red team members, wargaming, exercises, and analysis help prepare officers to operate at higher levels of command by exposing them to commanders' guidance and by having them play the role of senior officers. Combatant commands and JTFs, often in coordination with Joint Staff J7, use exercises to review force and resource allocations in OPLANs, integrate partners into the OPLANs, and review intelligence sharing procedures. Future commanders and staff officers, including combatant command and DIA intelligence officers, benefit from investigating the processes of combat through exploring "questions of strategy, human decision-making, and warfighting trends."[7]

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[5] Perla, 257-258.
[6] U.S. Department of Defense, *Defense Science Board Task Force*, 3-5.
[7] Perla, 179-180.

3.3 Challenge Assumptions and Manage Risk

Improving how DIA functions as an enterprise can also help DIA enhance its ability to provide intelligence support to senior policy makers and warfighters. The Intelligence Simulation Center can assist participants to build relationships, employ critical thinking skills to assess risk and challenge assumptions, explore questions of strategy and human decision-making, and gain a more operational focus. The training discussed above for red team members will equip them to identify and challenge assumptions and risk.

In thinking about the future, Lieutenant General McMaster, the former Director of the Army Capabilities Integration Center at the U.S. Army Training and Doctrine Command, offered recommendations for improving the guidance in the 2018-2022 Defense Planning Guidance (DPG). The intent of the suggestions was to assist commands in improving their OPLANs, and he called for the defense intelligence community to participate in OPLAN reviews. Lieutenant General McMaster's recommendations included improving the fidelity and realism of Defense Planning Scenarios, and ensuring the scenarios represent actual wars with actual capabilities and forces in pursuit of actual strategic and policy objectives. He further recommended ensuring the scenarios consider technology in the context of Joint Operations, and using red teams to challenge assumptions and realistically represent adversary reactions, intentions, and capabilities.[8]

[8] U.S. Training and Doctrine Command, "Realistic Scenarios: A Key to Successful Defense Innovation," H.R. McMaster, Director of the Army Capabilities Integration Center briefing (Ft. Eustis, VA, April 15, 2016).

NATO's Alternative Analysis (AltA) methodology could help red teams and others challenge assumptions. AltA is designed to help overcome cognitive bias and groupthink. It uses structuring techniques to identify and organize facts and issues, and creative thinking techniques to help understand the environment and define the problem. AltA also uses diagnostic techniques to support problem analysis by examining lines of reasoning and assessing evidence, and challenge techniques to critique existing mental models and understand the problem from different, perhaps opposing, views.[9]

3.4 Explore Futures to Better Support the Warfighter

Training officers to support the warfighter and employ critical thinking in forming assessments, and developing expertise in their subject matter and red team performance contributes to improving support to the warfighter now and in the future. Joint planning is about exploring futures. The Joint Planning Process includes course of action (COA) analysis that primarily uses wargaming to examine potential COAs, tentatively identify the COAs that are valid, and compare those COAs.[10] Flexibility, initiative, and innovation are key to effective wargaming. Following DEPSECDEF's February 2015 announcement of revitalizing wargaming in DoD, Peter Perla said DoD had lost its focus on strategic wargaming over the past 20 years, focusing instead on campaign analysis. He described campaign analysis as a process that uses fixed scenarios, but varies the numerical and technological components each time it is run, so there are varying numbers of platforms with varying capabilities. Campaign analysis seeks to develop the most effective combination of forces to use in a particular scenario whereas wargaming seeks

[9] Williams and Anghelea, 10.
[10] U.S. Joint Chiefs of Staff, *Joint Operation Planning*, IV-27.

to discover the most effective ways to employ a collection of resources to approach different scenarios. Wargaming focuses on experimenting with the scenario itself, such as where the conflict is, who is participating, and what strategies both sides use.[11]

