

# UTOPIA OR OBLIVION?

An Examination of War Games &  
Futurism—How Games Can Contribute  
& Best Practices for Doing So

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*&*

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## Author Biographies

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Dr. Gartenstein-Ross stood up Valens Global’s simulations practice and today co-leads the practice group. He has designed and led war games that have been hosted by 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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## 1. Introduction and Executive Summary

This report is part of a broader project on wargaming and futurism that was funded by the Canadian Department of National Defence's (DND) Mobilizing Insights in Defence and Security (MINDS) program. In addition to this report, the Targeted Engagement Grant awarded to Valens Global included the design and execution of a futurism-focused war game, *Utopia or Oblivion?*, that was cohosted by Johns Hopkins University and ran from March 25 to April 10, 2021.<sup>1</sup> The game that Valens ran helped to inform this report's understanding of best practices for leveraging insights derived from war games for the practice of 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. Thus, the report contends that well-designed **war games 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 war games 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 war games fashioned around either of the two models, 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 creating and running games.

The third section provides an overview of the war game 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 that will shape the future in important ways: (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, 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.

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<sup>1</sup> The game's name is a nod to a famous book by Buckminster Fuller. See R. Buckminster Fuller, *Utopia or Oblivion: The Prospects for Humanity* (New York: Bantam Books, 1969).

The final section of the report explains how war games can be useful for future studies, in particular for governments. It provides a series of best practices and recommendations to consider in the development and execution of war games that are intended to enhance the practice of futurism.

Two appendices are included at the end of this report. Appendix A provides an example of how the forecasting methodology might be applied to understand the potential future of climate change in Canada. The appendix provides probable scenarios and a series of recommendations. In this way, Appendix A illustrates how rigorous forecasting can undergird important aspects of world-building for a war game, so that the game scenarios can realistically align with what the best research on these trends reveals. Appendix B is designed to show how war games (and future studies) can best consider the disproportionate impacts that certain trends will have on various communities within the broader society. The section contains partial transcriptions of interviews undertaken with members of Canada's Asian and Muslim communities that helped to undergird the portrayal of community-level impacts of the trends examined in *Utopia or Oblivion?* Similar to the first appendix, Appendix B is meant to provide a model of how other game designers can rigorously project community-level impacts of relevant trends through the use of semi-structured interviews.

## 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.”<sup>2</sup> 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 numerous futurists have contributed to the practice of the discipline, this report focuses on Cornish and Dator as representative of two competing camps within futurism that are both of value to game designers who intend for their games to contribute to the practice of futurism at a governmental level. 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.

### 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.<sup>3</sup> Society and history, and thus the future, are not the products of an equation

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<sup>2</sup> Jim Dator, *Jim Dator: A Noticer in Time: Selected Works, 1967–2018* (New York: Springer Publishing, 2019), p. 41.

<sup>3</sup> Wendell Bell, “An Overview of Futures Studies,” *Knowledge Base of Future Studies*, September 1996, [https://www.researchgate.net/publication/265186494\\_An\\_overview\\_of\\_futures\\_studies](https://www.researchgate.net/publication/265186494_An_overview_of_futures_studies).

that can be perfectly computed. 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."<sup>4</sup> Futurists "make no claim for omniscience nor for omnipotence," and rather than describing *what* will happen, many futurists instead examine assumptions about the future and explore a broader concept of what could be in light of this uncertainty.<sup>5</sup> 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*.<sup>6</sup> 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.<sup>7</sup> Therefore, futurism meets at the intersection of the ridiculous and the possible.<sup>8</sup> 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.<sup>9</sup> 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 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*.<sup>10</sup> 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.<sup>11</sup> 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.<sup>12</sup>

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

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<sup>4</sup> Dator, *Jim Dator: A Noticer in Time*, p. 3.

<sup>5</sup> Joseph F. Coates, "Coming to Grips with the Future," *Research Technology Management* 47:5 (Sept.–Oct. 2004), pp. 25-26.

<sup>6</sup> *Ibid.*, p. 31.

<sup>7</sup> Jerome Glenn, "Introduction to the Futures Research Methodology Series," *AC/UNU Millennium Project* (1994), p. 7, <https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.114.2269&rep=rep1&type=pdf>.

<sup>8</sup> Dator, *Jim Dator: A Noticer in Time*, p. 4 (stating that "any useful idea about the futures should appear to be ridiculous").

<sup>9</sup> Lt Col Jake Sotiriadis & Jairus V. Grove, "Strategic Foresight and Futures Studies: A Methodological Approach," in *Global Futures Report: Alternative Futures of Geopolitical Competition in a Post-COVID-19 World* (Washington, D.C.: Air Force Warfighting Integration Capability, June 2020), p. 6.

<sup>10</sup> Glenn, "Introduction to the Futures Research Methodology Series," p. 11.

<sup>11</sup> P. A. M. Dirac, *The Principles of Quantum Mechanics* (Oxford: Clarendon Press, 1947), p. 3 ("An act of Observation is thus necessarily accompanied by some disturbance of the Object observed.").

<sup>12</sup> Richard Kaipou Lum, "A Map with No Edges: Anticipating and Shaping the Future Operating Environments," *Small Wars Journal*, November 5, 2020, <https://smallwarsjournal.com/jrnl/art/map-no-edges-anticipating-and-shaping-future-operating-environments>.

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.”<sup>13</sup> 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.<sup>14</sup>

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.”<sup>15</sup> This is where the quality of the descriptive aspect of futurism influences the efficacy of the prescriptive aspect of futurism. If the descriptive aspect of futurism 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.”<sup>16</sup> 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.<sup>17</sup>

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.<sup>18</sup> 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.<sup>19</sup> 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. Thus, equity in the process of imaging can help lead to equity actualized.

Appendix B of this report shows one potential application of this principle. This section includes the partial transcription of nine semi-structured interviews with members of Canada’s Muslim and Asian

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<sup>13</sup> Bell, “An Overview of Futures Studies.”

<sup>14</sup> Dator, *Jim Dator: A Noticer in Time*, p. 3.

<sup>15</sup> Quoted in David Rejeski & Robert L. Olson, “Has Futurism Failed?,” *The Wilson Quarterly* 30:1 (Winter 2006, 30:1), p. 20.

<sup>16</sup> Joshua Polchar, *Unboxing the Future: Finding the Futures Hidden in Plain Sight* (European Union Institute for Security Studies, 2020), <https://www.iss.europa.eu/content/unboxing-future>.

<sup>17</sup> Dator, *Jim Dator: A Noticer in Time*, p. 1; see also Polchar, *Unboxing the Future* (“There is little to be gained from correctly predicting the future if doing so does not enable us to take wiser actions today—and taking wiser actions today does not depend on correctly predicting the future. Taking wiser actions today instead depends on how much we challenge our ideas of the future.”).

<sup>18</sup> Dator, *Jim Dator: A Noticer in Time*, p. 13.

<sup>19</sup> Ibid.

communities that were undertaken by Canadian researcher Amarnath Amarasingam on behalf of Valens Global. Respondents were asked about the impact of events like global pandemics, the rise of the far right, international terrorism, anti-Asian and anti-Muslim hate crimes, and other events on their communities. The interviews were conducted to help map out the potential effects of future trends examined in the *Utopia or Oblivion?* war game and to capture the impact on these communities in the war-game environment. While the questions asked in these semi-structured interviews were not explicitly about various futures, the interviews were designed to examine the past in order to shed light on possible futures. For example, one interviewee described how the 9/11 attacks “absolutely shaped how I view the world and how the world views me.” Such experiences have implications for possible future events involving terrorism and the Muslim community and shed light on how different groups might perceive an image of the future. Raising these kinds of questions and assessing the answers of members of distinct communities can contribute to a nuanced portrayal of possible futures in both the practice of futurism and also the portrayal of alternative futures in war games.

## 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.”<sup>20</sup> 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, trends generally have greater long-term impact and are a better indicator of the future than is a specific moment.<sup>21</sup> 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.”<sup>22</sup> Further, while individual events can be quite difficult to forecast, trends are more readily 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 what he described as 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”).<sup>23</sup>

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.”<sup>24</sup> Weak signals are not yet trends, but over time could turn into trends. Lt Col Jake Sotiriadis and Jairus Grove wrote of weak signals:

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<sup>20</sup> Glenn, “Introduction to the Futures Research Methodology Series,” p. 4.

<sup>21</sup> Edward Cornish, *Futuring: The Exploration of the Future* (Bethesda, MD: World Future Society, 2004), pp. 38, 43.

<sup>22</sup> Bell, “An Overview of Futures Studies.”

<sup>23</sup> Cornish, *Futuring* Kindle ed., loc. 582.

