Wargaming Dos and Don'ts – Eight Lessons for Planning and Conducting Wargames

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ABSTRACT

Since 2015, there has been a resurgence in the use of wargaming in NATO states. But countries with smaller wargaming communities have not seen a corresponding revitalization of the technique. If the interest is there, the capability often lacks. The paper argues that a critical first step in stimulating the role of wargaming in these countries is ensuring that local practitioners know of each other, so they can exchange experiences on gaming results and practices; further, they need an understanding of what wargaming might (and might not) be, and the steps necessary to make the technique work in practice. The paper offers experiences from wargames conducted by analysts and researchers at the Norwegian Defence Research Establishment (FFI), for the most part games on the strategic and operational level. The experiences are structured as eight broad lessons on "dos and don'ts" to consider when planning and running wargames, based on recurring practical issues in past games. While the lessons are drawn from experiences within a small wargaming community, many of the issues discussed are universal for wargaming at large.

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INTRODUCTION

In a 2015 memorandum to Pentagon leadership, Deputy Secretary of Defense Bob Work addressed the state of wargaming in the United States. Work voiced a concern that the Department's ability to test concepts, capabilities, and plans through wargaming had atrophied (Department of Defense, 2015, p. 1): "To most effectively pursue an innovative third offset strategy, avoid operational and technological surprise, and make the best use of our limited resources, we need to reinvigorate, institutionalize, and systematize wargaming across the Department." The memo further presented a new program of near-, mid- and long-term wargaming to spur innovation, address emerging challenges, exploit new technologies, and to shape the future security environment.

Across NATO members, an upsurge in wargaming interest and activities followed in the wake of the memo. Existing communities have been strengthened. New state-of the-art wargaming centres are planned or established, such as the U.S. Marine Corps Wargaming Facility in Quantico (Gonzales, 2021) and, in Britain, the Wargaming Centre near Portsmouth (Davies, 2020). New publications include the British Ministry of Defence's *Defence Wargaming Handbook* (2017); NATO's Science and Technology Organization (STO) has started several new research task groups (RTGs) on innovative wargaming; the Connections wargaming conferences have spread to Canada, France, and Australia. In sum, the use of wargaming has been revitalized in military analysis, innovation, and education.

This revitalization is not immediately clear across the board, however. Many NATO countries have not seen any significant change in their approach to and their use of wargaming, especially countries with small communities or fragmented resources. The interest is there – often, capability is not.

Using Norway as an example, wargaming is a well-established technique employed for decades to support military training, research, and analysis across services, levels and units (see Johansen, 2009). It is hard to argue that wargaming in Norway is significantly changed or far more widespread now than before 2015, even though more people know the term. There have been few national initiatives dedicated to developing professional wargamers and communities with common best practices, including the capability to test different gaming approaches and to support innovative uses of wargaming. For the most part, analysts and officers still run ad hoc wargames whenever there is a need for one. The art of planning and conducting these games is often a "practitioner's game," where local communities develop practices without exchanging their knowledge with others or benchmarking their approaches with external parties. Newcomers to the technique must often find their own way, unless there is a seasoned practitioner nearby who masters the arcane secrets of wargaming and is willing to take on apprentices (Fridheim and Malerud, 2017).

In small communities, a critical first step in revitalizing the role of wargaming is to ensure that practitioners know of each other and can exchange knowledge and experiences. Additionally, they need an understanding of what wargaming is, what it might not be, and of any steps necessary to making the technique work in practice. There has been a lot of trial and error in different wargaming communities over the years, leading to local practices and insights that could benefit others as well. Sharing these would be a welcome initiative.

This paper is thus based on decades of findings from wargames conducted by analysts and researchers at the Norwegian Defence Research Establishment (FFI), for the most part games on the strategic and operational level. It introduces recurring terms related to wargaming, before offering a practically-oriented discussion on what will and will not work when planning and running games. This discussion is structured around eight broad lessons on practical matters to consider in wargaming, both "dos" and "don'ts."

