



# The Use and Misuse of Wargames

COLLECTION:  
WAR GAMING

**PRACTICE-ORIENTED  
ARTICLE**

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## **ABSTRACT**

This article forms part of the Norwegian Defence University College's broader research and development project to explore the utilities and potentials of a wide range of wargames and military exercises. This essay is intended to generate discussion of wargaming's use and problems, and to provoke the generation of new and better proposals. As such it contains opinion and academic reflection. The paper discusses wargames, their many different types, their practical uses, and some of the dangers or pitfalls that arise when wargames are used in order to generate useful outputs. The intention is to promote debate rather than to assert any definite conclusions.

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The word “wargame” means many different things to different people. In some cases, *wildly* different interpretations exist, from extremely narrow definitions related to a specific phase in the military decision-making process (MDMP; see CALL, 2015), to journalists and much of the general public tending to view all military efforts short of war, including live training and computer simulation, as wargaming. The term is used in many different ways and carries with it a lot of emotional baggage<sup>1</sup> depending on the experiences of those involved. Part of the problem is the fact that “there is no single, commonly accepted definition of ‘wargaming’” (UK MOD, 2020).

Even those involved in wargaming on a professional basis have difficulty with the numerous existing definitions which can vary between qualitative techniques and quantitative requirements for more analytical outputs. There is also a split as to whether computer simulations should be included, or if “wargaming” only refers to manual techniques. Some cannot even agree whether it should be written “war gaming” or “wargaming.”

As with many military officers, I am unconcerned with the niceties of academic definitions, and far more concerned with the effectiveness of a particular technique in relation to the task I have been given. I would argue that any definition of “wargame” can only really be made in relation to the specific task and purpose the wargaming is supporting in that instance, rather than any sweeping generalisation. I would further argue that attempts to generate an all-purpose definition of “wargaming” are not only nugatory, but actually harmful to the wider adoption of the techniques in addressing defence outputs. Therefore, for the purposes of this paper I shall use “wargaming” in the broadest definition of the term, encompassing all educational, training, and analytical purposes, involving human decision makers, short of actual combat.

## WARGAMING

Wargaming is a decision-making technique that provides structured but intellectually liberating safe-to-fail environments to help explore what works (winning/succeeding) and what does not (losing/failing), typically at relatively low cost. A wargame is a process of adversarial challenge and creativity, delivered in a structured format and usually umpired or adjudicated. Wargames are dynamic events driven by player decision-making. As well as hostile actors, they should include all “oppositional” factors that resist a plan. At the core of wargames are:

- the players;
- the decisions they take;
- the narrative they create;
- their shared experiences; and
- the lessons they take away.” (UK MOD, 2020)

Wargaming covers a broad spectrum of methods and techniques intended to optimize their outputs in relation to their objectives, ranging from those designed to exploit imagination, creativity, and original thought, through to those designed to support the military decision-making process and those designed to generate quantitative data in support of acquisition and force development.

## THE AUTHOR’S EXPERIENCE

As this is a practice-oriented article, which focuses on the actual, real-life use of wargaming in support of specific tasks and purposes, it is perhaps worthwhile spending a few moments to elaborate on my own practice as a wargamer and my past experience with running training events in the military. I was introduced to wargaming in 1979, at the Royal Military Academy Sandhurst, under the tutelage of the late great Paddy Griffith,<sup>2</sup> a military historian, wargamer,

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<sup>1</sup> “The feelings you have about your past and the things that have happened to you, which often have a negative effect on your behaviour and attitudes.” Harper-Collins. (n.d). Emotional baggage. In *Collinsdictionary.com*. Retrieved 29 July, 2022, from <https://www.collinsdictionary.com/dictionary/english/emotional-baggage>.

<sup>2</sup> See [https://en.wikipedia.org/wiki/Paddy\\_Griffith](https://en.wikipedia.org/wiki/Paddy_Griffith).

and prolific author on military history and tactics. In the following years I participated and helped organized numerous large-scale wargaming events, using the Sandhurst facilities, run by Paddy Griffiths and others.

Following attendance at the Army Staff College in 1993, I served with Headquarters Allied Command Europe Rapid Reaction Corps and was the planning officer responsible for organizing training events and exercises, including preparation for their deployment to Bosnia as part of the Peace Implementation Force in 1995.