DEPSECDEF Work outlined three time horizons for the wargaming program in the February 2015 memo. Near-term wargaming (0-5 years) will focus on the execution and improvement of current operational plans. Mid-term wargaming (5-15 years) will seek to develop new operational and organizational concepts and new capabilities. Assessment of the operational impact of future challenges will be the purview of long-term wargaming (beyond 15 years.)[12] Work published another memo in May 2015 in which he directed the creation of a wargame repository and the establishment of the Defense Wargaming Alignment Group (DWAG). The purpose of the wargaming repository is to share information, capabilities, capacity, and insights. It also provides a database of wargames and points of contact. By November 2016, OSD, the Services, the Combatant Commands, the National Security Council, State Department, and the intelligence community had participated more than 550 wargames, as reflected in the repository. The DWAG's purpose is to "better link wargames with senior leader priorities, with a strong focus on information dissemination."[13] Combining Lieutenant General McMaster's comments on improving the Defense Planning Guidance with the emphasis the Deputy Secretary and the VCJCS have placed on wargaming highlights the

[11] Michael Peck, "The Return of Wargaming: How DoD Aims to Re-Imagine Warfare," GovTechWorks, https://www.govtechworks.com/the-return-of-wargaming-how-dod-aims-to-re-imagine-warfare/#gs.0lOxez0 (accessed September 1, 2016).
[12] U.S. Department of Defense, *Wargaming and Innovation*.
[13] Mark Gorak, "Introduction to Modeling and Simulation Special Edition: Wargaming," *Journal of Cyber Security and Information Systems* 4, no. 3 (November 13, 2016): 5.

opportunities DIA has to take advantage of the capabilities of the Intelligence Simulation Center to prepare its officers to participate in the increasing tempo of wargaming.

Chapter 4. How to Improve DIA's Thinking About the Future

This thesis argues that DIA should build the Intelligence Simulation Center to support the *DIA Strategy* and the SECDEF's Defense Innovation Initiative by developing the capabilities to improve DIA as an organization as the first priority, and in subsequent phases expand the Intelligence Simulation Center's capabilities to improve DIA's ability to meet its mission of providing intelligence on foreign militaries and operating environments.

4.1. Purpose of the Intelligence Simulation Center

The purpose of the Intelligence Simulation Center will be to conduct wargames and simulations, DoD and intelligence community exercises, Senior Leader Seminars, and symposia, and to improve DIA's internal decisions, policies, procedures, tradecraft, crisis response, and quality of support to CCMDs, the Joint Staff, the Office of the Director of National Intelligence, and OSD.

DIA's Strategic Plans, Policy and Performance Management Office has developed several proposed use-cases for the Intelligence Simulation Center. The use-cases discuss types of events and the resources required for planning, preparation, and execution of those events. They also describe the value of the events and the key DIA and Defense Intelligence Enterprise products, decisions, programs, and priorities the events will drive. The Strategic Plans, Policy and Performance Management Office envisions that each event would provide value in one or more of four ways: (1) drive intelligence operations, priorities, or posture, (2) drive DoD or U.S. Government policy, plans, or operational decisions, (3) enhance DIA's institutional or functional decision-making, and

(4) train and educate. Within these broad "principal value categories", adapting wargaming, modeling, simulation, and analysis techniques used by commercial companies would enable or enhance DIA's efforts to improve itself by planning for the future and improve its mission support.

4.2 Improve the Organization

The Intelligence Simulation Center can help DIA improve its functioning as an organization by conducting wargaming, exercises, and analysis that help leaders and officers gain insights into future possibilities and prospects, develop ways of thinking when confronted with complicated and complex situations, and identify risks and plan to manage or mitigate it. Recalling the SECDEF's Defense Innovation Initiative's assertion that "a reinvigorated wargaming effort will develop and test alternative ways of achieving our strategic objectives and help us think more clearly about the future security environment," DIA leadership should use the Intelligence Simulation Center to assist in exercises and analysis to review processes and procedures, and project necessary future changes. Upon recommending changes to policies and procedures, the Intelligence Simulation Center could then host a wargame with DIA subject matter experts to explore a scenario using those new policies and procedures. During the wargame, leaders who were involved in the policy and procedure review should observe how they affect the officers involved in the wargame. If necessary, the policy and procedure exercise could convene again to modify the policies and procedures based on the wargame observations.

