Utopia or Oblivion?

An Examination of Wargames, Irregular Warfare & Futurism—How Games Can Contribute & Best Practices for Doing So

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About the Authors

Dr. Daveed Gartenstein-Ross is a scholar, author, practitioner, and entrepreneur who is the founder and chief executive officer of Valens Global. He has been described by the director of the U.S. Department of Defense's Strategic Multilayer Assessment program as "the expert that the experts call to discuss the nettlesome challenges with terrorism and counterterrorism." In addition to leading Valens Global, Dr. Gartenstein-Ross is on the faculty at Carnegie Mellon University and Duke University, and serves as a senior advisor on asymmetric warfare at the Foundation for Defense of Democracies and an associate fellow at the International Centre for Counter-Terrorism – The Hague. He has previously held positions with the U.S. Department of Homeland Security, Google's tech incubator Jigsaw, and Georgetown University. Dr. Gartenstein-Ross has testified before the European Parliament, Canadian House of Commons, U.S. Senate, and U.S. House of Representatives on relevant topics. He holds a Ph.D. in world politics from the Catholic University of America and a J.D. from the New York University School of Law.

Dr. Gartenstein-Ross stood up Valens Global's simulations practice and today co-leads the practice group. He has designed and led wargames that have been hosted by the U.S. State Department's Foreign Service Institute, the Global Counterterrorism Forum, American University, Carnegie Mellon University, Duke University, Georgetown University, Johns Hopkins University, Wake Forest University, major think tanks, and private companies, among others.

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Table of Contents

1. Introduction and Executive Summary

This report is part of a broader project on wargaming and futurism that included the design and execution of a futurism-focused wargame, *Utopia or Oblivion?*, that was cohosted by the Canadian Department of National Defence (DND) and Johns Hopkins University, and ran from March 25 to April 10, 2021.[1] The game that Valens Global designed and ran helped to inform this report's understanding of best practices for leveraging insights derived from wargames for the practice of irregular warfare and futurism. This report makes two overarching contributions:

1) The practice of futurism can be nettlesome, yet it is of grave importance to defense planners—and, indeed, to everyone with substantive decision-making power. The twenty-first century is characterized by rapid pace of change and dense interconnectedness of major issue sets. The challenges posed by strategic competitors using irregular means to undermine U.S. interests are complex and often opaque. Thus, the report contends that well-designed **wargames are a valuable tool for advancing the practice of futurism within governments** for reasons related to the structure and function of games. Of particular relevance is games' three-dimensional nature, their tactile characteristics, and the way they make participants consider issue sets through multiple frames.

2) Having established this baseline argument, the report **provides a set of best practices for using wargames to advance the practice of futurism**.

This report begins with a survey of the field of future studies. It provides an overview of the assumptions and methodologies by which futurists create images of possible futures. The section focuses on two major schools of thought within future studies, both of which have somewhat different assumptions and goals. Edward Cornish's *forecasting model* provides analysis of potential futures associated with major overarching trends, with the goal of producing accurate analysis of these futures; while Jim Dator's *four alternative futures model* seeks to unsettle our notions about the future. Though these two models possess some assumptions that are inconsistent with one another, the authors of this report find utility in both models and hold that wargames fashioned around either model, or some synthesis of the two, can provide valuable insights.

The report then provides a brief introduction to the practice of simulations and wargaming. We detail some of the science behind the creation of synthetic experiences in a game environment and discuss the benefits of wargaming that have either been described in relevant academic literature or else that have become evident through Valens Global's own experience of designing and running games.

The third section provides an overview of the wargame that Valens Global ran for DND and Johns Hopkins University's Global Security Studies program. In the game *Utopia or Oblivion?*, teams were asked to navigate challenges associated with three overarching trends: (1) climate change, (2) the weaponization of new and emerging technologies by sub-state actors, and (3) shifting conceptions of sovereignty. The game world was set in 2026 at the start of the game (which was, at the time the game was run, five years in the future), then the game jumped forward in time to 2036 midway through gameplay. This time jump was designed to make participants make decisions that simultaneously had short-term and long-term impacts, as they had to live with the consequences of their initial set of decisions made in 2026 when they jumped forward to the 2036 world.

The final section of the report explains how wargames can be useful for future studies, in particular for governments engaged in irregular competition, which is defined for the purposes of this report as competition

that is below the threshold of overt conflict and that resides primarily in the human domain. It provides a series of best practices and recommendations to consider in the design and execution of wargames that are intended to enhance the practice of futurism.

2. Futurism

There is disagreement among futurists about the definition and practice of futurism and future studies. For the purposes of this report, we define *futurism* or *future studies* as the exploration of what *could* be, undertaken for the purpose of shaping what *will* be. Future studies provides frameworks for thinking about potential futures based on the understanding that the future is not simply "whatever is happening now, extended and perhaps amplified."[2] Rather than assuming continuity, futurists consider the challenges and opportunities presented by trends, technologies, and changing values.

The first half of this section outlines the foundations of futurism and its assumptions, and surveys the methods undergirding future studies. The latter half details two important schools of thought within future studies: Edward Cornish's scenario method and Jim Dator's alternative futures method. While Cornish's work focuses on projection, and thus could be said to try to *accurately assess* aspects of the future, Dator's focuses instead on creating *multiple images* of the future. While numerous futurists have contributed to the practice of the discipline, this report focuses on Cornish and Dator as representatives of two competing camps within futurism that are both of value to game designers.

2.1 Foundations of Futurism

Futurism rests on two basic assumptions. The first is that humans have some degree of agency and thus the future is not entirely predetermined. The second assumption is that the future is unknowable, at least in part.

Assumption 1: Humans have a degree of agency. The future is not predetermined, and it can change based on the actions of humans.[3] Society and history, and thus the future, are not the products of an equation that can be perfectly computed and projected. Rather, human decision-making plays a role in determining outcomes. Further, advances in technology and communication continue to rapidly expand the horizons of what is possible.

Assumption 2: The future is, to some extent, unknowable. In many ways, the future cannot be predicted because the future has yet to be created. Or, as the first of Dator's Laws of the Future states: " 'the future' cannot be 'predicted' because 'the future' does not exist."[4] Futurists "make no claim for omniscience nor for omnipotence," and rather than describing what *will* happen, many futurists instead aim to examine assumptions about the future and explore a broader concept of what *could* be in light of this uncertainty.[5] Human agency, the unknowability of the future, and the myriad of the variables impacting a single outcome lead futurists to speak of the images they create of the future in the plural: as *futures*.[6] Using a plural is designed to shift our frame of reference from a focus on one single future that will happen to a range of possibilities that are to be explored.

Given these two assumptions, futurism seeks to answer two primary questions. The first is descriptive: what *could* the future look like? The second is prescriptive: what *should* the future look like?

The *descriptive aspect of futurism* does not consider normative questions about what is desired, but simply explores the realm of possibility, depicting images of realities not yet actualized.[7] Therefore, futurism meets

at the intersection of the ridiculous and the possible.[8] Jairus Grove, who is Dator's successor at the University of Hawaii, has said that futurists do not "invent" futures, as the futures being examined must be grounded in what exists or what could exist. Instead, they "engineer" futures, taking what already is and imagining its trajectories and possibilities.[9]

We previously noted futurism's assumption that the future is, to some extent, unknowable. This means that futurists are not necessarily attempting to make accurate forecasts. One critical reason that good futurism and accurate forecasting should not be conflated is that *the act of forecasting can itself catalyze change that moves us toward a specific outcome*.[10] In this way, futurism is somewhat like epidemiology, in which accurate projections about the potential spread of a virus can catalyze interventions designed to impede the virus's spread; or it can be compared to the observer effect in quantum physics, which shows that the very act of observing changes an object's behavior, so it behaves differently than it would had it not been observed.[11] In a similar way, sometimes the act of forecasting contributes to the generation of ideas or innovation that can produce creative solutions that address a given issue—which, in turn, minimizes the possibility that the image of the future that catalyzed the invention's creation will come to fruition.[12]

For instance, Department of Defense (DoD) wargames reportedly forecast that if China decided to invade Taiwan, it would likely succeed.[13] If Beijing did decide to invade and were unsuccessful, does that mean that wargames or forecasts were poorly run? Not necessarily. Perhaps the reporting of the likely success catalyzed international diplomatic, military, and economic policies that decreased the likelihood of the successful invasion forecasted by the games. Or perhaps the exercise highlighted weaknesses in Taiwanese resistance efforts that were then mitigated through targeted training exercises.

With respect to the *prescriptive aspect of futurism*, the discipline can also be used to create preferred futures. The assumptions of human agency and the unknowability of the future open the possibility that humans can make decisions that move us toward a more desirable future. Future studies thus makes "a virtue out of uncertainty to empower people to achieve a future that is better than the past and present."[14] Futurism, in essence, invites its audience to create new ways of thinking, to imagine new futures, and to be proactive in designing and continually redesigning the future.[15]

Economist Kenneth Boulding has described the importance of the creation of images in prescriptive decision-making, noting that "whereas all experiences are of the past, all decisions are about the future. The image of the future, therefore, is the key to all choice-oriented behavior."[16] This is where the quality of the descriptive aspect of futurism influences the efficacy of the prescriptive aspect of futurism. If the descriptive aspect misses or misunderstands key factors, it limits our frame of reference regarding desirable ways ahead. As Joshua Polchar notes, good strategic foresight "will not necessarily lead to the 'right solutions', but by considering a fuller picture of problems, we can hope that our solutions will take more relevant factors into account and hence be better informed."[17] Dator similarly describes the synergy between the descriptive and prescriptive elements of futurism:

> What responsible futurists do is not try to "predict" "the future" but to "forecast" "alternative futures" for study and evaluation, and then to help individuals, corporations, governments, and other groups to envision and to move towards their preferred futures—the best, possible, "real" world they can imagine—and to do so on a continuing basis, constantly re-envisioning as new information, technologies, challenges, and opportunities, and the desires, hopes and fears of new people, emerge.[18]

Another point worth making about the intersection of the prescriptive and descriptive aspects of futurism is that for different individuals, communities, and societies, most visions of the future will have both positive and negative implications. *As such, the importance of involving multiple stakeholders in the crafting of potential futures cannot be overstated*. Futurism can involve forecasting decades ahead, meaning that the actions taken in light of these exercises can impact people not yet born.[19] Therefore, including a range of ages is important. The inclusion of various minority and marginalized groups in normative discussions about the future is also critical.[20] A diversity of views and voices imagining and shaping possible futures is important because of our previously noted axiom that images of the future are central to moving toward a preferred future. Equity in the process of imaging can help lead to equity actualized.