Following this deployment, in 1996, I was sent to run the UK's Command and Staff Trainer (CAST) and was responsible for transitioning the capability from a manual system using map tiles and "military judgement" to a computer simulation-controlled system. I then moved to the UK Permanent Joint Headquarters (now UK STRATCOM), in 2002, and was responsible for the organisation of the simulation support for the training and exercise programme.

In 2005, I acquired a Master's Degree in Defence Simulation and Modelling at the Defence Academy of the UK, and followed this with nearly five years in Defence Procurement, sourcing and supporting the MOD's simulation and training systems.

I then served in Iraq supporting the education and training of the Iraqi military academies, followed by 11 years as the staff officer responsible for simulation and modelling at the Defence Academy of the UK. As so often happens with an activity or craft one has been engaged with for a long time, certain regularities, implicit types of knowledge, and best practices start to develop along the way. The following is an attempt to transform such insights and practices into a more generalized reflection over the uses and pitfalls of Wargaming.

## **PURPOSES OF WARGAMING**

There are several different, often overlapping, reasons why you may wish to carry out wargaming. I offer a short list of the primary reasons, derived from 30 years' experience, as follows:

- Understanding System Capabilities.
- Efficient Situational Understanding.
- Education.
- Training.
- Current Force Strategy or Tactics.
- Future Force development (including as part of the Acquisition Process).
- Part of the Military Decision-Making Process.
- Understanding the Team.
- Predicting possible Futures.
- Understanding System Capabilities.

In 2015, I was invited to lecture on Simulation and Modelling at the National University of Defence Technology, in Changsha, China. As part of a series of lectures, I was invited to demonstrate a simple "free-kriegsspiel" (a wargame with few or no written rules, where adjudication is based on the experience of a senior umpire, rather than complex rules and procedures) to the military students. This took place in the university gymnasium, with the simulation students acting as umpires (having been previously trained in the technique), for 25 simultaneous, 10-player iterations of the same game.

I had observed that the Chinese students tended to look for "the answer" rather than allowing discovery learning to take place or thinking for themselves, so when challenged by a student as to why anyone would undertake a wargame, I chose to instruct them to play the game and tell me afterwards what they believed the purpose of the game was.

During the game, there was very little discussion about tactics (to the extent that one player, when he learned that artillery support was available, suggested bombarding the enemy position continuously until the enemy was dead). Most of the questions and discussion related to weapon capabilities and effects. Questions were directed to me such as "What is the effective range of a particular weapon system?", to which I replied that, as an Officer in the PLA, they

should know that information. This resulted in much discussion, sharing of information and examination of military handbooks. By the end of the session the students agreed that it was a very efficient and effective way of teaching this information, in context, when compared to learning the information by rote. The majority also agreed that this was obviously the primary reason for conducting such a wargame. I elected not to disagree.

## EFFICIENT SITUATIONAL UNDERSTANDING

Tied to the insight above, it was discussed by Dr John Compton<sup>3</sup> at the Connections USA professional wargaming conference in 2018 that wargames represent an extremely efficient and effective way of briefing the participants about a military situation. This is because the information is presented in a way directly related to the context in which it is found and, as it is usually acquired through a process of discovery learning, it tends to be more readily viable in problem solving (Alfieri et al., 2011). This matched my experience when working at the UK Standing Joint Force Headquarters on a wargame about the situation in the Baltic, following the Russian annexation of the Crimea.

This culminated in running a four-hour matrix game<sup>4</sup> for the desk-level staff in the Headquarters about a Baltic Scenario. Following the game, there was a consensus that the game enabled the players to quickly grasp the different elements and the context about the current situation that were important. One player stated “I now know what I know, and understand what I don’t know, and what I need to research.” This was challenged by one of the J2 staff who noted that the information had already been provided as emailed briefings by pointing at a stack of paper printouts at least 300mm high. The response from most of the staff was “too long – didn’t read.”

## EDUCATION

Wargaming can be especially effective in education, as mentioned above in the context of discovery learning: “I hear and I forget, I see and I remember, I do and I understand” (Seok, 2011). There are, however, some caveats, as with all game-based learning, in that it needs to be carefully managed, and the type of game selected should be focused and relevant to the desired learning outcomes (as well as being achievable in the time available). There is also good evidence that attempting to mandate the use of game-based learning by an instructor unfamiliar or unused to this approach can do more harm than good (Whitney et al., 2014).

