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The Democratization of Deterrence: The Impact of Individuals and the Private Sector on Strategic Deterrence

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NATIONAL INSTITUTE FOR PUBLIC POLICY

**The Democratization of Deterrence:
The Impact of Individuals and the
Private Sector on Strategic Deterrence**

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Executive Summary

On February 24, 2022, Russian forces invaded Ukraine, attacking Kyiv in an attempt to overthrow the Ukrainian government led by President Volodymyr Zelensky.¹ There was every expectation, by both international governments and the Russian government that Ukraine would fall quickly. However, Ukraine defied expectations and not only held on against the Russian attack but also made significant gains in retaking occupied territory over the next 12 months.² They have not acted alone. An outpouring of foreign aid and military assistance has bolstered the Ukrainian military, while economic sanctions hampered Russia. What was unprecedented was the outpouring of support for Ukraine by individuals and corporations across the globe. The interconnectedness of national economies and advances in technology demonstrated the direct impact that actions taken by individuals and corporations outside of government could have on the conflict.

The support from individuals and corporations has varied, with different levels of impact and effectiveness. From real time intelligence of Russian troop movements on Twitter to Visa³ and Mastercard⁴ halting all transaction

¹ Matthew Mpoke Bigg, "Russian invaded Ukraine more than 200 days ago. Here is one key development from every month of the war," *The New York Times* (September 13, 2022), available at <https://www.nytimes.com/article/ukraine-russia-war-timeline.html>.

² Louis-Alexandre Berg, Andrew Radin, "The Ukrainian Military Has Defied Expectations. Here is How US Security Aid Contributed," *The RAND Corporation* (March 29, 2022), available at <https://www.rand.org/blog/2022/03/the-ukrainian-military-has-defied-expectations-here.html>.

³ Andy Gerlt, "Press Release: Visa Suspends All Russian Operations," Visa (March 5, 2022), available at <https://usa.visa.com/about-visa/newsroom/press-releases.releaseId.18871.html>.

⁴ Seth Eisen, "Press Release: Mastercard Statement on Suspension of Russian Operations," Mastercard (March 5, 2022), available at <https://www.mastercard.com/news/press/2022/march/mastercard-statement-on-suspension-of-russian-operations/>.

processing in Russia, the independent actions of private individuals and corporations acting outside of any government strategy have significantly increased the costs on Russia for its invasion, while bolstering Ukraine's ability to resist.⁵ Less well understood is the impact these actions may have on strategic deterrence. Russia not only possesses the world's largest arsenal of tactical nuclear weapons but also a range of conventional weapons capable of a strategic attack on Ukraine or NATO.

Deterrence is a cornerstone of Western military and security strategies and has been for more than seven decades. According to Lawrence Freedman, the appeal of deterrence strategies lies in clearly articulating vital interests a state would fight for while being defensive in nature. Freedman writes, "[Deterrence] implies a defensive intent without weakness. It seeks to prevent aggression while being non-aggressive. It sustains rather than disrupts the status quo."⁶ But traditional deterrence strategies have focused on elements of national power that a state can bring to bear in order to achieve its political objectives.⁷ It has not taken into account the ability of individuals or the private sector to impact deterrence strategies. Due to advances in technology and globalization, actors operating outside of government (including private citizens, organizations, and businesses) can have a significant impact on deterrence strategies, including strategic deterrence, in ways that democratic governments may not be able to account for.

⁵ Pranshu Verma, "The Rise of the Twitter Spies," *The Washington Post* (March 23, 2022), available at <https://www.washingtonpost.com/technology/2022/03/23/twitter-open-source-intelligence-ukraine/>.

⁶ Lawrence Freedman, "Introduction - The Evolution of Deterrence Strategy and Research," in *NL ARMS Netherlands Annual Review of Military Studies 2020*, edited by Frans Osinga, Tim Sweijjs (The Hague: Asser Press, 2020) p. 1.

⁷ Department of Defense, *Deterrence Operations: Joint Operating Concept*, Version 2.0 (2006) p. 24.

Globalization, cyberspace, and information technology have revolutionized society, connecting people in ways that were unimaginable just a few decades ago. These advances and the resulting interconnectedness between nations have introduced new tools and vulnerabilities for the prosecution of war. Further, many of the technological advances are dual use, meaning they have both civilian and military applications. The tools for warfare that were once only in the hands of the state have been put in the hands of individuals and the private sector. Whether through instituting private economic sanctions, open-source intelligence analysis, space operations, or cyberattacks, the ability to impose costs or deny adversary objectives can now occur outside of a formal government strategy. Moreover, these actions could either support or undermine deterrence, cause escalation or limit diplomatic options. Some actions, such as consumer boycotts or cyber influence operations, will be hard for democratic societies to control or limit due to individual rights and freedoms. Others could be legislated, such as the actions of private military corporations and mercenaries. So, while Clausewitz wrote that military power is a tool of the nation state to achieve its policies, he did not have to consider the implications of technology with military application being in the hands of the population—or the potential of private action to upend the state's ability to achieve its national objectives.

To better understand how these tools in the hands of the private sector could impact strategic deterrence, a greater understanding of opponents and their decision making is required. This necessitates a more deliberate and holistic approach to analyzing adversary intentions. While decision making science suggests there is no perfect model for predicting adversary behavior, Robert Jervis suggests that analysts bring empathy to deterrence analysis in order to

better understand adversary perspectives.⁸ Reducing ignorance about a challenger and better understanding their perspectives will better inform the deterrence strategy of the United States and its allies⁹ as well as provide insight on how individuals and the private sector could impact the strategic decisions of adversaries. However, accomplishing this requires a thoughtful process to analyze adversary decision making—not with the goal of predicting a particular outcome but to customize deterrence options to influence adversary decisions.

A decision calculus assessment seeks to analyze a challenger's cost-benefit assessment for strategic decisions by identifying perceptions related to a specific decision and analyzing them in the context of the environment in which the decision is being made. Based on an expectancy-value model, which is used to describe motivation in the field of psychology, it identifies the decision maker's perceptions and then provides an assessment of both the value the decision maker places on those perceptions as well as the decision maker's expectation that a goal is attainable.¹⁰ Developing a more empirical approach to deterrence analysis will provide a structured way to assess how adversary decision making may be influenced by individuals and the private sector as well as by governments.

Addressing the public's ability to influence strategic deterrence is not straightforward. It is complicated by the inalienable rights and freedoms each citizen has as outlined by the United States' Constitution. The new weapons of

⁸ Robert Jervis, "Rational Deterrence: Theory and Evidence," *World Politics* (1989) p. 198, available at <https://robertmcnamara.org/wp-content/uploads/2018/05/Jervis-1989-Rational-Deterrence-Theory-and-Evidence-c.pdf>.

⁹ Keith B. Payne, *The Fallacy of Cold War Deterrence and a New Direction*, pp. 99-100.

¹⁰ Allan Wigfield, Jacquelynn S. Eccles, "Expectancy-Value Theory of Achievement Motivation," *Contemporary Educational Psychology* (Vol. 25: 2000) p. 68.

warfare available to the public are largely based on information technology—enabling fast, easy, and affordable communication protected by freedom-of-speech guarantees. This means that government strategies may have to account for, or attempt to harness, the involvement of individuals and the private sector. While the U.S. government may not be able to stop individuals and the private sector from influencing strategic deterrence, it might harness private action to enhance deterrence and mitigate the effects if deterrence fails.

If Clausewitz is correct in his assessment that “every age has its own kind of war,” then this age is marked by the democratization of the tools of warfare, creating the opportunity for individuals and the private sector to influence national security strategy and deterrence in ways that were previously not possible.¹¹ Addressing this new condition is not simple. The need to prevent deterrence failure is tempered by the rights and freedoms guaranteed to individuals by the U.S. Constitution. If a group wants to taunt officials online with memes, they are guaranteed the right to do so. People are allowed to vote with their pocketbooks, choosing not to do business with companies who do not share their values. Communicating, building support for a cause, analyzing the mass amounts of data available online, and conducting commerce by providing space-enabled services are all protected activities. By creating additional institutions, amending the law where applicable, revising declaratory policy and civil defense, and building resiliency, the United States can harness or mitigate the influence of individuals and the private sector on strategic deterrence. Due to the technology revolution, however, the United States will never be able to prevent it.

¹¹ David Betz, “Clausewitz and Connectivity,” *Military Strategy Magazine* (Winter 2012), available at <https://www.militarystrategymagazine.com/article/clausewitz-and-connectivity/>.

Chapter One

Introduction

On February 24, 2022, Russian forces invaded Ukraine, attacking Kyiv in an attempt to overthrow the Ukrainian government led by President Volodymyr Zelensky.¹² There was every expectation, by both international governments and the Russian government that Ukraine would fall quickly. However, Ukraine defied expectations and not only held on against the Russian attack but also made significant gains in retaking occupied territory over the next 12 months.¹³ They have not acted alone. An outpouring of foreign aid and military assistance has bolstered the Ukrainian military while economic sanctions hampered Russia. What was unprecedented was the outpouring of support for Ukraine by individuals and corporations across the globe. The interconnectedness of national economies and advancements in technology demonstrated the direct impact that actions taken by individuals and corporations outside of government could have on the conflict.

The support from individuals and corporations has varied, with different levels of impact and effectiveness. From real time intelligence of Russian troop movements on Twitter to Visa¹⁴ and Mastercard¹⁵ halting all transaction

¹² Matthew Mpoke Bigg, "Russian invaded Ukraine more than 200 days ago. Here is one key development from every month of the war," *The New York Times* (September 13, 2022), available at <https://www.nytimes.com/article/ukraine-russia-war-timeline.html>.

¹³ Louis-Alexandre Berg, Andrew Radin, "The Ukrainian Military Has Defied Expectations. Here is How US Security Aid Contributed," *The RAND Corporation* (March 29, 2022), available at <https://www.rand.org/blog/2022/03/the-ukrainian-military-has-defied-expectations-here.html>.

¹⁴ Andy Gerlt, "Press Release: Visa Suspends All Russian Operations," Visa (March 5, 2022), available at <https://usa.visa.com/about-visa/newsroom/press-releases.releaseId.18871.html>.

¹⁵ Seth Eisen, "Press Release: Mastercard Statement on Suspension of Russian Operations," Mastercard (March 5, 2022), available at

processing in Russia, the independent actions of private individuals and corporations acting outside of any government strategy have significantly increased the costs on Russia for its invasion, while bolstering Ukraine's ability to resist.¹⁶ Less well understood is the impact these actions may have on strategic deterrence. Russia not only possesses the world's largest arsenal of tactical nuclear weapons but also a range of conventional weapons capable of rendering a strategic attack on Ukraine or NATO.

Deterrence is a cornerstone of Western military and security strategies and has been for more than seven decades. According to Lawrence Freedman, the appeal of deterrence strategies lies in clearly articulating vital interests a state would fight for while being defensive in nature. Freedman writes, "[Deterrence] implies a defensive intent without weakness. It seeks to prevent aggression while being non-aggressive. It sustains rather than disrupts the status quo."¹⁷ But traditional deterrence strategies have focused on elements of national power that a state can bring to bear in order to achieve its political objectives.¹⁸ It has not taken into account the ability of individuals or the private sector to impact deterrence strategies. Due to advances in technology and globalization, actors operating outside of government (including private citizens, organizations, and businesses) can have a significant impact on deterrence strategies, including strategic deterrence, in ways that democratic governments may not be able to account for.

<https://www.mastercard.com/news/press/2022/march/mastercard-statement-on-suspension-of-russian-operations/>.

¹⁶ Pranshu Verma, "The Rise of the Twitter Spies," *The Washington Post* (March 23, 2022), available at

<https://www.washingtonpost.com/technology/2022/03/23/twitter-open-source-intelligence-ukraine/>.

¹⁷ Lawrence Freedman, "Introduction - The Evolution of Deterrence Strategy and Research," in *NL ARMS Netherlands Annual Review of Military Studies 2020*, edited by Frans Osinga, Tim Sweijjs (The Hague: Asser Press, 2020) p. 1.

¹⁸ Department of Defense, *Deterrence Operations: Joint Operating Concept*, Version 2.0 (2006) p. 24.

To examine this gap, this study will first examine the new technologies and avenues that individuals and the private sector have at their disposal to impact deterrence strategies. Second, this study will outline an empirical approach to assess leadership decision making for strategic deterrence analysis. Through a series of case studies, this study will use the decision calculus methodology to assess leadership decisions and the ways in which individual entities may impact adversaries' decisions on actions the West seeks to deter. The case studies will include strategic decisions the United States seeks to deter in the ongoing Russia-Ukraine war and in a possible China-Taiwan conflict. Finally, based on the findings, this study will offer a series of recommendations to address this deterrence challenge in the future.

Chapter Two

The New Weapons of Warfare

Introduction

The study of warfare typically focuses on the military power of nation-states and the doctrine and strategies those states employ to achieve higher political objectives. For Western military scholars, the writings of Carl von Clausewitz are foundational for the study of war. The Prussian General wrote that “war should never be thought of as something autonomous but always as an instrument of policy.”¹⁹ Military power is a tool used by the nation-state to achieve political objectives or deter enemy attacks on its territory. But what happens when the tools of warfare become readily accessible to the private sector?

Traditionally, the tools of warfare have been out of reach to the individual. Even if the technology of war was readily available, the price would have been prohibitive to even the wealthiest of people. When maintenance and operation costs are factored in, the F-35 Joint Strike Fighter is about \$110 million dollars per unit and requires extensive training to maintain and operate.²⁰ This is before the costs of purchasing munitions for the platform. Munitions are no more affordable for ground-based air defense. The U.S. Patriot ground-to-air missile costs \$5 million per round before factoring in the cost of the launch battery and associated radars. Equipping the modern soldier is more achievable at \$18,000, but the effectiveness of one soldier is limited and would require the equipping of greater

¹⁹ H.R. McMaster, “On the Study of War and Warfare,” *The Modern War Institute* (February 24, 2017), available at <https://mwi.usma.edu/study-war-warfare/>.

²⁰ Fact Sheet, “F-35 Joint Strike Fighter: Costs and Challenges,” *Center for Arms Control and Non-Proliferation* (July 2021), available at <https://armscontrolcenter.org/f-35-joint-strike-fighter-costs-challenges/>.

numbers to provide a lethal force.²¹ Further, purchasing restrictions on military hardware put these items even further out of reach of the individual and those in the private sector.

Yet, during the 1990s the international system began to change. Advances in information technology sparked an economic revolution resulting in a renaissance of globalization. This was not limited to economic interconnectedness with the flow of goods, services, and investments, but also included the flow of people, culture, ideas, innovation, and information.²² While there had been periods of globalization in history, none had resulted in the level of interconnectedness that exists today. This interconnectedness has resulted in mutual dependencies and vulnerabilities between nations.