Irregular threats uniquely require a multi-stakeholder approach, including members from across the U.S. interagency, international partners and allies, non-governmental organizations (NGOs), and the private sector. Irregular campaigns are designed to fall between bureaucratic jurisdictions and to compete without provoking a large response—avoiding in particular "conventional" military engagement. Building and executing an interagency plan to combat such threats is hampered by terminological and definitional challenges, institutional biases, communication barriers, and differing authorities. Yet bringing members from across the U.S. government together to build and implement a strategy for such challenges is critical. Furthermore, many irregular threats are borderless or impact our partners and allies, and thus require coordination with international stakeholders and local solutions crafted for non-American contexts. To do this well, planning must occur with partners and allies. Finally, many challenges posed by irregular threats will inevitably impact NGOs (e.g., aid workers) and private entities (e.g., tech companies). The range of impacts of adversarial irregular warfare necessitates a wide range of stakeholders at the table to understand and craft solutions.

2.2 The Practice of Futurism

Exploration of the future is focused on "study[ing] potential change—not simply fads, but what is likely to make a systemic or fundamental difference."[21] Thus futurists tend to explore *overarching trends* rather than *specific events*. While events can be defining moments that change the trajectory of a country or organization (e.g., 9/11), trends generally have greater long-term impact and are a better indicator of the future than is a specific moment (e.g., the rise of jihadist militant organizations in the MENA region).[22] Trends are important explainers of change, and are instrumental in understanding "the nature of the dynamic processes that underlie technological developments on the one hand, and changes in the political, economic, social, and cultural realms, on the other."[23] Further, while individual events can be quite difficult to forecast, trends are more observable and comprehensible.

Signals and trends can come from a variety of sources, including technology, demographics, religion, environment, and culture. In 2004, futurist Edward Cornish identified six "supertrends": technological progress, economic growth, improving human health, increasing mobility, environmental decline, and increasing deculturation (that is, "when people lose their culture or cannot use it because of changed circumstances").[24] Each of these supertrends will have an impact on, among other things, the development of irregular warfare and policy solutions. For example, technological development is enabling new types of warfare (e.g., cyber warfare) and new avenues for information operations, while economic growth and the quest for access to resources and markets is driving irregular competition on the African continent. Building institutional and individual capacity to examine and understand the wide-ranging implications of trends is a critical step for

futures work and for building resilience to irregular threats.

But examination of supertrends is not the only way to undertake forecasting. Another approach is to look for today's weak signals that will eventually transform into reality. Sohail Inayatullah describes the search for weak signals as *emerging issues analysis* that "seeks to identify bellwether regions, where new social innovations start. It also seeks to identify issues before they become unwieldy and expensive, and, of course, to search for new possibilities and opportunities."[25] Weak signals are not yet trends, but over time could turn into trends. Lt Col Jake Sotiriadis and Jairus Grove wrote of weak signals:

> Today's "weak signals" are tomorrow's reality—technologies like clustered regularly interspaced short palindromic repeats (CRISPR) (which potentially allow malign actors to develop a new generation of bioweapons), nationalism and state malfunction in well-established countries, new diseases, new forms of intelligence, the failure of things we depend on like antibiotics—are all signals which appeared weak sometimes only a few years ago and are now squarely in the realm of the possible.[26]

It is worth noting that even searching for today's weak signals is, in important ways, still trend-focused: doing so seeks to identify possible trends before they have become clearly identifiable as such. Contrary to Cornish's proposed approach, this method does not search for supertrends that should be evident today, but rather seeks to spot emerging trends that will become more pronounced over time.

The decision to prioritize trends over events is particularly important in the context of values and attitudes. While changes in religious or cultural values are sometimes reflected in events, often the impact of these transitions are subtle until an event occurs that can be considered the culmination of an important trend. When that event occurs, people may be left shocked and unprepared. The alternative futures approach, which we discuss later, focuses in particular on moments when drivers cross a threshold and "change systems themselves."[27] For instance, upcoming transitions could include technology moving from the digital computer model to a quantum computer model, or movement from an oil-based energy system to a nuclear-based system.

Given that trends can shift organically and are influenced by new technologies and our own policies and actions, futurism must be an ongoing process.[28] The process of revision is critical as trends develop and new innovations do not just change the strength of signals but also create new signals. Further, there is no such thing as " 'pure trends' that exist in isolation" from other trends or events.[29] As human agency shapes trends and drives innovation, forecasts and futuring must be revisited.

This section now considers the difference between the scenario method and the alternative futures method. We begin by examining the scenario method proposed by Edward Cornish, the late founder of the World Futures society, then turn to the alternative futures model associated with Jim Dator, the founder of the University of Hawaii's future studies program.

2.3 The Scenario Method

Cornish recommends forecasting five different scenarios about the future: surprise free, optimistic, pessimistic, disaster, and transformation.[30] Each of the five scenarios are focused around the same set of variables, forecasting possible realities associated with the same trends. After forecasting the various possibilities, the next step is examining the conditions under which each scenario would become a reality and assigning probabilities or likelihood statements to each. Alternatively, rather than projecting trends forward, the scenario method can

also work by *backcasting*, attempting to "postulate a future goal, event, or circumstance and then try to develop a sequence of steps or stages to explain how the imagined future goal or event came to pass."[31]

The primary goal of foresight is the development of knowledge that can be used to make better decisions, as Cornish defines foresight as "the ability to make decisions that are judged to be good not just in the present moment but in the long run."[32] Cornish's conception of forecasting thus inherently connects the prescriptive aspects of futurism to the descriptive aspects. This connection between the two underscores why Cornish's school of futurism places more emphasis on the accuracy of projections than does Dator's: The focus of Cornish's forecasting is informing better decision-making, which in turn is linked to understanding the relative probabilities of various possible future scenarios.

By defining scenarios as optimistic or pessimistic, Cornish assigns conceptions of good and bad (though he cautions that, in the initial consideration of supertrends, it is a best practice at the outset "to first defer thinking in terms of problems and how to solve them").[33] A hierarchy of values and preferences is at least implicit in his framework and is arguably explicit. Cornish suggests that scenarios can be ranked or scaled to consider the relative desirability of a scenario, in order to conduct a cost-benefit analysis and to ask "ourselves how much of a sacrifice we are willing to make to bring this scenario to reality or keep it from being realized."[34]

In assigning desirability rankings and assessing if a scenario is worth the cost of attempting to pursue, Cornish argues that his model uniquely prompts questions about values. As discussed previously, gathering input from multiple communities on the desirability of scenarios and their second-order consequences is important, as experiences and assumptions can differ between and among communities.

2.4 Alternative Futures

The alternative futures framework is less focused on futurism as a means to produce accurate forecasts rooted in assigned probabilities. Rather, this framework emphasizes the value of *creating images of the future*. Alternative futures builds on Bertrand de Jouvenal's writings about the competition of ideas and the sociology of the future. Jim Dator pioneered the alternative futures framework, but it is also worth mentioning the work of Sohail Inayatullah, who built on Dator by creating a framework for multi-layered analysis.

Bertrand de Jouvenal. Jouvenal provided much of the foundation for the alternative futures framework in his 1967 book *The Art of Conjecture*. In it, Jouvenal described ideas about the future as an "ecology of ideas," comparing it to populations that complement and compete with one another. He wrote:

> The discipline dealing with the distribution and development of all the different species living together in a given environment is known as "synecology." These different populations form an "ecosystem," within which there are relations of dependence and of competition. The same holds true for ideas: some ideas compound with one another, others are at war. It is even true of certain ideas, as of certain predatory species, that they can subsist only as long as the species of idea on which they prey subsists in sufficient number. An ecosystem has periods of stability as well as periods of rapid change set off by a change in the environment or by the intrusion of new species.... I think it was important to [talk about ideas in the context of ecology] in order to emphasize that an idea does not occur in isolation but within a partly hostile, partly propitious environment of ideas, which it helps to modify.[35]

Jouvenal argues that there are two primary reasons forecasts are accurate. First, as we generate ideas about the

future, we pursue them. Therefore, "accuracy" is really second-order confirmation bias. *The image of the future led to behavioral changes that created that future*. Second, Jouvenal believes that our deepening understanding of human behavior and its interactions with human and non-human systems has allowed us to be more accurate in forecasts. The competition of ideas is undergirded by laws, political systems, distributions of power, and technological advancements that enable connectivity and the pursuit of certain ideas, and also create a variety of social structures. As society grows in its understanding of the variables that drive a trend or an idea about the future, it grows in its ability to accurately forecast what will happen. In other words, accuracy in forecasting is a byproduct of human knowledge about our own agency and our control over technological advancement.

Jim Dator. Building off Jouvenal, Dator's *four alternative futures* framework aims primarily to uncover and disrupt assumptions rather than accurately predict the future. Dator proposes four images of the future in his four alternative futures framework: continued growth; collapse; discipline/disciplined society; and transformation. Dator notes that each of the four images "differ from each other fundamentally in cosmology, epistemology, and often deontology, and are not variations on a common set of themes."[36] To say a bit more about each of these four images:

1. The **continued growth** future is one where there is continuity between the present and future on an upward trajectory. It is essentially a future of straight-line progress with respect to the trends examined—which, it should go without saying, is not necessarily a good thing!

2. The **collapse** scenario anticipates a social and environmental movement toward "a 'lower' stage of 'development' than it currently is."[37]

3. A preservationist or restorative perspective on the future is called the **discipline/disciplined society**. In this future, society determines that the erosion of values, culture, the environment, or other factors due to "progress" has been detrimental, and that it is important to instead "restore these places, processes, or values that they feel are far more important to humans than is the acquisition of endlessly new things and/or the kind of labor and use of time that is required to produce and acquire them."[38]

4. **Transformation** refers to a future that has been radically changed by technology, "especially robotics and artificial intelligence, genetic engineering, nanotechnology, teleportation, space settlement, and the emergence of a 'dream society' as the successor to the 'information society.'"[39]

These four images of the future can then be turned into scenarios to be explored or experienced. The first goal that Dator articulates behind running a four-futures exercise is "to have people 'experience' at least one future substantially different from the present to enable them to question the default assumption that 'the future is simply the present extended and amplified.'"[40] Dator is concerned with developing a more robust understanding of what is possible, and what these possibilities mean.