<sup>24</sup> Sohail Inayatullah, “Futures Studies: Theories and Methods,” in Fernando Gutierrez Junquera ed., *There’s a Future: Visions for a Better World* (Madrid: BBVA, 2003), p. 47.

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.<sup>25</sup>

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, 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, described later in this section, focuses in particular on moments when drivers cross a threshold and “change systems themselves.”<sup>26</sup> 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 also influenced by new technologies and our own policies and actions, futurism must be an ongoing process.<sup>27</sup> 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.<sup>28</sup> 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.<sup>29</sup> 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

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<sup>25</sup> Sotiriadis & Grove, “Strategic Foresight and Futures Studies,” p. 6.

<sup>26</sup> Authors’ interview with Jairus Grove, November 2, 2021.

<sup>27</sup> Dator, *Jim Dator: A Noticer in Time*, p. 12.

<sup>28</sup> Brian Nichiporuk, *Alternative Futures and Army Force Planning: Implications for the Future Force* (Santa Monica: The RAND Corporation, 2005), p. 15.

<sup>29</sup> Cornish, *Futuring*, p. 98.

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.”<sup>30</sup>

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.”<sup>31</sup> 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”).<sup>32</sup> 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.”<sup>33</sup>

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.

Appendix A provides an example of how this methodology could be applied to climate change. The Appendix develops likelihoods and implications of low, medium, or high greenhouse gas emissions, and provides recommendations for ways to mitigate negative consequences.

## 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:

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<sup>30</sup> Ibid., p. 100.

<sup>31</sup> Ibid., p. 213.

<sup>32</sup> Ibid., Kindle ed., loc. 612.

<sup>33</sup> Ibid., p. 99.

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.<sup>34</sup>

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.* 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.”<sup>35</sup> 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 is, 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.”<sup>36</sup>
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.”<sup>37</sup>

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<sup>34</sup> Bertrand de Jouvenel, *The Art of Conjecture*, trans. Nikita Lary (New Brunswick, Canada: Translation Publishers, 2012), pp. 255-56.

<sup>35</sup> Dator, *Jim Dator: A Noticer in Time*, p. 43.

<sup>36</sup> *Ibid.*, p. 46.

<sup>37</sup> *Ibid.* p. 46.

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.’”<sup>38</sup>

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.’”<sup>39</sup> 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.

*Sobail 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.”<sup>40</sup>

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.<sup>41</sup> 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.

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<sup>38</sup> Ibid., p. 47.

<sup>39</sup> Ibid., p. 43.

<sup>40</sup> Sohail Inayatullah, “Causal Layered Analysis: An Integrative and Transformative Theory and Method,” in Jerome Glenn & Theodore Gordon eds., *Futures Research Methodology* version 3.0 (Washington D.C: The Millennium Project, 2009), p. 6.

<sup>41</sup> Ibid., p. 9.

The foundations for how the litany has been presented and the variables used to understand the litany are questioned at this level.<sup>42</sup>

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).”<sup>43</sup>

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.”<sup>44</sup> 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.<sup>45</sup>

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. 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.

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<sup>42</sup> Ibid. pp. 9-10.

<sup>43</sup> Ibid., p. 10.

<sup>44</sup> Jairus Grove, correspondence with authors, November 1, 2021.

<sup>45</sup> Quoted in Cornish, *Futuring*, p. 12.

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.<sup>46</sup>

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.<sup>47</sup> 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.<sup>48</sup>

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.”<sup>49</sup>

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 *war games*. In his valuable book *Designing Wargames – Introduction*, George Phillis draws on the writings of famed game designer Greg Costikyan to provide four characteristics of games:

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<sup>46</sup> Coates, “Coming to Grips with the Future,” p. 26.

<sup>47</sup> Dator, *Jim Dator: A Noticer in Time*, p. 41.

<sup>48</sup> Polchar, *Unboxing the Future*, p. 3.

<sup>49</sup> Authors’ interview with Jairus Grove, November 2, 2021.

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?<sup>50</sup>

Further characterizing war games, social scientists Erik Lin-Greenberg, Reid Pauly, and Jacquelyn Schneider explain that war games simulations are characterized by four elements: “human players, immersed in scenarios, bounded by rules, and motivated by consequence-based outcomes.”<sup>51</sup> Throughout this report, we use the term *war game* to refer to the exercises defined by Phillis, Lin-Greenberg, Pauly, and Schneider. When we employ the term *simulation* we are referring to a broader category of activity, of which war games 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 *war games* 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, war games 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.”<sup>52</sup> Decades later, a 1998 White House war game on bioterrorism contributed to President Clinton's decision to lobby to add nearly \$300 million to the nation's counterterrorism budget.<sup>53</sup>

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<sup>50</sup> George Phillis, *Designing Wargames – Introduction* (2014), locs. 205-17.

<sup>51</sup> Erik Lin-Greenberg, Reid Pauly & Jacquelyn Schneider, “Wargaming for Political Science Research,” February 17, 2021, p. 4, <http://dx.doi.org/10.2139/ssrn.3676665>.

<sup>52</sup> Simon Parkin, *A Game of Birds and Wolves* (New York: Little, Brown and Company, 2020), p. 2.

<sup>53</sup> J. Furman Daniel III & Paul Musgrave, “Synthetic Experiences: How Popular Culture Matters for Images of International Relations,” *International Studies Quarterly* 61:3 (September 2017), pp. 1, 4.

It is worth noting that one genre of war game is the board game, upon which Phillis'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 Phillis, combining elements of *diplomatic games*, *role games*, and *live action play*.<sup>54</sup> Specific elements of game play will be elucidated when we describe the rules we employed for *Utopia or Oblivion*.

Despite their name, war games 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."<sup>55</sup> 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 War Games Function and Engage the Brain

How war games work, inspire decision-making, and engage the brain have all been the subject of scholarly interest. Relevant scholarship identifies that war games (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.<sup>56</sup> 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 *War Games*, which depicted an attack on that infrastructure. Similarly, war games 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 war games trigger cognitive processes akin to real-world decision making.<sup>57</sup>

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 war game 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.<sup>58</sup>

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*."<sup>59</sup> Thus, a simple work of fictional prose likely

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<sup>54</sup> Phillis, *Designing Wargames*, locs. 360-96.

<sup>55</sup> Lin-Greenberg, Pauly & Schneider, "Wargaming for Political Science Research," p. 6.

<sup>56</sup> Daniel & Musgrave, "Synthetic Experiences."

<sup>57</sup> Ibid.

<sup>58</sup> Peter P. Perla & E.D. McGrady, "Why Wargaming Works," *Naval War College Review* 64:3 (Summer 2011), p. 6, <https://digital-commons.usnwc.edu/cgi/viewcontent.cgi?article=1578&context=nwc-review>.

<sup>59</sup> Ibid.

won't fully engage the systematic system: It won't fully suspend disbelief due to the reader's inability to take actions. But war games 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.<sup>60</sup> Disbelief is thus challenged twice by war games: 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 war games 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 war games, 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 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. By drawing together individuals from numerous disciplines (professional or academic) and making their various backgrounds relevant, war games can illustrate various dimensions of the challenges being explored.
- **Tactile and immersive.** 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, war games 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 war games 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.<sup>61</sup>
- **Realistic decision making.** Many war games introduce elements to the decision-making

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<sup>60</sup> Ibid., p. 11.

<sup>61</sup> Defense Science Board Task Force, *The Role and Status of DoD Red Teaming Activities* (Washington, DC: Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics, September 2003), p. 4, <https://irp.fas.org/agency/dod/dsb/redteam.pdf>.

process that differentiate them as an exercise. In addition to immersion, war games include stressors often absent in other experiments, often referred to as the *fog* and *friction* of war.<sup>62</sup> 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.”<sup>63</sup> War games 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.”<sup>64</sup>

- **Relevance to planning and research.** As Lin-Greenberg et al. show, there is increasing interest in the scholarly community in using data from war games “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 war games 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.”<sup>65</sup>
- **Reflection.** War games 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 war game 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 non-government actors, including Global Affairs Canada (GAC), the U.S. Department of State, the U.S. Intelligence Community (USIC), United Nations Secretariat (UN), Mexico, and Google.

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<sup>62</sup> Lin-Greenberg, Pauly & Schneider, “Wargaming for Political Science Research,” p. 8.

<sup>63</sup> Bob Work & Gen. Paul Silva, “Revitalizing Wargaming is Necessary to be Prepared for Future Wars,” *War on the Rocks*, December 8, 2015, <https://warontherocks.com/2015/12/revitalizing-wargaming-is-necessary-to-be-prepared-for-future-wars/>.

<sup>64</sup> Lin-Greenberg, Pauly & Schneider, “Wargaming for Political Science Research,” p. 8.

<sup>65</sup> *Ibid.*, p. 11.