Further, information technology has revolutionized every facet of society. In 1965, Intel Co-founder Gordon Moore made the prediction “that computing would dramatically increase in power, and decrease in relative cost, at an exponential pace.”²³ Computers were rare at this time, filling up entire rooms, making Moore’s prediction quite bold. Today, in advanced economies, it is rare for a person not to have a smart phone, which offers profound computing power in the palm of one’s hand, as so much of our daily life becomes digitized. Even in the developing world, cell phone ownership is becoming the norm as it

²¹ Mark Galeotti, *The Weaponisation of Everything: A Field Guide to the New Way of War* (New Haven, CT: Yale University Press, 2022) p. 27.

²² Melina Kolb, “What is Globalization? And How has the Global Economy Shaped the United States?” *Peterson Institute for International Economics* (October 24, 2022), available at <https://www.piie.com/microsites/globalization/what-is-globalization>.

²³ Newsroom, “Over 50 Years of Moore’s Law,” Intel Corporation (2022), available at <https://www.intel.com/content/www/us/en/silicon-innovations/moores-law-technology.html#:~:text=From%20careful%20observation%20of%20an,and%20a%20springboard%20for%20innovation>.

facilitates economic growth and access to services.²⁴ This is resulting in an interconnectedness that was unheard of in previous decades as communication becomes instantaneous at minimal cost.

But what does this mean for warfare and national security? Advances in technology and the interconnectedness between nations have introduced new tools and vulnerabilities for the prosecution of warfare. As technology continues to advance, it becomes smaller, more powerful, and more affordable. Further, many of the technological advances are dual use, meaning they have both civilian and military applications. So, while Clausewitz wrote that military power was a tool of the nation state to achieve its policies, he did not have to consider the implications of technology with military application being in the hands of the population, with the potential to upend the state's ability to achieve its objectives.

New Weapons of Warfare

Cyberspace

In 1993, the technology for the World Wide Web was opened to the public domain—sparking a societal revolution. While the networking of computers and the development of the internet had been underway since the 1960s, it was largely a U.S. government project focused on allowing scientists to collaborate more effectively.²⁵ The birth of the modern internet occurred in 1983, when

²⁴ Leora Klapper, "Mobile phones are key to economic development. Are women missing out?" *The Brookings Institution* (April 10, 2019), available at <https://www.brookings.edu/blog/future-development/2019/04/10/mobile-phones-are-key-to-economic-development-are-women-missing-out/>.

²⁵ World 101, "The Origins of the Internet," *The Council on Foreign Relations* (2023), available at <https://world101.cfr.org/global-era-issues/cyberspace-and-cybersecurity/origins-internet>.

scientists adopted a common computer language that allowed the networking of computers with ease. In 1991, Tim Berners-Lee—a computer programmer for the European Organization for Nuclear Research (CERN)—envisioned the World Wide Web and developed the technology to more easily access data on the internet through websites and hyperlinks.²⁶ The societal revolution began when he made the source code free to the public in 1993. This allowed anyone with access to the internet to develop and innovate—allowing the Web to thrive.²⁷

As the Web continued to grow, it started a fundamental shift in society, impacting communication, commerce, and security to name just a few areas of daily life. Bill Gates, the founder of Microsoft, commented on the situation in a 1996 interview with *Time*: “The Internet is a revolution in communications that will change the world significantly. Microsoft is betting that the Internet will continue to grow in popularity until it is as mainstream as the telephone is today.”²⁸ Not only has the internet become mainstream but it also has become an essential component of modern society. Close to 66 percent of the world’s population has internet access today, which allows users to access information or communicate regardless of geography almost instantaneously.²⁹ While providing tremendous

²⁶ Evan Andrews, “Who Invested the Internet,” *History* (October 28, 2018), available at <https://www.history.com/news/who-invented-the-internet>.

²⁷ Katrina Brooker, “‘I Was Devastated’: Tim Berners-Lee, The Man Who Created the World Wide Web, has some Regrets,” *Vanity Fair* (August 2018), available at <https://www.vanityfair.com/news/2018/07/the-man-who-created-the-world-wide-web-has-some-regrets>.

²⁸ Joshua Cooper Ramo, “Winner Take All,” *Time Magazine* (September 16, 1996), available at <https://time.com/vault/issue/1996-09-16/page/54/>.

²⁹ Matthew Giannelis, “Impact of the Internet on Modern Society,” *Tech News Australia* (22 November 2022), available at <https://www.techbusinessnews.com.au/blog/impact-of-the-internet-on-modern-society/#:~:text=It%20has%20altered%20society%20in,sites%20to%20local%20news%20sources>.

benefits, this has also created new vulnerabilities and security risks for governments.

Today, nations are developing national strategies and capabilities to protect their societies from exploitation and attacks in and through cyberspace while also developing the capabilities to exploit and attack others. The United States developed its first national strategy for cyberspace during the George W. Bush Administration, with the Biden Administration releasing its strategy in March 2023.³⁰ Much of the critical infrastructure the United States seeks to protect resides in the private sector, which complicates any strategy for cyberspace security. From utilities to banking to healthcare to transportation, the day-to-day life of any nation depends now on the security of private networks. Previous strategies have relied on cooperation with the private sector for network protection, but the Biden strategy goes further, introducing regulation for cyber security standards.³¹

Cyberspace and the development of the World Wide Web have enabled most of the new weapons of warfare available to the private sector. Lucas Kello, Associate Professor of International Relations at Oxford University, commented on the phenomenon when he wrote that “the technology also empowers nontraditional players—proxy militias, political hacktivists, private corporations, extremist militant groups, and even lone agents—who may seek to undermine the political order, who may reject or fail to understand the complex conditions of peace and stability among states co-existing in the international jungle, and

³⁰ Tim Starks, “The Biden National Cyber Strategy is Unlike Any Before,” *The Washington Post* (January 6, 2023), available at <https://www.washingtonpost.com/politics/2023/01/06/biden-national-cyber-strategy-is-unlike-any-before-it/>.

³¹ “Fact Sheet: Biden-Harris Administration Delivers on Strengthening America’s Cyber Security,” *The White House* (October 11, 2022), available at <https://www.whitehouse.gov/briefing-room/statements-releases/2022/10/11/fact-sheet-biden-harris-administration-delivers-on-strengthening-americas-cybersecurity/>.

whom the traditional apparatus of diplomacy struggles to absorb because such players are not recognized state entities.”³² The ability to communicate and access information immediately, as well as to disrupt or destroy the networks regardless of location, has put a powerful tool in the hands of the public.

Social Media

The era of the postcard is over. The ability to communicate instantly across borders with anyone is a common 21st-Century phenomenon. Previously, communicating with those outside your community was a luxury. Social media has made it part of daily life. This innovation means that “billions of people around the globe can now exchange information with few financial or technical barriers.”³³ Whether it be text, video, photographs, or video conferences, the platforms now exist to communicate with anyone, anywhere with only a smart phone and a network connection.

In a little more than a decade, social media has had a profound impact on international affairs. First, it allows citizens to acquire and transmit information outside of the traditional media. In nations with state-controlled media, this can be a powerful tool to circumvent government control. China, recognizing the threat that this poses to the authority of the regime, keeps a tight control on social media, censoring posts and often blocking access to social

³² Lucas Kello, *The Virtual Weapon* (New Haven, CT: Yale University Press, 2017) p. 2.

³³ World 101, “Social Media: Revolutionizing Communication,” *The Council on Foreign Relations* (2023), available at <https://world101.cfr.org/global-era-issues/cyberspace-and-cybersecurity/social-media-revolutionizing-communication>.

media sites.³⁴ Second, it amplifies activism and the ability of large groups to organize. In 2010, the Arab Spring was a mass uprising of people protesting inequality and corruption in their governments that transcended national borders, spilling from Tunisia to Libya, and Egypt, and throughout the region. Thanks to the ubiquity of social media, protestors were able to organize and promote demonstrations while documenting the brutality of government responses.³⁵ Often referred to as hashtag activism, Hong Kong protesters have utilized this tool with #HongKongProtests to garner international support for their cause by sharing their demands and images of China's brutality.³⁶ Finally, social media offers a platform to garner financial support for different causes and social movements. Supporters of Ukraine have utilized social media to increase financial and material support for Ukraine's military. After Russia launched a large airstrike into civilian communities of Ukraine, supporters organized a crowd-funding campaign to buy Ram II drones, capable of delivering explosive payloads. The campaign managed to raise over \$9 million, worldwide, in less than twenty-four hours.³⁷

Social media provides a platform for users to communicate, inform, organize, fundraise, and be involved in international politics and national security in ways that were unimaginable just a few years ago. According to Dr. Kello, "New entrants onto the international scene who were

³⁴ Beina Xu and Eleanor Albert, "Media Censorship in China," *The Council on Foreign Relations* (February 17, 2017), available at <https://www.cfr.org/backgrounders/media-censorship-china#chapter-title-0-1>.

³⁵ World 101, "Social Media: Revolutionizing Communication".

³⁶ Eric Li, "208 Characters to Change the World: Twitter in the Hong Kong Protests," *Harvard International Review* (April 1, 2020), available at <https://hir.harvard.edu/twitter-hong-kong-protests/>.

³⁷ Prarthana Prakash, "A Crowdfunding Campaign for Ukraine to buy Drones Raised Nearly \$10 Million in 24 Hours," *Fortune* (October 12, 2022), available at <https://fortune.com/2022/10/12/crowdfund-campaign-ukraine-drones-russia/amp/>.

traditionally barred from geopolitics are now able to disrupt it, at times decisively, via cyber politics.”³⁸ Nowhere has this been more on display than in the Russia-Ukraine conflict. Both before and after the invasion, public relations specialists and social media professionals banded together, creating propaganda on social media for both domestic and foreign consumption. Liubov Tsybulska helps coordinate several of these teams in Ukraine and commented: “Everybody is an information warrior these days.”³⁹ Social media usage continues to expand with more than 4 billion people using various social media platforms worldwide, meaning that the potential for geopolitical disruption is increasing.⁴⁰

Computer Network Exploitation

Computer Network Exploitation (CNE) is defined as “the act of monitoring and related espionage on computer systems, as well as the copying (and thus theft) of data on these systems.”⁴¹ As governments, companies and individuals digitize information, a treasure-trove of government secrets, corporate proprietary information, and the personal data of individuals became vulnerable to theft by both government-sponsored and private hackers. The purpose of exploiting networks is to gather this valuable information as well as discover vulnerabilities for future

³⁸ Lucas Kello, *The Virtual Weapon*, p. 2.

³⁹ “The Invasion of Ukraine is not the First Social Media War, but it is the Most Viral,” *The Economist* (April 2, 2022), available at <https://www.economist.com/international/the-invasion-of-ukraine-is-not-the-first-social-media-war-but-it-is-the-most-viral/21808456>.

⁴⁰ “Social Media Statistics,” *The University of Maine* (September 2021), available at <https://umaine.edu/undiscoveredmaine/small-business/resources/marketing-for-small-business/social-media-tools/social-media-statistics-details/>.

⁴¹ Jack Goldsmith, “Cyber Attack vs. Cyber Exploitation,” *Berkman Cyber Security Team, Harvard* (May 21, 2013), available at <https://h2o.law.harvard.edu/playlists/657#:~:text=A%20cyber%2Dexploitation%20is%20the,the%20perspective%20of%20the%20user.>

attacks. In 2021, hackers sponsored by the Chinese government executed an exploitation in the Microsoft Exchange server, stealing intellectual property from thousands of victims in support of China's artificial intelligence program.⁴² In 2019, a software developer named Paige Thompson infiltrated Capital One's network and exploited the personal and financial information of 106 million of its customers.⁴³ The information exploited can provide insight into intentions, expose secrets, or provide data to enable other crimes.

Computer Network Attack

Computer Network Attack is defined as "an act that disrupts, denies, degrades, or destroys information on a computer network or related system."⁴⁴ An attack's purpose is to destroy either the data or the functioning of the network or the equipment using the network. As in the case of exploitation, any actor with access to the web and the right skills is capable of executing a network attack. The dependence of society on networks creates a vulnerability that actors can use for disruption, destruction, or to achieve other objectives. "The uncomfortable reality of our world," said former Chairman of the Joint Chiefs of Staff General Martin Dempsey, "is that bits and bytes can be as threatening as bullets and bombs."⁴⁵

The types of cyberattacks vary and occur daily. The Center for Strategic and International Studies Strategic

⁴² Dina Temple-Raston, "China's Microsoft Hack may have had a Bigger Purpose than just Spying," *NPR* (August 26, 2021), available at <https://www.npr.org/2021/08/26/1013501080/chinas-microsoft-hack-may-have-had-a-bigger-purpose-than-just-spying>.

⁴³ "The Exxon Valdez of Cyber Space," *The Economist* (August 8, 2019), available at <https://www.economist.com/business/2019/08/08/the-exxon-valdez-of-cyberspace>.

⁴⁴ Jack Goldsmith, "Cyber Attack vs. Cyber Exploitation."

⁴⁵ Lucas Kello, *The Virtual Weapon*, p. 61.

Technologies Program maintains a list of cyberattacks since 2006, detailing everything from the disruption of the postal service in the United Kingdom in January 2023 to the Dedicated Denial of Service Attacks (DDoS) on the Estonian Government in May 2007.⁴⁶ The attacks detailed are perpetrated by states, state-sponsored hackers or private hackers and demonstrate the vulnerability of both government and the private sector to these attacks.

Independent hackers are motivated by either profit or principle. To be a “hackers for hire” can be a profitable business. A British hacker was hired by a Liberian telecon company to attack its competitor in 2016 for \$10,000 per month. His botnet attack was so potent that it knocked out the Liberian internet.⁴⁷ On the other end of the motivation spectrum, the hacker group Anonymous has been launching cyberattacks against governments and the private sector on behalf of political and social causes for more than two decades. In February 2022, the loose collective declared cyber war against Russia and its president Vladimir Putin after Russia invaded Ukraine. Since then, it has claimed responsibility for numerous attacks on Russian government websites and industry.⁴⁸

But Anonymous is not alone in its declaration of war against Russia. Authorities estimate that more than 400,000 independent hackers from all over the world have entered the digital war against Russia.⁴⁹ Though unorganized, they

⁴⁶ Strategic Technologies Program, “Significant Cyber Incidents,” *Center for Strategic and International Studies* (February 2023), available at <https://www.csis.org/programs/strategic-technologies-program/significant-cyber-incidents>.

⁴⁷ Mark Galeotti, *The Weaponization of Everything*, p. 112.

⁴⁸ Tom Huddleston Jr., “What is Anonymous? How the Infamous ‘Hacktivist’ Group Went from 4chan Trolling to Launching Cyberattacks on Russia,” *CNBC* (March 25, 2022), available at <https://www.cnbc.com/2022/03/25/what-is-anonymous-the-group-went-from-4chan-to-cyberattacks-on-russia.html>.