Projecting future manning requirements is another area in which the Intelligence Simulation Center could host wargaming. Topics for examination could include force

structure by rank or pay grade and specialty, the mix of military and civilian officers and contractors, and the types of skills and levels of proficiency by grade and quantity required. This effort would be similar to budget planning or Defense Planning Guidance development (by other elements of DoD), but on a longer time horizon because of the need to recruit, train, and develop subject matter experts. Examples of wargames, exercises, and analysis supporting the planning of future personnel requirements include a 2007 RAND study for the U.S. Air Force Materiel Command in which RAND recommended modeling to estimate the workforce size required to handle the Air Force's projected workload.[1] In 2015, the Under Secretary of Defense for Personnel and Readiness hosted a wargame entitled Talent Leap to try to project the capabilities that DoD uniformed forces and the civilians that support them will require to accomplish DoD's mission in 2025.[2] More recently, the Army Capabilities Integration Center focused the Army's Title 10 exercise, Unified Quest, on new ways to recruit, assess, train, and educate soldiers and civilians over the next 20 years in order to "maintain overmatch in the physical, mental and moral components of human performance of land warfare."[3]

The Intelligence Simulation Center would also be well suited to help the leadership systematically challenge assumptions. DIA does challenge its assumptions, but a formal process would provide the benefit of rigor and regularity. The exercise leader

[1] Georges Vernez, Albert A. Robbert, Hugh G. Massey, and Kevin Driscoll, "RAND Study for AF Materiel Command Workforce Planning and Development Processes: A Practical Guide," RAND (2007), http://www.rand.org/content/dam/rand/pubs/technical_reports/2007/RAND_TR408.pdf (accessed February 17, 2017).
[2] Ron Sanders, "Wargaming DoD's force of the future," *Federal Times* (July 14, 2015), http://www.federaltimes.com/story/government/management/blog/2015/07/14/wargaming-dod-future-force/30129379/ (accessed February 17, 2017).
[3] U.S. Training and Doctrine Command, "Human Performance Seminar," Army Capabilities Integration Center website (December 2016), http://www.arcic.army.mil/Initiatives/UnifiedQuest, (accessed February 17, 2017).

might combine challenging assumptions with an exercise also using modified policies and procedures in order to expand the value of the endeavor.

Another important area the Intelligence Simulation Center could help DIA address is identifying risk and developing methods to manage or mitigate it. Exercises that included officers of all ranks would simultaneously elicit input from different perspectives, enhance workforce engagement to manage or mitigate risk, and bring together officers who might not otherwise interact and socialize with people and concepts from across DIA.

4.3. Improve the Ability to Fulfill the Mission

DIA's mission is to provide intelligence on foreign militaries and operating environments that delivers decision advantage to prevent and decisively win wars. Improving the organization as described above will set the conditions for DIA to better fulfill its mission. Training officers to assist in writing the mission sequence events list (MSEL) events and script, and training red team members would add value to DIA's participation in OPLAN development and OPLAN exercises. A first step might be to train a small cadre of MSEL scripters and red team leaders. Subject matter experts could then augment the cadre to support OPLAN efforts. Lending weight to this idea is the comment from DEPSECDEF Work that wargames must include a dynamic and aggressive red team that is immersed in the thinking and capabilities of the potential opponent. He continued with a warning that wargames must resist the tendency to feed

ingrained biases for a preferred American way of war or embedded preference for certain styles of warfighting.[4]

The Intelligence Simulation Center could conduct a series of training wargames and exercises to increase the pool of DIA officers with wargaming experience. This might create opportunity for DIA to participate more fully with Joint Staff J7 in exercises for combatant commands and joint task forces. It might also result in invitations to participate in exercises with sub-unified commands, an area that currently receives little participation from outside of the sub-unified commands.

