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Wargaming for Innovation

A naval war game in Pringle Hall during the early 1950s. *Image courtesy of the Naval War College Museum.*

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In a recent department-wide memo announcing the Defense Innovation Initiative, Secretary of Defense Chuck Hagel calls for accelerating innovation throughout DoD. Among other elements of the program, "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."[1] The Secretary's use of the word "reinvigorated" implies that some aspects of the current wargaming program, whether in DoD proper or

throughout the Services, requires improvement. Since each of the Services has in place a robust program of wargaming, the Secretary either is calling for additional effort in the joint and OSD arenas or is leery of the objectivity of Service gaming and wants more oversight of the process. Whatever the Secretary's true intent, an effort to improve wargaming support to innovation will face any number of pitfalls. Just throwing money at the problem almost guarantees failure. If this initiative is to bear fruit, wargames must be conducted under the proper circumstances by the right people using correct techniques. Although not specifically called for by the memo, the implied task for the Secretary and his staff will be to establish a DoD-wide policy and strategy on wargaming. This article will set forth some considerations and principles for doing so.

My Qualifications to Talk About Wargaming

I feel that since I am offering criticism and prescriptions, I should establish my bona fides for doing so. I have been playing in, designing, directing, analyzing, overseeing and sponsoring professional wargames since 1981. I served as a professor of planning and decision making at the Naval War College for six years and in that capacity was responsible for executing student end-of-course wargames. Later, I served as director of the Research and Analysis Division within the Wargaming Department. In this position, besides analyzing Title X and other games, I served as game director for a major advanced concepts game involving Joint Forces Command and the Navy (Unified Course 04). Elevated to Chairman of the Wargaming Department, I completely reorganized it and substantially civilianized it, hand-picking the faculty. In 2006 I was made Dean of the Center for Naval Warfare Studies. I was immediately assigned to design and lead a project to support the development of a new maritime strategy. As part of that project I conceived of a six-week-long strategy game that produced the central insight upon which the resulting document, "A Cooperative Strategy for 21st Century Seapower," was based. As Dean I had seven departments reporting to me. Three of those departments, Strategic Research, Wargaming and Warfare Analysis, conducted a substantial amount of their work using different types of wargaming, for which I established institutional policy and standards. Throughout all of this I participated in many Title X games of each of the Services as well as teaching an elective course on wargaming theory and practice at the Naval War College. I also wrote several articles on wargaming theory.

Over the course of the last sixteen years I have observed the Navy and Joint attempts to create innovation centers – the Navy Warfare Development Command and Joint Forces Command J9 – including sitting with LtGen (Ret) Paul VanRiper during Millenium Challenge 02. I have had a front row seat,

as it were, to see how the best institutional intentions, activated by a host of smart, experienced and dedicated people and funded by millions of dollars, failed to generate useful innovation, in part through the misuse of wargames. In this article I will not provide a detailed critique of what went wrong, but my observations and prescriptions concerning wargaming are based on what I saw fail.

The Nature of Wargames

Wargames have been used by militaries for centuries to educate, test plans and to explore future warfare environments. As distilled simulations of warfare, their attraction stems from the embedded narrative and their ease of use. Wargames can range from simple table-top, map-based discussions to large, computer-supported events involving hundreds of participants. However, whether small and simple or large and complex, all true wargames share a common intellectual underpinning.

- Wargames are revelatory and indicative, not predictive and prescriptive. Just as looking at a map provides a better understanding of geography and terrain than does reading about it in text, playing through a scenario provides a better understanding of the dynamics of warfare than does reading history. Relationships among physical entities like ships or positions, under various military circumstances, are revealed, as are potential incentives to act or not act. The famous series of games at the Naval War College in the 1920s and 30s revealed that a strategy of sending the Fleet directly to the relief of the Philippines courted disaster. Based on this insight an alternate strategy of progressive advance through the Mandated Islands was developed. It is important to note that the games did not, could not, predict what would happen, nor did they prescribe an alternative. Officers with authority had to decide to accept game results and act on them.
- Wargames are sensitive and equivocal tools. It is all-too-easy to design and execute a game that produces dangerous distortions. If a game is designed to validate a concept that is a favorite of top leadership, it will, whether or not the concept has actual merit. Organizational politics can influence games, especially when competing equities are involved. Even well-designed and well-executed games can fail to produce the insights necessary for effective innovation if players, umpires and analysts are unable to hear the "whispers" the game produces.[2] Whispers are those counter-intuitive, counter-cultural insights - the weak signals - that are easy to miss. In Japanese Navy staff wargames prior to the Battle of Midway, a junior officer playing the US Pacific Fleet placed a task force northeast of