⁴⁹ Elisabeth Braw, “Ukraine’s Digital Fight goes Global,” *Foreign Affairs* (May 2, 2022), available at <https://www.foreignaffairs.com/articles/ukraine/2022-05-02/ukraines-digital-fight-goes-global>.

are having an impact against the Russian government and military operations. Further, in addition to executing attacks, the volunteers are thwarting Russian cyberattacks. Microsoft has deployed its cybersecurity teams to identify and defend Ukraine's vulnerable networks and helped move critical infrastructure to the cloud. Further, it has halted sales and services to Russia.⁵⁰ Such actions raise the possibility of Russian retaliation against organizations such as Microsoft or the countries in which they are based (in this case the U.S.). Commenting on this risk while discussing the vulnerability of U.S. power networks, retired Rear Admiral Mark Montgomery stated, "Just imagine what would happen if the power went out for a few hours in New York City."⁵¹

The dependence of society on networks and their vulnerability to attack create an attractive target for both government and private hackers. Unlike traditional military technology, the tools to launch a cyberattack are available to anyone with a computer. Further, the training necessary to become a talented hacker is available on the internet. Government-trained hackers have even been caught moonlighting; using their skills for profit as hired hacker mercenaries after hours.⁵² Cyberspace has often been referred to as the Wild West, uncontrolled and lawless. This creates the potential for a conflict to escalate in unanticipated ways due to the actions of independent actors far from the warzone who launch attacks with "bits and bytes."

⁵⁰ Brad Smith, "Microsoft Suspends New Sales in Russia," *Microsoft* (March 4, 2022), available at <https://blogs.microsoft.com/on-the-issues/2022/03/04/microsoft-suspends-russia-sales-ukraine-conflict/>.

⁵¹ Elisabeth Braw, "Ukraine's Digital Fight goes Global".

⁵² Mark Galeotti, *The Weaponization of Everything*, p. 114.

Influence Operations

Influence operations can be described as “efforts to influence a target audience, whether an individual leader, members of decision-making group, military organizations and personnel, specific population subgroups, or mass publics.”⁵³ Influence operations are accomplished by “communications-related, and informational activities that aim to affect cognitive, psychological, motivational, ideational, ideological, and moral characteristics of a target audience.”⁵⁴ According to Gavin Wilde, a Senior Fellow in the Technology and International Affairs program at the Carnegie Endowment for International Peace, “successful information operations capture attention, play on existing biases, consolidate factions, and catalyze them to action.”⁵⁵ Traditionally, influence operations have been the purview of the state due to the means needed to deliver messages outside of a local community or across international borders, but no later than 2004 they moved online when terrorist organizations began using the internet to spread their ideology and recruit followers.⁵⁶

The internet has provided a new medium for influence operations, through social media, memes, blog posts, forums, and videos, to name just a few. And while the challenge of inculcating populations against state-run influence operations or disinformation campaigns has risen in importance for governments, influence operations are

⁵³ Eric V. Larson, Richard E. Darliek, Daniel Gibran, Brian Nichiporuk, Amy Richardson, Lowell H. Schwartz, Cathryn Quantic Thurston, *Foundations of Effective Influence Operations: A Framework for Enhancing Army Capabilities* (RAND: Santa Monica, CA, 2009) p. 2.

⁵⁴ *Ibid.*, p. 3.

⁵⁵ Gavin Wilde, “To Win the Internet, the Pentagon’s Infor Ops need more Humanity and a Dash of Absurdity,” *Cyberscoop* (November 14, 2022), available at <https://cyberscoop.com/pentagon-information-operations-truth-absurdity/>.

⁵⁶ Jacob T. Rob, Jacob N. Shapiro, “A Brief History of Online Influence Operations,” *Lawfare* (October 28, 2021), available at <https://www.lawfareblog.com/brief-history-online-influence-operations>.

also being conducted independently by actors outside state control, though with far less organization.⁵⁷ The challenge is that state-run influence operations and influence operations in the private sector are using the same tools and are often difficult to distinguish from each other. The platforms and applications are dual use in nature.

Memes are images, usually with humorous text or commentary used to “communicate complex information in a simple way for a mass audience.”⁵⁸ A successful meme will “go viral,” meaning that it is viewed by a large audience. States have tried to use memes for influence with varying degrees of success. Bureaucracy is slow moving and typically lacking in humor, making it a less than ideal environment to create meme content for the fast-paced world of internet humor. U.S. Cyber Command received a fair bit of online ridicule after taking three weeks to create and approve a meme commenting on Russian malware operations.⁵⁹ However, the Canadian mission at NATO fared much better with the release of its 2014 meme showing a map of Europe with the text “Not Russia” written over Ukraine and the commentary “Geography can be tough,” following Russia’s invasion of Crimea.⁶⁰ It was retweeted close to 39 thousand times and sparked a larger dialogue.

The private sector is far nimbler in using memes to influence. In addition to hackers coming to the aid of

⁵⁷ “Waging War with Disinformation,” *The Economist* (January 25, 2018), available at <https://www.economist.com/special-report/2018/01/25/waging-war-with-disinformation>.

⁵⁸ Suzanne Smalley, “Spy Agency Embraces Meme Culture and the Internet is Here for It,” *Cyberscoop* (October 31, 2022), available at <https://cyberscoop.com/nsa-memes-cybersecurity-awareness-2/>.

⁵⁹ Stephen Losey, “Defense Department Took 22 Days to Create ‘Silly Bear’ Meme to Roast Russian Hackers,” *Military.com* (March 25, 2021), available at <https://www.military.com/daily-news/2021/03/25/defense-department-took-22-days-create-silly-bear-meme-roast-russian-hackers.html>.

⁶⁰ Canada at NATO, *Twitter* (August 27, 2014), available at <https://twitter.com/CanadaNATO/status/504651534198927361>.

Ukraine following Russia's invasion in 2022, those seeking to influence have also made an appearance. One of the most prominent groups is the North Atlantic Fellas Organization or NAFO, a somewhat tongue-in-cheek reference to NATO though it has no association with the treaty organization. Using the image of a dog dressed in Ukraine's military garb, the group trolls the Russian government and counters Russian propaganda.⁶¹ At one-point, senior Russian officials were directly engaging the NAFO account in an attempt to counter the ridicule. The co-founder of NAFO, Matt Moores, noted that "the moment somebody's replying to a cartoon dog online, you've lost if you work for the government of Russia."⁶² Governments have recognized the power of this medium, with the Ukrainian government frequently thanking and highlighting memes that support their cause and aid in generating support.⁶³ Conversely, the government of China has censored images of Winnie the Pooh as netizens often use the image in memes to mock Chinese president Xi Jinping.⁶⁴

Memes are not the only method to conduct influence operations online but tend to be the most prominent due to the speed with which they can be created and spread. However, the ingenuity of internet users cannot be discounted. Seeking ways to bypass Russia's internet controls and directly influence the Russian population against the Ukraine invasion, users began leaving messages and images in the form of reviews of popular restaurants in Moscow and St. Petersburg on Google Reviews. While it

⁶¹ "A Virtual Army of Impish Cartoon Pooches is Waging War on Russia," *The Economist* (August 31, 2022), available at <https://www.economist.com/europe/2022/08/31/a-virtual-army-of-impish-cartoon-pooches-is-waging-war-on-russia>.

⁶² Suzanne Smalley, "How One Group of 'Fellas' is Winning the Meme War in Support of Ukraine," *Cyberscoop* (October 5, 2022), available at <https://cyberscoop.com/nafo-fellas-and-their-memes-ukraine/>.

⁶³ Ibid.

⁶⁴ Stephen McDonnell, "Why China Censors Banned Winnie the Pooh," *BBC* (July 17, 2017), available at <https://www.bbc.com/news/blog-china-blog-40627855>.

was soon shut down, images of the destruction and related commentary were peppered throughout the site in an effort to undermine Russian citizens' support for the conflict.⁶⁵

The uncoordinated nature of influence operations in the private sector makes their impact hard to measure. Further, the messages must break through many cultural and language barriers if attempting to influence residents of other nations.⁶⁶ Citizens of autocratic regimes are much more difficult to influence because their governments close off the internet to outside interference or ban the websites and applications most commonly used for influence in their nation to shield their populations from opposing viewpoints. However, the possibilities for influence should not be discounted completely. The ability of populations to organically mobilize and influence in support of a cause may put increased pressure on leaders or affect diplomatic negotiations in ways that are difficult to foresee.

Economic Coercion

Economic coercion as a weapon of warfare is not exactly new but is an enduring development that rose in prominence in the years between World War I and World War II. Economic warfare was conceived as an alternative to war to deter nations from diplomatic and territorial disputes. What was novel for the time was that economic sanctions were administered during peacetime whereas economic warfare had previously supported a larger war effort.⁶⁷ William Arnold-Foster, a British blockade

⁶⁵ Katie Collins, "Google Restaurant Reviews Hijacked to Share News from Ukraine with Russia Citizens," *CNET* (March 1, 2022), available at <https://www.cnet.com/news/politics/google-restaurant-reviews-hijacked-to-share-news-from-ukraine-with-russian-citizens/>.

⁶⁶ Eric V. Larson, Richard E. Darliek, Daniel Gibran, Brian Nichiporuk, Amy Richardson, Lowell H. Schwartz, Cathryn Quantic Thurston, pp. 55-56.

⁶⁷ Nicolas Mulder, *The Economic Weapon: The Rise of Sanctions as a Tool of Modern War* (New Haven, CT: Yale University Press, 2022) p. 132.

administrator during World War I, worried that “the economic weapon is one which is so infernally convenient to use that it naturally commends itself to those who sit in offices. Pens seem so much cleaner instruments than bayonets, and can be handled by the amateur with so much less exertion, so much less realization of the consequences.”⁶⁸ Today, sanctions are used as tools of coercion to deter conflict and acquisition of weapons of mass destruction (WMD), and to punish human rights violations, to name just a few purposes.⁶⁹

Multinational corporations have helped to fuel globalization. These are corporations with affiliates in foreign nations and are responsible for a significant portion of global economic growth.⁷⁰ Further, due to the interconnectedness of the global economic system, corporations conduct business and sell goods and services across international borders easily. This has led to a relatively new phenomenon: the private economic sanction.⁷¹ Economic coercion is no longer just the purview of governments; corporations can choose to halt sales or services in a nation to pressure its political leaders. While this does present a cost to the corporation in lost revenue, reduced market share, and potentially diminished stock price, these costs may be accepted to demonstrate private-sector displeasure with the actions of a nation. According to Katherine Davidson, a portfolio manager and sustainability

⁶⁸ Ibid, pp. 5-6.

⁶⁹ David Nutt, “Economic Sanctions Evolved into Tool of Modern War,” *Cornell Chronicle* (January 11, 2022), available at <https://news.cornell.edu/stories/2022/01/economic-sanctions-evolved-tool-modern-war>.

⁷⁰ C. Fritz Foley, James R. Hines, David Wessel, “Multinational Corporations in the 21st Century Economy,” *The Brookings Institution* (April 2021), available at <https://www.brookings.edu/essay/multinational-corporations-in-the-21st-century/>.

⁷¹ John Milton, “Private Sector Sanctions on Russia,” *CNA* (March 22, 2022), available at <https://www.cna.org/our-media/indepth/2022/03/private-sector-sanctions-on-russia>.

specialist, the role of the private sector in society is changing. “Stakeholders—including employees, customers and investors—have higher expectations,” writes Davidson, “and the pervasiveness of modern media allows them to hold companies to account.”⁷² This means that instead of avoiding politics or national security issues, companies may actively participate to meet the expectations of their customer base. This phenomenon was most recently demonstrated when over 1,000 private corporations exited the Russian market following its invasion of Ukraine in 2022.⁷³

Companies that fail to meet the expectations of their customers risk consumer boycotts. While not new, the advent of social media has made consumer boycotts more powerful by enabling activists to garner support both nationally and internationally for a given cause. While consumer boycotts may not have an immediate impact on company revenue, the long-term reputational damage could be severe.⁷⁴ It is often not clear what the tipping point is for consumers to enact a boycott, and that tipping point is different for consumers of different nations due to diverse values and cultures. Broadly, Western consumers tend to value human rights, while Chinese consumers tend to be more nationalistic and concerned about protecting the reputation of China.⁷⁵ Further, boycotts can play a pivotal

⁷² Katherine Davidson, “Capital Punishment: Private Sector Sanctions in Russia,” *Schroders* (March 18, 2022), available at <https://www.schroders.com/en/malta/professional/insights/capital-punishment-private-sector-sanctions-in-russia/>.

⁷³ Chief Executive Leadership Institute, “Over 1,000 Companies have Curtailed Operations in Russia – But Some Remain,” *Yale School of Management* (January 28, 2023), available at <https://som.yale.edu/story/2022/over-1000-companies-have-curtailed-operations-russia-some-remain>.

⁷⁴ “Companies Fear Consumer Boycotts,” *The Economist* (April 16, 2022), available at <https://www.economist.com/business/2022/04/16/companies-fear-consumer-boycotts>.

⁷⁵ Elizabeth Braw, “Do Rising Consumer Boycotts Threaten Geopolitical Neutrality?” *American Enterprise Institute* (November 23, 2022), available at

role in exacerbating historical grudges between nations such as South Korea and Japan⁷⁶ or China and Japan, putting additional pressure on diplomacy.⁷⁷

United States President Woodrow Wilson declared that economic sanctions were “something more tremendous than war,” when they were first being debated as a tool for the League of Nations to coerce compliance with international norms and deter conflict following World War I.⁷⁸ While the effects of sanctions are not always felt immediately, they do have a direct impact on the health and prosperity of civilians and can be a very powerful tool of statecraft. Globalization and social media have created the opportunity to privatize this tool, allowing companies and other private-sector organizations to insert themselves into global politics and national security to pressure governments.

Open-Source Intelligence

Information is power. The United States and other governments rely on the intelligence community to gather and assess information obtained clandestinely, to inform policymakers about current events and potential future risks. Intelligence informs executive policy and strategy development, diplomatic negotiation and engagement, and military threat assessments and acquisitions. Further, at the tactical level, intelligence informs military planning and

<https://www.aei.org/articles/do-rising-consumer-boycotts-threaten-corporate-geopolitical-neutrality/>.

⁷⁶ “An Old Grudge Between Japan and South Korea is Getting out of Hand,” *The Economist* (August 29, 2019), available at <https://www.economist.com/asia/2019/08/29/an-old-grudge-between-japan-and-south-korea-is-getting-out-of-hand>.

⁷⁷ Elliott Zaagman, “Balancing Act: China’s Nationalist Boycotts,” *The Lowy Institute* (August 5, 2019), available at <https://www.loyyinstitute.org/the-interpreter/balancing-act-china-s-nationalist-consumer-boycotts>.