EMPIRICAL BACKGROUND

This paper arises from a local initiative at FFI intended to ensure the robustness of wargaming methods and the validity of results. Concurrent with Bob Work's memo on the need to reinvigorate wargaming in the United States, wargamers at FFI started collecting and comparing empirical findings from past FFI-led games and game-like activities. The guiding questions in this work were simply: "What has worked and what has not? And how can we make the wargaming cycle more efficient, while still providing valid results?"

The observations below are based both on empirical findings from these reviews and general gaming experiences from my own research career. My first introduction to wargaming was a 1998 seminar game related to vulnerabilities in Norwegian telecommunications infrastructure. I have planned, conducted, and analysed wargames in various shapes and sizes ever since, for both military and civilian sponsors, most recently in an FFI project related to games on the strategic political and military level. One thing to note is that most of these games have been in support of classified works or have provided sensitive results. This means that the games or sponsors often cannot be referred to publicly – but the ways we have planned, conducted, and analysed the games, being generally unclassified, are the practical and methodological experiences forming the basis for this paper.

My experiences have also been refined and compared to other approaches through literature studies and international collaborations. Scholarly publishing related to wargaming has increased in recent years, and I have personally both enjoyed and benefited from the works of Harrigan and Kirschenbaum (2016), Longley-Brown and Curry (2019), Caffrey Jr. (2019), and Appleget, Burks and Cameron (2020) in particular. I can also heartily recommend Philip Sabin's book *Simulating War* (2014) for anyone interested in the relationship between wargaming and simulation. Additionally, being part of a NATO technical working group on analytical wargaming between 2018 and 2021 helped me view FFI's approaches in light of the current state-of-the-art in international wargaming, given that the group included some of the most frequently cited academics and practitioners in the field (NATO, 2021). If nothing else, the NATO work has shown me that the practical challenges when planning and running wargames are the same across nations, regardless of available expertise, budgets, and resources.

WHAT MAKES A GAME A GAME?

Gather two or more wargamers in a room, and the discussion will soon turn to terminology. What types of games are they involved with? Are they really running games? Just what is wargaming anyway?

While there are many definitions of the term, many of which spring from Peter Perla's book *The Art of Wargaming* (Perla, 1990), in practice it has proven hard to establish a single widely accepted definition easily understood across nations and communities. In part, this is because the term has been both widely misunderstood and misused over the years; for Longley-Brown, 2011), "most people in the professional wargaming field have different views of what wargaming is. Too often this leads to miscommunication and a poor understanding of where the wargaming technique can and cannot be usefully applied."

Thus, "wargaming" has become a blanket term for a wide variety of techniques more or less related to each other. This is particularly so today, with the increased interest in the technique after 2015. Today, the term is used about everything from loose, unstructured discussions in a meeting room, to large-scale exercises where real military units move around the terrain, and the actual gaming aspect may be missing from several of the activities. No wonder that newcomers to the field are often bewildered.

Instead of forcing a definition, a more practical approach is to identify the characteristics typical to a wargame. There are several available breakdowns of the recurring elements in a wargame, among them those given by Britain's Ministry of Defence (2017, pp. 7–8) and Perla (1990, pp. 164–165). My own simplified version is that wargaming is a collection of techniques which allow players to take decisions in a dynamic, simulated conflict or crisis, supported by game mechanisms. The main characteristics of these techniques are:

- *Adversity and competition* between players representing different actors.
- *Structure* given by a scenario, procedures, and game rules.
- *Dynamic development* arising from the adjudication of player decisions
- *Cost*: they are far cheaper to conduct than experiencing a real conflict or crisis.

Within all techniques with these characteristics, it is possible to identify recurring styles of wargames, like those shown in Figure 1.
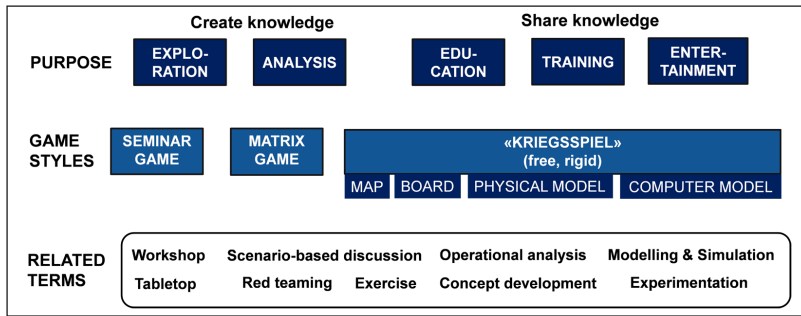
Figure 1 Overview of wargaming purposes, styles and related terms.

