Forging Wargamers

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INTRODUCTION
There has been a recent explosion in interest and research on wargames as methods of social science research.¹ Recreating hypothetical domains of practice often devoid of unclassified, reliable data and evidence (i.e., future wars and covert operations), wargames can provide researchers with a method to gather evidence and observations on events that might otherwise be unobservable or difficult to measure. In short, wargames provide for a method to tackle “wicked” problems or examine what otherwise might be unknown. Like historical case reconstructions, they are reenactments, albeit future-oriented, that recreate key moments of interdependent decision making in fluid environments subject to high degrees of uncertainty and friction.²

A wargame, as defined by Peter P. Perla is a “model or simulation whose operation does not involve the activities of actual military forces, and whose sequence of events affects and is, in turn, affected by the decision made by players presenting


opposing sides.”³ Wargames have a long history of use in military communities. The authors’ purpose here is to not review this history but to examine the nature of experimentation and hypothesis testing in gaming settings. From the application of “military chess” in eighteenth century Germany to the modern equivalent advanced by the U.S. military, wargames provide a means to explore outcomes and win conditions in various scenarios. This situates wargames as a theory of practice and theory of decision making that uses reconstructions to understand how actors approach the complex system that is war.

The focus here is mainly on analytic wargames, “distinct in that the purpose of play is not to improve player ability or generate an enjoyable experience, but to help further the understanding of a phenomenon by observers and analysts, and to generate data that can be subsequently analyzed to improve and refine future planning.”⁴ The goal is to gain more from a game than just experience; data can be extracted and analyzed after multiple iterations transforming the purpose and utility of a wargame.

Seen as a social science method, wargames illuminate a pathway toward both novel methods of experimentation and as a means of investigating plausible alternative futures that have yet to occur in the real world. The use of wargames to evaluate interdependent decision making has a long tradition in the military profession and strategic studies communities.⁵ Wargames, as a form of simulation, are a useful method for evaluating competing hypotheses, focusing data investigations, and delineating patterns otherwise unobserved though massive online interactions. They can provide inputs to future-

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oriented counterfactual scenarios that form the core of defense planning. This chapter explores how wargames can leverage social science techniques and how social science research can leverage wargames to investigate novel topics.

Yet, utilizing wargames as a method does not come without controversy and intense pushback from some in the wargaming community who see wargames as an art, not a science. For many, wargames are subjective events that defy replication and generalizability that are core functions of social science.6 This chapter will review both the utility and potential drawbacks of wargames for social science, situating the issue as a novel method not without criticism. As with all methods of social science analysis, knowledge of the possibilities and limitations of the research method is critical to understanding how progress can be made on questions that have no obvious answers. War is a core social problem and therefore sometimes requires tried and tested methods of social science investigation to uncover otherwise unknown patterns and connections.

Analytic wargames remain a viable method of exploring contingent outcomes that apply untested technological innovations, a research process that can be enhanced by utilizing social science methods. At the same time, the wargame community can bring much to the social science community by allowing for exploration of novel hypotheses that lack empirical information providing fertile grounds for research. This chapter proceeds with an exploration of what social science research is, how wargames currently employ social science research, and finally, the potential downsides of applying social science to wargaming.

WHAT IS SOCIAL SCIENCE AND WHY DOES IT MATTER?

Defining social science can be tricky. The subject matter is so

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broad, and many analysts go directly to explaining the research methodologies, following Emile Durkheim’s early entry in 1895, without diving into social science as an epistemology. The United Kingdom’s Economic and Social Research Council defines social science as “the study of society and the manner in which people behave and influence the world around us.” The broader field is made up of many different disciplines including sociology, political science, and economics. The tradition generally invokes quantitative or qualitative research methods that follow the scientific method.

The basic premise for the social sciences is that scholars can seek to build knowledge to understand and explain the functions of society. Alvin Goldman and Cailin O’Connor believe that “epistemology in general is concerned with how people should go about the business of trying to determine what is true, or what are the facts of the matter, on selected topics.” What are the social facts inherent in society and what methods allow scholars to understand what makes up fact and observation?

Centered directly as part of scholarship after the enlightenment, the social sciences seek to explain how the world and society works in order to achieve some form of progress or at least understanding. The social sciences are often seen as an outgrowth of the positivist tradition to determine what might be the core of knowledge, as opposed to the deconstruction in the post-modern project. This connection became so great that during the 1950s, “the term behavioral

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sciences was often applied to the disciplines designated as the social sciences.” 11

The core challenge of social science methods is judgment aggregation, or how we understand that the decisions of individuals feed into the behavior of groups that make up social units. 12 The goal is to understand the wisdom of the crowd, and how groups collectively come up with solutions to problems. 13 This leads directly to the issue of wargames; applying social science methods to wargames allows researchers to understand the wisdom of the crowd by exploring outcomes among many, not the just the select few, over multiple iterations.