⁷⁸ Haans J. Freddy, “Sanctions as a Weapon of War: The European Experience,” *Observer Research Foundation Special Report no. 201* (December 2022) p. 5.

operations. The United States has 18 organizations that form the Intelligence Community (IC) to support various types of demands for intelligence from government agencies.⁷⁹ Formalized after World War II, the Central Intelligence Agency (CIA) defines its mission as “straightforward but critical: leverage the power of information to keep our Nation safe.”⁸⁰ The tactics, techniques and equipment necessary has been the purview of powerful governments, kept classified to protect the source of the information. But technology and access are changing the intelligence landscape – putting the power of information into the hands of the general public. In short, “intelligence isn’t just for government spy agencies anymore.”⁸¹

Amy Zegart, Senior Fellow at the Hoover Institution, has identified three major trends that are opening the world of intelligence collection to analysts outside of government: “the proliferation of commercial satellites, the explosion of Internet connectivity and open-source information available online, and advances in automated analytics like machine learning.”⁸² Satellites providing imagery were first put into orbit in the 1960s and were the purview of superpowers. Today, there are more than 700 imagery satellites in orbit operated by scores of governments and private corporations. The resolution has improved from dozens of meters to a few centimeters and the cost for providing that imagery has plummeted. This means that

⁷⁹ Office of the Director National Intelligence, “What is Intelligence,” What we Do, available at <https://www.dni.gov/index.php/what-we-do/what-is-intelligence>.

⁸⁰ CIA, “CIA Mission Statement,” About CIA, available at <https://www.cia.gov/about/>.

⁸¹ Amy Zegart, “Open Secrets: Ukraine and the Next Intelligence Revolution,” *Foreign Affairs* (January/February 2023).

⁸² Amy Zegart, “Meet the Nuclear Sleuths Shaking up US Spycraft,” *Politico* (January 19, 2022), available at <https://www.politico.com/news/magazine/2022/01/19/nuclear-sleuths-shaking-up-us-spycraft-527319>.

terabytes of accurate images are available online to researchers, think tanks, or any interested party – often for just the price of a computer and internet connection.⁸³ The more the world’s population comes online, the greater the dissemination of this data. In 2022, more than 59% of the world’s population had access to the internet, with more people coming online each year.⁸⁴ Further, machine learning is making the analysis of data easier and faster, without requiring a human to assess each image. Systems are designed for ease of use and accessibility, meaning that even without specialized training, a person can analyze satellite imagery data with just a laptop.⁸⁵

The combination of satellite imagery, videos, and chatter on social media has made every person with a smart phone a potential intelligence collector. This has made Open-Source Intelligence (OSINT) an incredibly powerful tool. In 2021, satellite imagery began to record an increase of Russian troops in Belarus. Through analysis of Tik Tok videos, geolocation tools, and social media feeds, analysts in think tanks and amateur enthusiasts were able to track the movement of Russian troops as they assumed their positions to invade Ukraine.⁸⁶ A team of students at Stanford University are analyzing social media posts and commercial satellite imagery to inform reports on Russian human rights violations in Ukraine, while professionals at

⁸³ Gabriel Schoenfeld, “America’s Spycraft,” *American Purpose* (April 22, 2022), available at <https://www.americanpurpose.com/articles/americas-spycraft/>.

⁸⁴ Statista Research Department, “Worldwide Digital Population July 2022,” *Statista* (September 20, 2022), available at <https://www.statista.com/statistics/617136/digital-population-worldwide/>.

⁸⁵ Edward Lempinen, “A Machine Learning Breakthrough uses Satellite Images to Improve Lives,” *Berkeley News* (July 20, 2021), available at <https://news.berkeley.edu/2021/07/20/a-machine-learning-breakthrough-using-satellite-images-to-improve-human-lives/>.

⁸⁶ “A New Era of Transparent Warfare Beckons,” *The Economist* (February 18, 2022), available at <https://www.economist.com/briefing/2022/02/18/a-new-era-of-transparent-warfare-beckons>.

the Institute for the Study of War have designed an interactive map to monitor the conflict in real time.⁸⁷

The news that China was dramatically increasing the size of its nuclear arsenal was broken by a group of scholars at the James Martin Center for Nonproliferation Studies and the Federation of American Scientists. Using commercial satellite imagery, the researchers discovered three new missile fields containing 300 new silos for Intercontinental Ballistic Missiles (ICBMs).⁸⁸ The satellite imagery is clear enough for analysts to identify the types of silos, how close they are to being operational, and the construction of command centers. Using Twitter, U.S. Strategic Command confirmed that the analysts were on the right track with their assessments using open-source information.⁸⁹

Organizations have sprung up dedicated to the analysis of OSINT. Bellingcat, an independent organization, uses open-source information and volunteer analysts to conduct investigations into a multitude of topics around the world. Further, they train volunteer analysts to use the tools available—offering guides, tutorials, and webinars to build open-source analytical skills. After the commercial airliner MH17 was shot down in Ukraine in 2014, killing all on board, Bellingcat was able to identify the missile launcher, track its movements through Russia, locate the field where the missile was launched, and confirm that the civilian airliner was downed by the Russian military.⁹⁰

The availability of information has put a powerful tool in the hands of civilians. However, this does provide a

⁸⁷ Amy Zegart, "Open Secrets: Ukraine and the Next Intelligence Revolution."

⁸⁸ Matt Korda, Hans Kristensen, "A Closer Look at China's Missile Fields," *Federation of American Scientists* (November 2, 2021), available at <https://fas.org/blogs/security/2021/11/a-closer-look-at-chinas-missile-silo-construction/>.

⁸⁹ U.S. Strategic Command Public Affairs, *Twitter* (July 21, 2021), available at https://twitter.com/US_Stratcom/status/1420149192203374603.

⁹⁰ "About Bellingcat," *Bellingcat* (2023), available at <https://www.bellingcat.com/about/>.

challenge to governments. First, unlike their government intelligence counterparts, civilian analysts do not adhere to uniform standards of quality control. While some think tanks and organizations may have greater standards, those standards are not universal. This means that judgements can and will be wrong, and have the potential to spread far and wide before they are corrected. Second, these judgements have the potential to close the decision space of government leaders or potentially take diplomatic options off the table because of increased popular pressure to respond. This has the potential to complicate international relations and diplomacy.⁹¹

Private Satellite Companies

Once only the purview of the militaries and space agencies of superpowers, the exploitation of space is now largely in the hands of the private sector with companies in the United States controlling more than half of the market.⁹² From space launch capabilities to communications, navigation, weather, and imagery, services once provided by government are now provided by private industry.⁹³ Everything from financial transactions to the electric grid is enabled through space-based capabilities. A study by the European Union Institute for Security Studies found that advanced economies are so dependent on space “that a day without fully functioning space capabilities would severely

⁹¹ Amy Zegart, “Meet the Nuclear Sleuths Shaking up US Spycraft.”

⁹² John Koetsier, “Space Inc: 10,000 Companies, \$4T Value...And 52% American,” *Forbes* (May 22, 2021), available at <https://www.forbes.com/sites/johnkoetsier/2021/05/22/space-inc-10000-companies-4t-value--and-52-american/?sh=440d770b55ac>.

⁹³ “The Space Race is Dominated by New Contenders,” *The Economist* (October 18, 2018), available at <https://www.economist.com/graphic-detail/2018/10/18/the-space-race-is-dominated-by-new-contenders>.

restrict or even endanger our lives.”⁹⁴ Military and civilian dependency on the services satellite systems provide makes satellites both key enablers and an attractive target during hostilities. That these services are now controlled by the private sector means that corporations could participate in a conflict that their home nation is not involved in.

Satellite imagery is imperative for tracking troop movements and assessing damage. Beyond enabling Open-Source Intelligence analysis, private satellite imagery companies sell their data to governments, including nations with government-run imagery satellites, such as the United States. This benefits the nation in many ways. For example, the United States now is able to get additional views of areas of interest or share imagery with allies and partners without having to declassify government sources.⁹⁵ Further, companies can sell their imagery directly to foreign governments. At the onset of the Russia-Ukraine war, Ukraine’s Vice Prime Minister Mykhailo Fedorov wrote in an open letter that “[I] appeal to the global remote sensing firms and organizations to provide real-time SAR [synthetic aperture radar] data to support the Armed Forces of Ukraine with actionable intelligence,” while also providing a website for companies to directly distribute the imagery to the Ukrainian government.⁹⁶

In addition to imagery used for military targeting, private satellite companies provide communications satellites that enable mobile communications and internet

⁹⁴ Massimo Pellegrino, Gerald Stang, “Space Security for Europe,” *The European Union Institute for Space Studies* (July 1, 2016) p. 21.

⁹⁵ Mariel Borowitz, “War in Ukraine Highlights the Growing Strategic Importance of Private Satellite Companies – Especially in Time of Conflict,” *The Conversation* (August 15, 2022), available at <https://theconversation.com/war-in-ukraine-highlights-the-growing-strategic-importance-of-private-satellite-companies-especially-in-times-of-conflict-188425>.

⁹⁶ Eric Mack, “Ukraine Asks Commercial Satellite Operators for Help Tracking Russian Troops,” *CNET* (March 2, 2022), available at <https://www.cnet.com/science/space/ukraine-asks-commercial-satellite-operators-for-help-tracking-russian-troops/>.

access. This connectivity is necessary for everything from banking to military drone operations. During conflict, denying an adversary the ability to communicate can give the combatant a decisive advantage by disrupting military activity and undermining civilian support for the conflict. Just hours before Russia invaded Ukraine, Ukraine's terminals for satellite communication were attacked by hackers—disrupting its ability to utilize satellite communications. Vice Premier Fedorov directly appealed via Twitter to Elon Musk, founder of SpaceX, to provide access to Starlink, a constellation of more than 3,000 communications satellites that has revolutionized space-based internet access. Instead of a small number of large satellites at a higher orbit, Starlink is a swarm of smaller satellites at lower orbits that allow faster processing of data. Further, the equipment used to access the satellites can be carried in a backpack and charged from a car battery, making ground-link stations mobile and difficult to target. Within hours, Musk tweeted back that Starlink had been made available to Ukraine and that the hardware to access the network was on its way.⁹⁷

With 5,000 terminals giving internet access to 150,000 Ukrainians, access to this commercial resource has significantly impacted the conflict.⁹⁸ Not only has it kept Ukrainians connected with the outside world but it also has allowed society to continue to function while enabling military operations. A Ukrainian soldier commented that without Starlink, “Our army would collapse into chaos.”⁹⁹

⁹⁷ “How Elon Musk’s Satellites have Saved Ukraine and Changed Warfare,” *The Economist* (January 5, 2023), available at <https://www.economist.com/briefing/2023/01/05/how-elon-musks-satellites-have-saved-ukraine-and-changed-warfare>.

⁹⁸ Jon Brodtkin, “Starlink helps Ukraine’s Elite Drone Unit Target and Destroy Russian Tanks,” *Ars Technica* (March 21, 2022), available at <https://arstechnica.com/tech-policy/2022/03/starlink-helps-ukraines-elite-drone-unit-target-and-destroy-russian-tanks/>.

⁹⁹ “How Elon Musk’s Satellites have Saved Ukraine and Changed Warfare,” *The Economist* (January 5, 2023).

Ukraine is not the only crisis Starlink has impacted. When Iranian dissidents began protesting against the government after the killing of a young woman, Elon Musk again provided access to Starlink to allow protestors to subvert censorship by the Iranian government.¹⁰⁰

The Russian-Ukraine war is the first conflict where commercial satellite companies have played such a significant and decisive role, meaning that the lessons are still being discovered. However, Russia has warned that commercial satellites aiding Ukraine are a “legitimate target for a retaliatory strike,” with a White House spokesman responding that “any attack on U.S. infrastructure would be met with a response.”¹⁰¹ This implies that a private company or individual (in Elon Musk’s case) has the potential to expand a conflict beyond the original combatants and directly impact diplomacy and national security.

Mercenaries

The word “mercenary” conjures images from a bygone era of warfare—of leaders hiring a fighting force to expand their holdings and take another’s throne by force. William the Conqueror did just that in the 11th century, when he defeated King Harold II in the Battle of Hastings to secure the English throne.¹⁰² While the term mercenary has fallen out of favor, the mercenary business is growing into a global, multi-billion-dollar industry with some of its larger

¹⁰⁰ Dean Cheng, “Space Invaders: The Rise of Commercial Firms,” *Geopolitical Intelligence Services* (January 5, 2023), available at <https://www.gisreportsonline.com/r/space-exploration/>.

¹⁰¹ Joey Roulette, “Russia’s anti-satellite threat tests laws of war in space,” *Reuters* (October 27, 2022), available at <https://www.reuters.com/world/russias-anti-satellite-threat-tests-laws-war-space-2022-10-28/>.

¹⁰² Sean McFate, *Mercenaries and War: Understanding Private Armies Today* (NDU Press, Washington, D.C.: 2019) p. 11.

corporations traded on the world's stock exchanges.¹⁰³ Today, mercenaries are more commonly known as private military corporations, private security companies, or private military contractors, but the concept is the same. These are soldiers for hire, generally fighting for profit, not country.¹⁰⁴

Dr. Sean McFate, a Senior Fellow at the Atlantic Council and former private military contractor, defined the five key characteristics of a modern mercenary. First and foremost, a mercenary is profit driven, not politically driven, though there may be exceptions. Second, they tend to be structured as a business, instead of as individual private contractors. Third, they work in foreign countries rather than providing private security in their native country. Fourth, they have military training and operate in that way rather than carrying out law-enforcement training or operations. This is an important distinction, according to McFate, as, "the purpose of military force is to violently defeat or deter the enemy, while law enforcement seeks to de-escalate violent situations to maintain law and order." Finally, modern mercenaries represent the commodification of warfare.¹⁰⁵

International law addressing mercenaries is lacking. While the *International Convention against the Recruitment, Use, Financing and Training of Mercenaries* (or the UN Mercenary Convention) came into force in 2001, it has only been ratified by 46 nations, not including Russia, China, the United States, or the majority of U.S. allies.¹⁰⁶ Much of the resistance to ratifying the UN Mercenary Convention stems from conflicting definitions and applications from prior

¹⁰³ Mark Galeotti, *The Weaponization of Everything*, p. 56.

¹⁰⁴ Sean McFate, *Mercenaries and War: Understanding Private Armies Today*, p. 6.

¹⁰⁵ *Ibid.*, p. 7.

¹⁰⁶ General Assembly resolution 44/34, *International Convention against the Recruitment, Use, Financing and Training of Mercenaries*, The United Nations (December 4, 1989), available at <https://www.ohchr.org/en/instruments-mechanisms/instruments/international-convention-against-recruitment-use-financing-and>.

protocols. Further, the definition of a mercenary in the UN Mercenary Convention does not include private military contractors, which some nations felt should be included. Finally, with so few countries ratifying the convention, it fails to create an international norm against the use of mercenaries.¹⁰⁷ The lack of international law on the conduct of mercenaries leaves regulation to the domestic law of individual nations, which varies greatly.

While the UN Mercenary Convention struggles to gain traction, the Montreux Document has had more success. Spearheaded by Switzerland and the International Committee of the Red Cross, the Montreux Document is an “intergovernmental document intended to promote respect for international humanitarian law and human rights law whenever PMSCs [Private Military Security Companies] are present in armed conflicts.”¹⁰⁸ While not legally binding, it sets out a series of guidelines, legal obligations, and best practices for nations hiring private military companies to use in war zones. It has been signed by 58 countries and 3 organizations since the document was finalized in September of 2008, including China, the United States, NATO, and the European Union.¹⁰⁹

Defining best practices for nations hiring private military companies is important as more aspects of war are outsourced to contractors. During World War II, it was rare to use a private military contractor, but this changed over

¹⁰⁷ Will Mackie, “Soldiers of Fortune: Why U.S. Mercenaries should not be Legal,” *War on the Rocks* (August 26, 2021), available at <https://warontherocks.com/2021/08/soldiers-of-fortune-why-u-s-mercenaries-should-not-be-legal/>.