Other factors in using games for education purposes that need to be taken into account are that the game doesn’t have to be played to its conclusion (avoiding the conclusion that “I lost, therefore the game is bad” or “I won, therefore the game is good” – both of which can be harmful to educational understanding) and the fact that the game doesn’t have to be a perfect representation of reality – ease of play and engagement with the students being of greater importance. In fact, where the game is imperfect and the instructor invites suggestions from the students as to how it could be improved, can generate more insight and intelligent conversation than the game in its own right. It is therefore doubly important, following a session of game-based learning, that a proper debrief is given to ensure that the game is linked to the learning outcomes to be achieved.

## TRAINING

Wargaming can be useful in training, in that wargames tend to be more available, accessible, and less costly than other training methods (permitting greater opportunity to practice – deliberate practice being more important than native talent; see Ericsson et al., 1993). As with the comments above, the fact that the game is played in a specific context helps in the retention of information and aids the understanding of the situation being depicted in the game.

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<sup>3</sup> Dr. Jon Compton is a senior analyst and wargame subject-matter expert in the Office of the U.S. Secretary of Defense.

<sup>4</sup> A particular game technique placing an emphasis on creativity and original thought, well suited to complex issues involving multiple actors and stakeholders. See: <https://paxsims.wordpress.com/magck/>.

Unlike in an educational game, however, it is especially important that the game mechanisms and adjudication are validated to expectations of real-world performance to prevent confidence in the value of the game being lost or false lessons learned from experiencing the game.

## CURRENT FORCE STRATEGY OR TACTICS

In 2019 I was asked by the Commanding officer of 3 Rifles (a light-role infantry battalion), based in Edinburgh, Scotland, to assist in the running of some battle group level wargames. The unit was due to re-role from light infantry, to becoming a Mechanised Battalion, equipped with lightly armoured reconnaissance, support vehicles, and troop carriers. The intention was to gain some insight and understanding as to the changes in tactics and procedures needed to adjust to being equipped with these vehicles.

It became quickly obvious that the vehicles that were to be issued, purchased as “urgent operational requirements” for use in Afghanistan, were completely unsuitable for the wider roles expected of a Mechanised Battalion. When placed into the context of a particular wargame scenario, attempting to use the different vehicles, in different terrain and against an alternative, more conventional, enemy force, it was obvious that there were significant disadvantages if the vehicles were to be employed as originally envisaged. The vehicles intended for reconnaissance, while lightly armoured, lacked overhead protection for the crew and were particularly vulnerable to shell splinters and the cannon-equipped reconnaissance of the enemy. The troop carriers, while excellent against IEDs<sup>5</sup> in the Afghan terrain, were utterly unsuited to move cross-country in an alternative terrain.

It was simply the fact that all these factors were exposed, in the operational context of the scenario, working together in a game, with all the relevant stakeholders being present, that made it obvious what might work effectively and what would not. This led to a clear understanding as to how tactics would have to be changed to mitigate these risks, or restrictions applied as to the missions and roles the unit could undertake.

## FUTURE FORCE DEVELOPMENT

When considering future force development as one of the purposes for a wargame, this splits into two main areas: wargames played as part of the analytical process to determine numbers and performance for future procurements; and wargames played in order to determine the best employment of these new capabilities within a given scenario. The former is most likely to be carried out by research organisations, the latter by military units and formations.

It should be noted that in wargames used for analytical purposes, it is essential that the game rules, data, and procedures are as accurate as possible in order to ensure that the data generated by the game are equally as accurate; ease of play and player engagement are of secondary importance (the opposite of educational wargames).

## PART OF THE MILITARY DECISION-MAKING PROCESS

Wargaming is arguably one of the most critical part of the military decision-making process because it takes the commander’s plan from concept to detail and synchronizes the unit’s combat power for an operation. It is normally the type of wargaming military personnel are most familiar with, and one normally done badly due to misunderstandings of how it should be executed properly, and a lack of time and expertise allocated to this function (CALL, 2020).

Wargaming should be used in order to evaluate the potential of a course of action (COA) to accomplish the mission against foreseen counteraction with respect to the different adversarial COAs, as well as to identify and correct deficiencies. However, the real value is its ability to permit the commander and the staff to visualize the conduct of operations and gain insight into opposing capabilities and actions, as well as conditions in the operating environment (AJP-5, 2019).