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 war games 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 war game. 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 team 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.

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).

**SECRET**  
[FOR EDUCATIONAL PURPOSES ONLY]

**Canadian Security Intelligence Service**

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**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



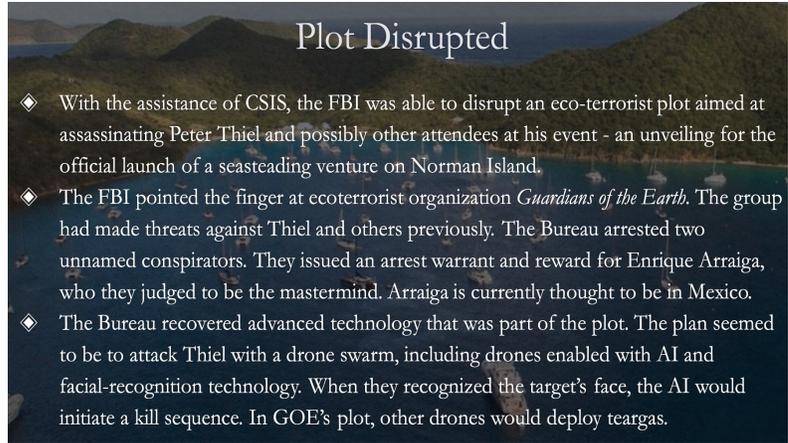
The State Department designations of Guardians of the Earth, Cleansing, and Salvación de la tierra as FTOs is a step in the right direction for expanding USG capabilities. These groups are dangerous, particularly in their use of advanced tech.

1:18 PM · Dec 2, 2026

10 Retweets 2 Quote Tweets 32 Likes



**Image 2: Imitation Clarke Tweet**



**Image 3: Newsfeed Plot Update**

*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).

#### 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.



**Image 4: Imitation BBC Tweet**



The State Department announced its “New World Opportunities” initiative today, a comprehensive, multilateral effort to better prepare the globe for an anticipated increase in environmental refugees and migrants over the next quarter century.

9:46 AM · Aug 13, 2026

33 Retweets 220 Likes



**Image 5: Imitation Politico Tweet**

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 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 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 too boost local agriculture. Jordan becomes a regional leader in sustainable climate management thanks in part to significant contributions from the United States 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.



**Elon Musk** @elonmusk

Just got off the phone with my climate science team and I've got some good news to share. We did it, we saved the Earth! There's still a lot of work that we're going to be taking the lead on, but some of the worst effects of climate change appear to be reversing.

5:03 AM · Feb 3, 2036

5.5K Retweets 1.4K Quote Tweets 57.5K Likes



**Image 6: Imitation Elon Musk Tweet**

### 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 degrees 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 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.



**Image 8: Imitation Playbill for Gulag! The Musical**

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.

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 Parcel 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,



**Image 9: Imitation WIRED Tweet**

Phoenix. Ultimately, as part of the government of Phoenix, Google applies to be a tier two member of the Five Eyes intelligence-sharing alliance.

## 5. Best Practices for Using War Games to Enhance the Practice of Futurism

Futurists place the act of *doing* futures above the *results* of futures exercises.<sup>66</sup> 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.”<sup>67</sup> With this paradigm in mind, futures exercises like the *Utopia* war game are important because of the opportunity that games provide to assess problems within a synthetic environment. War games 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.”<sup>68</sup> 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.”<sup>69</sup> 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 war games 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 about 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.<sup>70</sup> This section lays out a series of best practices for war games 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

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<sup>66</sup> Authors’ interview with Jairus Grove, November 2, 2021.

<sup>67</sup> Bertrand de Jouvenel, *Futuribles* (Santa Monica, CA: The RAND Corporation, January 1965), p. 2, <https://www.rand.org/content/dam/rand/pubs/papers/2008/P3045.pdf>.

<sup>68</sup> Peter P. Perla & E.D. McGrady, “Why Wargaming Works,” *Naval War College Review* 64:3 (Summer 2011), p. 2.

<sup>69</sup> Quoted in David Rejeski & Robert L. Olson, “Has Futurism Failed?,” *The Wilson Quarterly* 30:1 (Winter 2006, 30:1), p. 20.

<sup>70</sup> 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/>.

conducting research to inform war game trend projections; facilitating a sense of realism in game play (i.e., to make the synthetic experience more powerful), and data capture and analysis.<sup>71</sup>

## 5.1 Game Conception

As an initial rule about game design, *start with why*.<sup>72</sup> Understanding the purpose, or purposes, of a war game 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 is almost an infinite number of different purposes that war games 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. 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.<sup>73</sup>

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.

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<sup>71</sup> For further reading on wargaming best practices, see Jeff Applegate, 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).

<sup>72</sup> See Simon Sinek, *Start with Why* (New York: Penguin Books, 2011).

<sup>73</sup> Perla & McGrady, "Why Wargaming Works," p. 15.

- *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 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 war game *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 war games). 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 bounded 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. Appendix A on climate change provides a strong example of what this kind of research might look like. On the other hand, if the game is rooted in Dator's view future studies, it is more appropriate to research possible images of the future(s) that the game seeks to represent. A game employing Dator's approach would typically not require research like that found in Appendix A, which rigorous projects low, medium, and high-end estimates of the impact of climate change. Instead, the research phase might, for example, explore fiction about climate change, in particular exploring humanity's future attempts at adapting to a changing climate 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.<sup>74</sup> Other works that researchers may want to include when building futurism-focused war games, 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 war game is to simulate reality, but many war games 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.<sup>75</sup> 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 war games (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. It is important that war games reflect this reality.

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 bounded 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

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<sup>74</sup> 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.

<sup>75</sup> Arvid Bell & Alexander Bollfrass, “To Hell with the Cell: The Case for Immersive Statecraft Education,” *International Studies Perspectives* (2021), p. 10.

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. War games 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 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 war game 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 war game 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 war games 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.”<sup>76</sup> 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)

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<sup>76</sup> 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.

**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, war games 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, war games are an extraordinarily powerful tool for thinking deeply about possible futures that we could confront, and how to prepare for and navigate them.

Our hope is that this report sheds light on how useful war games 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.

## 6. Appendix A: Climate Change Probabilistic Scenarios

This Appendix showcases an application of the forecasting method that this report associates with Cornish. It exemplifies one type of scenario building, offering low-end reasonable, most likely, and high-end reasonable scenarios about the future of climate change. The Appendix describes the scenarios, estimates the likelihood of occurrence, details potential implications, and provides certain DND-focused recommendations that could be stress-tested in a war game.

### 6.1 Climate Change Scenarios

Climate change represents one of the most important challenges facing Canada over the next ten, twenty, and fifty years. If the world fails to effectively curb its greenhouse gas emissions, the consequences will be dire. At a recent summit on climate change, Prime Minister Justin Trudeau stressed that climate science “tells us we’re facing an existential threat.”<sup>77</sup> The magnitude of the climate crisis, and its impact on Canada’s security, will largely depend on the international community’s ability to reduce greenhouse gas emissions and improve geoengineering, including carbon capture technology. This section outlines three scenarios that forecast how climate change could unfold in the future, as well as the environmental and defense implications of those scenarios.

We have developed these probabilistic scenarios based on research from the Intergovernmental Panel on Climate Change, the UN body dedicated to studying climate change and its effects. The IPCC refers to these estimates as Representative Concentration Pathways (RCPs), which represent future trajectories of greenhouse gas concentrations based on the scale of international efforts to combat climate change.<sup>78</sup> We use the IPCC estimate RCP 2.6 as our low-end reasonable scenario, a combination of RCP 4.5 and RCP 6.0 as our most likely scenario, and RCP 8.5 as our high-end reasonable scenario. The IPCC describes RCP 2.6 as “**a low greenhouse gas emissions, high mitigation future**, that in [Coupled Model Intercomparison Project Phase 5] simulations gives a two in three chance of limiting global warming to below 2 [degrees Celsius above pre-industrial levels] by 2100.”<sup>79</sup> RCP 8.5 is “**a high greenhouse gas emissions scenario** in the absence of policies to combat climate change, leading to continued and sustained growth in atmospheric greenhouse gas concentrations.”<sup>80</sup> RCP 4.5 and RCP 6.0 “**have intermediate levels of greenhouse gas emissions** and result in intermediate levels of warming.”<sup>81</sup> We use a combination of RCP 4.5 and RCP 6.0 for our most likely scenario, given some gaps in data examining the relevant implications of these two pathways. Our choice of most likely, low-end, and high-end scenarios reflects rigorous expert analysis of the likelihood of these various pathways.