A larger pool of officers with wargaming experience might increase the demand on DIA to participate in Joint Staff J7 exercises, but the larger pool of potential participants should offset the increased demand. Some benefits of greater participation would be closer working relationships between DIA and operational commands, exposure of participants to different ideas and the ways operational commands function, and greater proficiency of the officers in working in conditions of uncertainty and thinking through complicated and complex situations. Wargaming experience might also allow DIA to participate in the OSD/CAPE's Analytic Support for Strategic Planning process to inform DoD strategic capability requirements and assessments of risk.

4.4. Collaboration Opportunities

The Intelligence Simulation Center should seek opportunities to collaborate with other similar centers. DoD has several organizations that conduct wargaming, exercises, and analysis, including the National Defense University and the Service war colleges;

[4] Work and Selva, "Revitalizing Wargaming."

events include education, national security policy analysis, course of action development, and futures assessments.[5] Another opportunity would be to collaborate with other agencies in the intelligence community to take advantage of their points of view. Assembling officers from other agencies would be a challenge, but a well-planned wargame or exercise conducted for a short duration with a clear goal, including a published product, would benefit DIA's drive to improve its ability to provide insightful, predictive assessments.

The Joint Staff J7 conducts OPLAN exercises for combatant commands and joint task forces; better-trained DIA officers will provide better input, and successful participation in J7 exercises would increase invitations for DIA to participate in future exercises. The NATO/Allied Commander Transformation office conducts a variety of wargames and exercises, including the Concept Development Assessment Game (CDAG) that is a structured approach for a qualitative analytical method for assessing concepts or conceptual documents, using simulation and a red team.[6] NATO runs the Disruptive Technology Assessment Game (DTAG), a table-top seminar wargame, used to assess potential future technologies and their impact on military operations and operating environment.[7] CDAG and DTAG offer platforms the Intelligence Simulation Center could use for DIA to train the workforce, challenge assumptions, and plan for the future.

[5] Ken Kligge, telephone interview by author, Washington, DC, December 12, 2016.
[6] Sue Collins, "Concept Development Assessment Game 'CDAG' Handbook, V4.1," (Norfolk, VA: HQ Supreme Allied Commander Transformation, February 2014), 1.
[7] Sue Collins, "Disruptive Technologies Assessment Game 'DTAG' Handbook, V0.1," (Norfolk, VA: HQ Supreme Allied Commander Transformation, undated), 5.

4.5 Proposed Vision, Mission, Goals, and End State

Having analyzed the purposes and benefits of wargames, exercises, and analysis, this section proposes a vision, a mission, goals, and an end state. The proposals support DIA's vision and mission, draw on pre-decisional efforts to define goals, and synthesize vision, mission, and goals to recommend an end state.

Vision: Be the premier resource multiplier to make DIA the indispensable source of Defense Intelligence expertise.

Mission: Provide the intelligence community's most effective and comprehensive wargaming, exercise, and analysis capability to enhance DIA and other intelligence organizations' capability to provide intelligence that delivers decision advantage to prevent and decisively win wars and protect the U.S. homeland.

Goals:

- Drive DIA, DoD, IC and U.S. Government decision-making
- Enhance DIA support to DoD planning and strategy development
- Incorporate a full range of IT domains and information sharing environments
- Drive analytic and intelligence innovation
- Inform DIA program, structure, and resource decisions
- Test intelligence concepts, assumptions, and judgments
- Serve as a training and education resource
- Serve as the premier, dedicated wargaming center within the IC
- Provide operational and policy customers an environment for examining issues at senior levels and in secure environments.

End state: The sole, dedicated wargaming center within the intelligence community that enhances DIA's ability to inform, anticipate, and respond to national and Defense guidance and needs, and improves collaboration across the intelligence community to deliver actionable intelligence to the nation's decision-makers.