¹⁰⁸ Directorate of International Law, *The Montreux Document*, The Government of Switzerland (September 17, 2008) p. 31, available at https://www.icrc.org/en/doc/assets/files/other/icrc_002_0996.pdf.

¹⁰⁹ Federal Department of Foreign Affairs, “Participating States of the Montreux Document,” The Government of Switzerland (January 26, 2022), available at <https://www.eda.admin.ch/eda/en/dfa/foreign-policy/international-law/international-humanitarian-law/private-military-security-companies/participating-states.html>.

the decades with private military contractors becoming essential in the wars in Iraq and Afghanistan with approximately a 10 to 1 ratio of government military personnel to contractors.¹¹⁰ For the United States, and the West more generally, private military contractors are predominately used for support services such as food preparation or logistics. However, a smaller percentage are used for private security escort, equipped as a private military, and populated by former military professionals.¹¹¹ Other nations, such as Russia, Turkey, and Iran, are hiring foreign mercenaries to fight in foreign civil wars to support whichever side their governments favor.¹¹²

The privatization of warfare brings several potential consequences. First, mercenaries have very little regard for human rights. They exist not to provide law and order but to defeat threats. There are examples in the Afghan and Iraq conflicts of private military contractors hired as security who killed civilians and non-combatants.¹¹³ In 2014, four employees of Blackwater, a U.S. private military corporation, were tried and found guilty on charges from an incident in Nisur Square, Iraq, that left 14 civilians dead and many more injured.¹¹⁴ Second, mercenaries can cause tension between governments or undermine diplomatic efforts currently underway. The Nisur Square incident increased tension between the Iraqi and U.S. governments and hindered the ability of the governments to work

¹¹⁰ Mark Galeotti, *The Weaponization of Everything*, p. 56.

¹¹¹ Sean McFate, *Mercenaries and War: Understanding Private Armies Today*, p. 18.

¹¹² Mark Galeotti, *The Weaponization of Everything*, p. 58.

¹¹³ Sean McFate, *Mercenaries and War: Understanding Private Armies Today*, p. 22.

¹¹⁴ U.S. Attorney's Office, "Four Former Blackwater Employees Found Guilty of Charges," U.S. Department of Justice (October 22, 2014), available at <https://www.justice.gov/usao-dc/pr/four-former-blackwater-employees-found-guilty-charges>.

together.¹¹⁵ Finally, there is potential for mercenaries to initiate conflict—forcing governments to respond to protect their interests. This can occur as more corporations hire private military security firms to protect their investments, or even as humanitarian organizations hire mercenaries to protect vulnerable populations.¹¹⁶

Conclusion

Globalization, cyberspace, and information technology have revolutionized society, connecting people in ways that were unimaginable just a few decades ago. Further, these developments shifted tools for warfare that were once only in the hands of the state and put them into the hands of individuals and the private sector. Whether it be instituting private economic sanctions, open-source intelligence analysis, space operations, or cyberattacks, the ability to impose costs or deny adversary objectives can now occur outside of a formal government strategy. These actions could potentially undermine deterrence, cause escalation, or limit diplomatic options. Some actions, such as consumer boycotts or cyber influence operations, will be hard for democratic societies to control or limit due to individual rights and freedoms, while others could be legislated, such as those involving private military corporations and mercenaries. Today, the private sector has the tools at its disposal to directly impact national security and potentially undermine strategic deterrence.

¹¹⁵ Peter W. Singer, “The Dark Truth about Blackwater,” *The Brookings Institution* (October 2, 2007), available at <https://www.brookings.edu/articles/the-dark-truth-about-blackwater/>.

¹¹⁶ Sean McFate, *The Modern Mercenary* (Oxford: Oxford University Press, 2014) p. 2.

Chapter Three

An Empirical Approach for Deterrence Analysis

Introduction

Prior to the introduction of nuclear weapons as a weapon of warfare, the consequences of deterrence failure could be devastating but not necessarily pose an existential threat. Leaders were tempted to take calculated risks that often led to conflict and deterrence failure. However, the potential existential consequences of nuclear war made preventing conflict an imperative for nations and pushed deterrence to the forefront of national defense strategies. In 1946, Bernard Brodie encapsulated this new reality: “Thus far the chief purpose of our military establishment has been to win wars. From now on its chief purpose must be to avert them.”¹¹⁷ The nuclear revolution increased the profile of deterrence strategies, sparking a tremendous amount of research and analysis into deterrence and the necessary ingredients to achieve it.

However, research into deterrence theory is not static but continues to develop in “waves” —as strategies adapt and conclusions change or as the security environment evolves.¹¹⁸ One of the more significant changes in deterrence theory is the necessity of having detailed knowledge of the specific actors we seek to deter. Cold-War thinking on deterrence was dominated by the assumption that any rational leader, regardless of ideology, could be

¹¹⁷ Andrew F. Krepinevich Jr., “The Eroding Balance of Terror: The Decline of Deterrence,” *Foreign Affairs* (January/February 2019), available at https://www.foreignaffairs.com/eroding-balance-terror?check_logged_in=1.

¹¹⁸ Tim Prior, “Resilience: The ‘Fifth Wave’ in the Evolution of Deterrence,” in *Strategic Trends 2018: Key Developments in Global Affairs*, edited by Oliver Thranert, Martin Zapfe (Zurich: Center for Security Studies, 2018) pp. 66-67.

deterred from nuclear confrontation by the threat of assured destruction. This assured destruction metric was easily quantifiable by focusing on things that could be counted, such as the number of nuclear warheads and associated destructive yields, and proponents assured decision makers that it would work reliably and predictably. According to Keith Payne, "The strength of this deterrence framework was its comfort and convenience."¹¹⁹ But while this theory of deterrence may be comforting, it ignores that at its core, deterrence is a psychological function in the mind of the adversary. It is a decision. An adversary chooses to be deterred and this choice is shaped by an adversary leader's individual values, culture, risk-taking propensity and world view among other factors.¹²⁰ Understanding these factors is easier said than done but necessary to create a viable deterrence strategy.

Tailored Deterrence

During the George W. Bush Administration, the concept of tailored deterrence emerged. This concept sought to customize deterrence strategies to the specific adversary and threats to U.S. vital interests. Further, it acknowledges that relying solely on the threat of assured destruction may be insufficient to achieve effective deterrence because it ignores other aspects that may cause an adversary to act and deterrence to fail. The *Deterrence Operations Joint Operating Concept* (DOJOC), released in 2006, redefined deterrence for the Joint Force as "decisive influence over [adversary] decision-making. Decisive influence is achieved by credibly threatening to deny benefits and/or impose costs, while

¹¹⁹ Keith B. Payne, *The Fallacy of Cold War Deterrence and a New Direction* (Lexington, KY: The University of Kentucky Press, 2001) pp. 22-23.

¹²⁰ M. Elaine Bunn, "Can Deterrence Be Tailored?," *Institute for National Strategic Studies*, No. 225 (January 2007).

encouraging restraint by convincing the actor that restraint will result in an acceptable outcome.”¹²¹

As Elaine Bunn, former Deputy Assistant Secretary of Defense for Nuclear and Missile Defense Policy, has stated, “Deterrence is really the ultimate mind game.”¹²² If deterrence is the ultimate mind game, then a greater understanding of the opponent and their decision making is required. This is not an easy undertaking, however. According to Dr. Jerold Post, “tailor[ing] deterrence to ... adversaries will in turn require a level of knowledge concerning the adversary which we often do not possess.”¹²³ Nevertheless, Dr. Post argues that there is no choice but to tailor deterrence to the unique psychology of the adversary despite the difficulty and potential lack of information. To mitigate this problem, Dr. Post argues we “must improve in our ability to accurately construct actor specific behavioral models.”¹²⁴

To do this, the first step is identifying where decision making is done in adversary governments. Is it a single leader or a group of people within government with the power to make decisions? Second, the specific deterrence objective should be identified.¹²⁵ This is key because it will identify the adversary decision that must be influenced. Often, deterrence is discussed without identifying specifically what is to be deterred. This leads to an amorphous strategy that may not have the desired impact on an adversary’s decision making. Finally, the context in which the decision may be made needs to be assessed. The situation that the decision maker is in will have a profound

¹²¹ *Deterrence Operations: Joint Operating Concept*, p. 3.

¹²² M. Elaine Bunn, “Can Deterrence Be Tailored?”.

¹²³ Jerold M. Post, MD, “Actor-Specific Behavioral Models of Adversaries: A Key Requirement for Tailored Deterrence” in *Tailored Deterrence: Influencing States and Groups of Concern*, edited by Barry R. Schneider and Patrick D. Ellis (Alabama: Maxwell Air Force Base, May 2011) p. 15.

¹²⁴ *Ibid.*

¹²⁵ *Deterrence Operations Joint Operating Concept*, p. 46.

impact on the choice he or she may make.¹²⁶ Taken together, tailored deterrence must be adversary-, decision-, and context-specific in order to achieve decisive influence on an adversary's decision making.¹²⁷

Psychology of Decision Making

As mentioned earlier, Cold War deterrence theorists postulated that any rational leader, regardless of nationality, could be deterred by the threat of overwhelming force. Rational leaders could be expected to react predictably. How could theorists have such confidence in leadership decision making? Much of the early research on decision making had occurred in the field of economics, which assumed that an actor was rational if they made choices that maximized their expected utilities.¹²⁸ However, the field of economics deals with the aggregate of many decision makers, while deterrence depends on just a few. This means that while generalizations and assumptions about rational choice and value maximization may make sense for the field of economics, they may lead to miscalculation and surprise when applied to the field of international relations.¹²⁹

The study of human decision making continues to advance. Daniel Kahneman won the Nobel Prize for his research in decision making, which posited that there are two types of decisions that humans make: fast and slow.

¹²⁶ Icek Ajzen, "The Social Psychology of Decision Making," in *Social Psychology: Handbook of Basic Principles*, edited by E.T. Higgins and A.W. Kruglanski, (New York: Guilford Press, 1996) p. 305.

¹²⁷ *Deterrence Operations Joint Operating Concept*, p. 46.

¹²⁸ Robert Jervis, "Rational Deterrence: Theory and Evidence," *World Politics* (1989) p. 198, available at <https://robertmcnamara.org/wp-content/uploads/2018/05/Jervis-1989-Rational-Deterrence-Theory-and-Evidence-c.pdf>.

¹²⁹ Robert Jervis, Richard Ned Lebow, and Janice Gross Stein, *Psychology and Deterrence* (Baltimore, MD: Johns Hopkins University Press, 1985) pp. 10-11.

Fast decisions are choices that come “automatically and quickly, with little or no effort and no sense of voluntary control.”¹³⁰ Slow decisions require “effortful mental activities” and “are often associated with the subjective experience of agency, choice, and concentration.”¹³¹ Fast decisions are also referred to as intuitive decisions because they are made with little conscious thought or deliberation, while slow decisions are referred to as rational decisions because they are often complex and require increased cognition and reasoning.¹³²

In the study of deterrence, the definition of rationality must adapt as the science of human decision making advances. For the purposes of this study, rational decision making will be defined as: “a strict procedure utilizing objective knowledge and logic. It involves identifying the problem to solve, gathering facts, identifying options and outcomes, analyzing them, taking into account all the relationships, and selecting the decision.”¹³³ To be successful, deterrence still requires a rational decision maker but that means that the leader is calculating. They consider the costs and benefits of a course of action in relation to the costs and benefits of restraining from that action before making a choice.

A rational decision could still be a miscalculation or a mistake. Just because a decision is rational does not make it a “good” or “right” decision. It can be a mistake, miscalculation, or poor decision and still be rational. This is because the cost-benefit analysis is subjective, based on the individual perceptions and beliefs of the decision maker

¹³⁰ Daniel Kahneman, “Of 2 Minds: How Fast and Slow Thinking Shape Perception and Choice,” *Scientific American* (June 15, 2012), available at <https://www.scientificamerican.com/article/kahneman-excerpt-thinking-fast-and-slow/>.

¹³¹ *Ibid.*

¹³² Frederic Adam, Dorota Kuchta, Stanislaw Stanek, *Rational Decisions in Organizations: Theoretical and Practical Aspects* (Boca Raton, FL: CRC Press, 2022).

¹³³ *Ibid.*, p. 8.

and influenced by the context of the decision environment.¹³⁴ Further, how the individual weighs the importance or value of the different costs and benefits can be heavily influenced by individual values, cultures, and experience. Further, the cost-benefit analysis can be skewed by biases. In fact, scientists have identified well over 50 biases that impact human decision making and can lead to poor choices, including being overly optimistic on a particular outcome or succumbing to a pack mentality.¹³⁵ Finally, beliefs that inform our decisions can be subjective or prejudiced by our emotions and personal desires.¹³⁶ The variance in human decision making means that it is difficult to predict or forecast. However, research continues in order to gain insight into why people make the decisions they do.

Empirical Approach to Deterrence Analysis

Tailored deterrence requires a more deliberate and holistic approach to analyze adversary intentions. While decision making science suggests that there is no perfect model for predicting adversary behavior, Robert Jervis suggests that analysts bring empathy to deterrence analysis in order to better understand adversary perspectives.¹³⁷ Reducing

¹³⁴ Matt Grawitch, "Costs, Benefits, and Risks: The Importance of Tradeoffs," *Psychology Today* (June 17, 2020), available at <https://www.psychologytoday.com/us/blog/hovercraft-full-eels/202006/costs-benefits-and-risks-the-importance-tradeoffs>.

¹³⁵ Iain King, "What do Cognitive Biases Mean for Deterrence?", *The Strategy Bridge* (February 12, 2019), available at <https://thestrategybridge.org/the-bridge/2019/2/12/what-do-cognitive-biases-mean-for-deterrence#:~:text=Second%2C%20biases%20provide%20a%20particularly,preventing%20them%20from%20being%20revisited>.

¹³⁶ Icek Ajzen, "The Social Psychology of Decision Making."

¹³⁷ Robert Jervis, "Rational Deterrence: Theory and Evidence," *World Politics* (1989) p. 198, available at <https://robertmcnamara.org/wp-content/uploads/2018/05/Jervis-1989-Rational-Deterrence-Theory-and-Evidence-c.pdf>.

ignorance about a challenger and better understanding its perspectives will better inform the deterrence strategy of the United States and its allies.¹³⁸ However, to accomplish this requires a thoughtful process to analyze adversary decision making – not to predict a particular outcome but to customize deterrence options to influence adversary decisions. This chapter will describe a methodology to assess adversary decision making in order to inform deterrence strategy.