Midway. Admiral Yamamoto's staff ignored this move, believing that Admiral Nimitz would not be so prescient or aggressive.[3] Organizations sponsoring games must be ready for the games to tell them things they do not want to hear.

- Wargames require commitment and involvement. If Secretary Hagel's use of "reinvigorated" is to have any meaning, it will be because the chain of command commits to getting its "hands dirty" with the wargaming process. Defense and Service leadership has been busy for the past decade and it has become a frequent practice to "contract out" wargames. There are plenty of consultants and contractors as well as government organizations that are happy to receive a bundle of money to run a game, and of course hope that the game makes the sponsor happy enough to engage in a series of games. With little more involvement than providing a topic and a check, the sponsor awaits the wisdom and answers it expects to find neatly bulletized in the game report. This practice is condemned. This writer has too often been frustrated in trying to establish a meaningful dialogue on game objectives and design with OPNAV and other sponsors that are too busy to engage. A research wargame is a thinking tool that requires participation by those who must do the thinking and wield decision authority. Sponsoring leadership must maintain direct involvement from game conception and design through game execution. Whether acting as players or not, sponsoring leadership must be willing to engage in an in-depth dialogue with game designers. Participation in the game, beyond showing up on the last day for a hot wash, is salutary.
- Multiple games are better than one. Individual games, if conducted well and under the right circumstances, can be revelatory, but each game is simply one foray into a limitless forest of possibilities. Like blind men feeling the elephant, multiple inputs help create a clearer picture. Moreover, multiple games increase the odds that someone will hear a critical whisper or have a flash of insight that produces a big idea. Conducting a campaign of gaming also can produce a more effective gaming process, including the creation of adept gaming organizations and a more sophisticated set of game consumers. However, care must be taken when trying to "connect the dots" between and among games. The results of games conducted for different reasons, by different organizations and using different methods cannot be easily compared. The temptation is to gather disparate game data and subject it to statistical analysis in order to squeeze additional meaning out of it. This is also a practice that is condemned. For the reasons set forth in the previous bullets, game experiences, not game reports, are the key to learning from them.

Gaming for Innovation

Secretary Hagel was right to mention gaming in his memo on innovation. Games can be powerful tools for generating new ideas, testing them and socializing them with the Services. However, a gaming policy and strategy should be approached with more caution than enthusiasm in order to maintain intellectual discipline and avoid pitfalls. Here are some principles and practices that should be followed:

- New ideas cannot be conjured on demand. Games whose purpose is idea or concept generation must be seen as venture capital investments that may or may not bear fruit. It is too often the case that up-front expectations of success result in the substitution of euphemisms and slogans for substantive new ideas if these are not produced by the game. Lip service has often been paid to the idea that we must be prepared for experiments to fail, but when it comes to games, it's hard to think of any game in recent history that has not been declared a success. A game can be competently designed and executed and still not produce useful new ideas. Idea generation games must be a regular diet of any organization hoping to support innovation with them. Having said all this, exploratory games, such as the first few Navy Global Wargames in the 1980s, can be expected to produce useful insights on the potential nature of future warfare.
- Joint operational level games can easily deteriorate into political correctness in terms of not threatening Service equities. If Secretary Hagel wants to reinvigorate military wargaming, he must generate an organization capable of designing and executing games in which move adjudications and analyses are conducted without bowing to Service pressure. This is a very difficult thing to do. Hiring civilian companies is no guarantee of objectivity as Service pressure can be exerted through other contract vehicles the company may have. One answer is the creation of an in-house wargaming organization that is mission funded and imbued with an ethos of independent thought (but avoiding the "not invented here" syndrome) and dedication to quality gaming.
- Wargames may have multiple embedded objectives, but should have only one main purpose. Among the many defects of Millennium Challenge 2002, a large game/experiment/exercise conducted by the former Joint Forces Command, was the multiplicity of purposes loaded upon it. It was a wargame meant to explore (if not validate) "Rapid Decisive Operations," but this was superimposed on a set of field training exercises involving thousands of soldiers, airmen, marines and sailors. Inevitably, the requirements of a large training exercise distorted the play of the game, with resulting controversy that ruined