*The Likelihood of These Scenarios.* While RCP 8.5 could plausibly occur, this estimate is predicated upon widespread inaction to address the climate crisis and a drastic expansion of coal use, two assumptions that presently appear unlikely. The world’s largest greenhouse gas emitters have promised sharp reductions in their emissions. For example, the United States has promised to halve greenhouse gas

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<sup>77</sup> John Paul Tasker & Aaron Wherry, “Trudeau Pledges to Slash Greenhouse Gas Emissions by at least 40% by 2030,” *CBC*, April 22, 2021, <https://www.cbc.ca/news/politics/trudeau-climate-emissions-40-per-cent-1.5997613>.

<sup>78</sup> The numbers for RCPs—2.6, 4.5, 6.0, and 8.5—stand for 2.6, 4.5, 6.0, and 8.5 Watts per meter squared, a commonly used unit for measuring energy.

<sup>79</sup> Intergovernmental Panel on Climate Change, “Summary for Policymakers,” in *IPCC Special Report on the Ocean and Cryosphere in a Changing Climate* (2019), p. 8.

<sup>80</sup> *Ibid.*

<sup>81</sup> *Ibid.*

emissions from 2005 levels by 2030 and reach net zero emissions by 2050.<sup>82</sup> China, now the world's top emitter, has promised to become carbon neutral by 2060.<sup>83</sup> While there is good reason to be skeptical of the specifics of these promises, they do indicate that both the United States and China recognize that public demand favors greenhouse gas reductions. Further, renewable energy has grown at an average annual rate from 2010 to 2020 of over 10%.<sup>84</sup>

Though global greenhouse gas emissions decreased in 2020, primarily due to sharp reductions in travel caused by the COVID-19 pandemic, greenhouse gas emissions were on a downward trajectory in a number of countries, such as Canada and the United States, even before then.<sup>85</sup> However, China's emissions have spiked, with the country's 2019 greenhouse gas emissions surpassing all other developed countries combined.<sup>86</sup> At the same time, global demand for coal has seen an unprecedented drop in recent years, and the IAEA does not foresee a long-term increase in demand for coal.<sup>87</sup> More importantly, global coal reserves may not be able to sustain the levels of greenhouse gas emissions necessary to reach RCP 8.5.<sup>88</sup> Some research indicates that "emission pathways to get to RCP8.5 generally require an unprecedented fivefold increase in coal use by the end of the century, an amount larger than some estimates of recoverable coal reserves."<sup>89</sup> As a result, the RCP 8.5 scenario appears unlikely.

RCP 2.6, which should keep warming by 2100 below two degrees Celsius above pre-industrial levels, could plausibly occur but appears to be overly optimistic. Major greenhouse gas emitters are moving toward renewable energy and have promised further major changes. However, the Climate Action Tracker, run by two climate-focused German research institutes, assessed in September 2020 that "current policies presently in place around the world are projected to result in about 2.9°C warming above pre-industrial levels."<sup>90</sup> Yet this assessment also provided some reason for greater optimism

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<sup>82</sup> The White House, press release, "FACT SHEET: President Biden Sets 2030 Greenhouse Gas Pollution Reduction Target Aimed at Creating Good-Paying Union Jobs and Securing U.S. Leadership on Clean Energy Technologies," April 22, 2021, <https://www.whitehouse.gov/briefing-room/statements-releases/2021/04/22/fact-sheet-president-biden-sets-2030-greenhouse-gas-pollution-reduction-target-aimed-at-creating-good-paying-union-jobs-and-securing-u-s-leadership-on-clean-energy-technologies/>.

<sup>83</sup> Steven Lee Myers, "China's Pledge to Be Carbon Neutral by 2060: What it Means," *The New York Times*, September 23, 2020.

<sup>84</sup> Robert Rapier, "Renewable Energy Growth Continues at a Blistering Pace," *Forbes*, August 2, 2020.

<sup>85</sup> Jeff Tollefson, "COVID Curbed Carbon Emissions in 2020 — But Not by Much," *Nature*, January 15, 2021, <https://www.nature.com/articles/d41586-021-00090-3>; Government of Canada Ministry of Environment and Climate Change, *Greenhouse Gas Emissions: Canadian Environmental Stability Indicators* (2021); Rachel Frazin, "U.S. Emissions Dropped 1.7 Percent in 2019, EPA says," *The Hill*, April 14, 2021.

<sup>86</sup> Kate Larsen, Hannah Pitt, Mikhail Grant & Trevor Houser, "China's Greenhouse Gas Emissions Exceeded the Developed World for the First Time in 2019," The Rhodium Group, May 6, 2021, <https://rhg.com/research/chinas-emissions-surpass-developed-countries/>.

<sup>87</sup> International Atomic Energy Agency, *Coal 2020* (December 2020), [https://www.iaea.org/reports/coal-2020?utm\\_content=bufferba31a&utm\\_medium=social&utm\\_source=twitter-icabirol&utm\\_campaign=buffer](https://www.iaea.org/reports/coal-2020?utm_content=bufferba31a&utm_medium=social&utm_source=twitter-icabirol&utm_campaign=buffer).

<sup>88</sup> Zeke Hausfather & Glen Peters, "Emissions – the 'Business as Usual' Story is Misleading," *Nature*, January 29, 2020; Justin Ritchie & Hadi Dowlatabi, "The 1000 GtC Coal Question: Are Cases of Vastly Expanded Future Coal Combustion Still Plausible?," *Energy Economics* 65 (June 2017), pp. 16-31, <https://www.sciencedirect.com/science/article/pii/S0140988317301226?via%3Dihub>.

<sup>89</sup> Zeke Hausfather & Glen Peters, "Emissions – the 'Business as Usual' Story is Misleading," *Nature*, January 29, 2020; Justin Ritchie & Hadi Dowlatabi, "The 1000 GtC Coal Question: Are Cases of Vastly Expanded Future Coal Combustion Still Plausible?," *Energy Economics* 65 (June 2017), pp. 16-31, <https://www.sciencedirect.com/science/article/pii/S0140988317301226?via%3Dihub>.

<sup>90</sup> Climate Analytics and NewClimate, "Temperature," *Climate Action Tracker*, accessed June 15, 2021, <https://climateactiontracker.org/global/temperatures/>.

than that figure suggests. The Climate Action Tracker noted that “the unconditional pledges and targets that governments have made, including [nationally determined contributions] and some long-term or net-zero targets as of April 2021, would limit warming to about 2.4°C above pre-industrial levels.”<sup>91</sup> One peer-reviewed article by researchers affiliated with the University of Washington analyzed future projections of “total world population, gross domestic product per person and the amount of carbon emitted for each dollar of economic activity.”<sup>92</sup> Their statistical analysis found “a 5 percent chance that Earth will warm 2 degrees or less by the end of this century” and a “90 percent chance that temperatures will increase this century by 2.0 to 4.9 C.”<sup>93</sup> As a result, RCP 2.6 is possible but appears unlikely at present.

RCP 4.5 and RCP 6.0 represent more likely scenarios. The same study by University of Washington-affiliated researchers found that “the 90% interval for cumulative CO<sub>2</sub> emissions includes the IPCC’s two middle scenarios but not the extreme ones.”<sup>94</sup> Those middle scenarios are RCP 4.5 and RCP 6.0. While RCP 4.5 and RCP 6.0 represent the most likely scenarios, the direct environmental consequences of each scenario deserve to be examined in turn.

*The Most Likely Scenario – RCP 4.5 and RCP 6.0.* Although RCP 6.0 supposes greater greenhouse gas emissions than RCP 4.5, both pathways forecast relatively similar changes in global mean surface temperature in the first half of the twenty-first century. According to the IPCC, the mean change in temperature for RCP 4.5 for the 2031-2050 period in contrast to the 1850 to 1900 baseline period would be 1.7 degrees Celsius, with a likely range of 1.3 to 2.2 degrees Celsius. For RCP 6.0, the mean projected change between the 2031-2050 period and the 1850-1900 period would be 1.6 degrees Celsius, with a likely range of 1.2 to 2.0 degrees Celsius. From the baseline period 2081-2100, the mean change for RCP 4.5 would be 2.5 degrees Celsius with a likely range of 1.7 to 3.3 degrees Celsius. For RCP 6.0, the mean change would be 2.9 degrees Celsius, with a likely range of 2.0 to 3.8 degrees Celsius. These figures, as well as those for other scenarios, are summarized in Figure 1, which comes from the IPCC’s *Special Report on the Ocean and Cryosphere in a Changing Climate*.<sup>95</sup>

Figure 1: Projected global mean surface temperature change relative to 1850–1900 for two time periods under four RCPs (Source: IPCC)

Scenario	Near-term: 2031–2050		End-of-century: 2081–2100	
	Mean (°C)	Likely range (°C)	Mean (°C)	Likely range (°C)
RCP2.6	1.6	1.1 to 2.0	1.6	0.9 to 2.4
RCP4.5	1.7	1.3 to 2.2	2.5	1.7 to 3.3
RCP6.0	1.6	1.2 to 2.0	2.9	2.0 to 3.8
RCP8.5	2.0	1.5 to 2.4	4.3	3.2 to 5.4

<sup>91</sup> Ibid.