The proposed method focuses on *slow* decision making – decisions for which a leader will use more cognitive energy. The model assumes that strategic decisions would not be made automatically but would require a rational actor to gather facts, assess risks, and reason through the alternatives prior to making a decision. The model cannot fully account for the biases, emotions, or heuristics that may influence the leader's choice but it will give analysts insight into what may be influencing the strategic decisions leaders are contemplating. The method does not attempt to predict whether a decision maker will or will not act. Rather, it identifies areas in the leader's decision calculus that will impact deterrence.

Adversary Profile

First and foremost, the analyst must identify the leader or leaders responsible for the strategic decision. Once the person (or persons) is identified, a series of questions should be analyzed in order to provide an adversary profile. This profile will impact the perception assessment in the decision calculus, reflecting the unique values and risk-taking propensity of the decision maker(s). This list of

¹³⁸ Keith B. Payne, *The Fallacy of Cold War Deterrence and a New Direction*, pp. 99-100.

questions is not all-inclusive but serves as a start to identifying what makes a particular challenger tick:¹³⁹

- What are the leader's sacred values?
- What are some of the key characteristics of the leader? (e.g. Is he a micro-manager?)
- What is the decision-making structure and process in the nation?
- How does the nation's history impact the decision in question?
- What are the nation's key international relationships?

Decision Calculus Assessment

A decision calculus seeks to analyze a challenger's cost-benefit assessment for strategic decisions by identifying perceptions related to a specific decision and analyzing them in the context of the environment in which the decision is being made. Based on an expectancy-value model, which is used to describe motivation in the field of psychology, it identifies the decision maker's perceptions and then provides an assessment of both the value the decision maker places on those perceptions as well as the expectation the decision maker has that the perception outcome is attainable.¹⁴⁰ The decision calculus model differs from the expectancy-value model in that it does not attempt to use mathematics to predict behavior but rather provides a qualitative assessment to better understand the

¹³⁹ Keith B. Payne, "Deterrence is Not Rocket Science: It is More Difficult," *National Institute for Public Policy Information Series* (Issue No. 527, July 6, 2022). See, also: Elaine Bunn, "Can Deterrence be Tailored."

¹⁴⁰ Allan Wigfield, Jacquelynne S. Eccles, "Expectancy-Value Theory of Achievement Motivation," *Contemporary Educational Psychology* (Vol. 25: 2000) p. 68.

challenger's motivation.¹⁴¹ It uses the information in the profile about the specific leader to make qualitative judgements about leadership perceptions regarding a specific decision. Once the model is complete, a summary will provide insight into the decisions that deterrence strategies seek to influence.

The following is the six-step method for constructing an adversary decision calculus model.

- 1. Identify the Decision to be Assessed.** The decision to be assessed needs to be identified with some specification. This specification is necessary to effectively assess the potential consequences of the decision. Simply stating the decision as "whether or not to conduct a strategic attack" leaves too many variables unanswered. Strategic attack against who? What is the target? Is it a nuclear or non-nuclear strategic attack? The more specific the decision described, the greater insight the decision calculus model may provide. The decision should include who the decision maker is, what the decision is, the means to be used to accomplish the task being contemplated, the target (if applicable), and the circumstances under which the decision will be made.
- 2. Frame the Context for the Decision.** Framing the context for the decision will impact how a leader interprets his or her choice. According to Dr. Icek Ajzen, a social psychologist, "framing determines how the decision problem is structured, and it can greatly affect the choices that are made."¹⁴² The previous step identified the circumstances in which the decision would be made while framing fleshes

¹⁴¹ B. Studer, S. Knecht, "A Benefit-Cost Framework of Motivation for a Specific Activity," *Progress in Brain Research* (Vol. 229: 2016) pp. 25-47.

¹⁴² Icek Ajzen, "The Social Psychology of Decision Making," p. 306.

out those circumstances to better determine the impact on the decision. Further, framing also determines whether the decision maker is in a gain or loss frame. Humans tend to be risk-averse in trying to achieve gains but risk-acceptant when trying to overturn losses.¹⁴³

The following are a series of criteria that need to be assessed to frame the decision:

- a) What is the strategic objective in this situation?
- b) Is that strategic objective at risk of failure?
- c) What is the strategic context of the situation?
- d) Is the decision maker in a loss frame?

3. Identify Leadership Perceptions. According to Michael Mazarr when assessing deterrence, “It is the perceptions of the potential aggressor that matter, not the actual prospects for victory or the objectively measured consequences of an attack. Perceptions are the dominant variable in deterrence success or failure.”¹⁴⁴ The identification of perceptions is a key component of the adversary decision calculus. Perceptions can be described as how the decision maker understands his or her environment and interprets the potential consequences of the intended action or the choice to refrain from action.¹⁴⁵ A perception is a belief about a consequence of the outcome of a decision. Each

¹⁴³ Bradley Thayer, “Thinking About Nuclear Deterrence Theory: Why Evolutionary Psychology Undermines its Rational Actor Assumptions,” *Comparative Strategy* (Vol. 26: 4 October 2007) pp. 318-319.

¹⁴⁴ Michael Mazarr, “Understanding Deterrence,” *The RAND Corporation* (2018) p. 7.

¹⁴⁵ Jessica Koehler, “Perceiving is Believing: How Naïve Realism Influences our Perception of Everything,” *Psychology Today* (January 23, 2021), available at <https://www.psychologytoday.com/us/blog/beyond-school-walls/202101/perceiving-is-believing>.

perception is categorized in a cost-benefit framework.

Figure 1: Cost-Benefit Framework

Benefits of Action	Costs of Action
Costs of Restraint	Benefits of Restraint

- 4. Conduct a Qualitative Assessment on the Perception Value.** A qualitative value assessment is conducted for each perception. The value reflects an evaluation, by the decision maker, as to the worth of the perception's consequence. For benefits, its value is determined by the quality or property that makes it useful, desired, or esteemed.¹⁴⁶ Conversely, for costs, the value is determined by the quality or property that makes it detrimental, undesired, or feared. The qualitative judgements are made from the decision maker's perspective.

To measure the strength of the value, a Likert scale is used. A Likert scale is a five-point scale typically used to measure attitudes of a person directly.¹⁴⁷ For the purposes of the decision calculus, the Likert scale will assess how the decision maker values the perception and assesses its worth or detriment (see Table 1).

¹⁴⁶ Allan Wigfield, Jacquelynne S. Eccles, "Expectancy-Value Theory of Achievement Motivation," p. 72.

¹⁴⁷ Saul McLeod, "Likert Scale Definition, Examples and Analysis," *Simple Psychology* (2008, updated 2019), available at <https://www.simplypsychology.org/likert-scale.html>.

Table 1: Value Rating Scale

Very High (VH)

- Strongly correlated with achieving the adversary objective
- Most esteemed or feared

High (H)

- Correlated with achieving the adversary objective
- Esteemed or feared

Medium (M)

- Not integral to achieving the immediate objective but may have impact over time
- Somewhat ambivalent

Low (L)

- Limited impact on achieving the objective
- Ambivalent

Very Low (L)

- No impact on achieving the objective

5. Conduct a Qualitative Assessment on the Perception Likelihood. The likelihood assessment reflects the decision maker's assessment of the probability that he or she will reap a benefit or incur a cost by acting or not acting. The likelihood assessment has two major considerations.¹⁴⁸ The first consideration is the decision maker's assessment of their ability to achieve a given benefit or conversely the ability of another actor to impose a cost. The second consideration is an assessment of the will of another actor to impose a cost. The likelihood assessment is when a decision maker determines the credibility of potential threats.¹⁴⁹ As

¹⁴⁸ B. Studer, S, Knetch, "A Benefit-Cost Framework of Motivation for a Specific Activity."

¹⁴⁹ Michael Mazarr, "Understanding Deterrence."

with the value assessment, a Likert scale is used to assess the likelihood of a perception outcome (see Table 2).

Table 2: Likelihood Rating Scale

Very High (VH)

- The decision maker is confident this outcome will occur.

High (H)

- The decision maker believes this outcome may occur.

Medium (M)

- The decision maker is uncertain. The outcome may or may not occur.

Low (L)

- The decision maker believes this outcome may not occur.

Very Low (L)

- The decision making is certain this outcome will not occur.

6. Develop Calculus Summary Identifying Key Gaps and Risks. Once the value and likelihood assessments are completed, a summary can be developed identifying key insights from the decision calculus. Part of this process should also be to identify any significant gaps in data. Further, a risk assessment should also be conducted to account for potential biases or to account for any assumptions made due to lack of data. At the conclusion, a report will be generated with the completed decision calculus model.

Reading the Model

The completed decision calculus model provides insight into the perceptions that a leader may contemplate when considering an action. The model does not seek to predict if the actor will or will not act. There are too many variables that cannot be accounted for in any model to confidently predict a leader's decision.¹⁵⁰ However, it does provide insight into which perceptions may be driving a strategic decision. This is critical for understanding ways in which deterrence may fail and designing a deterrence strategy tailored to the specific decision and deterrence objective.

Figure 2: Decision Calculus Assessment

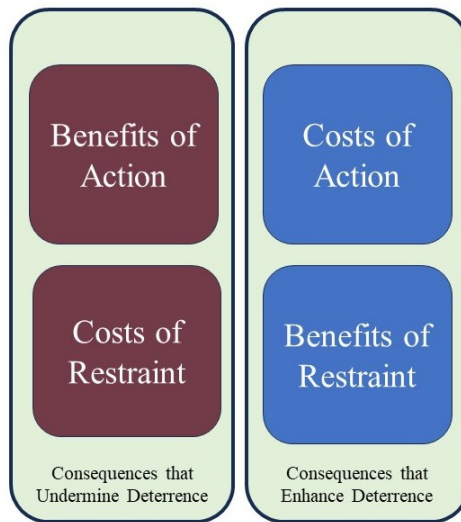


Figure 2 depicts the framework for the completed model. The top of the model are the consequences for action, while the bottom of the model are the consequences of restraint. Taken together, the perceived benefits of actions

¹⁵⁰ Keith B. Payne, "Multilateral Deterrence: What's New and Why it Matters," *National Institute for Public Policy Information Series* (Issue No. 522, May 16, 2022).

and perceived costs of restraint are consequences that incline an actor towards action and consequently undermine deterrence. Conversely, the perceived costs of actions and perceived benefits of restraint are consequences that incline an actor towards restraint and consequently enhance deterrence.

Figure 3: Decision Calculus Assessment Model

Benefits of Action			Costs of Action		
Perception	Value	Liklhd	Perception	Value	Liklhd
Costs of Restraint			Benefits of Restraint		
Perception	Value	Liklhd	Perception	Value	Liklhd

Perceptions in each quadrant are evaluated as to how the decision maker values each consequence and how the decision maker assess the likelihood of the perception outcome. Figure 3 depicts the framework for each assessment. For example, the decision maker could value a potential cost of action highly but assess that an adversary is unwilling to impose that cost—leading to a likelihood assessment of “low.” That scenario demonstrates a threat of cost that is not credible to the decision maker. A tailored deterrence strategy would then seek to convince the adversary that the cost is in fact credible by investing in additional capability or demonstrating increased will and/or stake, in order to increase the decision maker’s likelihood assessment that the cost is credible and likely will be incurred.

The model has limitations. The data it relies on will be incomplete or in some cases conflicting. It cannot possibly account for the emotional state of the decision maker, or completely articulate the biases or heuristics influencing the

decision. Understanding that the model is incomplete is important when using it to craft deterrence strategies. However, the limitations of the model do not mean that it is not useful in creating a more informed understanding of the deterrence challenges. Because of the unpredictable nature of human decision making, Payne has stated that, “understanding can never be sufficient for fully confident prediction because the subject includes the inherent uncertainties of how a select leadership will make decisions in extraordinary conditions.”¹⁵¹ However, it is possible and necessary to “reduce ignorance and thereby avoid some potential deterrence mistakes,” which is what the model strives to accomplish.¹⁵²

The decision calculus assessment provides a starting point for empirically assessing adversary decision making for tailoring deterrence strategies. It seeks to develop a greater understanding of the person or group that is making the decision to be deterred, while also providing insight into the cost-benefit analysis of the decision maker to provide a starting point for creating an influence strategy. Further, it may provide insight into how deterrence may fail. It does not seek to predict deterrence success or failure but simply to organize available data in such a way as to enhance understanding and create insight into how a leader may assess their current situation.

Conclusion

Some Cold War deterrence theorists promised that deterrence would be reliable and predictable, two very comforting words in a time of great uncertainty. Unfortunately, as more research has been conducted into why deterrence fails as well as into the psychology of

¹⁵¹ Keith B. Payne, “Deterrence is Not Rocket Science: It is More Difficult,” *National Institute for Public Policy Information Series* (Issue No. 527, July 6, 2022).

¹⁵² *Ibid.*

human decision making, it has become clear that creating a deterrence strategy that is completely reliable and predictable may not be possible. However, by conducting more research and increasing understanding into who and what is to be deterred, risk can be mitigated. According to Payne, "More than any other single factor, the deterrer's ignorance and lack of attention is a condition that contributed to deterrence failure when it was expected to provide security. This ignorance can be lessened with serious effort, but not eliminated."¹⁵³

The decision calculus process provides a way to reduce ignorance about leadership decisions in order to better tailor deterrence strategies. Statistician George E. P. Box is famous for stating, "All models are wrong, but some are useful."¹⁵⁴ The decision calculus will be wrong in accounting for at least some aspects that matter to the decision maker as well as effectively accounting for biases, emotion, or heuristics that may impact the decision maker. However, it strives to be useful in identifying the factors that may be important to the decision maker. When speaking of the Expectancy-Value model on which the decision calculus is based, Dr. Icek Ajzen states, "The content of salient beliefs about the outcomes of these various behaviors, together with measures of subjective probability and value, provide a useful picture of the kinds of factors that may be important in determining positive or negative attitudes with respect to a given course of action."¹⁵⁵ Determining perceptions, and assessing how the decision maker values and assesses their expectation for achievement, provides an empirical approach to conducting

¹⁵³ Keith B. Payne, "Multilateral Deterrence: What's New and Why it Matters."

¹⁵⁴ Jill Sakai, "Renowned statistician George Box Dies at 93," *The University of Wisconsin-Madison* (April 10, 2013), available at <https://news.wisc.edu/renowned-statistician-george-box-dies-at-93/>.

¹⁵⁵ Icek Ajzen, "The Social Psychology of Decision Making."

deterrence analysis and a starting point for tailoring deterrent strategies.

Chapter Four

2022 Russia-Ukraine Conflict

Case Study

Introduction

In February 2022, Russia invaded Ukraine in an attempt to overthrow the Ukrainian government and halt Ukraine's drift toward the West. Russia's military was unable to achieve its goals due to a combination of poor planning, inadequate equipment, insufficient training, and a more robust and organized resistance from the Ukrainian military than anticipated.¹⁵⁶ Further, Western support in the form of economic sanctions against Russia and financial and military aid to Ukraine has increased Ukraine's ability to resist and overturn Russia's gains.¹⁵⁷ This has placed Russian President Vladimir Putin in a situation where he may have to contemplate strategic escalation or risk failing to achieve his objectives in Ukraine.