Seminar games are structured and open-ended discussions between players, typically conducted in small groups (5–15 players), in which players are asked to make decisions, usually adjudicated by simple means, often by a moderator leading the discussion.

Matrix games are role-playing games where the players propose actions and make arguments for why different actions will or will not work, in competition with other players. The players may also negotiate with each other within reasonable time limits to build alliances and develop joint courses of action. A facilitator structures the process of argumentation, provides adjudication of whether actions are successful or not (often supported by simple probabilities and throwing dice), and leads the game through the necessary number of rounds to play out the conflict.

Kriegsspiel is a broad term for three-table wargames with two competing sides and an umpire team; closed games (the sides have limited intelligence about each other) with rigid or semi-rigid adjudication (Ministry of Defence, 2017, pp. 40). These games usually involve moving virtual military units in different representations of the operational environment: maps, game boards, physical models, or computer models.

Figure 1 also shows several terms used in relation to wargaming. These are either techniques that can support or be supported by wargaming, like modelling and simulation, or activities that are often called games on their own, like exercises and tabletop discussions. While these techniques are often used in studies of competition and conflict, and the steps for planning, conducting, and analysing results are often the same as for wargames, these activities do not meet all the characteristics of a wargame discussed above.

For instance, many events at FFI that have traditionally been called games are either *scenario-based discussions* or *exercises*. Scenario-based discussions range from simple and less structured workshops with discussions around a conflict scenario, to almost-but-not-quite seminar games frequently used for strategic political leadership. As a rule, the discussions script the actions of the opposing actor or skip the adjudication of player decisions. Thus, while these discussions may often be very useful for the structured exploration of options related to complex and uncertain problems, they offer neither the additional insights allowed by dynamic decision-making nor the possible successes and failures in an adjudicated game. Exercises are usually scripted in sufficient detail to allow participants to reach their stated training objectives, thus also failing on the dynamic development of the conflict. A wargame may give you the necessary inputs to write the plan; in an exercise you train on procedures using the plan.

Thus, the related terms in Figure 1 do not designate wargames on their own, even if, in many cases, they will be what you need to use for a given educational or analytical purpose. The trick is to know when you can benefit from running a wargame instead of or along with the other techniques.

WHY WARGAME?

Wargaming can have many purposes. Pournelle (2017) identifies different kinds of games, categorized on the purpose of the game and whether it addresses structured or unstructured problems. There are games for creating knowledge (discovery games, analytical games), for conveying knowledge (educational and training games) or for entertainment (roleplaying games and commercial games).

These purposes are also typical for games conducted at FFI, as shown at the top of Figure 1. For the most part, FFI runs games to create knowledge, or at the very least to collect existing knowledge. In many cases, these games are designed to collect results for later analysis. This can be an analytical game in support of real-life decisions related to military capability development and future force structure investments, or a discovery game played to explore

possible future security challenges. FFI also runs games for purposes other than analysis, however. These include educational and training games for ends such as ministerial crisis management. All too rarely, we conduct games simply for fun, entertainment and self-learning.

Of course, we also do much of the above with the other techniques mentioned in Figure 1. Why, then, run wargames as well? The added benefits are usually attributed to the structured, immersive and dynamic nature of the technique:

- Wargames offer a structured setup to collect expert judgements and information for analysis in support of real-life decisions.

- Wargaming can immerse players in realistic environments for decision-making related to conflict, both for educational and analytical purposes. The level of immersion and the shared narratives that players experience are often identified as important success factors for gaming (see, for instance, Longley-Brown and Curry, 2019, p. 45).

- The dynamic play and adjudication can provide new insights and challenge self-fulfilling preconceptions, since players must react to the actions of their counterparts and the unfolding of the game.

- The players can also take risks and test new approaches in a safe-to-fail environment, without real-life cost beyond the game budget.