Thus, Cornish's forecasting model and Dator's alternative futures model diverge with respect to the practice of assigning probabilities to scenarios. Dator posits that across these four futures and over time, there is not a future that is inherently more or less likely than any other. Cornish, on the other hand, advocates for developing probabilities and likelihoods of alternatives. This may be in part due to the differences in preferred time horizons, Dator's model focusing more on futures over the horizon while Cornish places a higher premium on medium term forecasting.

Sohail Inayatullah. Inayatullah built off of Dator's alternative futures model by seeking to understand why issues are framed in certain ways. Inayatullah's method, causal layered analysis (CLA), tries to understand "how truth is

evoked, who evokes it, how it circulates, and who gains and loses by particular nominations of what is true, real and significant."[41]

CLA is a four-tiered approach, with the four tiers being litany, social causes, worldview, and myth/metaphor. He defines *litany* as the visible trends or challenges that actors are trying to solve, and defines *social causes* as the "economic, cultural, political, and historical factors" that give rise to the litany.[42] The third level, *worldview*, is composed of assumptions and mental schemas. Inayatullah explains the various aspects of unpacking worldview, noting that this analysis

> is concerned with structure and the discourse/worldview that supports and legitimates it (population growth and civilizational perspectives of family; lack of women's power; lack of social security; the population/consumption debate, for example). The task is to find deeper social, linguistic, cultural structures that are actor-invariant (not dependent on who are the actors). Discerning deeper assumptions behind the issue is crucial here as are efforts to develop a new vision of the problem. At this stage, one can explore how different discourses (the economic, the religious, and the cultural, for example) do more than cause or mediate the issue but constitute it. It investigates how the discourse we use to understand is complicit in our framing of the issue. Based on the varied discourses, discrete alternative scenarios can be derived here; for example, a scenario of the future of population based on religious perspectives of population ("go forth and multiply") versus a cultural scenario focused on how women's groups imagine birthing and child raising as well as their roles in patriarchy and the world division of labor. These scenarios add a horizontal dimension to our layered analysis. The foundations for how the litany has been presented and the variables used to understand the litany are questioned at this level.[43]

The *myth/metaphor* level is defined as the unconscious means by which cultures understand the world, the narratives and paradigms through which people filter reality. Inayatullah writes that "these are the deep stories, the collective archetypes—the unconscious and often emotive dimensions of the problem or the paradox (seeing population as non-statistical, as community, or seeing people as creative resources, for example)."[44]

Overall, as Jairus Grove notes, those in the alternative futures camp "stress the necessity for futures *practice* rather than futures *predictions* to be added to institutions. The reason is that doing futures is seen as more vital to the adaptive capacity of an institution than possessing a binder full of predictions."[45] The emphasis on the process, and the value of immersion in different future realities, lends itself to war-gaming, scenario-building, and narrative methodologies being seen as particularly important tools.

2.5 The Importance of Futurism

Forecasting is becoming increasingly complex due to acceleration in the rate of change across multiple dimensions at once. Inventor and futurist Ray Kurzweil made the following observation at the turn of the twenty-first century:

> The whole twentieth century was actually not one hundred years of progress at today's rate of progress. It was twenty years of progress at today's rate of progress. And we'll make another twenty years of progress at today's rate of progress, equivalent to the whole twentieth century, which was no slouch for change, in another fourteen years. The pace will continue to

> accelerate, and because of the explosive nature of exponential growth, the twenty-first century will be equivalent to twenty thousand years of progress at today's rate of progress; about one thousand times greater than the twentieth century.[46]

Particularly because of the rapid rate of change and innovation, the time we are given to consider and prepare for the implications of new technologies, or other major factors that can have transformative impacts, is decreasing. Being able to anticipate trends and consider potential futures will only become more valuable in extending the time we have to prepare by thinking through potential realities before they are realized. Futurism can assist in identifying gaps in planning and highlight fundamental assumptions through scenarios that flip those assumptions. Everyone has often unstated and unrecognized assumptions about the world—such as about what is probable or what is good—that shape how they view the world and the future. For example, department-specific or agency-specific biases or preconceptions are shaped by their toolkits, institutional memories, personnel, and education systems. These biases or preconceptions impact how each department or agency approaches planning and policy implementation. The reactions evoked by images of the future provided by the practice of futurism can highlight these assumptions in a unique manner. Joseph Coates explains how such interrogation about one's assumptions regarding the future can occur:

> When a client sees some statement and reacts negatively to it, we see that negativity as based on underlying, usually unspoken, assumptions.
>
> We will ask, "Charlie, considering your uncertainty or rejection of this notion, could you tell us a bit more about why you feel that way?" If the client takes that bait we have him hooked. One cannot reject a statement about the future without revealing some of one's own assumptions. That revelation is the primary goal of exploring the future. To help people to better understand what they believe will allow them to examine, evaluate, modify, add to or drop some assumptions.
>
> The common feature of all organizational failure is that some individual or small group at the top had assumptions about the future that were unsound. Any study of the future, to be useful, has to be deliberated over, discussed, talked about, and most important of all, thought about.[47]

Particularly in the discussion of preferred futures, identifying why a future would be considered "better" or "worse" can reveal values that are not held by all stakeholders.[48] The practice of futurism allows for space to think, to discuss, and to work through the implicit assumptions revealed through relevant exercises, in order to address possible blind spots that can impact stakeholders' perceptions of the future.

In short, futurism provides an important check against a linear view of the world that assumes the future will be largely a continuation of the past. Though human beings may naturally desire certainty about what is next, linear thinking leaves little room to understand or prepare for shocks to the system, leaving leaders and institutions behind when they occur. A further problem about a linear conception of the future is that it often assumes static attitudes and worldviews, or attitudes and worldviews that continue to progress apace in the direction that they are already trending.[49]

A linear mindset that assumes that the major wars of tomorrow will be largely the same as the major wars of the past, just with different technology, is a dangerous assumption.[50] We have seen similar assumptions about continuity in how wars are fought bring entire countries to ruin in the past. Believing that the next

war would be a continuation of the trench warfare that defined World War I, the French built the infamous Maginot line. While technologically impressive, it failed when the Germans decided to avoid attacking the French at their point of strength and instead invaded France through Belgium.[51] While the French tried to solidify previously victorious strategies, their assumptions about wars of the future were wrong. The Germans' innovations rendered French efforts largely irrelevant. Today U.S. planners seem to be making similarly inaccurate assumptions about the nature of future—as well as, we would argue, present day—armed conflict. In the past, American military victories—in World War I, World War II, and the Gulf War—came through large-scale conventional force.[52] A temptation thus exists to rely on conventional and nuclear capabilities and not also invest in developing irregular capabilities, to rely on new technology and not develop personnel for irregular competition, even as our adversaries pivot to innovate around America's conventional strength and technology.[53]

Assuming that the future will simply be a continuation of the past can become a more damaging assumption as change accelerates. Grove argues that the world is "leaving a period of relative stability and entering into a period of extreme turbulence … because so many major powers, both states and non-state actors, are convinced that rapid innovation and disruptive change is in their strategic interest. This in some ways incapacitates being able to make long-term trend analysis functional. It actually sabotages trend analysis because so many people are invested in, by definition, not following the trend."[54]

As we enter this period of extreme turbulence, we would be wise to consider futurism one of our key means of navigation.

3. Simulations

There are various kinds of simulations, each of which can offer somewhat different sets of insights. In this report, the kind of simulation we focus upon that we believe can add value to the practice of futurism is *wargames*. In his valuable book *Designing Wargames – Introduction*, George Phillies draws on the writings of famed game designer Greg Costikyan to provide four characteristics of games:

> First, to be a game, the object under consideration must offer *meaningful player participation*. If the players only sit and watch, the way you watch a television show or motion picture, there is no game....
>
> A game requires *decision making*. If the player activity consists of rolling a die and moving a single pawn, there may be player involvement, but the player is making no decisions. A real game must be arranged so that a player has meaningful choices, and that the player's choices have a significant effect on the game. If there are no decisions, or if the decisions actually have no effect on the outcome, then the play activity is not a game.
>
> Real games supply *goals* for the players. The players must have objectives, positions they are trying to reach or tasks that they are trying to perform. If there are no goals—in board wargames, the goals are called *victory conditions*—then the player decisions are meaningless. By making different decisions, players will see different things happen on the map board, but the player activity will be meaningless.
>
> A game must supply a *challenge* to the players. If there is no opposition, so that the players

> make moves, and an outcome is generated, but the game and other players supply no push-back, in some sense there is no game. If victory is certain, what is then the point of playing?[55]

Further characterizing wargames, social scientists Erik Lin-Greenberg, Reid Pauly, and Jacquelyn Schneider explain that wargames simulations are characterized by four elements: "human players, immersed in scenarios, bounded by rules, and motivated by consequence-based outcomes."[56] Throughout this report, we use the term *wargame* to refer to the exercises defined by Phillies, Lin-Greenberg, Pauly, and Schneider. When we employ the term *simulation* we are referring to a broader category of activity, of which wargames are one subset. For example, tabletop exercises, which focus on the process of decision-making by relevant stakeholders but do not portray the *consequences* of the decisions made, are simulations but they cannot be characterized as games.

The term *wargames* is rooted in the origins of the practice, which became common across militaries beginning with the Prussian game *Kriegspiel* as a means of training officers. Since then, wargames have grown in their application, and have had profound impacts. The U.S. Navy conducted a series of games in the 1920s and 1930s that trained the commanders who would go on to win the war in the Pacific in the Second World War. During that same conflict, British prime minister Winston Churchill appointed Gilbert Roberts "to create a game that would enable the British to understand why they were losing so many ships to German U-boat attacks."[57] Decades later, a 1998 White House wargame on bioterrorism contributed to President Clinton's decision to lobby to add nearly $300 million to the nation's counterterrorism budget.[58]

It is worth noting that one genre of wargame is the board game, upon which Phillies's book, cited earlier, is focused. Board games are often designed with great rigor and can yield insight into certain aspects of our futures, especially those that are tactical in nature. However, our own key interests as futurists tend to be borne out best not through board games but rather through games rooted in choice and negotiation. The style of game that we argue has particular value in advancing the practice of futurism straddles several game genres identified by Phillies, combining elements of *diplomatic games*, *rolegames*, and *live action play*.[59] Specific elements of game play will be elucidated when we describe the rules we employed for *Utopia or Oblivion*.