To better understand the impact that actions taken by individuals and the private sector may have on strategic deterrence, this case study will examine Putin's decision to use tactical nuclear weapons in Ukraine to achieve his strategic objectives using the decision calculus methodology. The decision calculus identifies Putin's perceptions of the costs and benefits of a course of action, as well as the costs and benefits of restraint. It then assesses each perception on its relative value to Putin, and the

¹⁵⁶ Thomas Graham, "Ukraine has held off Russia's Invasion so Far. Here's How," *Council on Foreign Relations* (February 17, 2023), available at <https://www.cfr.org/in-brief/ukraine-has-held-russias-invasion-so-far-heres-how>.

¹⁵⁷ Peter Clement, "Putin's Risk Spiral," *Foreign Affairs* (October 26, 2022), available at <https://www.foreignaffairs.com/ukraine/putin-risk-spiral-logic-of-escalation-in-war>.

expectation Putin has that the “perception outcome” would be achieved (for benefits) or suffered (for costs). A “perception outcome” is defined here and later in this paper as the outcome that the decision maker believes will result if the perception is accurate and realized. This assessment will provide the basis to evaluate how the decision to escalate may be influenced by the private sector. As a reminder, the decision calculus methodology does not seek to predict whether Putin will or will not act but rather to identify the key factors in his decision and examine how they could be impacted by individuals and the private sector. (For a description of the full decision calculus model and impact assessment, see Appendix I.)

Putin’s Decision Calculus for Tactical Nuclear Use in Ukraine

Adversary Profile

Russian President Vladimir Putin is the primary decision maker in this assessment. Currently in his fourth term as President, Putin has sought to recapture the glory and strength of the Russian empire. Under his leadership, the government of Russia transitioned to an autocracy and though the elections that kept him in office were rigged, he does have significant popular support in Russia.¹⁵⁸ This popular support stems from Putin’s role in “restoring Russia’s international power and authority.”¹⁵⁹ According to Dmitri Trenin, a member of Russia’s Foreign and Defence

¹⁵⁸ Pierre Hassner, “Russia’s Transition to Autocracy,” *The Journal of Democracy* (April 2008), available at <https://www.journalofdemocracy.org/wp-content/uploads/2012/04/Hassner-19-2.pdf>.

¹⁵⁹ *Ibid.*

Policy Council, “What Russia craves is respect. It does not want to be a junior partner — it wants to be an equal.”¹⁶⁰

The system is highly centralized with Putin at the head as the primary decision maker. While routine issues may be delegated to lower levels, the most important issues are decided by Putin himself. During peacetime, this centralized system works relatively efficiently. However, during times of crisis or conflict, this becomes more of an issue as the situation may develop rapidly, and Putin’s ability to make decisions at this pace becomes strained. This may lead to mistakes or miscalculation.¹⁶¹ This is complicated by the fact that Putin’s closest advisors are “yes men.” According to Boris Bondarev, former Russian diplomat, “Putin likes his foreign minister, Sergey Lavrov, because he is ‘comfortable’ to work with, always saying yes to the president and telling him what he wants to hear.”¹⁶² Diplomats are more likely to achieve career advancement by sending positive reports forward. Further, according to Mark Galeotti, an academic and Russia expert, the COVID-19 pandemic has only exacerbated this phenomenon due to Putin’s isolation and exposure to only his most trusted advisors. “Exposed to fewer alternative opinions and scarcely even seeing his own country, Putin seems to have ‘learned’ that all his assumptions were right and all his prejudices justified,” Galeotti observes.¹⁶³

Complicating the centralized decision-making process, Putin tends to be an indecisive decision maker. Stephen Sestanovich, a fellow at the Council on Foreign Relations

¹⁶⁰ Ibid.

¹⁶¹ Daniel Treisman, “What Could Bring Putin Down?” *Foreign Affairs* (November 2, 2022), available at <https://www.foreignaffairs.com/ukraine/what-could-bring-putin-down>.

¹⁶² Boris Bondarev, “The Sources of Russian Misconduct,” *Foreign Affairs* (October 17, 2022).

¹⁶³ Mark Galeotti, “Russia’ Vladimir Putin at 70: Seven Key Moments that Made Him,” *The BBC* (October 5, 2022), available at <https://www.bbc.com/news/world-europe-63117878>.

and the former U.S. Ambassador-at-Large to the former Soviet states, observes, “[Putin] finds decisions hard, defers and defers, and then makes them impulsively. Much of the Putin personality we’ve come to know and love is an invention—but a pretty good invention. He carries all the confidence of a summer intern.”¹⁶⁴ Commenting on Putin’s decision making during the beginning of the COVID-19 pandemic, Pavel K. Baev, Nonresident Senior Fellow at the Brookings Institution, commented, “His authority is compromised by indecisiveness, and the costs of his habitual procrastination have multiplied amid the complex interplay of public health and economic crises.”¹⁶⁵ Putin’s indecision is not a new phenomenon. In 2001, Masha Lipman, a Russian Policy scholar at Carnegie Endowment for International Peace, wrote, “There are different theories about the causes of Putin's indecision. He may cherish the seeming consensus, for in spite of all the overt disputes and covert conflicts, prominent political figures stop short of criticizing the president. Or it may be that on many issues Putin genuinely doesn't know whose side he is on.”¹⁶⁶

Like many autocratic leaders, Putin is often paranoid, which can lead to secrecy and inflexibility in decision making. According to Massa Gessen, “[Putin] is obsessed with the idea that Russia is surrounded by enemies; he is terrified of all protest and dissent, even though he has long since disabled any levers by which either could influence his regime; his fear of the coronavirus and, possibly,

¹⁶⁴ Robin Wright, “Putin, A Little Man Still Trying to Prove his Bigness,” *The New Yorker* (March 20, 2018), available at <https://www.newyorker.com/news/news-desk/putin-a-little-man-still-trying-to-prove-his-bigness>.

¹⁶⁵ Pavel K. Baev, “The Imperatives and Limitations of Putin’s Rational Choices,” *The Brookings Institution* (April 28, 2020) <https://www.brookings.edu/blog/order-from-chaos/2020/04/28/the-imperatives-and-limitations-of-putins-rational-choices/>.

¹⁶⁶ Masha Lipman, “The Indecisive President,” *The Washington Post* (February 6, 2001), available at <https://www.washingtonpost.com/archive/opinions/2001/02/06/the-indecisive-president/560b33cd-9783-4d27-ad9c-84ebd1b5bd68/>.

assassination, has driven him into near-total isolation and compels him to hold in-person conversations across giant tables.”¹⁶⁷ This paranoia means he may not confide in his closest advisors or seek advice, due to skepticism about their loyalty or fear of betrayal.¹⁶⁸

Though Putin is skeptical about the loyalty of those closest to him, he will hold a grudge against those who offend or betray him. According to his biographer, Steven Lee Myers, “He always remembered acts of loyalty ... just as he never forgave betrayals.”¹⁶⁹ This includes feeling betrayed by the United States in the aftermath of the Cold War, believing that the United States continued to undermine Russia and sow discord among the populace. Commenting on this, Putin stated, “despite the fact that we considered ... our former adversaries as close friends and even allies, the support for separatism in Russia from across the pond ... was absolutely obvious and left no doubt that they would gladly let Russia follow the Yugoslav scenario of disintegration and dismemberment.”¹⁷⁰ This has led William Taubman, a biographer of Khrushchev and Gorbachev, to conclude that Putin’s “main theme of life is a fierce determination to avoid defeat by lashing out against those who humiliate and betray him.”¹⁷¹

¹⁶⁷ Masha Gessen, “Vladimir Putin Would use Nuclear Weapons in Ukraine,” *The New Yorker* (November 1, 2022), available at <https://www.newyorker.com/news/our-columnists/why-vladimir-putin-would-use-nuclear-weapons-in-ukraine>.

¹⁶⁸ Dmitri Alperovitch, “The Dangers of Putin’s Paranoia,” *Foreign Affairs* (March 18, 2022), available at <https://www.foreignaffairs.com/articles/russia-fsu/2022-03-18/dangers-putins-paranoia>.

¹⁶⁹ William Taubman, “How Putin Learned to Hold Deadly Grudges,” *Foreign Policy* (July 17, 2022), available at <https://foreignpolicy.com/2022/07/17/putin-revenge-nato-west-ukraine/>.

¹⁷⁰ *Ibid.*

¹⁷¹ *Ibid.*

Assessed Decision

For this decision calculus assessment, the decision being assessed is Putin's decision to use tactical nuclear weapons against military forces in Ukraine. The strategic objective Putin is trying to achieve is to secure Ukraine as part of Russia's sphere of influence, which would provide strategic security for Russia's southern flank while also halting the eastward expansion of NATO.¹⁷² The strategic objective is at risk of failure. Russia's "special military operation" to seize Ukraine has faltered, forcing Russia to pull back and prepare for a much longer conflict.¹⁷³ This has placed Putin in a loss frame for his decision making. Putin expected a quick and decisive victory when he first invaded Ukraine. Eighteen months later, Russia's military has suffered tremendous losses, its economy is heavily sanctioned, and Putin's reputation has suffered.¹⁷⁴

Decision Context

Russia invaded Ukraine on 24 February 2022 from the east and the west in an attempt to defeat the nation quickly and overrun the capital city of Kyiv. Lack of Russian planning, poor equipment, and unprepared troops coupled with significant Western military and financial aid resulted in Ukraine holding off and defeating the initial Russian

¹⁷² Eugene Rumer, "Putin's Long War," *The Carnegie Endowment for International Peace* (December 9, 2022), available at <https://carnegieendowment.org/2022/12/09/putin-s-long-war-pub-88602>.

¹⁷³ Paul Kirby, "Has Putin's War Failed and What does Russia want from Ukraine?" *The BBC* (February 24, 2023), available at <https://www.bbc.com/news/world-europe-56720589>.

¹⁷⁴ Peter Dickinson, "2022 Review: Why has Vladimir Putin's Ukraine Invasion gone so Badly Wrong?" *The Atlantic Council* (December 19, 2022), available at <https://www.atlanticcouncil.org/blogs/ukrainealert/2022-review-why-has-vladimir-putins-ukraine-invasion-gone-so-badly-wrong/>.

offensive.¹⁷⁵ As Ukrainian forces continued to push Russian forces back and regain territory occupied by Russia throughout the summer of 2022, Putin staged rigged referendums in the Donbas region of Ukraine, announcing the annexation of Donetsk, Luhansk, Kherson and Zaporizhzhia, about 15% of Ukraine's land mass. The United Nations Secretary General condemned the annexation, stating that it was illegal.¹⁷⁶ Russia has used long-range munitions to target civilians, including suburban areas, power stations, and hospitals, in an attempt to decrease Ukrainian public support for their government.¹⁷⁷ Russia announced a partial mobilization, its first since World War Two, calling up 300,000 reservists in September 2022.¹⁷⁸ These reservists are poorly equipped and trained. There is an increase in close combat, with these forces armed with handguns and shovels, unsupported by artillery fire due to shortages in short-range munitions.¹⁷⁹ The West remains committed to Ukraine, increasing the amount of military aid to the nation, with the United States announcing an additional \$400 billion in assistance.¹⁸⁰ U.K.

¹⁷⁵ Thomas Graham, "Ukraine has held off Russia's Invasion so Far. Here's How," *Council on Foreign Relations* (February 17, 2023), available at <https://www.cfr.org/in-brief/ukraine-has-held-russias-invasion-so-far-heres-how>.

¹⁷⁶ Andrew Osborn and Alexandra Hudson, "Putin to Annex Seized Ukrainian Land, U.N. Warns of 'Dangerous Escalation'," *Reuters* (September 29, 2022), available at <https://www.reuters.com/world/europe/russia-set-annex-ukraine-territory-west-warns-new-sanctions-2022-09-29/>.

¹⁷⁷ Center for Preventive Action, "Conflict in Ukraine," *Council on Foreign Relations* (November 8, 2022), available at <https://www.cfr.org/global-conflict-tracker/conflict/conflict-ukraine>.

¹⁷⁸ Paul Kirby, "Has Putin's War Failed and What does Russia want from Ukraine?"

¹⁷⁹ "Ukraine War: Russian Reservists Fighting with Shovels - UK Defence Ministry," *The BBC* (March 5, 2023), available at <https://www.bbc.com/news/world-europe-64855760>.

¹⁸⁰ Jonathan Masters and Will Merrow, "How Much Aid has the U.S. Sent Ukraine? Here are Six Charts," *Council on Foreign Relations* (February 22, 2023), available at <https://www.cfr.org/article/how-much-aid-has-us-sent-ukraine-here-are-six-charts>.

defense intelligence estimates that Russian casualties range from 175-200,000 with 40-60,000 dead, though official figures have not been released by the Russian government.¹⁸¹

Decision Calculus Assessment Model

Putin's decision to use tactical nuclear weapons in Ukraine would not be taken lightly. Despite his isolation and paranoia, he is a rational decision maker, in that he is calculating. However, his penchant for secrecy and the tendency for advisors to tell him what he wants to hear mean that Putin's decisions are probably quite biased, leading to miscalculation or mistakes. Further, after suffering numerous defeats and setbacks in the past year, Putin is in a loss-frame for decision making, meaning that he may have an increased risk-taking propensity.¹⁸² This does not mean that nuclear use is inevitable, as there are significant consequences for this action, which will not guarantee a favorable outcome to the conflict.

¹⁸¹ Paul Kirby, "Has Putin's War Failed and What does Russia want from Ukraine?"

¹⁸² Bradley Thayer, "Thinking About Nuclear Deterrence Theory: Why Evolutionary Psychology Undermines its Rational Actor Assumptions."

Figure 4: Assessment of Putin’s Decision for Tactical Nuclear Use in Ukraine

Undermine Deterrence		
Benefit of Action		
<i>Perception</i>	<i>Value</i>	<i>Likehd</i>
Force Ukraine to capitulate and agree to Russia’s terms	VH	M
Diminish Western Public Support for Ukraine	H	H
Degrade NATO cohesion	H	M
Establish escalation dominance to deescalate	H	M
Costs of Restraint		
<i>Perception</i>	<i>Value</i>	<i>Likehd</i>
Conventional military continues to be attrited	VH	H
Russian elites lose confidence in Putin	H	H
Ukraine is victorious in defeating Russia	VH	M
Fail to meet the expectations of the Russian Populace	H	M
Lose power and removed from Office	VH	M
Regime collapse	VH	M
Enhance Deterrence		
Cost of Action		
<i>Perception</i>	<i>Value</i>	<i>Likehd</i>
Nuclear retaliation by the U.S.	VH	L
Lose support of China	VH	H
Overwhelming conventional response by NATO in Ukra	VH	H
Break the nuclear taboo and become an international pa	M	VH
Benefits of Restraint		
<i>Perception</i>	<i>Value</i>	<i>Likehd</i>
Offer off-ramp and consolidate gains	VH	L
Outlast Ukraine in a war of attrition	M	M

Key: VH - Very High, H - High, M - Medium, L - Low, VL - Very Low

A key finding of this decision calculus assessment is the uncertainty currently facing Putin. His strategic objective is under threat, which could have severe consequences for him if he chooses to exercise restraint. Many of the cost-of-restraint perceptions are very highly valued as they are related to Putin’s sacred values of Russia as an undisputed

great power and the retention of his personal authority.¹⁸³ However, Putin is uncertain that his restraint will result in the loss of his authority at this time. What is certain for Putin is that restraint will result in continued military losses for Russia. If these military losses continue, then it may make his retention of power more difficult as the public and elites lose confidence in his abilities. Yet, Putin is not confident that tactical nuclear weapons use will force Ukraine to capitulate and agree to Russian demands. What is more certain in the calculus are the costs that Putin would incur for tactical nuclear use. These are credible and include potential conventional retaliation by NATO and loss of Chinese support. Despite the costs of action, there is risk that the consequences of restraint will grow more certain, increasing the risk of Putin's use of tactical nuclear weapons.