Achieving these effects in practice is often hard. In the following, I will discuss some of the recurring practical issues we experience when planning, running and analysing wargames and similar techniques at FFI. I also suggest eight lessons to consider for others struggling with the same issues. The contents of the lessons may not differ much from that found in existing literature, like the works cited earlier in the section headed "Empirical Background." Useful though they are, much recent academic work and many reports on wargaming are published as massive tomes, often going deep into the history and use of wargaming in addition to the practicalities of planning and running games. Thus, for a beginner in the field, a simpler overview may be better suited to getting started, before digging into the literature. This is also one of my reasons for writing this article.

The lessons are generally valid for all wargaming purposes, be they discovery, training, education, analysis, or entertainment. The exception is Lesson 8 on analysis, which specifically addresses analytical wargames conducted to inform real-life decisions. In these games, the analysis and data collection effort has to be planned in detail sufficient to ensure that the results are valid and trustworthy for the given decision context. However, this is not to say that issues related to analysis and the validity of results are exclusive to analytical wargames. Even educational wargames can benefit from data collection and analysis, both from students and mentors, to help discuss and draw out the most important takeaways and identified lessons. Similarly, educational wargames should create insights that are valid and useful for the decision problems and contexts in which the players may find themselves later in their careers.

LESSON 1: AIM, THEN GAME

Whenever I am asked to support a wargame, my first step is always to ask the sponsors why they want the game. What is it they hope to achieve? What is the purpose?

Surprisingly often, there are no clear answers. In 2016, FFI conducted a review of 12 past exercises and games (Grunnan and Fridheim, 2017). The purpose of the review was to identify recurring issues arising during planning and conduct, in order to see how games and exercises could be developed more efficiently in the future. The study found that in many of the reviewed activities, the given goals and objectives were unclear, ambiguous, or contrary to one another. Reasons cited for this were weak initial problem-structuring or little stakeholder involvement. One example (Grunnan and Fridheim, 2018, p. 2997) relates to an educational wargame conducted to prepare a ministry for their participation in an annual international crisis management exercise. The game's stated objectives were:

- To develop work methodology and procedures internally, within and between the various elements of the crisis management organization.

- To prepare the players for the scenario and key issues related to the international exercise.

- To exercise the ministry's crisis management procedures in relation to processes in international crisis management organizations.

The game team (including yours truly) dutifully and meticulously designed a game that would attempt to cover every objective in a single day. But on the day itself, it took less than 20 minutes before the planned schedule fell apart, as one player after the other came running to ask for more time.

Why? The game objectives were mutually incompatible. They pulled in different directions. To cover them all, we should have run both a session with seminar plenary briefings on the upcoming exercise, an internal functional staff exercise, and a dynamic exploratory wargame, ideally over several days. When we tried to cram everything into a single workday, we overloaded the players with information and tasks, and we ultimately failed in meeting all the stated game objectives.

Another important lesson from the review was that goals and objectives should be decided as early as possible in the planning process. If sponsors and stakeholders waited too long to determine their goals, two things could happen: there was too little time left for proper game design and development, leading to a mad scramble near the end; or the game team chose a game format and started designing the game without considering whether it was fit for purpose.

The review showed that early decisions on aims and objectives always resulted in a more efficient process for developing the scenario, choosing the right game style and format, and sorting out all the practical details for conduct. This again led to happy sponsors and stakeholders. Thus, the most critical part of the wargaming cycle is often the start.

Don't skimp on the initial problem structuring. Understand the purpose of the game, and decide its aims and objectives, before you start planning and designing it.

LESSON 2: INTERACT REGULARLY WITH YOUR SPONSOR

Customers that turn to FFI for wargaming support come from both the Armed Forces and civilian ministries, directorates, or industry. Sponsor interest in the actual development of a wargame varies. Some customers are very hands-on, looking to be involved in most of the why, who, where and how of planning and running the game. This may include strict guidelines for the scenario and the specific challenges that the game must cover – including which issues the game should avoid at all costs. Other sponsors want to outsource everything, beyond stating that they want a game, and could you please fix this for us?