The fundamental elements are understanding the plan within the context of the operation, and the possible enemy courses of action they may take in reaction to friendly force efforts.

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5 Improved explosive devices.

## UNDERSTANDING THE TEAM

Thomas Schelling was an American economist and professor of foreign policy, national security, nuclear strategy, and arms control at the University of Maryland, College Park's, School of Public Policy. He was awarded the 2005 Nobel Memorial Prize in Economic Sciences for "having enhanced our understanding of conflict and cooperation through game-theory analysis." He was also instrumental in setting up the nuclear hotline between the United States and Russia based on his experiences in wargaming at a strategic level (Miller, 2021, pp. 176–191).

In the RAND paper "Crisis Wargames 27 Years Later" (Levine et al., 1991), Schelling writes that "the greatest benefit was that they (the participants) became intimately, or at least casually, acquainted with a number of people they might have occasion to work with or rely on in future." This was specifically identified as a signally important by-product of wargaming, along with what I would term situational understanding, and system capabilities.

## PREDICTING POSSIBLE FUTURES

Wargames are not predictive. Wargames illustrate possible outcomes, so there is a risk of false lessons being identified from a single run of a wargame. Wargames can illustrate that something is plausible but will not be able to definitively predict that it is probable. (UK MOD, 2020)

Many authors, both those supporting the use of wargaming and those critical of it as a method, provide dire warnings about the predictive power of wargames. Criticism has always been levelled at wargaming failures, from the failure to predict the decisiveness of the psychological or economic aspects of the Boer War of 1899–1902 (Caffrey, 2019), to the failure of the designers of the commercial wargame "A Distant Plain" (about the war in Afghanistan) for their inability to predict the possibility of a catastrophic collapse of the Afghan Army in August 2021 (BGG, 2021).

If wargames have not been able to predict the future for the last 122 years, despite some authors claiming that they can (Dupuy, 1985), what utility do they have in this area?

The answer lies in their ability to expose the multi-faceted aspects of a plan, with the key stakeholders present, in context, while facing all the adversarial elements that Clausewitzian friction (Watts, 2004) and enemy action can throw at it. This method, correctly executed, has a unique ability to expose the weaknesses in any future plans, ruling out actions and intentions that simply will not work, and refining the futures cone (Voros, 2017) of possible outcomes, highlighting the projected, plausible and possible futures, and permitting a better understanding of risk associated with them.

Wargames may not predict the actual future, but they are good at ruling out future plans that simply won't work, and permitting a greater understanding of the range of possible outcomes that might happen in the execution of an operation.

## THE MISUSE OF WARGAMING

Having briefly discussed a number of reasons why you might wish to conduct a wargame, it is important to cover the pitfalls and dangers involved in running a wargame for professional purposes.

Before I start, however, it is essential to make reference to the seminal work on this specific subject: the paper "Wargame Pathologies" (Weuve, et al, 2004). Any remarks made by me merely reflect the issues that have most impacted on the wargaming I have conducted, and as having spent the latter half of my career as an "educator," this has influenced my thinking and means that there are areas of wargaming (training and analysis) where my experience is more limited.

## FANTASY GAMES

The Israeli military firmly believe that any training event with a fictitious setting, containing data specially created for the event, is not only a waste of effort, but a wasted opportunity to

get understanding and insight into the real world<sup>6</sup> – and they are absolutely right. You should never use fake scenarios.

Unless you must.

In some cases, there are political sensitivities about running games about real potential enemies. The majority of these are misguided and actually harmful to the value of the event. The act of running through real word potential situations is not only extremely worthwhile in its own right, but if word gets out to the opposition, all the better, as it will have a deterrent effect. Not to mention that if the general public thought we were “making it all up” they would think we were insane for not taking the situation seriously. After all, “Warplan Red” in the 1920s was a real set of U.S. planning options against the UK and Canada, devised by a nation that had only just fought a major war in Europe as one of Britain’s allies (Major, 1998, pp. 12–15).

There are basically three options if you are forced to have a fictitious scenario: generating the scenario from scratch, adding an additional country, and changing the names.

Generating the scenario from scratch is the worst possible option. The effort required is huge and, depending on the level of the game, you might be required to create entire continents, countries, and alternative socio-political groupings. You may require mapping, as well as deep background data on friendly and enemy orders of battle, which can be extremely time-consuming.