Despite their name, wargames do not deal exclusively with warfare and battle plans; they are not necessarily militaristic. Rather, their defining element is human players who are immersed "in scenarios where they make decisions in accordance with given rules and react to the consequences of their choices."[60] As our description of the *Utopia* game demonstrates, some of the primary questions that concerned us in designing that game were distinctly non-military in nature.

3.1 How Wargames Function and Engage the Brain

How wargames work, inspire decision-making, and engage the brain have all been the subject of scholarly interest. Relevant scholarship identifies that wargames (along with other sources of fiction, such as movies, games, television, and novels) create in their consumers "synthetic experiences," mental constructs generated to process information.[61] These synthetic experiences can have an impact on how individuals interact subsequently with the real world. For example, U.S. President Ronald Reagan expressed concern about the vulnerability of the country's nuclear systems after watching the film *WarGames*, which depicted an attack on that infrastructure. Similarly, wargames strive to create synthetic experiences that can be used to shape responses to future challenges. J. Furman Daniel III and Paul Musgrave examined the effects of synthetic experiences in international relations, finding that fictional narratives present in popular culture and in exercises like wargames trigger cognitive processes akin to real-world decision making.[62]

How does this happen? Games activate two simultaneous cognitive processes: the automatic and systematic systems. These systems are what formulate synthetic experiences. Of the two, the *automatic system* will first process the information that the wargame provides to it. In a synthetic experience, the brain's automatic system will initially believe the information provided, but later discount at least some of it as fiction, before engaging any higher cognitive processes. The brain's disbelief is a major hurdle. Its suspension, in order to trigger deeper learning and more valuable synthetic experiences, is operative and paramount. Only then can the secondary process, the *systematic system*, be fully engaged.[63]

What happens next? Peter Perla and E.D. McGrady write that "what determines the extent to which a narrative or other piece of prose invokes the systematic system and at what intensity *is the extent to which we can take real action on the basis of that information*."[64] Thus, a simple work of fictional prose likely won't fully engage the systematic system: It won't fully suspend disbelief due to the reader's inability to take actions. But wargames stymie disbelief because participants must *act* on the information they receive and process. Because players occupy a role (what Perla and McGrady call *dramaturgical identities*) within a constructed narrative, the brain is forced to act as if it is in the real world in order to maintain the identity, further foiling disbelief.[65] Disbelief is thus challenged twice by wargames: once when players assume their roles and again when they influence the narrative. The brain can engage the higher cognitive processes around decision-making and information analysis.

This means that wargames may be among the highest forms of synthetic experience. They are able to surmount disbelief and unlock crucial cognitive processes to teach and instruct participants in a way few exercises and sources of fiction can. Information, risks, consequences, and decisions are all considered *as if it is the real world*. Moreover, the types of information that might traditionally trigger serious disbelief—monumental failures, public embarrassments, and black swan events—are given a receptive environment in which they can truly be considered, responded to, and learned from.

Based on relevant scholarship, as well as our own experience running wargames, we discern a number of benefits that can accrue from the process of wargaming that are relevant to advancing the practice of futurism:

- **A multidisciplinary and multi-stakeholder perspective**. Put simply, the world is multidisciplinary. For example, an international-affairs practitioner will routinely have to think through the social, economic, ecological, and security implications of any decision. Underscoring this point, in its 2017 report on gray zone conflict, the Department of State's International Security Advisory Board concluded its recommendations by advocating for "an additional focus on training and 'wargaming' gray zone scenarios with stakeholders across government."[66] By drawing together individuals from numerous disciplines (e.g., interagency, professional, academic) and making their various backgrounds relevant, wargames can illustrate various dimensions of the challenges being explored.

- **Tactile and immersive**. Wargames are a unique form of training and education. By placing individuals in an immersive scenario and forcing them to determine the best course of action for the actor of which they are a part, wargames create a unique experience that can make individuals think deeply about the problems they confront. The lessons drawn from them are highly memorable, often making a lasting impression.

- **Deep exploration of complex challenges**. There is a significant difference between reading about national or global problems and being forced to grapple with the complications and logistics of

tackling them. For example, reading about the need for multilateral action to address climate change is one thing, but having to negotiate an enforceable treaty with sufficient monitoring and enforcement mechanisms is another. The perspective wargames provide on complex real-world dilemmas uniquely prepare players to understand challenges, potential opportunities, and test avenues of cooperation. Many games require some form of red-teaming, where some participants play the role of an adversary. Combined with the aforementioned benefits of tactile, immersive game play, this role can be particularly beneficial in forcing participants outside of their traditional roles and adopt the goals and assumptions of an adversary.[67]

- **Realistic decision making.** Many wargames introduce elements to the decision-making process that differentiate them as an exercise. In addition to immersion, wargames include stressors often absent in other experiments, often referred to as the *fog* and *friction* of war.[68] According to former deputy secretary of defense Bob Work and Gen. Paul Silva, "the best wargames ... seek to create an environment for applying critical reason techniques and diagnosing the characteristics of competition under the 'fog' and 'friction' of war."[69] wargames frequently simulate incomplete information environments that can frustrate and complicate decision-making. And time constraints and emotional burdens additionally contribute to a unique "experimental realism."[70]

- **Relevance to planning and research**. As Lin-Greenberg et al. show, there is increasing interest in the scholarly community in using data from wargames "to answer questions about human behavior, either regarding rare events, or topics where real-world data is difficult to obtain." *Virtually all of the major questions posed by futures studies fall into these categories*. In addition to questions about emerging technologies and nuclear weapons, Lin-Greenberg et al. note that wargames can "be useful for studying a range of international relations topics, including group dynamics in foreign policy decision making, the strength of norms, the effectiveness of treaty commitments, the development and utility of economic sanctions, the comparative effectiveness of deterrence strategies, and the fidelity of crisis signaling."[71] They can be similarly employed to test irregular solutions.

- **Reflection.** Wargames foster a process by which participants evaluate their own decision making. The sequential nature of the games forces participants to evaluate previous decisions that they have made in subsequent turns as they deal with the consequences. This self-evaluation plays out over the course of the game, as some games include decisions with second- and third-order consequences.

4. *Utopia or Oblivion* Wargame

As we noted earlier, in partial fulfillment of the TEG that funded this report, Valens Global hosted a digital wargame entitled *Utopia or Oblivion?* (referred to as *Utopia* for short) for DND and Johns Hopkins University's Global Security Studies program from March 25 to April 10, 2021. The simulation explored several trends, including instability and possible state collapse as a result of climate change; advances in robotics and AI technologies being employed by violent non-state actors; and evolution in the global understanding of political and territorial sovereignty, resulting in the creation of new quasi-sovereign entities asserting autonomy in defined geographic regions, which were called *microstates* in this game. *Utopia* drew upon a synthesis of forecasting and alternative futures methodologies in imagining the game worlds of 2026 and 2036. Participants were cast in the role of several governmental and NGOs, including Global Affairs Canada

(GAC), the U.S. Department of State, the U.S. Intelligence Community (USIC), United Nations Secretariat (UN), Mexico, and Google.

The game world was set in 2026 for the first three turns of gameplay, then the game world then jumped forward a decade, to 2036, for the final two turns. From a gameplay perspective, the reason for the time jump was that many wargames are time-bounded, asking participants to make decisions only across a span of weeks or months in the game world. Thus, players are typically only asked to consider the short-term implications of their decisions; there is no incentive or reason to think strategically across multiple years. The time jump in *Utopia* was designed to examine the short- and long-term implications of teams' decision-making, thus forcing them to make choices that had both short-term and long-term consequences. The decisions that players made in 2026 shaped the world they inhabited after the time jump.

4.1 Structure of the *Utopia* Game

Utopia drew on both forecasting and alternative futures methodologies for the crafting of the game world. The plot pre-time jump was created using forecasting techniques that mapped trends the game designers wanted to examine in the short term. The plot post-time jump was rooted instead in alternative futures techniques that focused on images of the future rather than forecasts.

The discussion of *Utopia* in this section does not intend to provide an exhaustive account of the wargame. Instead, it outlines plot elements within two key themes that the game explored: climate change and sovereignty. Both trends are described in sections that outline plot development before the time jump and then show developments following the time jump.

Before we explore these plot lines, it is worth exploring the game rules we employed for *Utopia*. It was a refereed, turn-based game that was open-ended in terms of the moves that teams could submit. In other words, following the submission of teams' moves, referees would determine the outcome, which would in turn be reflected in the game environment.

Before outlining the process by which teams made moves, we will explain the game environment. Information was conveyed to players in four major ways:

1. The *newsfeed* represents the store of information to which all teams in the game universe have access. Teams can access it via Google Slides. It includes short news articles, tweets, and occasional videos. All of these media artifacts are designed to further the synthetic experience of the game. The videos that appear in the news feed are typically recorded by professional commentators or experts who possess relevant knowledge of topics, and who weigh in on events in the fictional game world.

2. *Media packets* are longer media artifacts than can easily fit into a Google Slides presentation that nonetheless represent part of the store of information to which all teams in the game universe have access. Examples of media artifacts that may appear in the media packet are detailed news articles or published interviews with characters in the game universe. The media packets are distributed each round as PDFs.

3. *Intelligence memos* are memoranda written by insiders within one of the actors (e.g., analysts within the U.S. intelligence community, Google's data analysts) to which only one of the teams has access.

4. *Briefings* are interactions with role players who play various characters in the game universe. These characters may include diplomats, analysts, bureaucrats, and others with relevant information or who hold relevant stakes in game outcomes.