No matter their level of interest, close interaction with the sponsor is usually necessary through the wargaming cycle. Not only does one need to understand why they want a game, one must also follow up to clarify issues that have arisen during game design. Often, one must document and brief the results afterwards.

One recurring issue in our work is that sponsors say they want a game when, in reality, what they want is a crisis management exercise to test procedures and train their organization in managing possible future risks. This usually becomes apparent when they talk about the importance of training procedures, or when the communications department wants to train the players in managing media, often by including a mock press conference. In these cases, a dynamic wargame might not be the best answer.

There are many recurring questions that need to be settled early in the development of all games to ensure efficient planning and conduct. These are not only related to purpose, aim, and objectives, but to expected deliverables, procedures for status reporting, available time and resources for the game, and to expectations on content, realism and the necessary level of detail. Over time, at FFI we have developed checklists with recurring questions to discuss and settle early with sponsors and stakeholders (for examples, see Malerud and Fridheim, 2013, p. 39 and NATO, 2021). By using these checklists for early decisions and guidance, we have managed to significantly increase the efficiency of games and exercise planning. For smaller games, the necessary budgets for comparable activities have in some cases been up to 50% lower when the checklists were used: game design and development were directed by clear early guidance (Fridheim, Grunnan and Malerud, 2017). Additionally, regular dialogue and status reports help to manage expectations and calm nerves on both sides, especially in high-profile games with participation from ministers or high-ranking leadership. In less demanding and lower-profile games, regular sponsor interaction may not be as critical.

Still, do your utmost to understand why the sponsors want a game. Here I refer the reader back to Lesson 1 above.

LESSON 3: COVER EVERY ROLE AND RESPONSIBILITY

There are several roles and responsibilities necessary for the planning and conduct of a wargame. Recurring roles in FFI game teams are:

- Game leader/administrator: responsible for delivering the game; usually the point of contact for game sponsors.

- Game designer: designs the game setup and format; prepares rules.

- Scenario designer: designs and develops the scenario.

- Game analyst: responsible for data collection through the game; validates results and writes the final analysis report.

- Modelling analyst: prepares, validates and runs models and simulations used in the game.

- Data collector: collects data on discussions, actions, and decisions in the game.

- Moderator/facilitator: leads or runs the conduct of the game.

- Adjudicator/umpire: decides the outcomes of decisions, based on the given rulesets.

- Subject matter expert: supports both players and gaming team with expert knowledge on matters relevant for the game; can give briefs during the game.

- Real-life support: responsible for practical details with invitations, infrastructure, food, etc.; often the point of contact for invited players.

Not every role is critical in every game. Wargames run for entertainment are unlikely to need analysis teams with many data collectors unless they want to document the methodological experiences from running the game. The modelling analyst is less relevant for games that are not supported by modelling and simulation. More, covering every role fully will lead to large game teams. In such cases, sufficient interaction and coordination between the roles is critical. If this does not happen, activity related to different roles may take a life of its own, without being in line with the given aims and objectives of the game and the work done by others in the team.

There is, however, often overlap between roles and responsibilities. In smaller games, one person can cover several roles. Game analysts are often data collectors too. The lines between game designers and scenario designers are often thin or non-existent. The facilitator can also be an adjudicator. In extreme cases, you only need one person to set up and run a quick and simple game.

What is important, though, is that all roles and responsibilities are covered sufficiently, depending on the scope and purpose of the game.

LESSON 4: DON'T SPEND ALL HOURS ON THE SCENARIO

"Scenario" is a term with many definitions and understandings. Related to wargaming and exercises, it covers both the setting and background for the simulated conflict, the story of the specific crisis played out in the game, and vignettes with detailed subsets or challenges in the conflict. Together, this provides the immersive environment in which the gameplay takes place (Ministry of Defence, 2017, p. 7).