Adding an additional country is a marginally better option, in that the geo-political setting is the real world, but with a fictitious country or two inserted into the crisis area. This reduces the burden in preparation, normally allows the real terrain to be used (re-drawing a few boundaries) and has a veneer of deniability.

Changing the names is the least-worst option. It allows all concerned to use the real-world situation with the minimum of changes, and the fact that we have decided to go to the trouble of changing the names indicates a desire not to offend, while clearly permitting training in the real geo-political situation. Make no mistake, however – “just changing the names” can be a huge effort in its own right. I was involved in a corps-level exercise where we were going to use the geography of West Germany, and we “merely re-named it” Redland. Preparation had reached an advanced stage, when the participating German Divisional staff were shocked to discover that only the country name had changed, but none of the names of towns, regions, or rivers. It was deemed politically unacceptable to have, for example, Lower Saxony as “enemy territory” and, since the computer simulation could not be modified in the time available, the setting had to be completely re-written to use UK geography, as this was the only alternative simulation terrain existing at that time.

Concerns are often expressed that if the real-world data is used, the scenario will have to become classified; increasing expense and effort by an order of magnitude. There are a couple of things to consider:

- Training with real data is better and more realistic. It will attract higher level participation from individuals dealing with the situation in real life and offers a chance to check the validity of the data and assumptions behind them during the event. In most cases there is very little data actually required at a high classification, but the additional costs can be very high.
- There is no need to use classified data at all. It is perfectly possible to design the event, set in the real world, using data that is generally used “for training” or in the public domain, at a much lower classification. Arguments that this can create “false lessons” are plainly ridiculous when compared to the sort of lessons that could be derived from data that is completely “made up.”

In the past, this was less of an issue, with a widely perceived demarcation line between war and peace. This meant that a detailed understanding of the geo-political situation, local politics, or religion, were given a lower priority compared to the military task at hand. In the current

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6 Conversations with Brigadier Meir Finkel, commander of the Dado Center for Interdisciplinary Military Studies and author of the 2018 book *On Flexibility: Recovery from Technological and Doctrinal Surprise on the Battlefield* (Stamford University Press).

asymmetrical threat environment, however, such complexities are hugely more important, so scenarios have become increasingly more complex in an effort to address this.

## **ASKING THE WRONG QUESTION**

I was actually present when a senior officer said that he wanted a particular wargame to “prove we need more [of a certain kind of] missiles.” Rather than use the wargame in the manner it was intended, into order to examine a problem to gather insights to help inform the debate, he had already decided on the answer and merely wanted the wargame to confirm his biases.

This sort of behaviour occurs more than you might imagine, not necessarily as blatantly as in the example above, but in reducing the scope of the wargame, ostensibly for budget or programming reasons, so that the scenario being examined is forced to address so few alternatives that the outcome is pre-ordained.

The Royal Navy conducted a wargame to look at the Greenland, Iceland, and United Kingdom gap, an area in the northern Atlantic Ocean that forms a naval choke point between these three landmasses. The purpose was to determine if Russian submarine movements of the Northern Fleet could be effectively detected moving into the North Atlantic. It was assumed by some cynical analysts that the purpose of the wargame was to “prove” that the Royal Navy had insufficient submarines to be effective. They were surprised that this hypothesis was assumed at the start of the game, and that the actual question was to investigate the most cost-effective alternative should this case turn out to be true.

In the end, it was obvious that more submarines would be needed to be effective against the more modern Russian submarines, but that there were a number of cost-effective alternatives to attempting to procure more expensive submarines: satellite surveillance, greater cooperation with allies, and maritime air patrols. Of course, the fact that a Navy wargame was prepared to recommend additional funding for the Royal Air Force Maritime Air Wing was compelling both analytically and, especially, politically, and guaranteed that the results were widely shared and acted upon. An example of asking the right question.

What is important is not that a wargame identifies that there is a critical shortfall in a particular system or strategy, but what the players did to overcome this shortfall and if that was capable of being successful.

## **TOO BIG A DEAL**

Wargaming, at least in my experience in the United Kingdom, is generally the exception rather than the normal state of affairs. As a result, when wargames are scheduled, with the right number of high-level senior leaders participating, they tend to be subject to “inflation” where the aims and objective are made increasingly ambitious to justify having such a large number of senior decision-makers taking part. As this happens, inevitably other elements are added to the event, where the opportunity to examine additional scenarios and issues are inserted into the programme to make best use of the talent involved.