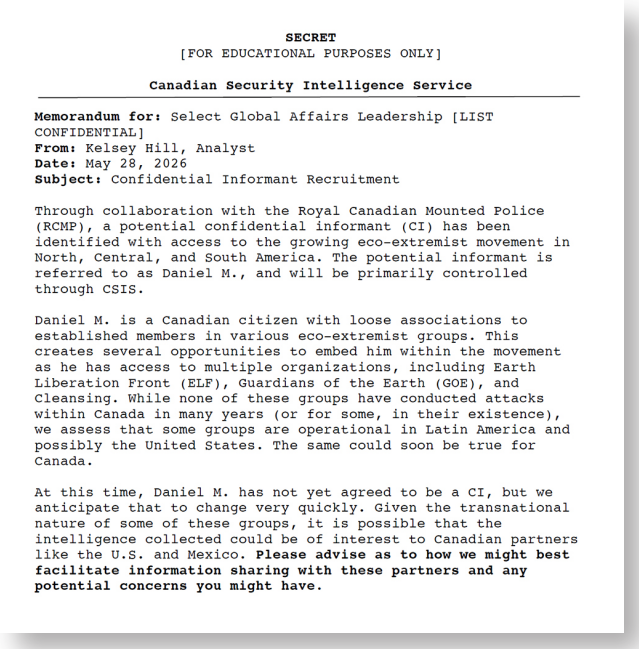
Numerous examples of these media artifacts are interspersed throughout this section in order to provide the reader a flavor of how *Utopia* immersed players in a synthetic experience.

The plot of *Utopia* was determined by the interaction of the team's moves with plot elements that fell outside their control. Moves that teams made would fundamentally change the game environment, and the Valens team refereed the outcome of those moves. Team moves fell into three categories:

1. *Action Moves (three per turn)*. Teams are given the opportunity to be as creative as they would like in their utilization of action moves. Action moves are designed to allow teams to further their own agendas. There are no constraints on what teams are allowed to submit, except that the proposed move cannot dictate a response; that is for the Valens referees to decide. For instance, a move can request an operation to initiate an airstrike on a compound but cannot dictate the results of that action (e.g., if the strike succeeds in killing the leader of a terrorist group).

2. *Decision Points (no limit)*. Throughout the game, players receive intelligence memos that request the team to make a move. These moves address key issues related to the plot of the game. Responding to a decision point memorandum does not count against the three-move limitation for the teams. See Image 1 for an example of a decision-point memo.

3. *Negotiations (two per turn)*. Two or more teams may choose to interact with each other to produce a memorandum of understanding, treaty, or other type of agreement.



SECRET
[FOR EDUCATIONAL PURPOSES ONLY]

Canadian Security Intelligence Service

Memorandum for: Select Global Affairs Leadership [LIST CONFIDENTIAL]
From: Kelsey Hill, Analyst
Date: May 28, 2026
Subject: Confidential Informant Recruitment

Through collaboration with the Royal Canadian Mounted Police (RCMP), a potential confidential informant (CI) has been identified with access to the growing eco-extremist movement in North, Central, and South America. The potential informant is referred to as Daniel M., and will be primarily controlled through CSIS.

Daniel M. is a Canadian citizen with loose associations to established members in various eco-extremist groups. This creates several opportunities to embed him within the movement as he has access to multiple organizations, including Earth Liberation Front (ELF), Guardians of the Earth (GOE), and Cleansing. While none of these groups have conducted attacks within Canada in many years (or for some, in their existence), we assess that some groups are operational in Latin America and possibly the United States. The same could soon be true for Canada.

At this time, Daniel M. has not yet agreed to be a CI, but we anticipate that to change very quickly. Given the transnational nature of some of these groups, it is possible that the intelligence collected could be of interest to Canadian partners like the U.S. and Mexico. **Please advise as to how we might best facilitate information sharing with these partners and any potential concerns you might have.**

Image 1: Imitation Intelligence Memo

Moves are submitted at the end of each turn to the Valens team. After a move has been adjudicated, its results are incorporated into the next turn's information environment (e.g., the result will appear in the news feed or in intelligence memos). Image 2 shows an imitation tweet that advanced the plot of *Utopia*, while Image 3 shows a slide that advanced the plot through narrative bullet points (i.e., information that was known to all teams but that was not depicted through imitation media artifacts).

Example Moves. GAC's response to the decision-point memo shown in Image 1 was the recommendation to vet and develop the confidential informant. (Note: In *Utopia*, the Office of the Prime Minister would occasionally solicit GAC's advisory opinion regarding decisions that might fall outside GAC's jurisdiction.) The vetting and development of this informant produced an intelligence briefing the following turn based on new information that the informant was able to unearth. Later in the game, GAC advised that intelligence should be shared with the USIC team that allowed the United States to foil an assassination attempt (see Image 3).

Image 2: Imitation Clarke Tweet

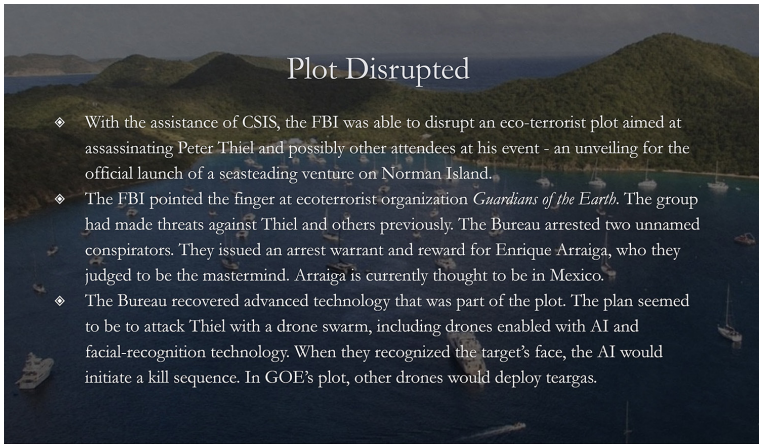


Image 3: Newsfeed Plot Update

4.2 Climate Change Trend

The game structure forced participants to reckon with the direct impacts of climate change as well as intersection with humanitarian and security problems. In the game, this was concretized by climate-induced destabilization of Jordan.

Jordan Pre-Time Jump. The game explored the destabilizing effect of extreme weather and lack of precipitation on Jordan that contributed to a rise in protests against the government, jihadist activity, and a refugee crisis. At the beginning of the game, Jordan is in the midst of a severe drought, with its water resources and agricultural sector stretched to the limit. The worsening crisis leads to tight rationing of food and water supplies, with newly-formed local militias stepping in to try to gain control over these precious resources. These internal pressures prompt King Abdullah to petition for international aid while regional tensions grow over access to water (Image 4). The climate crisis, coupled with state instability, produces refugee flows into other Middle Eastern states and Europe, prompting concerns from some governments about the large numbers of migrants. Muslim Brotherhood leader Hasin al-Qasim calls for the dissolution of the monarchy, then petitions for political asylum in Canada after being forced to flee Jordan.

At the time of the game's time jump, King Abdullah has regained some control in Jordan, but the country still suffers from instability. As the climate crisis mounted, the United States pioneered the New World Opportunities (NWO) initiative that sought to build climate resilience, fund geoengineering solutions, and

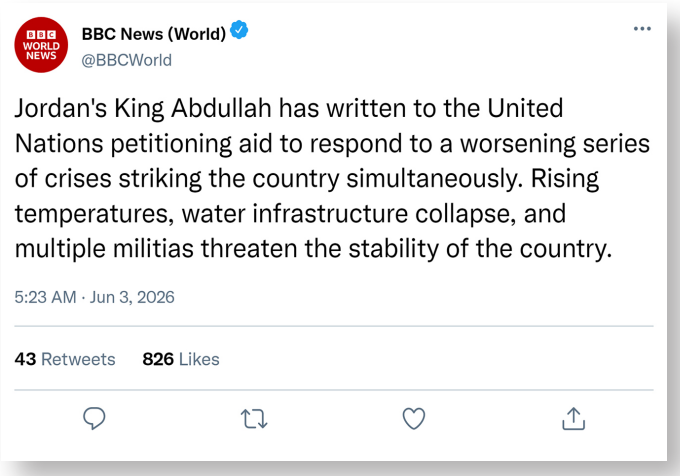


Image 4: Imitation BBC Tweet

multilateral cooperation, are able to address many of the effects of climate change in Jordan and globally. The NWO initiative funds and accelerates geoengineering solutions. Private organizations such as EarthX, a fictional corporation that is run by Elon Musk and dedicated to engineering technological solutions to #SaveTheUniverse from the climate crisis, also gain significant traction. Cloud seeding technology is used to reflect solar radiation and cool temperatures over urban areas, and to augment precipitation to boost local agriculture. Jordan becomes a regional leader in sustainable climate management thanks in part to significant contributions from the United States engage regional councils to identify and engage local partners (Image 5). Similar agreements, such as a bilateral Canada-Mexico climate agreement, also sought to invest in the research and development of technologies to combat climate risks. Despite the progress made in addressing the climate crisis through these initiatives, the outlook for Jordan and climate change is uncertain.

Jordan Post-Time Jump. In the 2036 game world, teams have been largely successful in their endeavors to address climate change. Efforts across the public and private sector, as well as

Image 5: Imitation Politico Tweet

Image 6: Imitation Elon Musk Tweet

and Israel. This growing cooperation enhances security among Middle Eastern states.

The resolution of the climate plot challenges our tendency to project trends only in terms of positive feedbacks. Often we expect that present trends will continue in the future. In *Utopia*, advances in geoengineering technology changed the trajectory of climate change, as well as the stability of Jordan. However, even the reversal of the worst effects of climate change did not necessarily mean that it was a "good" outcome. While many in the game world celebrated (Image 6), some ecological groups decried how geoengineering allowed humans to continue to abuse natural resources without consequence rather than fundamentally remaking society to deal with climate change and other ecological challenges. The game thus showed how normative judgements about outcomes are frequently open to interpretation.

4.3 Sovereignty Trend

Utopia also considered a scenario in which the world transitions away from existing conceptions of sovereignty. These changes culminated in the formation of a variety of *microstates*, new small entities claiming sovereignty over distinct geographic areas. The creation of microstates is enabled by various factors, including a high degree of interconnectivity via technology; a high degree of mobility; and people's growing inability to live with others who have different opinions and outlooks. In the game, microstates formed across a variety of causes, including anarchocapitalist microstates, white nationalist microstates, politically-oriented microstates, and microstates that serve as proxies for major world powers.