As discussed by Pennell and Fridheim (2021), there are several ways that scenario design and development can go wrong. A common issue is that the scenario is designed and developed without due consideration of the game's goals and objectives. This can happen when old scenarios are re-used whether or not they are fit for purpose in the new game. Another case is when the scenario designer writes a new scenario without coordinating with other roles in the game team. At FFI, writing the scenario is often the most popular task during the preparation for a wargame, not least if the game in question is planned for senior leadership in ministries or the Armed Forces. In the first game planning meetings, it is not uncommon to see more than half the time spent on creative ideas and suggestions for the scenario. This tends to happen when scenario development is seen as story writing, when the creative fun of writing an exciting story takes over. The result is often a "narrative drift," where story elements are piled into the scenario whether they are relevant for the game or not. This can take a lot of time and effort away from efficient game planning – at least until a seasoned game designer torpedoes the fun by suggesting that the team consider the game aims and objectives first.

Pennell and Fridheim (2021) discuss ways to counter these mechanisms. One approach is to see scenario design as model building, where the scenario is composed of blocks of content structured and organized to support the game's purpose. At FFI, we often use Creative Combinations to support scenario design. Creative Combinations is a simplified version of General Morphological Analysis: a "technique that breaks down a situation or problem into its key dimensions, restructures it, and provides a framework in which to evaluate various solutions" (NATO, 2017, p. 53). In short, it involves building a table with the key parameters (dimensions) of a problem and the values associated with each parameter. The table is later used to build combinations of values which provide input to the scenario. It is also possible to build tables on different levels of the problem: one table can be used to lock the strategic and operational setting for the scenario, while another may be a better-detailed version used to explore and identify more specific incidents. This approach gives a clear link between the aims and objectives of the game and the developed scenario. At FFI, we recently used Creative Combinations to quickly develop nine scenarios for games related to future aeromedical evacuation capabilities. The analysis table not only helped us save time during scenario development, it also helped ensured that the scenarios both were fit-for-purpose and captured the breadth of future challenges in the study (see Fridheim, Alme and Siedler, 2021).

No matter which approach is used, the scenario designer has to accept that the scenario is not the main deliverable in a wargame. The scenario is a tool that, when used right, will help the sponsor and the game team achieve the purpose of the game.

LESSON 5: UNDERSTAND THE PLAYERS

Without constructive and engaged players sharing their experiences and playing along within the given format and rules, there is no game. Both the educational and training value for the participants and the credibility and validity of the results afterwards are reduced. Thus, there are several things to consider when inviting players and interacting with them during the game.

First, consider the necessary level of realism in the game. Give the players a decision context they can relate to. Games on the ministerial level often need short problem statements and intelligence updates presented on slides and one-page handouts, rather than hugely detailed scenario documentation describing every minute detail of the crisis. On the other hand, if you are to train decision-making in battle for tactical leaders, one must represent the battlefield and the units involved in sufficient detail for the players to accept the situation and to act their roles.

Second, don't overload the players with details. Reduce the number of preparatory documents and background information. It is tempting to send a ton of scenario documentation and game rules to the players in advance. But whenever we do, we always find that few (if any) players have had the time to read it before they show up to play. Instead, make time for a robust in-brief on the game day, and run a simplified test round at the start of the game to get the players into the scenario and the game rules. This is often painful when you have limited time for the game, but the benefits are that you ease the players into the game and nip misunderstandings in the bud. Simple visual presentations of the scenario and the operational challenges are often effective. In a recent tabletop exercise for NATO generals (Forsvaret, 2021), a major part of the in-brief were pictures showing the likely weather conditions in the simulated crisis. The pictures made a huge impact and helped immerse the participants deeper in the scenario.

Third, accept that managing cognitive and motivational biases related to decision heuristics is a challenge in all activities based on extracting information from subject matter experts – see Tversky and Kahneman (1974) and Montibeller and von Winterfeldt (2015). For wargames influencing real-life decisions pertaining to investment and the development of force structure, the players often represent organizations or units ultimately impacted by the decisions, even fighting for their own survival. Thus, be prepared to manage biases among game players. At the very least, consider the following:

- Invite players with different, but relevant, experiences and backgrounds to the game.

- Don't take the word of the most senior players as gospel; allow others to share their expertise as well. Make opinions and decisions subject to debate and refinement through the game. Avoid reinforcing self-fulfilling truths.