<sup>92</sup> Hannah Hickey, press release, “Earth Likely to Warm More than 2 Degrees this Century,” University of Washington, July 31, 2017, <https://www.washington.edu/news/2017/07/31/earth-likely-to-warm-more-than-2-degrees-this-century/>.

<sup>93</sup> Adrian Raftery et al., “Less Than 2°C Warming by 2100 Unlikely,” *Nature Climate Change* 7 (2017), pp. 637-41, <https://www.nature.com/articles/nclimate3352>.

<sup>94</sup> Ibid.

<sup>95</sup> Intergovernmental Panel on Climate Change, “Summary for Policymakers,” in *IPCC Special Report on the Ocean and Cryosphere in a Changing Climate* (2019), p. 8.

Based on IPCC figures and analysis by the European Environment Agency, RCP 4.5 would lead to a projected increase in the mean global sea level of 0.12 meters by 2031, 0.234m by 2051, and 0.357m by 2071.<sup>96</sup>

*Low-end Reasonable Scenario – RCP 2.6.* As shown in Figure 1, the IPCC projects that with RCP 2.6, global mean surface temperature for the 2031-2050 period would increase by 1.6 degrees Celsius (likely range of 1.1 to 2.0 degrees Celsius) compared to the 1850-1900 period. For 2081-2100, the mean surface temperature would remain 1.6 degrees Celsius with a likely range of 0.9 to 2.4 degrees Celsius. Based on IPCC figures and analysis by the European Environment Agency, RCP 2.6 would lead to a projected increase in the mean global sea level of 0.13m by 2031, 0.221m by 2051, and 0.31m by 2071.<sup>97</sup>

*High-end Reasonable Scenario – RCP 8.5.* According to RCP 8.5 projections shown in Figure 1, the IPCC forecasts that RCP 8.5 would translate to a mean increase of two degrees Celsius for the 2031-2050 period in contrast to the baseline period, with a likely range of 1.5 to 2.4 degrees Celsius. By the 2081-2100 period, the mean increase would reach 4.3 degrees Celsius with a likely range of 3.2 to 5.4 degrees Celsius. Based on IPCC figures and analysis by the European Environment Agency, RCP 2.6 would lead to a projected increase in the mean global sea level of 0.14m by 2031, 0.276m by 2051, and 0.464m by 2071.<sup>98</sup>

## 6.2 Implications for Canadian Security

*Melting Arctic; More Frequent and Intense Droughts.* Two implications of climate change—a melting Arctic and more frequent and intense droughts—could have a substantial impact on Canadian security. Rising global temperatures induced by climate change will translate to reduced ice coverage of land and water globally. According to the IPCC, “Projected glacier mass reductions between 2015 and 2100 (excluding the ice sheets) range from  $18 \pm 7\%$  (likely range) for RCP2.6 to  $36 \pm 11\%$  (likely range) for RCP8.5.”<sup>99</sup> The IPCC predicts that Canada’s glaciers will be particularly hard hit. One IPCC simulation “indicated that by 2100 glacier volume in western Canada will shrink by  $\sim 70\%$  (RCP2.6) to  $\sim 90\%$  (RCP8.5) relative to 2005.”<sup>100</sup>

An article by Jai-Ho Oh, Sumin Woo, and Sin-Il Yang that analyzes future ship accessibility in the Arctic Ocean based on RCP 4.5 and RCP 8.5 indicates that the Arctic will soon be accessible for a significant part of the year to open-water ships that have “no ice strengthening features” in addition

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<sup>96</sup> European Environment Agency, “Projected Rise in Global Mean Sea Level,” December 4, 2019; Intergovernmental Panel on Climate Change, *IPCC Special Report on the Ocean and Cryosphere in a Changing Climate* (2019), [https://www.ipcc.ch/site/assets/uploads/sites/3/2019/12/SROCC\\_FullReport\\_FINAL.pdf](https://www.ipcc.ch/site/assets/uploads/sites/3/2019/12/SROCC_FullReport_FINAL.pdf).

<sup>97</sup> European Environment Agency, “Projected Rise in Global Mean Sea Level,” December 4, 2019; Intergovernmental Panel on Climate Change, *IPCC Special Report on the Ocean and Cryosphere in a Changing Climate* (2019), [https://www.ipcc.ch/site/assets/uploads/sites/3/2019/12/SROCC\\_FullReport\\_FINAL.pdf](https://www.ipcc.ch/site/assets/uploads/sites/3/2019/12/SROCC_FullReport_FINAL.pdf).

<sup>98</sup> European Environment Agency, “Projected Rise in Global Mean Sea Level,” December 4, 2019; Intergovernmental Panel on Climate Change, *IPCC Special Report on the Ocean and Cryosphere in a Changing Climate* (2019), [https://www.ipcc.ch/site/assets/uploads/sites/3/2019/12/SROCC\\_FullReport\\_FINAL.pdf](https://www.ipcc.ch/site/assets/uploads/sites/3/2019/12/SROCC_FullReport_FINAL.pdf).

<sup>99</sup> Intergovernmental Panel on Climate Change, “Summary for Policymakers,” in *IPCC Special Report on the Ocean and Cryosphere in a Changing Climate* (2019), p. 17.

<sup>100</sup> Intergovernmental Panel on Climate Change, *IPCC Special Report on the Ocean and Cryosphere in a Changing Climate* (2019), p. 144, [https://www.ipcc.ch/site/assets/uploads/sites/3/2019/12/SROCC\\_FullReport\\_FINAL.pdf](https://www.ipcc.ch/site/assets/uploads/sites/3/2019/12/SROCC_FullReport_FINAL.pdf).

to polar class ships.<sup>101</sup> The authors also project that some polar class vessels will be able to navigate the Arctic throughout the vast majority of the year by 2030. The authors’ projections are shown in the figure below.

*Figure 2: Potential opening dates, closing dates, and number of ship-accessible days by model and vessel class for the Northern Sea Route (NSR) (Source: Oh, Woo, and Yang)*

Vessel Classes	Year	RCP4.5			RCP8.5		
		Open	Close	Accessible Days	Open	Close	Accessible Days
OW	2010	8/11	10/8	59	7/26	10/20	87
	2030	7/15	11/2	111	7/31	11/2	95
	2050	7/10	11/18	132	7/13	11/24	135
	2070	7/5	11/21	140	6/30	12/17	171
	2090	7/4	11/24	144	6/3	1/11	223
PC6	2010	7/25	11/29	128	7/11	12/8	151
	2030	7/12	12/23	165	7/8	12/24	170
	2050	7/10	1/9	184	7/9	1/12	188
	2070	7/4	1/3	184	6/21	2/11	236
	2090	7/4	1/4	185	6/1	2/28	273
PC3	2010	7/27	1/30	188	6/29	2/3	220
	2030	6/20	2/14	240	6/18	2/18	246
	2050	6/18	3/9	265	6/16	3/18	276
	2070	6/9	3/11	276	5/24	4/26	338
	2090	6/11	3/7	270	-	-	365

<sup>1</sup>Data based on Representative Concentration Pathways (RCPs) 4.5 and 8.5

<sup>2</sup>Vessel class abbreviations: PC = Polar Class; OW = Open-Water.

These projections are not outliers.<sup>102</sup> In general, more ordinary cargo ships are predicted to pass through the Arctic Ocean, including directly over the North Pole. More maritime traffic will pass along Canada’s northern coast. These developments will impact Canada’s security. In the past, the difficulty of navigating the Arctic limited maritime traffic, including by the navies of potential adversaries, along Canada’s north and functioned as a natural form of defense. These natural defenses allowed Canada to establish relatively few military installations in its northern territories. The increased navigability of the Arctic will erode those natural defenses and leave Canada’s north increasingly exposed.

Due to the thawing Arctic, some of the world’s most advanced militaries, including Russia and China, are increasing their focus on the region. Russia, also facing an increasingly exposed northern border, has been building up its military presence in the Arctic with increased numbers of troops, additional military equipment, and enhanced facilities.<sup>103</sup> Though China’s borders do not straddle the Arctic, it has demonstrated a desire to become a “polar great power,” and increased its military profile in the

<sup>101</sup> Jai-Ho Oh, Sumin Woo & Sin-Il Yang, “Ship Accessibility Predictions for the Arctic Ocean Based on IPCC CO<sub>2</sub> Emission Scenarios,” *Asia-Pacific Journal of Atmospheric Sciences* 53:1 (2017), p. 45.