Conceptions of Sovereignty Pre-Time Jump. At the beginning of the game, groups dissatisfied with current political orders for various reasons begin to form collectives, as well as autonomous and semi-autonomous communities, built around their outlooks. For example, a group of islands is bought by libertarian-minded tech moguls who are dissatisfied by rising taxes and increasingly byzantine regulations. These moguls include Larry Ellison, Max Levchin, Elon Musk, and Peter Thiel. They use seasteading, the development of permanent settlements at sea, to expand their territory. Angered by the use of seasteading, Guardians of the Earth (GOE), a fictional ecoterrorist group, uses its publication *Earthcleanse* to declare Peter Thiel a "climate outlaw." His crimes include "creating dwellings that float in the middle of the ocean, away from society and protected from the consequences of their climate crimes," which allow Thiel and the other billionaires with whom he is associated to "evade justice for the destruction they have wrought on our planet."

Image 7: Imitation Yashar Ali Tweet

Resentful of the societies in which they are immersed, both right-wing and left-wing groups in Canada and the United States begin to coalesce in defined territories. The right-wing groups include white nationalists, political libertarians, and Christian fundamentalists who begin to build communities along the U.S.-Canadian border. On the left side of the political spectrum, throughout the game fictional media personality Ellsworth Wickman uses his arts to critique the American system. Near the beginning of the game he publishes an op-ed titled "The Need for Year Zero," in which he voices his desire to see a world remade without the influences of systemic bias and injustice (Image 7). Wickman then moves to North Saanich, British Columbia for a fresh start away from the United States. While living in Canada, Wickman creates a couple of his most consequential works. The first is the show *Inquisition*, a police procedural set in the Spanish Inquisition in which the Inquisitors are the protagonists. *Inquisition* is highly popular, perhaps in part due to its ambiguity. Fans of *Inquisition* interpret the show in *opposite* ways: Some people love it because they think it is a critique of policing, while others swear that it is an attack on "cancel culture." Still others interpret the show literally, as a pro-Spanish Inquisition piece of entertainment though

Image 8: Imitation Playbill for Gulag! The Musical

many of them are fans regardless. Wickman's second major contribution is *Gulag!: The Musical*, a romantic comedy set in a gulag (Image 8). Among other things, the musical suggests that the gulag was not really so bad: the gulags still had romance, humor, and love of life. At the end, the musical asks if America is the real gulag.

In the Pacific, China continues its island-building operations in the South China Sea, particularly around the Orchid and Babuyan Islands.

Utopia also includes Google as an actor that shapes geopolitics. At the beginning of the game, Google offered a subscription-based data collection and analytic service to the USIC and GAC to supplement the countries' intelligence operations. While neither team decided to subscribe, Google took actions to improve and develop its artificial intelligence, GEOINT, and quantum computing capabilities.

Conceptions of Sovereignty Post-Time Jump. After the time jump, there is a proliferation of microstates, though not all of them succeed. The seasteading tech moguls form the microstate of Numenor and create Castor Coin, the official cryptocurrency of the microstate. Despite challenges in governance, Numenor is successful in leveraging its connections and economic power to maintain its self-proclaimed autonomy.

Wickman's vision of a new, uncorrupted society leads to the formation of the North Saanich Collective, colloquially known as "Wokanda" (a term promoted by Wickman himself). Far-right communities that became entrenched along the U.S.-Canada border declare that they are forming an autonomous region, the Northwest Territorial Imperative (NTI). However, unlike Numenor, both Wokanda and NTI fail.

Wokanda fails due to the oversaturation of white-collar jobs and lack of ability to fix basic needs like plumbing and electricity after acts of industrial sabotage are committed against the collective by janitor Larry Roberson (affectionately known as "L-Ro"). L-Ro targeted Wickman's collective because, prior to the time jump, he was fired from his job as a high school janitor when Wickman wrote a *New York Times* op-ed that attacked him for his love of 1980s heavy-metal music, which Wickman declared to be socially problematic.

Image 9: Imitation WIRED Tweet

The increasingly extreme views of the NTI alienate some members and the group dwindles in number. The NTI's final death knell comes with the murder of a park ranger by a NTI militia member, which leads to a joint U.S.-Canadian effort to end the NTI.

In the Pacific, indigenous people establish the Aboriginal Tiwi Republic. Beijing capitalizes on this movement by inducing calls for independence in Spratly and Paracel Islands, utilizing faux indigenous movements that actually have strong ties to the PRC. In this way, the PRC increases its power projection capabilities under the guise of genuine indigenous calls for sovereignty. The proliferation of declared microstates leads to the UN creating a new framework for state recognition.

Google also challenges conceptions of statehood and sovereignty as advances in quantum computing allow the company to function in part as an intelligence agency, and ultimately as a state. Google's expansion into

intelligence collection began in conjunction with Mexico's efforts to combat drug cartels (Image 9). As the game concludes, Google partners with Puerto Rico to form a new state, Phoenix. Ultimately, as part of the government of Phoenix, Google applies to be a tier two member of the Five Eyes intelligence-sharing alliance.

Pushing back against the assumption that a state-based conception of sovereignty will continue, this part of the *Utopia* game uniquely evidenced how innovation and ideas can drastically alter geopolitics. Furthermore, in *Utopia* the sovereignty trend highlighted how one trend can manifest in multiple ways, be leveraged by state and non-state actors, and accomplish both geostrategic and personal goals. Finally, the sovereignty plotline intertwined with other key themes, such as climate change and technological advancement, showing that trends do not exist in isolation and thus often require multi-stakeholder engagement to allow participants to understand the realm of the possible.

5. Best Practices for Using Wargames to Enhance the Practice of Futurism

Futurists place the act of *doing* futures above the *results* of futures exercises.[72] As we discussed previously, the goal of futurism is, generally speaking, not to predict the future but rather to build habits of foresight, expose and check our assumptions, and to inform wise decision making. Jouvenal explains that the reason he collects essays about potential futures "is definitely not to assemble a lot of prophecies to be checked against actual occurrence at some future date. The purpose is to generate a habit, the habit of forward-looking. We feel that as this grows into a habit, we, or our successors, shall develop in this exercise greater skill, thanks to self-criticism and mutual actual criticism."[73] With this paradigm in mind, futures exercises like the *Utopia* wargame are important because of the opportunity that games provide to assess problems within a synthetic environment. Wargames uniquely create a space "to explore, repeat, and reflect on decisions made in the context of games [which] is critical to what we must do to learn better how to cope with a world rapidly moving beyond our range of real experiences."[74] The creation of the game world and the process of game play also generate new images. As we noted previously, "all decisions are about the future."[75] In order to make better decisions, there must be an image of the future that we desire to move toward or away from. Games can create such images and provide a forum for players to further develop new images through the process of game play.

Thus, the primary goal of wargames in the context of futurism is the creation of synthetic experiences that are based in reality but also foster creativity. However, games also should, and do, have predictive value. A game in the Cornish model of futurism allows for exploration of a likely future, focused on building out likely responses and outcomes that can enable greater preparation in real life. However, sometimes events that once seemed unlikely become reality. Games also can create the space to explore unlikely images of the future and either diminish the chances of surprise or allow for better response should the event occur. For instance, a game run prior to 2020 about the possibility of a global pandemic could have led to a series of recommendations that would have increased the effectiveness of governments' COVID-19 response even if the specifics of COVID-19 were unknown to the game designers.[76] This section lays out a series of best practices for wargames and futurism. We explore the best practices sequentially (that is, in the order in which they would become pertinent to the design and running of a game). We begin with game conception, then explore best practices for conducting research to inform wargame trend projections; facilitating a sense of realism in game play (i.e., to make the synthetic experience more powerful), and data capture and analysis.[77]

5.1 Game Conception

As an initial rule about game design, *start with why*.[78] Understanding the purpose, or purposes, of a wargame is critical to the conception of the game. There are several reasons why people would want to understand images or projections of the future and immerse themselves in a game environment. Militaries may be interested in what their spending priorities should be. They may be interested in anticipating adversaries' likely tactical adaptations in light of emerging technologies in order to understand how they should adapt training exercises or financial investments. Policymakers may want to understand the possible futures of key trends with which they are currently contending or anticipate trends or events that might surprise them. Non-profit organizations might want to understand what community needs could arise based on future trends so they can prepare to address needs in the communities they are committed to serving. In other words, there are almost an infinite number of different purposes that wargames can serve, and game design is inherently anchored in the concept of why.

Though the game concept hinges on the purposes of the game, we are going to outline what we have found works for us as a general matter across different game genres and purposes.

As a second rule, *stories and narratives matter*. We believe that games should generally be crafted around a central narrative/storytelling, rather than just a sequence of events. People learn and internalize lessons best through stories that capture imagination and evoke emotion. Wargames should build stories that people are invested in and not shrink from introducing elements of comedic absurdity (such as Wickman's character in *Utopia*) or other tools that engage a broad array of emotions. Perla and McGrady refer to the power of narrative in their discussion of the psychology of wargaming:

> Wargames derive their power (for good or ill) from their nature as constructed narrative; they have a more powerful effect on participants than do other narrative forms, because their participants not only are spectators but must act, engaging parts of their intellect and emotions not accessed during simple storytelling. Games are story-living experiences. By engaging their players in ways more similar to acting in the real world than reading a novel or watching a film can be, games affect their players in ways more deeply remembered and more transformative of their personae than other techniques for entertainment and learning. As a result, wargaming, gaming, serious gaming —whatever we call it—is a powerful tool for affecting how people think, feel, and behave.[79]

Narrative games create a sense of investment in the outcomes, even in a gamified environment without practical consequences. In our work, we have discerned two primary subsets of narrative-driven games: crafted (or story-based) games and competitive games.

- *Crafted (or story-based) games*. In crafted games, a mix of fictional and real-world characters inhabit the game world, which is filled with major plot lines that intersect with one another. Fictional groups and characters play a central role in the game narrative and introduce an element of the game that resides completely outside the teams' control. The fictional actors' goals and early moves are pre-determined by the game designers. Generally speaking, crafted games have the strongest narratives, and are most comparable to movies or novels in terms of narrative arc.

- *Competitive games*. In a competitive game, the focus is on teams attempting to advance their strategic interests, often at the expense of one another. For example, Valens Global's game *Exodus*

explored post-U.S. Afghanistan, and player teams included China, India, Pakistan, Russia, and the United States. All of these countries share certain strategic interests pertaining to Afghanistan, but in many ways their interests are at odds with one another. In competitive games, the relationships among the teams, and the actions the teams take, are the biggest determinant of gameplay and the outcome of the game. These games tend to feature fewer fictional components and less of an exogenous plot: The "plot" is rooted in the actions that teams take to advance their interests within the game world.