The central idea is the larger the sample, the more likely one is to see a central tendency and convergence to a future mode. The countervailing wisdom is that the interdependent decision making defining high politics and war are not reproducible due to contingency, the small sample of the population that in their life will find themselves “at the table,” and the unique character of those moments (i.e., fog, friction, chance). 14 The analytical question is how best to approximate these moments: single, large-scale wargames with experienced players or through multiple iterations mixing experienced and novice players confronting a choice horizon.

Critically, the social sciences differ from the hard sciences in that methods of observation and experimentation are difficult when they involve social functions and human beings. Holding a treatment sterile is impossible in the social world. Another challenge for the community is that war is a rare event and the

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most unsterile and contaminated environment known to humanity.\textsuperscript{15} This makes observation difficult and statistical analysis even more complicated because of the rarity of the event and impossibility of creating control and treatment groups. War and conflict are not events that can be created or induced.

Wargames can then provide a service as a methodological innovation allowing observers to seek to understand how social agents behave during the chaotic and complicated strategic conditions presented during battle. The goal is to explore how the social world works with either qualitative or quantitative methods. As a method of social science, wargames allow for experimentation and simulation of rare events to observe how individuals function in social units during adverse conditions unlikely to be replicated without enormous costs. Extracting data from these interactions is the natural next step and a core function of social science methodologies.

\textbf{WARGAMES AS SOCIAL SCIENCE}

With a rising concern about the impact of emergent technologies (such as cyber, artificial intelligence, and unmanned vehicles) on the battlefield, there is a corresponding renaissance in the use of wargames to evaluate interdependent decision making in a strategic setting. As Benjamin Jensen and David Banks note, “analytic wargames represent a proven approach for assessing the potential outcomes of uncertain future events like cyber war.”\textsuperscript{16} Bethany L. Goldblum, Andrew W. Reddie, and Jason C. Reinhardt echo that “empirical data on the impact of emerging technologies such as cyber weaponry, advanced intelligence, surveillance, and reconnaissance tools, and precision-guided munitions are lacking.”\textsuperscript{17}


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Wargames can provide a unique service helping the research community understand the impact of new innovations in disruptive technology when they are lacking empirical observations. Useful examples include military investments in artificial intelligence, evaluating competitive strategies, and state use of cyber operations during a militarized dispute.

The goal is understanding how future applications of technology might impact decision making and doctrine. By repeating play and designing scenarios that apply different treatments, researchers can explore the contingent nature of outcomes. As Benjamin Schechter, Jacquelyn Schneider, and Rachael Shaffer note that “recent work on the integration of experiments within wargaming suggests wargames can utilize social scientific methods, and prioritizing iteration, control, and generalizability within experimental design can provide new opportunities for wargames.”

First, the different types of social science research that can incorporate wargames must be explored. Not all social science methods are created alike, and the wargame community has undertaken experimental wargames, computational simulations, and alternative reality/counterfactual thought experiments to understand how novel technologies can impact the battlefield.

**Experimental Methods**

Experimental methods used for research in political science and international relations scholarship is not new. What is new is connecting wargames with traditional social science methodologies leveraged at scale through computational technologies. Others have explored the nature of experimental research

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design in greater depth.\textsuperscript{19} For the purposes of this chapter, the core idea is that experiments hold treatment conditions and randomization at the heart of the research design to explore varying hypotheses.

Peter P. Perla, Michael Markowitz, and Christopher Weuve argue that “games provide a wealth of flexibility for exploring, testing, and demonstrating a host of variables and issues associated with decision making.”\textsuperscript{20} Thus, the core of the experimental method as applied to wargaming is to allow for flexibility in altering treatments and variables to explore decision making. Through multiple iterations reproduced at enormous scale, researchers can examine the statistical support for the various hypotheses proposed.

Schechter, Schneider, and Shaffer note that experimental applications within wargames are not a new development, with many in the past exploring similar ground.\textsuperscript{21} They argue that some conditions can be relaxed in experimental warga-


\textsuperscript{20} Peter P. Perla, Michael Markowitz, and Christopher Weuve, \textit{Game-Based Experimentation for Research in Command and Control and Shared Situational Awareness} (Alexandria, VA: CNA, 2005), 3.