<sup>102</sup> See, for example, Jugal K. Patel & Henry Fountain, “As Arctic Ice Vanishes, New Shipping Routes Open,” *The New York Times*, May 3, 2017, <https://www.nytimes.com/interactive/2017/05/03/science/earth/arctic-shipping.html>.

<sup>103</sup> Andrew Kramer, “In the Russian Arctic, the First Stirrings of a Very Cold War,” *The New York Times*, May 22, 2021; Nick Paton Walsh, “Satellite Images Show Huge Russian Military Buildup in the Arctic,” *CNN*, April 5, 2021, <https://www.cnn.com/2021/04/05/europe/russia-arctic-nato-military-intl-cmd/index.html>.

region.<sup>104</sup> As a result, Russian and Chinese military activity along Canada’s northern border is likely to increase in the years ahead, posing new challenges to the security of Canada’s northern border.

Climate change will also lead to more frequent and intense droughts in some regions of the world. According to the IPCC, “climate change has already led to more intense and longer meteorological droughts in some regions of the world, notably southern Europe and West Africa.”<sup>105</sup> Many more regions will face a similar, or even worse, fate if the international community fails to take robust measures to limit the impacts of climate change.

More frequent and severe droughts have significant geopolitical implications. Droughts can lead to shortages of water and food, trigger migrations, and create conditions conducive to conflict. Syria provides an example of this dynamic. A 2015 article in the *Proceedings of the National Academy of Sciences* concludes:

There is evidence that the 2007–2010 drought contributed to the conflict in Syria. It was the worst drought in the instrumental record, causing widespread crop failure and a mass migration of farming families to urban centers. Century-long observed trends in precipitation, temperature, and sea-level pressure, supported by climate model results, strongly suggest that anthropogenic forcing has increased the probability of severe and persistent droughts in this region, and made the occurrence of a 3-year drought as severe as that of 2007–2010 2 to 3 times more likely than by natural variability alone. We conclude that human influences on the climate system are implicated in the current Syrian conflict.<sup>106</sup>

Syria may be a harbinger of events to come. Some of the regions most likely to be impacted by climate change are also some of the world’s most volatile. Climate change-induced droughts could increase conflict. Violent non-state actors could exploit these conflicts, as happened in Syria.

### 6.3 Recommendations

The following options can be explored in futurism-focused war games. DND should consider not only doing its part to reduce greenhouse gas emissions but also prepare for the implications of climate change. As part of Canada’s pledge to slash carbon emissions by 40% from 2005 levels by 2030, DND should consider progressively decarbonizing its facilities and equipment to mitigate the worst impacts of climate change. Potential steps to decarbonize the Department include:

- Investing in an all-electric fleet of vehicles, including combat vehicles,
- Establishing renewable power sources for DND facilities,

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<sup>104</sup> Rush Doshi, Alexis Dale-Huang & Gaoqi Zhang, Northern Expedition: China’s Arctic Activities and Ambitions (Washington, DC: The Brookings Institution, April 2021), p. 1.

<sup>105</sup> United Nations Office for Disaster Risk Reduction, *Global Assessment Report on Disaster Risk Reduction: Special Report on Drought 2021* (2021), p. 30, <https://www.undrr.org/publication/gar-special-report-drought-2021>; Intergovernmental Panel on Climate Change, *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation* (2012).

<sup>106</sup> Colin P. Kelley, Shahrzad Mohtadi, Mark A. Cane, Richard Seager & Yochanan Kushnir, *Proceedings of the National Academy of Sciences* 112:11 (March 17, 2015), pp. 3241-3246, <https://www.pnas.org/content/112/11/3241>.

- Investing in the research and development of electric aircraft, and
- Working with other Canadian ministries to invest in and support geoengineering research and development.

With the Arctic becoming increasingly navigable and Russia and China ramping up their military engagement in the region, Canada will need to consider investing in securing its northern border. DND should consider:

- Investing in an Arctic-ready navy, including a robust set of ice-breaking ships,
- Expanding the Nanisivik Naval Facility and Canadian Forces Station Alert and build additional Arctic military installations,
- Investing in an expansion of airfield infrastructure across Canada's north, including lengthened airstrips, additional aircraft hangars, and enhanced fueling infrastructure, and
- Investigating the practical realities of acquiring nuclear submarines to ensure year-round access and defense capabilities across the entire North American Arctic.

In addition to these investments, Canada should deepen its collaboration with the United States to guard the northern borders of both countries. As part of NORAD commitments on maritime warning for the defense of North America, **Canada should consider moving to extend and greatly expand the All Domain Situational Awareness Program in the Arctic** to gain near real time awareness of all shipping and naval activity in the Northwest Passage and beyond. Canada should also consider increasing maritime defense cooperation, the number of joint stations, and the number of joint operations with the United States as part of NORAD to safeguard Alaska and Canada's northern territories.

To prepare for potential engagements in drought-affected areas, DND should consider:

- Increasing the number of 5th Division Civil-Military Co-Operation (CIMIC) personnel, and
- Training a sub-set of CIMIC personnel in managing water systems in drought-stricken areas so that these personnel could train partner governments and local populations to effectively use and manage water systems during droughts.

## 7. Appendix B: Ethnic and Religious Community Survey

This appendix includes excerpts from transcripts of semi-structured interviews with a diverse set of stakeholders. The questions asked were designed to understand how the Asian and Muslim communities in Canada and globally will be impacted by certain trends explored in the war game developed as a part of this project. The interviews covered a range of topics regarding major global events and trends that affected the everyday lives of these communities. Issues included pandemics, the rise of the far right, international terrorism, and anti-Asian and anti-Muslim hate crimes. In the context of developing wargames, interviews contribute to the development of a synthetic experience by providing insight into a variety of emotions, hopes, and fears about images of the future and the implications of trends.

*Methodology.* To show how global and transnational events that can impact different ethnic and religious communities in Canada can be reflected in a war game, a purposive sampling approach was adopted in which a Canadian researcher conducted interviews with members of specific ethnic and religious communities. The research team decided to focus primarily on the Muslim community and Asian community in Canada, both broadly defined. Recruitment of interviewees was carried out initially via established contacts in these communities. Potential interview participants were emailed, told about the nature of the project, and an interview (ranging from 30 to 60 minutes) was requested. After the interview, researchers asked if they knew other participants who might be interested in taking part. Other study participants were recruited through this kind of “snowball” sampling approach.

One limitation of the study is that the limited number of interviews will not present the most holistic sample to capture the perspective and opinion of these demographic and ethnic communities. However, this is not problematic if the researchers’ goal is not to model how events may impact an *entire community*, but rather is to understand how different events and trends examined in a game may *impact specific individuals within a community*. The approach of understanding the impact on individuals rather than an entire community is particularly appropriate in a character-driven game. The research team held interviews with five members of the Muslim community and four members of the Asian community. The were then transcribed and coded thematically for analysis.

*Contribution of GBA+ to Simulations and Futurism.* GBA+ “is an analytical process designed to help us ask questions, challenge assumptions and identify potential impacts, taking into account the diversity of Canadians.”<sup>107</sup> For this report, five women and four men were interviewed. Further, consistent with GBA+ principles, the interviews were conducted with distinct, diverse communities within Canada that could be considered marginalized; when imagining a preferred future, it is crucial to gain the perspectives of various community members. The questions asked by the interviewer primarily considered the intersection of religious and ethnic identity.

The definition of what is good, the assumptions about what the future might hold, and the impact of various policies or trends could be different across different religions, ethnicities, or genders. Answers to the questions asked in this survey could contribute to better understanding how these communities’ present experiences will affect their perspective of the future, such as areas of social, economic, and political reform.

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<sup>107</sup> Women and Gender Equality Canada, “What is Gender-Based Analysis Plus,” n.d., <https://women-gender-equality.canada.ca/en/gender-based-analysis-plus/what-gender-based-analysis-plus.html>.

### *Interview Takeaways*

We provide abridged transcripts of interviews that address the aforementioned questions and topics relevant to either of the two unique communities surveyed. These questions highlight the ways members of these communities interpret and react to the present, which will affect how they view the future. We found that often interviewees pointed to international incidents that fueled their particular fears or concerns (e.g., the Christchurch mosque attacks). Interviewees' experiences of anti-Muslim and anti-Asian prejudice can contribute to fears of the potential impact of white nationalism on their communities. The transcripts are provided in chronological order, based on when the interviews were conducted. Interviewees' names have been anonymized.