Both crafted and competitive games can be used to advance the practice of futurism through wargaming, but designers should be aware of these key differences in where the plot is derived.

As a third rule, a game that is futurism-focused should *explore several related themes*. Valens Global's games typically focus on three major themes. The reason we examine more than one theme per game is that Jouvenal is correct in his observation that no trend exists in isolation. Yet at the same time, a world in which all trends are examined simultaneously can be rendered unintelligible; and, further, it may result in unwieldy team goals, as professionals possess distinct portfolios rather than being asked to act on all major trends simultaneously. Thus, we believe that games should contain more than a single theme, but the number of major themes they explore should be bounded. For us, the sweet spot comes out at around three interrelated themes.

In addition to this report's previous discussion of *Utopia*, another example of themes' interrelationship and fit with one another is the Valens wargame *Acceleration*, which we are running for DND as we put finishing touches on this report (January to February 2022). The first major theme is the white nationalist movement becoming territorial, with white nationalists moving to the village of Val Marie in southern Saskatchewan, quickly outnumbering the town's previous residents. The second theme is state collapse in Egypt driven by a variety of factors, including a new and deadlier strain of COVID, a historic regional drought, and growing dissatisfaction with Abdel Fattah el-Sisi's government. This confluence of factors results in violence in the streets, including clashes with security forces, attacks against Coptic churches, and groups such as the Muslim Brotherhood and ISIS mobilizing. The situation in Egypt also results in a migration crisis, with renewed flows of large amounts of people into Europe. The migration crisis in turn has an impact on electoral politics, spurring France to consider exiting the EU (a possible *Frexit*). As a third theme, *Acceleration* examines a new and robust Russian disinformation campaign (which we decline to detail here, as the basic strategy we have discerned will be an element of several Valens wargames). Even though the trends examined in *Acceleration* might initially seem distinct, they in fact interrelate in important ways. *Acceleration*, at its heart, is about the fault lines within and between societies.

This brings us to our fourth best practice for game designs: *trends should inter-relate as tightly as possible*. In this way, participants can understand how various trends might intersect with one another, allowing them to thematically comprehend a chunk of one possible future.

Our fifth and final best practice is to *explore both megatrends and also weak signals*. In the medium to long term, the most important issues we contend with will likely be a mix of what today can be described as megatrends and weak signals. As previously discussed, the purpose of futurism is not to accurately depict the future. Thus, even if the game doesn't select the weak signals that actually become the most strategically important, the game will make an important point by presenting a mix of megatrends and weak signals as central to the game world: It will teach participants that they should pay attention to both megatrends and weak signals when trying to comprehend the world.

5.2 Research for the Game

As an initial best practice for approaching research for a futurism-oriented game, *the research needs to address the paradox of futurism: that it must appear ridiculous at first while being grounded in rigorous research*. We recommend addressing this paradox by beginning with basic research into the relevant trends that the game will explore while engaging with relevant subject matter experts prior to extrapolating the future(s) that the game builds. Rooting creative extrapolation about the future in knowledge of the present will help to ensure that projections 1) are not too bound by current assumptions while 2) guarding against aspects of the game that are simply unrealistic in a way that detracts from gameplay. For example, a game about electrification of the energy sector that fails to comprehend the materials required to build batteries or the environmental costs of battery reliance would fail to present players with the dilemmas with which they should be grappling.

An alternative method for addressing the paradox of futurism is to run a single game multiple times, as doing so will highlight how various small changes can have an impact on the outcome. Such an approach would provide a basis for comparison among different games, and among different sets of ideas introduced by the players. Games could be analyzed for points of convergence and divergence, and to highlight novel ideas. For instance, analysis of the ways the State Department team in *Utopia* addressed the climate crisis in Jordan across multiple games could highlight the impact of different assumptions and approaches, as new teams react to the same events.

Another best practice for game-related research is that it is important to *determine whether the research undergirding the game is rooted in the Cornish method or the Dator method*. While the initial exploratory research that we recommend in the preceding best practice would be largely unchanged by which of these futurism methods the game is employing, deciding which of these two paradigms the game research should support will have a significant impact on both the research and also the game design. If a game adheres more to the Cornish method, it is important to rigorously understand the bounds of the likely and the possible. A research project to undergird a Cornish model game might build three models—low, medium, and high probability—of how an information campaign could be waged to influence an election. On the other hand, if the game is rooted in Dator's view of future studies, it is more appropriate to research possible images of the future(s) that the game seeks to represent. Instead, the research phase might, for example, explore fiction about disinformation, in particular exploring humanity's future attempts at adapting to a "post-truth" world and the sociological implications. In other words, the approach taken in a game's research phase will be radically different depending on the futurism camp in which the game is rooted.

A third best practice is that the *game research should include a mix of fact and fiction*. Hard science fiction is particularly recommended.[80] Other works that researchers may want to include when building futurism-focused wargames, that may not be pertinent in other research projects, would include biographies of people who drove or responded to immense change, either evolutionary or revolutionary (e.g., Albert Einstein, Steve Jobs, Martin Luther King, Jr., Isaac Newton). Such biographies can help researchers to learn from the past by understanding the kind of personality that may spur or thrive in a world of wrenching change.

5.3 Game Design

The goal of a wargame is to simulate reality, but many wargames do not provide a fully immersive simulated experience. The following principles of world-building in the game design will increase the complexity of the game by asking conceptually difficult questions, as well as simulating how, "even with perfect information, it

is difficult to discern the most optimal decision" for most crises.[81] An ideal synthetic experience includes a multi-layered immersive environment with broad freedom for teams to make decisions and pursue multiple objectives. The greater the immersion, the more formative and impactful the synthetic experience will be.

The first best practice we offer for game design is that *games should feature different genres of teams, including state and non-state actors*. Ideally, the actors in the game should include businesses and international institutions. Some famous wargames (e.g., *Stalingrad*, *1914*, *Panzerblitz*) have been exclusively focused on state actors. But by the early twenty-first century, we believe that most professionals have an understanding that for major strategic or military challenges, it is not just state actors who are relevant. For instance, a game that examines the implications of an information operation could include social media platforms and tech companies as players. Conversely, a game that simulates conflict over resources in an African state might include a private mercenary company or a mining corporation. It is important that wargames reflect the range of actors who are most salient to contemporary geopolitical conflict.

At the beginning of the game, game designers should provide goals or victory conditions, but leave flexibility for teams to come to conceptualize these victory conditions in somewhat different ways as the game progresses. By way of analogy, an incoming prime minister might have certain foreign policy goals that shift based on world events, whether they be the rise of a powerful new terrorist group (e.g., ISIS in 2014-17), or a climate crisis, or a pandemic (e.g., COVID-19), or a global depression. That prime minister can still pursue his or her policy goals, but they will be bound by, and may shift in discernible ways in response to, this new reality.

Turning to the media/information environment through which teams will engage with the world of the game, *the media environment should mimic the real world*. As we have already detailed in our exploration of *Utopia*, in Valens games participants receive information updates about the game world via imitation news articles, tweets, and intelligence memos. The imitation articles and tweets reflect the opinions and voice of real actors relevant to the game world; they are designed to simulate the critiques, commentary, and willful or accidental distortions of truth that would be likely to occur. To check the authenticity of the voices we employ, Valens staff members sometimes show imitation tweets attributed to real commentators to those commentators; every time we have done so, the commentators have affirmed that we successfully captured their voice and what their likely reaction would be in the game world. Intelligence memos and character briefings supplement the experience, and provide participants the tools they require to discern between the overt newsfeed and covert intelligence that may hint at other possibilities. In this way, the game mimics how analysts actually recognize trends, and how policymakers exercise decision-making skills within a hall of mirrors.

Another relevant best practice for the media/information environment is that the game should *deliberately introduce a "fog of war" effect*. In today's digital media world, information is all around. Some of it is vital to decision-making, while other information is pure noise or worse. Wargames should include the extremely realistic challenge of forcing teams to discern between truth and fiction. To create this fog of war effect, designers should: (1) intentionally introduce noise that stands alongside more truthful information, including noise that distorts (either intentionally or unintentionally on the part of the actor producing the information) what is happening in the game world; and (2) ensure that fake tweets, news articles, etc. reflect the point of view of the relevant commentator. Points of view can in important ways bias our interpretations of fact, and if the "point of view effect" exists in the game world, it will further contribute to the realism of the media/information environment.

And *the fog of war effect applies not only to the information environment, but also to negotiations*. Teams should be encouraged to understand the possibility that the other party or parties may betray any agreement. This layer of potential mistrust provides more complexity and again is reflective of the dilemmas that parties must confront in the real world.

In terms of moves that teams can make during the game, *the available options should be as open ended as possible, rather than being more bounded*. Games with extraordinarily rigorous rules have immense value, but more open-ended games with almost infinite options for teams are superior for games that fit with the focus area of this report, which is contributing to our understanding of futurism. Refereed simulations that allow for maximum team flexibility and innovation suit that particular focus area very well because rules that are too restrictive can limit creativity. It is not just the players learning from the game designers when it comes to understanding possible futures; the designers should also seek to learn from the players. Thus, Valens Global's standard method for running a wargame with a focus on futurism is open-ended moves that are then adjudicated. While the advantages (team flexibility and creativity) are clear, this method of course has the disadvantages of 1) taking more time to craft than a more bounded system, and 2) requiring more improvisation by referees during the course of the game.

5.4 Game Play

Consistent with our observation that people learn through stories, futurism-focused games should have *strong plots and characters*. This feature will help to make possible futures "real" to the participants, thus creating a memorable and powerful synthetic experience. To that extent, Valens games use world-building techniques employed by Hollywood, and in good novels. This is one of the core techniques that is critical to the success of our games. In a post-game survey, one *Utopia* participant included "love to hate Ellsworth Wickman" in their overall comments on the game. The inclusion of a relatively minor character in a player's reflection on the game is indicative of the impact that strong characters can have on players' engagement with the game world and overall enjoyment of the game. We discussed previously how a central narrative/storytelling is an important technique to engage the whole brain. The same principles are true for individual characters.