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mes in favor of greater external validity if the sample allows building on the idea that experiments within wargames offer a great amount of flexibility to the researcher.\textsuperscript{22}

The focus of recent wargame scholarship is on emergent technologies and exploring their impact on outcomes utilizing recent advances in the field including online experiment methodologies enabled by services such as Amazon’s crowdsourcing platform Mechanical Turk (MTurk).\textsuperscript{23} But there are many questions that are yet unanswered; for example, what are the consequences of running online versus in-person wargames and what is the proper process of building out surveys to support wargame experiments?

**Computational Simulations**

There is a long and ancient history of computer simulations being used to understand global politics, with the movie *Wargames* (1983) being a prime example.\textsuperscript{24} We use the term *computational simulations* to distinguish between role-playing simulations where students are often encouraged to act as specific decision makers to understand different components of international security, particularly diplomacy.\textsuperscript{25}

Computational simulations differ from experiments in two core ways. First, they primarily are computer based to quickly

\textsuperscript{22} Schechter, Schneider, and Shaffer, “Wargaming as a Methodology.”


ease replication and recreating abstract conditions of play at scale. Like bootstrapping methodologies, computational simulations often feature random treatments with replacements (alternating independent variables). Simulations seek to explore complex system dynamics with the aid computational power. A useful example is using a simulation to explore systemic politics and the impact of anarchy on world politics.26

Second, simulations often cannot hold the conditions of experiments standard since it might be impossible to randomize treatments or to recreate the same conditions each play because of the massive scale of the simulation and its evolution over time. There is a long history of simulation in international relations research and the recent interest in wargames often excludes these early developments.27 This is done to focus on the new and novel but forgetting the path that was blazed by others.

Computational simulations generally fell out of favor as research methodologies with the advent of massive datasets and the statistical tools used to analyze the data like IBM’s SPSS Statistics and Stata. These statistical programs leveled the playing field and ushered in a new era of international relations research in the mid-1990s that sought the examine the behavior of systems and complex units in relation to interstate war, terrorism, and intrastate war. With the coming of new technologies that seek to transform the battlefield in the 2020s, a new utility for simulations emerged bringing the issue full circle.

Alternative Reality and Counterfactuals

Most work in political science and history involves counterfactual thought experiments presented as exploring competing hypotheses without the researcher generally knowing that this is the process of investigation. As Paul W. Schroeder notes, historians use and propose counterfactuals to analyze what might come to pass. Military scholars do the same to explore alternative realities, researchers thus propose counterfactuals that take the form of alternative novel hypotheses. Introducing condition X might lead to outcome Y, but how does one evaluate the probabilities and realities involved with alternative futures?

John S. Odell notes that a counterfactual argumentation, and thus futures projections, is speculation by definition, making these forms of thought exploration dubious without a tether to an identifiable method. Some researchers propose necessary condition case studies as a method to explore counterfactual outcomes. Yet, the entire purpose of a wargame can be thought of as a rules-based exploration of a counterfactual condition inherent in most social science.

A wargame is a way to reduce complexity and explore differing catalysts that might impact outcomes. As William R. Thompson notes, exploring catalysts and contingent causation is a tricky proposition that demands a careful examination of what options are plausible and realistic, avoiding the grander projections often offered by fiction. Wargames offer the researcher a methodology to explore these processes while also

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tethering them to the possible in the avoidance of the spectacular.\textsuperscript{32}

Recent Examples
There are many recent examples using wargames combined with experimental methodologies to explore the impact of emergent technology. Nuclear warfare has been a particularly active question in the research space with Reid B. C. Pauly leveraging a sample of archival wargames with strategic elites to examine attitudes toward nuclear weapons, finding restraint based on reputational and practical risks dominates.\textsuperscript{33} What is most interesting about Pauly’s article is the use of “records from the golden age of political-military gaming” to understand the behavior of nuclear capable actors during a crisis.\textsuperscript{34} By focusing on strategic elites from archived games 1958 to 1972, it is possible to review how actors behaved when the context was most appropriate.

The University of California-Berkeley’s Project on Nuclear Gaming (PoNG) explores decision making during conflict escalation with controlled experiments, enabling a massive online wargame simulation that explores nuclear war.\textsuperscript{35} The results from the PoNG game have yet to be published, but the group has certainly raised awareness on the possibility of large-scale, decision-making games and won awards on game design.\textsuperscript{36} Likely this game design will highlight the utility of computational simulations since the focus on the large systems at play during nuclear warfare.