the game's legitimacy and utility.[4] A wargame should never be bigger or more complex than necessary to fulfill its one main purpose.

- Secretary Hagel's bullet on gaming calls for games to "develop and test alternative ways of achieving our strategic objectives." It is one thing to use operational level games to develop and test concepts and plans at that level, but attempting to do so with strategic level games invokes profound intellectual difficulties. The many degrees of freedom of problems at the strategic level make development and testing of policies and strategies very problematic. Politics being what it is, there will always be a sufficient number of "unknown unknowns" to confound any attempt to test strategies or policies via gaming. However, strategic level games can be useful in revealing potential incentive structures in various situations. In a six-week long game that supported development of the Navy's 2007 Cooperative Strategy (CS21), the fundamental insight that emerged at the end was that all nations, including such "rogues" as North Korea and Iran, had a stake in the proper operation of the international system of commerce and security. Key phrases of the ensuing strategy document leveraged this insight and subsequently had a catalytic effect on generating increased global maritime security cooperation.
- Gaming the future. Since research games deal with scenarios that have yet to take place, all such games deal in futurity. As sponsoring agencies attempt to use games to probe more far term issues – generally involving procurement and force structure decisions – the likelihood of distortion increases. Gaming longer term scenarios is certainly necessary, but the design of such games must be approached with caution. The question most often asked is how would a future Blue force of specified characteristics perform against a future Red force of specified characteristics? The respective orders of battle are derived from current intelligence on Red development trends and on own force R&D. To the extent that these lists of capabilities are based on a conservative estimate of how new developments will pan out and how long they take to get fielded, the games are useful. However, too often, especially in games involving multiple Services, future Blue forces are imbued with too much capability and fanciful concepts are inserted that have no solid basis in research investment. In a 2003 future concepts game the author designed and directed (Unified Course 04), one in which an attempt to impose discipline on future forces definition was made, one Service threatened to pull out if certain "advanced" concepts were not included.

  One way to approach future force structure is to adopt a "challenge-response" methodology either in advance of the game or as part of the game itself. Each side is given a menu of capabilities under

development and a constrained budget that does not permit full or rapid development of all technologies. One side, say Blue, goes first and makes a set of future investment decisions. These decisions are divulged to the other side, Red, who then makes its decisions at least in part influenced by Blue's. Blue gets Red's decisions and reacts, and so forth for the number of cycles that would be judged to occur up to the projected gaming point. Now both sides have feedback-based force structures, which, if not an accurate prediction of the future, at least are not straight-lined and have a form of discipline underpinning them. Since some long term future developments such as information technology are almost impossible to game, a "futures" game is more about a chain of potential interactions than it is about exploring projected conditions.

- Constrain the roles of retired flag and general officers. Certain retired senior officers have been highly valuable as mentors and advisors as well as players during games. However, they should not be used, as has been done on occasion, as interpreters of game results. Their comments have displaced the actual game results when they constitute panels of "senior concept developers." This occurs because of their prestige and it disrupts and distorts the gaming process. Some senior retired officers are collegial and make fellow players feel able to speak freely. Others do not. Senior folks that constantly are in the transmit mode inhibit rather than facilitate the gaming process.
- Games cannot validate concepts. What games can do very well is uncover potential flaws in concepts and plans. Thus, when Secretary Hagel calls for using games to test new concepts, everyone involved in the gaming process must be prepared to hear "bad news." Of course, finding concept flaws in games is much better than finding them on the battlefield. However, candidate concepts can become politically charged soon after articulation. The coining organization and/or its leadership become professionally invested in the concept. Rapid Decisive Operations, Effects-Based Operations and AirSea Battle are three that come to mind. When this happens, the chances for objective testing via gaming evaporate. The real issue in gaming new concepts is not whether flaws will be found – they will – but the nature of those flaws and under what circumstances they emerged.
- Technology insertion cannot substitute for good wargame design. The "network-centric" Global Wargames held at the Naval War College between 1998 and 2001 were focused on exploring how networks empower command and control. Massive effort and funding was poured into these huge games. While there was indeed a significant benefit that emerged from the Global 2000 game (a web-based