Role players should have an understanding of the game world, and they should reflect it throughout their interactions with participants. For example, they may refer to certain "current events" (e.g., political or pop culture) in the game world in their conversations with participants. Further, role players should understand the personality of their character. Assigning personalities to role players' characters will allow role players to set the tone for the game; they should be taught not to break character despite temptations to do so. For example, in one wargame that Valens ran for Duke University, a Valens role player was asked if she was a teaching assistant (TA). She responded with appropriate confusion: "TA? I'm an analyst here at the Defense Intelligence Agency." Such interactions may appear strange to players, but help set a tone of immersiveness for the game. Stepping in and out of character can break the synthetic experience the game seeks to achieve.

The game world's culture matters. For example, Ellsworth Wickman, whose masterpieces *Inquisition* and *Gulag!: The Musical* were discussed previously in this report, was able to set the tone for the culture of the world he inhabits. His works were polarizing and designed to turn traditional moral stances on their head, which was representative of a powerful trend in the world of *Utopia*. Similarly, one of the plotlines in *Utopia* that appeared wholly diversionary (but wasn't) was Wickman's "cancellation" of high school custodian Larry "L-Ro" Roberson. Wickman had read an interview with L-Ro in an East Lansing, Michigan high school newspaper that profiled this beloved custodian

and his love for 1980s-era heavy metal and decided to use his perch at the *New York Times* to call for L-Ro to be fired from his job because heavy metal is socially problematic. To help make this real to participants and enhance the synthetic experience of the game, Valens brought in Fox News commentator Katie Pavlich to discuss the story in a fictional news segment, which appeared as a video in the news feed; her fictional show is called *In Pav We Trust*. After informing her audience of the basic contours of the L-Ro plot, Pavlich states:

> I almost don't know where to begin with this one. Do I start with the irony of Wickman, a so-called progressive, trashing a genre that was defined by men in make-up and leather? Or is the utter disregard for ruining the life of a beloved community member—and military veteran—a more troubling point? How is doing this the least bit inclusive? Any way you slice it, the tragedy of L-Ro is perhaps the most disturbing wake-up call in a long line of wake-up calls about the perils of cancel culture.

Pavlich's commentary mimicked one aspect of the way an L-Ro type story would be discussed in the real-world media environment, thus contributing to a sense of realism while furthering one of the game's plots.

Cross-references in the game world make it more real. Key artifacts should reference other events in the game world. For example, the *In Pav We Trust* script ends with Pavlich informing her viewers: "Tomorrow on *In Pav We Trust*, I'll be discussing Elon Musk's publicly announced plans to save the world. The man is all in on geoengineering. He says we don't need more and more layers of government bureaucracy to address climate change—what we need is innovation." While Pavlich was not active in the game apart from generating one video, Musk's investments in geoengineering to #SaveTheUniverse is an artifact from another part of the game world, so her script is used as an opportunity to tie in other elements of the media environment. Creating a coherent universe where artifacts are reflected in multiple streams contributes to an additional degree of realism and hence furthers the goal of creating a cohesive synthetic experience.

5.5 Data Capture

An initial good practice for data capture is that *it is important to understand, at a basic level, what data is likely to be useful and what data is not*. The answer to this question will differ based on the purpose of the game. However, we have noticed a tendency among people interpreting wargames to place too much emphasis on the outcomes. We generally do not see the outcomes as yielding the greatest insights. Rather, it is the internals of games—the dilemmas and conflicts encountered, how institutions think, how institutional constraints will impact their ability to achieve results—that are most insightful and predictive. As Peter Perla observes, "fundamentally, wargaming is an experiment in human interaction and is best used to investigate processes, not to calculate outcomes."[82] While the outcomes may differ wildly from one game to another, we have observed that some important aspects of games' internal processes are remarkably consistent from one game to another.

In terms of data capture, *Valens games currently employ Slack, an application that allows for group chat communication*. Slack-based discussions are preserved and can be examined after the game to understand what kind of debates occurred and what possibilities participants discerned. Each team in a Valens game has a private group chat (a channel) on Slack so that teams can communicate privately. They can also use Slack to reach out to other teams to engage in bilateral or multilateral communication. For an example of the kind of data capture that occurs on Slack, below is part of a discussion between members of the GAC team in *Utopia* on their private channel while a broader multilateral conversation was happening between the United States, Mexico, and GAC in another channel. Note that participant names have been fictionalized to protect the privacy of the participants

Avery Mills: Take a look over at the US-Mex-Can channel. US is balking and trying to sell us on NWO [New World Opportunities] (which we have seen nothing on). We have language from Mexico that works.

Charlie Simon: This is fun. Sounds like their NWO hasn't really been presented to anyone. I hope we can hammer out our NA Plan [North America Plan], and perhaps follow up with a more robust global approach. Can they agree to join our plan for NA, and we can agree to joining (post revisions) the NWO as a secondary/broader approach?

Avery Mills: Hey I am open for whatever, I am calling BS on NWO, which is half-baked, unclear and frankly sounds a little too squishy. If this falls through, we could always get a bi-lat with Mexico and we will have to rely on our own strategic actions for the ten year jump. Here is the Mexican language, I think we can live with this (might want to look at the last para, I think they want national oversight but I may be reading it wrong)

Charlie Simon: I'm keen to push our plan through, even if it only works with Mexico for the time being. They have a bad plan and don't want to work with us, they can try and catch up with any subsequent rounds of negotiation. But, you are lead. Go for whatever makes the most sense to you.

Avery Mills: Ok got confirmation from Mexico that they are ready to proceed with a bi-lateral. I shot this over on their side. Slightly re-worded to reflect a bi-lat. So based on the math this puts 30B USD in the pot for the next ten years. FYI a 100 million gallon per day desalination plant is about $685M. Which means jobs in both Mexico and Canada, which also means undercutting cartels. If we were really clever we would widen this to all the Caribbean and Central American nations, bringing them on as junior partners.

Jordan Perry: Nice work guys! Agree with the Caribbean piece, maybe Jamaica as a starting point?

Avery Mills: And Mexico seems to agree in principle to offer some sort of membership to the small nations in the Caribbean and Central America. If we kept heading south we could get Brazil and Argentina onboard but let's not push it. We expect that this will eventually roll into the NWO from the U.S. but we are putting resources and relationships on the board now. NWO is not going to be ready for a negotiated move until 2036 (it sounds good but is basically what we see on the newsfeed right now)

Charlie Simon: Our moves have been submitted!

Another best practice in data capture is to *keep track of interesting ideas, especially those that surprised the referees*. The game can be useful in spotting weak signals, including in the ideas generated as players interact with the game world.

Overall, wargames are not meant to function as experiments whose primary value is in their predictive ability. The results will be impacted by who is on the teams (i.e., biases generated by the particular sets of players), the biases of referees (i.e., because the outcomes of team moves are subject to referees' adjudication), and other factors. Rather, games are meant to stress test potential approaches or policies, and to broadcast the strengths and risks of those approaches. And understood properly, wargames are an extraordinarily powerful tool for thinking deeply about possible futures that we could confront, and how to prepare for and navigate them.

6. Conclusion

Today's strategic competitors are intent on subverting the United States and accepted international norms. Confronting the U.S. conventional deterrent with irregular means, revisionist actors challenge assumptions about progress and linear perspectives on the future of war. The task facing the United States implicates a variety of U.S. departments and agencies, international partners and allies, NGOs, and private sector entities. The threats are complex and often reside in the human domain, requiring innovative solutions and investment in people who are equipped to leverage new forms of technology and craft comprehensive strategies to outwit adversaries.

In this context, futurism as a tool of education and of innovation uniquely stands out. Futures wargames offer participants the chance to think outside the box, to consider multiple scenarios, and to develop a deep understanding of the world they inhabit in order to shape it in order to produce a better future. Bringing multiple stakeholders to the table highlights different capabilities, assumptions, and strengths, allowing for dialogue and mutual ideation. Our hope is that this report sheds light on how useful wargames can be in furthering the practice of futurism, and that it will help to produce increasingly sharp games that will help professionals navigate through some of the deepest challenge of this age.

Endnotes

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74 Peter P. Perla & E.D. McGrady, "Why Wargaming Works," *Naval War College Review* 64:3 (Summer 2011), p. 2.

75 Quoted in David Rejeski & Robert L. Olson, "Has Futurism Failed?," *The Wilson Quarterly* 30:1 (Winter 2006, 30:1), p. 20.

76 Indeed, one such strikingly prescient game was run at Johns Hopkins University in 2019—and highlighted a preparedness gap that would become evident mere months later. See Katie Pearce, "Pandemic Simulation Exercise Spotlights Massive Preparedness Gap," Johns Hopkins University, November 6, 2019, https://hub.jhu.edu/2019/11/06/event-201-health-security/.

77 For further reading on wargaming best practices, see Jeff Appleget, Robert Burk, & Fred Cameron, *The Craft of Wargaming: A Detailed Planning Guide for Defense Planners and Analysts* (Annapolis: Naval Institute Press, 2020); Pat Harrigan & Matthew G. Kirschenbaum, *Zones of Control: Perspectives on Wargaming*, (Cambridge: MIT Press, 2016); Peter Perla, *The Art of Wargaming: A Guide for Professionals and Hobbyists* (Annapolis: Naval Institute Press, 1990).

78 See Simon Sinek, *Start with Why* (New York: Penguin Books, 2011).

79 Perla & McGrady, "Why Wargaming Works," p. 15.

80 See John J. Pierce, "The Literary Experience of Hard Science Fiction," *Science Fiction Studies* 20:2 (July 1993), pp. 176-83; Gary Westfahl, "'The Closely Reasoned Technological Story': The Critical History of Hard Science Fiction," *Science Fiction Studies* 20:2 (July 1993), pp. 157-75.

81 Arvid Bell & Alexander Bollfrass, "To Hell with the Cell: The Case for Immersive Statecraft Education," *International Studies Perspectives* (2021), p. 10.

82 Peter P. Perla, "War Games, Analyses, and Exercises," *Naval War College Review* 40:2 (Spring 1987), p. 44. For a similar observation, see also Kenneth Watman, "War Gaming and its Role in Examining the Future," *The Brown Journal of World Affairs* 10:1 (Summer/Fall 2003), p. 52.

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