\textsuperscript{32} Although this might not always be true, and wargame designers are just as susceptible to the ridiculous as fiction writers. Professional military wargames typically try to avoid exploring implausible conditions such as two- or three-front nuclear wars, but this view is not universal in the community such as in James Lacey, “How Does the Next Great Power Conflict Play Out?: Lessons from a Wargame,” War on the Rocks, 22 April 2019.

\textsuperscript{33} Pauly, “Would U.S. Leaders Push the Button?”

\textsuperscript{34} Pauly, “Would U.S. Leaders Push the Button?,” 157.

\textsuperscript{35} Goldblum, Reddie, and Reinhardt, “Wargames as Experiments”; and Reddie et al., “Next-generation Wargames.”

\textsuperscript{36} “What Is PoNG?,” PoNGBerkeley.edu, accessed 31 January 2022.
Erik Lin-Greenberg leverages wargame experiments to explore the nature of conflict, proposing that downsing an unmanned vehicle instead of a manned vehicle would lead to less conflict escalation. He finds support for the "remote controlled restraint" theory by blending experimental treatments with case study explorations, noting the limitations of survey methodologies in this setting. Bartels et al. also demonstrate the novelty of the wargame experiment methodology, exploring the impact of briefing materials on decision making. The team found, counterintuitively, that player experience was a bigger factor than the actual briefing materials.

There is a special interest in using games to uncover the dynamics of interdependent decision making in cyber exchanges. Jacquelyn G. Schneider also used a longitudinal analysis of wargames between 2011 and 2016 to study crisis dynamics. Her work revealed that government officials were reluctant to use high-end cyber offensive capabilities. Of note, Schneider found that participants only used offensive cyber capabilities after conventional military strikes and they expressed concerns that using offensive cyber would increase the risk of nuclear escalation. Jensen and Banks found similar patterns in a series of wargames analyzing how decision makers integrated cyber operations into crises with both great power competitors and nonstate actors. Escalation was the exception, not the rule.

Benjamin Jensen, Scott Cuomo, and Chris Whyte's work builds on this continuum to explore the nature of cyber escalation through wargames and controlled experiments. Jensen

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38 Elizabeth Bartels et al., Do Differing Analyses Change the Decision?: Using a Game to Assess Whether Differing Analytic Approaches Improve Decisionmaking (Santa Monica, CA: Rand, 2019), https://doi.org/10.7249/RR2735.
40 Jensen and Banks, “Cyber Operations in Conflict.”
and Valeriano designed the wargame to ensure the right context and players and that it replicated the crisis atmosphere as much as possible during the national security decision-making process. The scenario pitted green state versus purple state, two nuclear-armed rival states with power parity. Using hypothetical states helped filter the participants from preexisting biases about current international relations. The wargame involved 400 international participants, including graduate and undergraduate students, government officials, military officers, and private sector employees.42

The team then expanded the study to a controlled experiment testing hypotheses on cyber escalation among a population of U.S., Israeli, and Russian survey respondents to understand wider social patterns. Using a population mix avoids the external validity questions raised by only using college students and examines the potential uniformity in respondents globally.43 We find some evidence that cyber operations can provide an offramp from conflict, deescalating tensions.44 The experiment also revealed vast differences in how various populations responded to the treatment scenarios with the Russians being the most prone to escalation.

To summarize, there are many different methods of social science research that can be leveraged by the wargaming community. Experimental methods are useful to explore multiple hypotheses in a statistically valid manner while also relying on internal validity to ensure consistency across the experimental

conditions. Computational simulations are useful to explore large systemic structures and engage many players over multiple iterations at scale. Finally, alternative reality or counterfactual simulations can help explore future scenarios if they are plausible explorations of specific catalysts. The recent explosion of interest in social science wargames provides many examples that will become the exemplars moving forward as others join the practice.

MORE METHODS, MORE PROBLEMS
After the challenge introduced by former Deputy Secretary of Defense Robert O. Work to the community, wargames once again became relevant to the core functions of national security.45 The main inflection point comes not from those that reject the idea of learning from wargames, but rather differing visions of the purpose of the wargame itself. In some ways, applying social science methodology places the wargame at the center of knowledge construction, whereas for many the purpose of the wargame is to examine the process of decision making itself. This divergence in perspective demonstrates that while social science methods can add to the wargame community, the practice is not to be undertaken without care.