## **7.1 Excerpts from Interview Transcriptions**

**Interview 1.** *The first interviewee, a Muslim-Canadian man, discusses how technological innovation through social media and other platforms has made harmful and radical ideologies more readily accessible. This in turn has led to his concern that hatred is “trickling” into the rural communities he serves. He remarks that when he has been able to engage people in conversation, they are more understanding of Islam and less fearful, but he is concerned about how isolated communities produce overgeneralizations and stereotypes that are amplified by the current information environment. He mentions how anti-Muslim hate crimes internationally (e.g., Christchurch) or domestically (e.g., the Quebec City mosque shootings or the London, Ontario attack) affect the “Muslim psyche” and decision-making of people in the community.*

**Do you feel like kind of this Islamophobia is on the rise, or do you feel like it has kind of just been these kinds of flashpoint events like London that have a visual?**

No, I think it's on the rise. I think it's on the rise and one of the reasons why is the advent of social media. Look at what we're doing right now. 15 years ago this probably would not have been possible except if a camera and an actual microphone were in front of me.

I think [anti-Muslim hatred] has come to the surface more. People have easy access to information and if there are folks out there who have or affiliate with these kinds of ideologies, these paradigms, there are new ways of thinking. All of a sudden now you have this rise in the far right. Look at what happened at the Capitol and in Washington, with the riot. God forbid that happens over here in Ottawa too. I would certainly not like that. It makes me nervous to think about. You know when I say nervous, I don't mean like lock myself up in my house, don't go out. It's a concern as a Canadian Muslim and a citizen, and I don't think this is just a Canadian Muslim issue. This is a Canadian citizen issue too, but it just happens that these far-right guys love to pick on Islam and the Muslims.

So yeah, absolutely. I think it's trickling into Canada, affecting those who are vulnerable because I think if people are educated, they may take a step back. But we don't live in a perfect world, so unfortunately people will do that [subscribe to extreme ideologies]. You know, personally, I haven't had any close calls or any sort of horrible circumstances with the far right. I've had some conversations with some folks who could quite possibly be leaning towards that, and then after a nice conversation with them and they're, you know, I could see the retraction.

I'm in manufacturing. I go all over the country, and I'm exposed to rural Canada and people in manufacturing, and these types of topics come up. We talk about global politics just on a sales call or in a meeting.

These things come up and we talk about it, and I hear different perspectives. In a very nice way, I try to find a common ground and discuss, develop a dialogue, and then you see some retraction. Then they're like, "Oh, I didn't think about it that way." But what's worrisome is the fact that I could see the trickling, you know there's a trickling of this ideology coming, and people are subscribing to it, whether they are doing it wholeheartedly or not, or they're piecemealing it.

**Is the rise of Islamophobia or the kind of the far right stuff happening in Canada and other places practically impacting the Muslim community here?**

The Christchurch shooting in New Zealand—I think that really was a big eye-opener for the whole spectrum of the Muslim community here in Canada. I'm willing to say that a lot of the organizations, mosques, have after that incident started taking more precautions and being more aware. Also the Quebec shooting. Absolutely yeah, it can happen. It happened on home soil. I think that actually hit close to home and because I go to Quebec City for work too.

You know, I've driven by that mosque and it certainly is one of the things where you're quite appalled to know that could happen on Canadian soil. How do you reconcile having a conversation family-wise, in terms of I have to question now whether or not I should go for Friday prayer because of literally something that happened a week ago with this shooting and you're worried about copycats? Guy sees it happen there, and all of a sudden he says, "Yeah, let's go do it there."

Those are the type of things that happen in the Muslim psyche, and it certainly is going to affect decisions. I'm sure there are men and women who saw that, and it affected them, and they may have decreased their attendance at their local mosque or to other mosques that they would frequent.

**Interview 2.** *This interview with an Asian Muslim man provides a glimpse into the intersection of anti-Muslim and anti-Asian hate in Canada. He describes how, though he generally feels safe, since the COVID-19 pandemic there has been a greater sense of hate hitting closer to home: He experienced anti-Asian hate as well as verbal harassment outside of his mosque.*

**How were you personally affected by, or navigated, the simultaneous anti-Asian and anti-Muslim sentiment?**

The only time when I felt it to be coming to my doorstep is when stuff happens at my mosque, the mosque I used to go to. I try to do some volunteering there, like I do some door PPE evaluations, make sure everybody is wearing their masks and has their own prayer rug. Some people will come by and say some crazy shit that scares a lot of people, and it did scare me. That was new for me because I don't care unless it happens at my doorstep. I need to see it happen to me to make it real for me.

But I generally feel like Canada is a relatively safe place. I think the anti-Asian stuff is more prevalent than a lot of the anti-Muslim stuff.

**Interview 3:** *This interview of a Chinese-Canadian man draws attention to anti-Asian hate during the 2003 SARS pandemic. His perception is that broader geopolitics, such as the rise of China as a great power, is fueling animosity and hatred toward diasporic communities. He mentions that there is a concern about the potential for far right groups to "lash out," particularly in light of the uptick in targeted violence against Asians during the pandemic.*

**If you had to think about major events that happened abroad that impacted your community in Canada, what are some other events that stick out?**

The original SARS pandemic in 2003. I feel that it had an impact, probably more of an outside impact on the Asian community. The sentiment was even stronger then than it is today because of how that disease was isolated or more concentrated within certain neighborhoods that are known to have a lot of Asian people. So I felt like that there was a similar sentiment when COVID started. But to some extent that has changed because of how the disease spread.

Aside from just sort of the diseases, like the pandemic, there is also the sentiment that China is a rising power. Even notions within the community, like that China has an inevitable rise; then you combine that with other sentiments. You see more of that type of side comment, not necessarily directed directly to you, but at this notion of foreignness that is creating negative attitudes.

**Is the community concerned at all about the rise of white nationalism and neo-Nazis, what happened on January 6th, or is that kind of outside the radar?**

I don't know if it's explicitly about neo-Nazism or January 6. But in terms of right-wing sentiments, yes. In terms of general sentiment about white people. Yes, there's concern that they might lash out.

In terms of how COVID disruptions are tied to the increase in crime, that's another issue that seems to pop up. Like street crime assaults. Within the Asian community, the notion is that there has been a staggering increase in that type of crime targeting elderly Asians. That's an issue that comes up, this sort of random attack.

**Interview 4.** *The interview highlighted some of the unique pressures of being a Muslim woman. She discusses the harm caused by international anti-Muslim attacks and local policies that stigmatized wearing a hijab. The interviewee points to the lack of understanding and dealing with "the root causes of ... racism" as to why there has been little progress in reducing anti-Muslim prejudice.*

**What are some of the major global events that have mobilized the Muslim community or that have had an impact on the security here?**

I feel like coming up to the anniversary of 9/11, it's hard to not think of the last 20 years. This is now the majority of our lives. The last 20 years, that has been two-thirds of my life and it has absolutely shaped how I view the world and how the world views me. It goes both ways, right?

For someone like me who is hijab-wearing, the European policies against hijab and niqab, like Bill 21 in Quebec. The Quebec City Mosque shooting and then Christchurch, all of those things and then most recently the London attack. All of those things occur just when you think things are getting better and maybe we have some hope. Then something comes up and we're like, okay, let's take ten steps back. We're still not really dealing with the root cause of these issues and really addressing racism, and then we wonder why these events keep happening.

**Do you have thoughts on how the community is preparing to respond to the Taliban taking over and people saying "see, this is what Muslims do and this is what Islam is"?**

I think the general public and global public still doesn't have the nuance to understand that the Taliban doesn't equal Islam, right? In some ways, it does feel like we're circling right back to 2001 and we've learned little to nothing in the last twenty years. Sometimes I have hope, where I think people have learned that, but other times I'm like, "Okay, this is all the same."

The difficulty of the last 20 years is that we've lost that nuance because news coverage has been so either/or, and so there has been no room to talk about a global religion with over a billion followers and realize that so many people practice it differently. And the Taliban is a very small subset of that. They [general members of the public] are not understanding that the majority of Muslims don't practice Islam that way, because they've had little to no exposure for whatever reason.

**Interview 5:** *In this interview with a Vietnamese-Canadian man, he reflects upon and discusses the importance of subliminal messaging about ethnicity in popular culture. He discusses the cognitive dissonance he experienced as a child when watching a movie made in the United States about the Vietnam War that he felt positioned white people as superior. He is concerned about the potential for ethnic prejudice to have an impact on Afghan refugees as culture reflects on the wars in the Middle East.*

**Are you personally worried about the rise of white nationalism and this kind of information impacting your community?**

You can just look at any Vietnam War movie. I remember watching them with my parents. I wasn't really sure how to feel about it because on one hand, you know even as a kid, you don't really have any sense of how to deal with the message or really understand the subtext of these movies. I just thought, like any kid, "Oh, all that violence is awesome." But why are all the people dying looking like they are Vietnamese? I just thought how come the Vietnamese don't know how to fight back? When we won the war? Something for me just didn't make sense. As a kid something felt off about it and only when I look back I was like, "Oh yeah, the message, the messaging there was pretty harmful."