situational awareness system called KWeb, which was used by RADM Zelibor to command the initial portion of OEF), the infusion of so much new and different technology served to blur the focus of the games and compromise their legitimacy, so much so that the VCNO ordered a halt to the Global series. My policy to wargamers at NWC was that if they could not design the game as a manual board game, they had no business bringing in technology. Computer simulation has its place (not a huge one), as do communications networks (a larger role), but the heart and soul of gaming is the intellectual structure that underpins the game. Technology's potential role in the game can only be properly understood once that structure is in place.

- Beyond just gaming and considering innovation in general, the following ingredients are necessary (and not easy to acquire):
    - An independent organization, as either a separate command (probably a bad idea) or cell within an existing command or staff.
    - This independent organization must be left alone. This is hard for leadership to do. The history of the Navy's Deep Blue is illustrative. Staffed with top notch officers, after a while the CNO started using them as troubleshooters and quick response generators. Once that happened, there was no chance of innovation to occur.
    - Someone has to ask the right questions. This is probably top leadership if they would take the time to craft them with some care. Once these questions are asked, problems can be defined and after that, innovation will take place in the process of problem solving.
    - The cell must have some kind of sandbox to play in. The CNO Strategic Studies Group (SSG), composed of flag-eligible O-6s, does extensive travel and research, but does not "play" in a virtual sandbox. Serious play is necessary for upping the odds that useful innovation will occur, but this has to be self-directed play with no deadline.

The list of considerations and principles in this article are challenging to anyone attempting to craft a gaming policy and strategy. The wrong approach is to simply pick a command or a contractor and direct money at them. The Secretary and his leadership team must become directly involved and engage in a continuing dialogue and oversight of whatever team is selected or created. If the OSD Staff does not wish to create its own wargaming organization, it should at least establish some kind of wargaming oversight board that can develop and oversee the Secretary's policies.

Innovation is a consequence of a corporate culture and ethos of objective inquiry, collegial and open dialogue, and a common understanding of and commitment to institutional goals. Such an environment must be created or at least facilitated by top leadership through its actions and decisions. There is plenty of innovation taking place within the Department of Defense, particularly at the technical level, but in many cases, at the operational and strategic levels, despite lip service to innovation, what many leaders really want is revolutionary new ways of maintaining the status quo. In one sense, that is a perfectly proper objective. The US is a status quo power that seeks to maintain the current international system of commerce and security with itself as the prime guarantor of system security. Defense efforts at innovation should be aimed at finding ways to maintain this status quo within increasingly severe resource constraints and in the face of rising revisionist powers and new and more challenging technology. However, below this broad strategic level of regard, everything ought to be on the table for revision. There will be considerable pushback from vested interests, and nowhere can the pressures be exerted as effectively as through the wargaming process. I therefore behooves the Secretary and his leadership team to establish a wargaming policy and environment in which the whole wargaming process is "reinvigorated" with discipline and objectivity.

[1] Secretary of Defense, Memorandum entitled "The Defense Innovation Initiative," dated November 15, 2014, OSD 013411-14

[2] Robert Rubel, "The Epistemology of Wargaming," Naval War College Review, Spring, 2006, Vol 59, no 2, pp. 124-126.

[3] Jonathan Parshall and Anthony Tully, Shattered Sword,(Washington, DC: Potomac Books, 2005), p. 62 and 410.

[4] Julian Borger, "Wake-up Call," The Guardian, September 8th, 2002. http://www.theguardian.com/world/2002/sep/06/usa.iraq See also, Fred Kaplan, "War-Gamed," Slate, http://www.slate.com/articles/news_and_politics/war_stories/2003/03/wargamed.html