Is someone encouraged to learn from the wargame or learn during the wargame? The goal for some is not to test a hypothesis, but rather to induce the participant to follow the rules of order to get to the proper decision without examining the nature of decision making. This central tension makes up the core of the dispute between the wargaming community and the social science community. We further explore these tensions by examining core criticisms of the social science enterprise as leveraged by wargamers. These criticisms challenge social scientists by noting the difficulty in replication, issues with the player pool, and the concern of peer review and classi-

lication can all pose central restrictions on how social scientists leverage wargames.

**Scale and Replication**
The first proper challenge to wargames as methods of social science comes due to issues with scale and replication. Logistical difficulties are also said to inhibit the nature of wargame experiments, with cost-inhibiting multiple treatments. Yet, this challenge has been mitigated through time with the scalability and portability of computation technology. The pandemic (2019–present) has also enabled more interactions at distance and at scale, minimizing the difficulty of reproducing experimental settings with some having even moved to Zoom wargames (games via video conferencing applications). Overall, though, the researcher needs to be aware of the logistical challenges introduced by wargame experiments and be prepared to adjust as needed as challenges and conditions demand.

This leads to a core central challenge to the wargaming community. By making the wargame more than about the experience of any specific game, the community can move beyond the common refrain that wargames are just BOPSAT (bunch of people sitting around talking). With technological improvements, wargames can serve a higher order purpose than just an experience; we can learn about collective experiences and hold the conditions of the scientific method at the core of research by leveraging social science methods.

Replication becomes possible through a focus on repeating gaming interactions to reach proper statistical samples that will generate statistical significance. Generally, a sample near 1,000 will generate statistical significance. This number can increase or decrease based on the number of treatments or scenarios offered in a wargame. While statistical significance has long been an overwrought statistic, at its most basic sense, it helps the observer understand if the sample is more than random.

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46 Perla, Markowitz, and Weuve, *Game-Based Experimentation for Research in Command and Control and Shared Situational Awareness.*


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cance are of course overwrought in the scientific community, it remains important to gather as wide and diverse a sample as possible to ensure the study is generalizable.\textsuperscript{49}

The Player Pool

Jenny Oberholtzer et al. introduce a prime criticism of wargames as experiments. They argue “observations of players who do not resemble actual decision-makers can produce statistically significant results, they are likely to be irrelevant to real-world policy decisions about escalation and nuclear use.”\textsuperscript{50}

The clear conjecture is that by selecting the right sample in a seminar style game without repeated play, researchers can better understand decision making at the elite level.

The dependence on Western student populations (or WEIRD in the literature for Western, educated, industrialized, rich, and democratic) for traditional surveys is problematic, especially in a military context.\textsuperscript{51} Yet, it is not clear that elite decision making is at all better or different from the general public at large.\textsuperscript{52} In fact, elite decision makers introduce their own forms of bias into the analysis, and it is the compositional dynamics (income, education, and race) that distinguish the groups.\textsuperscript{53}

The challenges of including elite respondents are extensive. Elite respondents often are overconfident and fall into confirmation bias tropes, making their judgment overall just


as suspect as the student. Elite and nonelite populations also can raise internal validity concerns by playing the game the way an observer or supervisor might want them to play it rather than behaving as an independent actor. As Reid B. C. Pauly notes, the player might behave as they think they ought to rather than how “what I would do.”

As Bethany Goldblum, Andrew Reddie, and Jason Reinhardt note, “particular subject pools may introduce bias, based on their age, gender, education level, income, or other socio-demographic characteristics. . . . Game design and rule set may influence the experimental outcomes.” There are potential forms of bias introduced at all levels, so it is the job of the scholar to control for these issues by extracting relevant data from the respondents to study the impact of gender, experience, and other demographics, exploring these factors influence on outcomes. This should be done for all studies, regardless of sample size, yet the larger sample sizes demanded by experimental designs generally are able to control these issues better than seminar style games.

Overall, it would be useful to remember Perla’s warning that “real wargaming is about the conflict of human wills confronting each other in a dynamic decision making and story-living environment. There is a place for technology in supporting the clash of wills, but electrons are not always the most useful technology to apply.” Despite the various goals of study for different wargame designs, the importance of designing a solid game for human players will always trump other concerns.

**Peer Review and Classification**

As Ivanka Barzashka notes, another core challenge is the peer

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56 Goldblum, Reddie, and Reinhardt, “Wargames as Experiments.”
review of wargames. The specific tendency for overclassification of wargame products in the U.S. system leads to problems of evaluation and replication. Scholars and researchers cannot know what has been done in the past or even during current wargame efforts if they are placed behind the wall of top secret classification. The solution is to ensure that peer review is still conducted by the appropriate researchers with the ability to evaluate classified products.