This invariably ends up distorting the event, moving the focus from the original question and risking the dilution of conclusions so they are lost in a wider post-wargame report stuffed full of information of little interest or relevance to the majority of those receiving it.

Additional elements will also serve to fix the programme of events and distract from the original intention, reducing the flexibility for those senior personnel to take time to “take a deep dive” to further examine any particular insights that arise with their peers. Instead, they tend to be shepherded from point to point, lacking the engagement or time to generate useful inputs.

When a wargame becomes a “big deal,” attended by a number of senior decision-makers, it is also likely to attract the attention of the press, and therefore the results of the game will be of marked interest. This means that perceived failures or shortcomings are to be avoided as an embarrassment, and that the game is inevitably slanted to generate a “successful outcome” (as far as an external third-party is concerned), regardless of the original aims.

In which case the game is no longer a wargame, but instead a triumphant procession through the plan to a successful outcome, with only trivial points “learned” to justify the event afterwards.

If we are considering wargaming to be used in its widest sense, we need to understand the desire of many to involve computer simulation and perhaps artificial intelligence (AI) in order to generate a “more accurate” result. This is in the mistaken belief that “more data” and “more computing power” can somehow, in themselves, increase accuracy.

The chance to use simulations and AI to assist military commanders in decision-making is exciting: modelling future conflict situations, using computer simulations, and then “running them through an AI” to work out the best course of action, force mix, and timings to achieve success. Note that the military concept of AI, in this case, includes looking at multiple simultaneous courses of action in a distributed cloud-based architecture to do many of these processes in parallel (Cook, 2020). It may not strictly be AI, but any advanced technical computing architecture tends to be generalized into this heading– military commanders are really only interested in the practical utility of the outputs rather than academic definitions of the terms.

There are some problems with this approach, however, chiefly in two areas: the accuracy of the underlying model; and the danger of optimisation, leading to predictability and fragility.

AI systems employ rules to optimize their behaviour in order to seek advantage. The advantage with this approach is that it works. The disadvantage with this approach is also that it works. We have to be very careful to make sure we define the parameters for the AI to produce the behaviours we want (for example, the best attack routes may be outside national boundaries, so we need to make sure we aren’t invading a neighbouring country when executing our plan). AI can generate different courses of action, providing their rules are appropriate to the task, within the closed simulation environment. This has to be closely moderated by humans to make sure that not only are the rules appropriate to the situation, but that the AI isn’t cheating by exploiting bugs in the systems (Benson, 2020).

While many of these systems are aggregated to a greater or lesser degree, so approximations of performance have to be made, they are used for training, meaning they are accurate enough to have military utility; for Box (1979), “all models are wrong, some are useful.”

The danger is that if we can do this sort of analysis, so can our enemies, allowing them to predict our courses of action. In seeking a weapon system with a decisive advantage, such a system becomes expensive, reducing resources for alternatives, and taking a long time to bring into service. The enemy, learning of such a system, can spend its time working out to defeat that system. And when they do so, there is little left to oppose them. Professor Wayne Hughes warned that “killing in war at sea often is done with a navy’s second-best weapon. If in some future conflict, each side has countered the other’s premier weapon, the Navy will be left to ask: What is our next best weapon?” (Rielage, 2017). If AI-generated predictably has led towards a single weapon system or optimal approach, and it is defeated, there may be few alternatives left.

Optimized systems are also fragile, especially in the face of unexpected events. This was clearly demonstrated in the supply chain failure with the delivery of toilet paper during the early stages of the COVID-19 pandemic (Wieczner, 2020). Military operations, in particular, need to be robust against unexpected events.

What many of these experiments fail to address, however, are a number of implicit and explicit assumptions with regard to intelligence and accuracy of situational data. As was demonstrated in the air campaign in Kosovo, the Serbs were able to fool U.S. intelligence analysts with relatively crude techniques (Schmitt, 1999), and the relative “going” (that is, rates of advance) on firm ground, muddy slopes, and ploughed fields are rarely quantified, so assumptions are dangerous.