I worry about this. For example, if there's going to be Afghanistan war movies that portray Americans in a certain light and Afghans in a certain light. What would that do for kids who are Afghan, like sons and daughters of Afghan refugees? And I don't want to suggest that it impacted my self-esteem, but like even that it positioned, "Oh yeah, the white people were superior." I couldn't quite grasp: How did the U.S. lose the Vietnam War when they were clearly better? Do you know what I mean?

**Interview 6:** *The experiences of this Chinese-Canadian woman included fears about her personal safety as she campaigned for public office. She describes the ways technology and social media were leveraged against her and friends in threatening ways. She talks about how anti-Asian hate amplified fears about leaving the house, particularly for her mother. While COVID-19 introduced concerns about safety for everyone, for her family it was "only one part" of the fear.*

**Did you personally experience a rise in anti-Asian sentiment, and was the community talking about it a lot?**

Yes, I did. I did notice quite a bit, both in real life personally and also just seeing the online presence. In America, a lot of older Asian folks were targeted in Chinatown areas. They were knocked over and there was a lot of aggression, insults towards them for no reason, and anti-Asian hate.

I started noticing it in my personal life, because I'm currently running a nomination campaign in [location redacted]. I started getting weird messages from a fake account, and it's got a lot of racial undertones to it. A lot of threatening words, and it was nonstop. You know, when you're running [for office], these things happen a lot. I didn't think too much of it, and then I started seeing more and more aggression in the messages threatening Chinese candidates.

Or, you know, there are a lot of Chinese people in [location redacted], so a lot of those messages came through and it started impacting me. I started worrying about my personal safety because they were also contacting people I knew. Then my parents started bringing issues up because they saw the attacks in America, and they started getting really worried. They live in a community where there are not a lot of Chinese people, so they started getting worried.

So, my mom in particular did try to limit her outings, trying to limit her grocery shopping and that kind of stuff. Not because of COVID. During that time, at the height of all the incidents [anti-Asian violence], she was actually scared for her safety. That's when I noticed. I was surprised, actually, experiencing it here myself and hearing from my parents the level of fear, even in Canada, even in sort of a place where we didn't think it would exist. It was a little bit surprising, as you can imagine.

**Interview 7.** *This interviewee discusses the intersection of the various ways she identifies, including being black, Muslim, a refugee, and a woman. Each of these identities contributes to ongoing, intersecting trauma. She discusses the pain of 9/11, the fear of wearing a hijab, and the impact of the murder of George Floyd in the context of her being a new mother. She describes the difficulty of dealing with the trauma of "one bit after the next," and living with "daily risks."*

**What are some of the events that you remember over the past decade, or some events abroad that had an impact on the Somali community domestically?**

Definitely anything to do with al-Shabaab. I think for me the most painful was Hodan Nalayeh's death and the attack that happened in Kismayo. I think Hodan Nalayeh sort of represented a lot of what diasporic Somalis hope for, and having that bridge life between the motherland and here. Especially since I think a lot of young Somalis like me sometimes feel like we really have to fight to get any kind of stability or sense of security in Canada. Whether it's getting job security, or finding something worthy of your talents and not having a door slammed on you. So some people, having not found any kind of social mobility in Canada, think about going back home and starting something there as well as here; living half the year in Canada and half the year in Somalia. Hodan Nalayeh, in a way, was doing that and paving the way. So when she died in that Kismayo attack, it was really, really painful.

It's not within the decade, but also 9/11. I was 14 when it happened, and I remember seeing a newspaper in the school bathroom of the Twin Towers with an explosion in one building and a plane moving towards the next. I think being Muslim became a completely different cocktail of things post 9/11. It's strange to know that it was 20 years ago, but I think the ramifications are still there. They're still haunting.

And more recently the London attack, where the attacker ran down an entire family and killed them all. That was very triggering. The day right after, I was out walking with like my month-old baby and my mother and my sister, and we're all in hijab. Someone started yelling at us from the car and we

were just so frightened that we just went off the sidewalk and started walking towards the park. It's just a new heightened kind of hyper-vigilance where you think you could be next. You worry what kind of stereotypes people have heard.

So, I think for me it's my identities: being a black person and somebody who identifies with being Muslim. I've constantly needed to reconcile with the idea of having these identities criminalized and villainized. And because of the vilification, I could become a victim of somebody trying to get rid of Muslims, or trying to get Muslims first.

People will see something that happens in Afghanistan or Somalia, and they'll hear words like, "Oh, that failed state this and failed state bad." I tell somebody I'm Somali or Muslim and whatever they think about those places, as limited as their understanding could be, could have an impact on my life.

### **How is the community responding to the triple threat [George Floyd, anti-Muslim prejudice, the refugee crisis]?**

A lot of people try to compartmentalize as a way of buffering themselves from the impact of it. Some of the traumas continue to be unresolved. With the identities being connected to a marginalized experience in Canada, it comes with pain. It comes with trauma. It comes with undealt with mental health impacts that are coupled with not having the resources to actually work on those pains. A lot of the community is younger. You know, much of the community is under 35.

But you have the eldership sort of guiding what it means to be Muslim in the context of Somali identity, what it means to be a refugee. But there aren't always the learned, experienced professionals who can help you unpack those things and build the resiliency in a way where it could fortify you against the next connection with a global event.

And you have to weather it again. I really believe the eldership just gets hit by it and they talk to themselves. They have their own community spaces where they talk about it, but come to conclusions that help them heal from it.

I chose not to watch the murder of George Floyd, but I was listening to the verdict come in on the days when the trial was concluding, and the clip included him crying out for his mother. It was around the time that I just had my child, and him crying out for his mother just tore me in a way that I wasn't expecting.

I go to therapy to deal with the difficulties of being black, the difficulties of being lost, some of the difficulties of having to pioneer my settlement in Canada. You just never heal from it. You just have to take it on and deal with what comes next.

You can't ever really take it for granted because it will hurt you in any way and remind you that the society is not curated with somebody like me in mind. So, everything I sort of push for comes with a lot of hard work and all the pain and all the rejection. All the microaggressions and all the danger.

**Interview 8:** *The interview with this Muslim woman took place during the U.S. withdrawal from Afghanistan, the day after the suicide bombing at the Kabul airport. She understands how social media can be used as a tool to help*

*spread information and mis/disinformation, and hopes that it can be used to counter messages that will “conflate” the Taliban and Islam.*

**Are you worried about Afghanistan and the recent developments unearthing a lot of anti-Muslim sentiment in Canada? Are you worried about that post-9/11 Islamophobia resurfacing, or have you seen it resurface already?**

I’m definitely worried about it, and I do think sharia was trending a couple of days ago [on Twitter], right? So I am extremely worried about it again. Social media is both horrible and can be fantastic, in the sense that hopefully we’re going to have young Muslims who are going to counter the misinformation about what Islam actually teaches, because that’s what happens in these moments. I was just watching the all-woman robotics team leaving Afghanistan and escaping. It was an AJ+ thing. It was a short thing, just saying “They have to escape, they have to run away from their home, their families, because they want to keep doing robotics.”

And if I’m not Muslim and I don’t know anything about this? I would be like, “What kind of horrible monsters would drive young girls out? They’re creating lifesaving equipment and you are driving them out of their country?” So definitely what’s happened is going to fuel Islamophobia. They’re going to conflate that again with Islam, right?

**Interview 9:** *The final interview explored the frustrations of a Chinese-Canadian woman with the pace of progress around social injustice. She shared her anger about people seeming to use justice as merely a signal, a branding tool, and not to advocate for real change. She describes a story of trying to get traction at the school she works for, and how people seemed content to put on an event and call it successful even though they “barely scratched the surface” of the issue.*

**There has been a lot of talk about the rise of anti-Asian sentiment since the pandemic. Did anyone close to you sense a marked tone shift in how the Asian community in Canada was talked about or talked to?**

The hate crimes, the violence—that’s very legitimate. What I’ve seen is also, to me, people using it as a platform to just put themselves out there. There are folks who never talked about racism before or anti-oppression, and they’re using it to lift their position or organization, and it comes off as very disingenuous. It’s frustrating because all they’re doing is just talk, and there’s not necessarily a commitment to any of what they’re trying to understand.

I helped run a three-part panel this past school year on anti-Asian racism. And everybody was so pumped and psyched about it. But there really wasn’t much being done. It was just getting a bunch of speakers. And that makes sense to me. But then there’s very rarely the action. It becomes just a feel-good event where, yes, we had a hundred teachers and staff members come to this event. And they feel like “Wow, that was successful.” And I’m like, “We barely scratched the surface but okay.”