The challenge is that there are more fundamental questions that need to be asked about the requirement of classified games. Is the goal to educate and evaluate or is the goal to innovate? If the goal is to deter and affect the decision-making calculus of the adversary, the advice is to make the wargame part of the strategic communications plan rather than classified. While decisions on innovation and specific adjustments that need to be made to meet future threats might require classified evaluations, the goal of education and understanding should seek to avoid using classified wargames since it becomes impossible to truly disseminate the findings to the wider research community.

Pauly’s work with archival wargames introduces a viable method of exploring decision making based on past action and contexts, though new challenges are introduced by the practice. The question might be what games exactly were declassified? Is there a comprehensive sample or are the games examined a selection of available cases? Not insurmountable problems, but the research and audience need to be aware of the limitations.

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60 Pauly, “Would US Leaders Push the Button?”
Finding Common Ground

When one examines the field of emergent technology, it becomes clear rather quickly that many researchers are just pushing forward conjecture without evidence. This leads to a fairly prominent study of cyber security suggesting escalation will take the form of a wormhole, a finding developed not through evidence but fiction. The recent focus on “useful fiction,” or the more popular concept of FICINT (fiction intelligence), betrays the field of emergent technology’s general inability to examine the impact of technology without reaching toward absurd analogy.

There is a clear need for wargames leveraged as experiments and simulations to move beyond analogy and fiction. While a wargame might be based on fiction, it explores the behavior of individuals acting as social units if a researcher leverages social science methodologies. The impact of technology will reshape our views on war and conflict, but understanding just what changes is the core task of the research program. Guessing cannot be an option when the questions are so critical for national security.

The other core purpose is to explore the nature of assessments and victory conditions during the course of games. One reason that conflict in the post-11 September 2001 (9/11) world remains so intractable is because planners shape victory conditions during the event, not before. A clear examination of what victory means in the future and how it can be achieved can come through proper experimentation and

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62 August Cole and P. W. Singer, “Thinking the Unthinkable with Useful Fiction,” Journal of Future Conflict, no. 2 (Fall 2020).
64 Scott Sigmund Gartner, Strategic Assessment in War (New Haven, CT: Yale University Press, 1997).
hypothesis evaluation that is enabled through social science methodologies.

Anyone suggesting that one method has more value than another is missing the point of the current revolution in wargames. It is not that the old methods and play styles need to be discarded, but rather that scholars are now aware of the possibilities and opportunities that wargames provide. Emergent turf battles have no place in the proper conduct of research. Methods utilized vary according to the research problem, goals, and abilities of the researcher running the wargame.

PATH FORWARD

The traditional wargame community might see a threat from the social science community. The idea that wargames are an art and not a science is pervasive, but this simple dichotomy has no place in research. Wargames can be both an art and a science just as many variations of artistic expression are based on science and math. It is up to the researcher or planner running a wargame to determine the purpose of the game, not the community at large.

Thomas J. Culora notes that for many, the wargame is seen as a “regency game” whose objective is to educate and influence senior decision makers.65 This imperious view of the role of wargaming betrays the central problem of the perspective. There is no interrogation if this ascendancy of wargaming is warranted. What evidence is there that a wargame should be used to influence rather than communicate or explore?

The core utility of a wargame might not be to educate, but rather to investigate the nature of strategy and its applications leveraging near future technologies. Moving beyond fiction and toward explorations of the possible through counterfactual scenarios and experimental settings is a useful way to ex-

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amine the process of innovation and how humans will react to new scenarios that are difficult to recreate.

The utility of wargames is clear; they allow for investigators to explore the dynamics of emergent technology and counterfactual thought conditions in a rigorous way. If the goal is understanding and exploration, wargames provide a novel method to explore human decision making. Games might be much less useful in communicating ideas and teaching patterns to the players without a clear nod toward a strategic communication strategy. Likely more of a science than an art, the rise of wargaming research pushes the community to become clearer about the intended effects they wish to witness, and the conditions under which these outcomes might be seen as patterns rather than induced outliers.

Just as we will not experience nuclear war anytime soon, hopefully, we also seem to be a long way off from the cyberwar that many portended.\textsuperscript{66} Wargames that seek to explore various hypotheses will continue to rise as a prime method of social science investigation engaging emergent technology. The tide is rising, the remaining question is how to ensure that community standards are communicated without creating improper divisions between wargamers and social scientists.