Nevertheless, all military planning take place against a basis of imperfect information. Assuming that there is human moderation of AI recommendations, so that when humans and AI are cooperating to benefit the decision making, it is possible that this could lead to better results (an den Bosch & Bronkhorst, 2018), or at least rule out the more stupid options.

So, AI, with some caveats and human support, could be made to work – but at what cost? The history of AI is a story of hype and failed expectations, referred to by Floridi (2020) as

“AI winters.” Other techniques (existing statistical methods, manual wargaming, analysis of competing hypotheses) have been shown to be as effective at a fraction of the cost and effort (Makridakis et al., 2018) and not prone to the severity of errors that AI-derived results can sometimes generate (Yampolskiy, 2016; Osoba and Welser, 2017).

Defence tends to want to use AI in the areas where it is most expensive and least efficient to do so – not the low hanging fruit of logistics support and optical recognition (which defence procurement agencies assume will be delivered automatically with normal competition). Instead, they pursue the most expensive and exciting prize: course of action evaluation for conventional forces (Kerbusch et al., 2018).

Wargames should be small, regular events, flexible in their scope and focused in their outputs, capable of considering a problem from the widest perspective. It is only from events like these that insights are generated.

As the great F. W. Lanchester said: “Simple models that provide useful insights are to be preferred to models that get so close to the real world, that the mysteries they intend to unravel are repeated in the model and remain mysteries” (Fletcher, 1995).

## A LACK OF UNDERSTANDING ABOUT WARGAMING

By far, however, the greatest misuse of wargaming occurs simply because a great many people (including many senior decision-makers) simply don’t understand wargaming as a technique or believe their own narrow interpretation of wargaming to be the correct one and all other interpretations to be flawed to some greater or lesser extent.

This is not confined to the general population in the field of defence. Professional wargamers themselves argue and disagree over the definition of wargaming itself, and there is a definite schism that exists between those who believe the quantitative science of analytical wargaming to be the only method that has any validity, and those who prefer the qualitative art of “wider wargaming” as opposed to the “narrow-focused” (and “narrow-minded”) alternatives.

This is caused by the fact that, in almost all cases, wargaming is practiced by a self-taught minority, informed by their individual career progressions and lacking a wider view that a formal professional education could provide. That is not to say that wargaming courses do not exist, but in general these are products of their environment and therefore skewed in their output to the requirements of their sponsor. To take a single example, the MORS<sup>7</sup> Certificate in Wargaming (as you would expect) is heavily skewed to the analytical end of the spectrum.

In order to be effective, wargaming needs formal support from the chain of command. It needs a champion (a senior leader who takes on the burden of ensuring everyone involved is committed to the ultimate success of the technique) and someone responsible for ensuring that wargaming is understood and carried out regularly at every level, from junior soldiers planning a section attack to the highest levels of the military, such as the UK Secretary of State’s Office of Net Assessment and Challenge (SONAC; see Elefteriu, 2020).

Formal educational courses are needed at military schools and colleges, teaching the full range of wargaming, and wargames should be mandated as part of any curriculum or annual training cycle for units and formations. It is only in this way that a new generation of suitably qualified and experienced individuals can be produced to replace the “gifted amateurs” that form the bulk of wargaming expertise in most militaries.

It cannot be stressed enough, though, that a mandate that wargaming should take place must not be confused with the mandate that a certain game, or type of game, should be played.

As Generaloberst Franz Halder said about German Army wargaming in the 1930s and 1940s:

Military literature included unofficial manuals about wargaming. In order to avoid even the slightest semblance of regimentation and to maintain full freedom in the application and the development of the wargame, no formal instructions of any kind were issued by official sources. (Hofmann, 1952)

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7 MORS: Military Operational Research Society: <https://www.mors.org/Events/Certificates/Evening-Certificate-in-Wargaming-Course>.

In this essay I have tried to establish the many and varied uses for wargaming, emphasizing the differences between the types of games, all of which are intended for a specific purpose. No one size fits all – and the differences between games for education, training, and analysis are extremely important and often missed.

I have also covered a few of the potential mishaps and dangers that can arise in running wargames from my experience (and pointed to the seminal work on the subject). To avoid the most important of these hazards, and ensure it should succeed and thrive as a technique to make military forces more effective, wargaming needs support from the chain of command and must be an essential part of the curriculum for military schools and colleges.

## COMPETING INTERESTS

The author has no competing interests to declare.

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