- Welcome new ideas and suggestions for alternative courses of action: "Innovation thrives in a culture that embraces experimentation and tolerates – better yet, encourages – dissent and risk-taking" (Work and Silva, 2015).

- While, in theory, wargaming offers a safe-to-fail environment to try out new ideas, players do not always feel safe if their immediate ranking officer sits at the nearby table, ready to pounce on stupid things said by their subordinates. Consider alternative means of collecting data from the players to groups or plenary discussion: e-mail, questionnaires, hidden voting, one-on-one interviews, etc.

Lastly, be transparent about the game rules and stay true to them throughout the game. Some players get very involved in the competitive aspect of a game, not least the adjudication of their decisions. You can save yourself from much quarrelling over whether specific decisions were adjudicated correctly or not if you are upfront about how the game rules work, how the adjudication will be done, and that in the end, your word is law anyway. A slide with this message during the in-brief is often sufficient.

LESSON 6: PLAYTEST, PLAYTEST, PLAYTEST

Before you conduct the game, test it. Don't just read through the supporting game documentation and high-five the rest of the team on the brilliant work done. Set aside the time to run through the game to see if it works, and whether the game process is clear, the rules are unambiguous, all roles and responsibilities are understood, and the necessary infrastructure works. Additionally, playtesting allows the game team to train on their roles, so they are better prepared before conduct.

Ideally, run several playtests. High-level games at FFI often take at least three test rounds, with both internal and external participation. We regularly bring in external reviewers who have not been part of the planning process to play through the game, comment on the chosen format and scenario with fresh eyes and suggest improvements. This always improves the quality of the game. In analytical wargames, the playtests may also provide important analytical insights on their own.

LESSON 7: DON'T FORGET THE PRACTICALITIES

Even the best-designed game will fail if your house is not in order during conduct. Below are some recurring practical issues when running games that will frustrate both the players and the game team. Most are based on sometimes painful experiences from games at FFI. All have the potential to result in a less-enjoyable experience and reduce the quality of the game.

- Check, then re-check, that you have given your participants the correct time, date, and location for the game.

- Ensure that you have enough rooms, free space, desks/workstations, chairs, and mingling areas for both players and the game team. Meeting rooms fill up fast, so book them early.

- Remember to register all external participants with reception and security in good time. Establish a good procedure for escorting visitors to and from the game. Some arrive late, others leave early. If possible, give your visitors badges for unescorted access, since this frees up a lot of time for the already-busy game team.

- Give early notice to your caterers so they can order the necessary amount of food. Don't show up for lunch with a score of hungry players without telling serving staff in advance, since this is a sure way to sour relations for future games. Also remember to ask in advance if any of the participants have allergies or food intolerances.

- Never underestimate the amount of coffee your players will drink during the day. Order at least double that suggested by your local provider – or, at least, make sure you can get refills in case you run out. In the case of the recent aeromedical games, we had to order more coffee twice. Also remember to have available sufficient cups, napkins, and cold water for drinking.

- Ensure that all technology, computers, communication systems and projectors work before the game starts. Know how to operate them. Run through all patching and update processes a day or two before the game to reduce the risk of the computer rebooting halfway through your in-brief. If the players need access to computers, make sure that they have accounts and passwords available before the game starts.

- Know how to operate lights, heating, and ventilation in the game rooms.

- Schedule regular breaks, not least because all the coffee drinking demands regular bathroom visits. A visit outside for some fresh air and daylight can do wonders for tired players.

- Don't take it for granted that the players have brought pens, paper, or even the invitation documents. Have some available.

- See that the game rooms have clean whiteboards or flip-overs with enough spare sheets. Absolutely make sure that there are sufficient markers available and that they work. Few sights are as awkward as a roomful of senior leaders searching for the one remaining whiteboard marker that might work.