5. Conclusion

The Intelligence Simulation Center will provide DIA with a resource to advance an atmosphere of innovation. A small, trained cadre can use wargames, exercises, and analysis to reinforce the DIA Director's initiatives to strengthen the agency's corporate and mission related functions. The first priority should be to improve the functions that allow DIA, as an enterprise, to support senior decision makers and warfighters. DIA should use the Intelligence Simulation Center to train employees to enhance their creative and critical thinking skills, thus enabling them to develop approaches to complex problems. Human interaction is the foundation of wargames, exercises, and analysis, and bringing officers of different pay grades and with different skills and experience together will expose them to viewpoints they would not otherwise experience. The interaction would produce innovative results and new insights.

The skills that officers will develop through wargaming, exercises, and analysis to help improve DIA's organizational functioning have close correlation to the skills necessary to improve DIA's provision of intelligence support. The Intelligence Simulation Center will equip officers to operate at the operational and strategic levels of command, and to assist CCMDs to explore new concepts of war. The training will result in greater analytic rigor in providing threat assessments and responses to request for information from customers. Training for scripting mission sequence events lists and for participating in OPLAN development and exercises as red teams will expose vulnerabilities adversaries might exploit and increase understanding of actions adversaries might take.

DIA's development of the Intelligence Simulation Center aligns with the Secretary of Defense's 2014 Defense Innovation Initiative and with the Deputy Secretary of Defense's 2015 Wargaming and Innovation memo. Lieutenant General Stewart included in his 2017 Priorities several objectives for improving the corporate functions of DIA. DIA should develop innovative capabilities in the Intelligence Simulation Center to improve DIA as an enterprise to support DoD in thinking more clearly about the future security environment and in advancing U.S. military superiority as its first priority. DIA should expand the Intelligence Simulation Center's capabilities in subsequent phases to improve DIA's ability to meet its mission of providing intelligence on foreign militaries and operating environments. The result will be an agency with improved capabilities to provide intelligence on foreign militaries and operating environments that delivers decision advantage to prevent and decisively win wars, and to enhance other intelligence organizations' capability of delivering actionable intelligence.

Glossary

Analysis. A definition for analysis is "a technique for producing a rigorous, quantitative, or logical dissection of a problem or for defining precise measures of effectiveness by which to compare alternative solutions."[1] Analysis does not necessarily involve an organization's leadership; a sub-group or task force could perform analysis.

Exercise. The DoD Dictionary defines an exercise as "A military maneuver or simulated wartime operation involving planning, preparation, and execution that is carried out for the purpose of training and evaluation."[2] A modification to an exercise to involve headquarters elements and not military maneuver is a command post exercise. Changing the focus to a corporate application would redefine an exercise as an activity involving actual corporate officers in a simulated challenging (or hostile) environment for the purpose of training and preparing for the future.

Modeling and Simulation. A model is a logical representation of a system, entity, phenomenon, or process, and a simulation is a method for implementing a model over time. From that comes the logical and simple definition of modeling and simulation as the discipline that comprises the development and use of models and simulations.[3]

Red team. An organizational element comprised of trained and educated members that provide an independent capability to fully explore alternatives in plans and operations in the context of the operational environment and from the perspective of adversaries and others.[4]

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[1] Perla, *The Art of Wargaming*, 164.
[2] U.S. Joint Chiefs of Staff, *DOD Dictionary*, 85.
[3] U.S. Department of Defense, *DoD Modeling and Simulation (M&S) Verification, Validation, and Accreditation*. (Washington, DC: Under Secretary of Defense for Acquisition, Technology and Logistics, December 9, 2009), 10.
[4] U.S. Joint Chiefs of Staff, *DOD Dictionary*, 197.

Wargame. A warfare model or simulation whose operation does not involve the activities of actual military forces, and whose sequence of events affects and is affected by the decisions made by players representing the opposing sides.[5]

[5] Perla, 164.

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Vita

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