LESSON 8: DON'T SKIMP ON THE ANALYSIS EFFORT

The strengths and limitations of analytical wargaming have been topics in the NATO Science and Technology Organization in recent years. While previous research task groups have developed new wargaming approaches for given problems (the Concept Development Assessment Game and the Disruptive Technology Assessment Game, for instance), recent groups have worked on improving and understanding the limits of wargaming in Course of Action analysis (NATO, 2019), and on innovative approaches for data capture, analysis, and exploitation in analytical wargaming (NATO, 2021). The aims and objectives of these RTGs are natural, given the increased interest in wargaming in the Alliance. If the results from a wargame are expected to inform real-life decisions in operational planning or capability development, the results cannot just appear credible to the sponsor; they must be valid for the given decision context. Thus, analytical wargames need a sufficiently strong analysis team with the mandate and means to collect and document the insights from the game and to draw the relevant conclusions afterwards.

Consider appointing a lead analyst, responsible for data collection and analysis. Write a Data Collection and Analysis Plan (DCAP) to describe in sufficient detail the purpose of the game, how the analyst team will support this purpose by capturing and analysing the necessary results, the insights which the team will look for, any hypotheses to be verified, and any risks that may impact on the data capture and analysis. It doesn't have to be a long document – but even writing a short text helps to bring structure, direction, and order to the work. Make sure, also, that the chosen game format and setup allows the necessary information to be captured.

Further, select your data collectors with care. It is often tempting to use young, newly recruited personnel for this purpose – partly because they might learn something by listening and documenting the game, partly because the seniors often see data collection as a bit of a chore. But if the results from the game are to inform decisions with high risk or cost, it makes little sense to use the least experienced people around to try and interpret what happens. Many will stumble over the staggering number of unknown acronyms thrown around by the players.

Don't rig the game so it supports pre-determined or specific decisions. While it is important to keep player biases in check (see Lesson 5), the same is also true for the game team and sponsors. Choices made during game planning and conduct have the potential to significantly skew and influence the results afterwards. This is particularly important for messy problems related to state security and warfare, where wargaming is often used for information collection in areas where little empirical data is available (Malerud and Fridheim, 2021).

Lastly, know the limitations of wargaming. The results from a single game can be impacted by several factors (Ministry of Defence, 2017, pp. 12–13):

- They are not reproducible, since the outcomes depend on different player decisions and adjudication.

- They are qualitative in nature, raising questions and creating insights but not resulting in quantitative outcomes (although there can be much quantitative data in models or simulators used to support the game).

- They are not predictive, but, rather, illustrate plausible outcomes.

- They are only as good as the participants, be it the players or the game team.

Even with these limitations, analytical wargaming is very useful, not least in concert with analysis techniques such as modelling and simulation, or by running a game several times, in

experimentation setups designed to test hypotheses, for example. Just avoid the temptation to run wild with ambiguous data captured in a single game.

CONCLUSIONS

In a follow-up article to his 2015 memo, Bob Work identified a lack of coordination within the wargaming community and little sharing of results, both vertically or horizontally within the U.S. Department of Defense (Work and Silva, 2015). The lack of wargaming coordination is an issue in Norway as well. Even within FFI's organization, there are pockets of small wargaming communities that all too rarely interact with each other or share results or experiences.

This is unfortunate. While wargaming has seen a revitalization across NATO countries in recent years, my experience is that smaller countries often struggle to develop sufficiently strong communities that can push their wargaming capability further. They are still able to run wargames of high quality – but the games are often run by small teams with local practices and limited coordination with others, and the results often unknown to others.

For these countries to take part in the revitalization, sharing experiences is a good step forward. Thus, this paper has offered eight broad lessons on the practicalities in planning and running wargames, based on recurring issues from real games at FFI. The lessons stress the importance of early problem structuring to understand the purpose of the game, the context in which it is to be run, and the interests of stakeholders and game players. Problem structuring also helps to avoid the recurring pitfall of spending too much effort on developing the game scenario. Other lessons cover the practical issues of setting up the game team and planning all logistical details for game conduct. Playtesting is identified as an important tool for checking that your game works and that it is fit-for-purpose. While the lessons are generally relevant for all game purposes, be it education, training or discovery, one lesson specifically discusses the role of analysis in games where the results are to inform real-life decisions.

While the lessons may seem obvious, or covering trivial matters, in practice, we regularly manage to forget them. This underlines the value of documenting and sharing information on practical wargaming matters. Mastering the basics is a necessary step for the further revitalization of wargaming, especially in small communities with limited available personnel and resources.

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