Impact of the Individual and Private Sector on Adversary Decision Making

The outpouring of support from individuals and the private sector following Russia's invasion of Ukraine was unprecedented and that support has been sustained over the past eighteen months. This support changed the course of the conflict, enhancing Ukraine's ability to defend itself and contributing to Putin scaling back his strategic objective as it became unachievable. Now, Putin is confronted with the prospect of a war of attrition with an uncertain timeline for success and the possibility of failure. While the decision calculus model for Putin's decision to use tactical nuclear weapons suggests a high level of uncertainty influencing the decision, the decision environment is not static and

¹⁸³ Dan McLaughlin, "On the Character of Vladimir Putin," *National Review* (February 24, 2022), available at <https://www.nationalreview.com/corner/on-the-character-of-vladimir-putin/>.

perception likelihoods will change as the strategic environment evolves. This provides additional opportunities for individuals and the private sector to influence Putin's decision making.

Generally, Putin's assessment of the likelihood of the perception outcome is more vulnerable to influence than his assessment of its value. This is because the probability assessments are based on the expectation that something may or may not occur, by considering the credibility of a threat or the ability to achieve a benefit. These assessments will change with developments in the strategic environment. The value assessment is a judgement based on the importance as it relates to achieving the objective or its relation to a sacred value. Values are more difficult to influence due to their cultural or historical influences, or their connection to a sacred value, as people are typically loath to compromise or accept a trade-off with a sacred value.¹⁸⁴ Further, according to studies done by decision making psychologists, sacred values "inspire costly sacrifices."¹⁸⁵ Therefore, individuals and the private sector (and governments for that matter) will most likely have the greatest influence on Putin's assessment of the likelihood that he will incur costs or achieve benefits.

¹⁸⁴ Frank Rose, "Don't Mess with my Sacred Values," *The New York Times* (November 16, 2023), available at <https://www.nytimes.com/2013/11/17/opinion/sunday/dont-mess-with-my-sacred-values.html>.

¹⁸⁵ Clara Pretus, et al., "Neural and Behavioral Correlates of Sacred Values and Vulnerability to Violent Extremism," *Front Psychol* (December 21, 2018), available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6309619/>.

Figure 5: Individual and Private Sector Impact on Putin's Decision Calculus

Undermine Deterrence		
Benefit of Action		
<i>Perception</i>	<i>Value</i>	<i>Likelihood</i>
Force Ukraine to capitulate and agree to Russia's terms	VH	M
Diminish Western public support for Ukraine	H	H
Degrade NATO cohesion	H	M
Establish escalation dominance to deescalate	H	M
Costs of Restraint		
<i>Perception</i>	<i>Value</i>	<i>Likelihood</i>
Conventional military continues to be attrited	VH	H
Russian elites lose confidence in Putin	H	H
Ukraine is victorious in defeating Russia	VH	M
Fail to meet the expectations of the Russian populace	H	M
Lose power and removed from office	VH	M
Regime collapse	VH	M
Enhance Deterrence		
Cost of Action		
<i>Perception</i>	<i>Value</i>	<i>Likelihood</i>
Nuclear retaliation by the U.S.	VH	L
Lose support of China	VH	H
Overwhelming conventional response by NATO in Ukraine	VH	H
Break the nuclear taboo and become an international power	M	VH
Benefits of Restraint		
<i>Perception</i>	<i>Value</i>	<i>Likelihood</i>
Offer off-ramp and consolidate gains	VH	L
Outlast Ukraine in a war of attrition	M	M

Key: VH - Very High, H - High, M - Medium, L - Low, VL - Very Low

The perceptions highlighted in red (see Figure 5) are areas where individuals and the private sector have impacted Putin's decision making or could potentially impact it with their continued support for Ukraine. To determine this, each perception likelihood was examined to determine if one of the new weapons of war described in Chapter Two had impacted or potentially could impact it in the future. It is important to note that the degree of influence

is difficult to measure with precision. Therefore, a qualitative assessment was conducted to determine the level of impact each new weapon of warfare had on each perception likelihood, using a scale of high, medium, low, indirect, or no impact. (See Figure 6)

Figure 6: New Weapons of War and Impact on Perceptions

		New Weapons of Warfare						
		Social Media	Computer Network Attack	Influence Operations	Economic Coercion	Open Source Intelligence	Private Satellite Companies	Mercenaries
Perceptions	Diminish western public support for Ukraine	High	Med	Low	Indirect	No Impact	No Impact	No Impact
	Conventional military continues to be attrited	High	Med	Low	Indirect	No Impact	No Impact	No Impact
	Russian elites lose confidence in Putin	High	Med	Low	Indirect	No Impact	No Impact	No Impact
	Ukraine is victorious in defeating Russia	High	Med	Low	Indirect	No Impact	No Impact	No Impact
	Fail to meet the expectations of the Russian populace	High	Med	Low	Indirect	No Impact	No Impact	No Impact
	Putin loses power and removed from office	High	Med	Low	Indirect	No Impact	No Impact	No Impact
	Russian regime collapses	High	Med	Low	Indirect	No Impact	No Impact	No Impact
	Break the nuclear taboo and become an international pariah	High	Med	Low	Indirect	No Impact	No Impact	No Impact
	Outlast Ukraine in a war of attrition	High	Med	Low	Indirect	No Impact	No Impact	No Impact
		Key	High	Med	Low	Indirect	No Impact	

Generally, individuals and the private sector have had the most impact on strengthening the ability of Ukraine’s military to operate against the Russian military. Without the assistance of private satellite companies to enable communications, Ukraine would have had difficulty maintaining command and control of its military. Further, social media and open-source intelligence enhanced its ability to target Russian forces. Influence operations were more successful in maintaining Western support for Ukraine than in convincing Russians not to support their government, though over the long term, popular support for the conflict is beginning to decline in Russia. Whether that is due to influence operations, private economic coercion, or general dissatisfaction with the war is difficult to discern. Finally, individuals and the private sector have limited ability to influence Russian elites, Putin’s hold on power, or the stability of the regime directly. However, the

continued effectiveness of the Ukrainian military, with the support of the private sector, has an indirect impact on those perceptions, as the more losses Russia incurs or the more doubt surrounds Russia's ability to achieve its strategic objective, the more that elite support or Putin's hold on power may decline.

It is significant that the perceptions most vulnerable to influence by individuals and the private sector for this decision are in the costs of restraint quadrant. These are negative consequences for inaction and undermine deterrence. Generally, humans perceive loss more acutely and become more risk acceptant in trying to avoid losses.¹⁸⁶ Additionally, the perceptions in that quadrant are largely related to Putin's sacred values – making him unwilling to compromise where they are concerned. If Putin determines these perception outcomes are becoming more likely, it will increase the risk of strategic deterrence failure and escalation in the Ukraine conflict as it may push Putin towards action to avoid those costs.

Conclusion

It is tempting to dismiss Putin's nuclear rhetoric as simple saber rattling or state confidently that Putin would be unwilling to risk the consequences of a nuclear attack,¹⁸⁷ but the comfort those statements provide presumes an insight into Putin's decision making that does not and cannot exist.¹⁸⁸ The decision calculus methodology provides a greater understanding of the factors influencing Putin's decision to use tactical nuclear weapons against Ukraine, but does not predict whether he will or will not act. The model provides insight on Putin's perceptions that may be

¹⁸⁶ Bradley Thayer, "Thinking About Nuclear Deterrence Theory: Why Evolutionary Psychology Undermines its Rational Actor Assumptions."

¹⁸⁷ Masha Gessen, "Vladimir Putin Would use Nuclear Weapons in Ukraine."

¹⁸⁸ Keith B. Payne, "Deterrence is Not Rocket Science: It is More Difficult."

driving the decision, while also assessing how those perceptions are valued as well as the likelihood the perception outcomes would be achieved or incurred. By examining the decision from Putin's perspective, the assessment may identify key drivers that are vulnerable to influence in order to create a tailored deterrence strategy.

This assessment also was used to determine which perceptions were vulnerable to the influence of actions taken by individuals and the private sector that could incentivize action and undermine deterrence. In this case study, the private sector was able to impact Putin's decision-making calculus in significant ways by increasing Ukraine's ability to resist. Indirectly, this may impact Putin's hold on power and the stability of the regime. This is significant, as those issues are sacred values for Putin and incentivize risk acceptant behavior. As the conflict enters its second year, Putin may have to demonstrate that the Russian military is able to withstand and make gains in a drawn-out war of attrition, or internal pressure, potentially exacerbated by actions taken by the private sector, may force him to reevaluate his decision regarding tactical nuclear weapons use in Ukraine.

Chapter Five

Notional China-Taiwan Conflict Case Study

Introduction

The year 2049 looms large for Xi Jinping and the Chinese Communist Party. It is the centennial of the founding of the People's Republic of China and the date Xi has set for completing the Great Rejuvenation of the Chinese Nation. While on the surface it appears to be benign, this goal has put China at odds with its regional neighbors, the United States, and U.S. allies because in addition to seeking wealth and prosperity, the goal also articulates the desire to alter the current international system, establish a Chinese sphere of influence in the Pacific and unify with Taiwan on Beijing's terms.¹⁸⁹ As the main creator of the rules-based international order, a Pacific power with both economic and security interests in the region, and the primary guarantor of Taiwan's status quo, the United States stands particularly at odds with China on its "rejuvenation" deadline. To address this, the United States altered its strategy towards China from cooperation to strategic competition during the Trump Administration, and the new approach continued in the Biden Administration.¹⁹⁰ This led to increased friction in the Sino-U.S. relationship, leading China's deputy Foreign Minister to comment that "a whole-of-government and

¹⁸⁹ Jennifer Bradley, "China's Nuclear Modernization and Expansion: Ways Beijing Could Adapt its Nuclear Policy," *The National Institute for Public Policy* (July 2022) p. 12.

¹⁹⁰ "A Hostile Meeting Sets the Tone for US-China Relations," *The Economist* (March 20, 2021), available at <https://www.economist.com/china/2021/03/20/a-hostile-meeting-sets-the-tone-for-us-china-relations>.

whole-of-society campaign is being waged [by the United States] to bring China down.”¹⁹¹

Taiwan is a dangerous flash point for conflict between China and the United States. China views Taiwan as a rogue province and the unfinished business of the Chinese civil war. Further, the Chinese Communist Party bases part of its legitimacy on the narrative that it is the unifier of China, which casts its failure to unify with Taiwan as a threat to the legitimacy of the Party.¹⁹² Complicating the situation is the relationship between Taiwan and the United States. The United States is the primary guarantor of the status quo in Taiwan. While U.S. policy to defend the island is ambiguous, recent statements by President Biden have made U.S. intentions to defend the island more certain, even though the official policy has not changed.¹⁹³ This places the United States as a roadblock to Xi’s goal of the Great Rejuvenation of the Chinese Nation.

The prospect of a conflict between China and the United States over Taiwan has global implications. Recently, there has been an increase in the number of war games examining the military, economic, and diplomatic implications of the conflict. For this case study, a notional war over the status of Taiwan is used to assess the impact of individuals and the private sector on strategic deterrence. This case study will examine Xi Jinping’s calculus to conduct a strategic cyberattack on the Western power grid of the United States to achieve his strategic objectives, again using the decision calculus methodology. Xi’s perceptions of the costs and

¹⁹¹ Michael Beckley, Hal Brands, “The End of China’s Rise,” *Foreign Affairs* (October 1, 2021).

¹⁹² John Culver and Ryan Hass, “Understanding Beijing’s Motives Regarding Taiwan, and America’s Role,” *The Brookings Institution* (March 30, 2021), available at <https://www.brookings.edu/on-the-record/understanding-beijings-motives-regarding-taiwan-and-americas-role/>.

¹⁹³ David Sacks, “While Pledging to Defend Taiwan from China, Biden Shifted on Taiwan Independence. Here’s why that Matters,” *The Council on Foreign Relations* (September 22, 2022), available at <https://www.cfr.org/blog/while-pledging-defend-taiwan-china-biden-shifted-taiwan-independence-heres-why-matters>.

benefits of action and restraint will be examined as well as the ways in which those perceptions are vulnerable to influence by the private sector.

Non-Nuclear Strategic Attack

This case study differs significantly from the Russia-Ukraine case study, in that it considers the prospect of a non-nuclear strategic attack while the previous case study focused on Putin's decision for tactical nuclear use. Nuclear weapons are synonymous with strategic attack. However, as technology continues to advance it has become possible to render strategic effects on a nation using non-nuclear means such as conventional weapons or attacks in and through cyberspace. The 2018 *Nuclear Posture Review* acknowledged this development, with deterring non-nuclear strategic attack added as a primary role for nuclear weapons. It defined non-nuclear strategic attacks as including, but not limited to, "attacks on the United States, allied, or partner civilian population or infrastructure, and attacks on U.S. or allied nuclear forces, their command and control, or warning and attack assessment capabilities."¹⁹⁴ Using this definition, a significant cyberattack on a power grid could reach the threshold of strategic attack because it would impact civilian populations and infrastructure.

The United States government has admitted that the power grid is vulnerable to attack. In October 2022, the U.S. Government Accountability Office (GAO) published a report warning the electrical grid has "grown more vulnerable, in part because their operational technology increasingly allows remote access and connections to business networks. This could allow threat actors to access

¹⁹⁴ The White House, *Nuclear Posture Review*, The Trump Administration (2018), p. 21.

those systems and potentially disrupt operations.”¹⁹⁵ The consequences of the disruption of operations were articulated by former CIA director James Woolsey in his testimony before the Cybersecurity and EMP Legislative Working Group, where he warned, “We have 18 critical infrastructures—food, water, medical care, telecommunications, investments, the works—and all 17 of the others depend heavily on the electric grid. If you get up into months or years of the electric grid going down, you move us back not into the 1980s, pre-Web, but into the 1880s, pre-electric grid.”¹⁹⁶

In the *Science of Military Strategy* (2020), China defines cyberspace as the “fifth-dimensional battlefield after land, sea, air, and space—the cyber battlefield.”¹⁹⁷ China has identified cyberspace as a critical area for modern warfare, allowing attacks not limited by time or distance. Further, it has identified cyberattacks on critical infrastructure as a method to “paralyze or even collapse the national economy, cause the people to lose confidence in national defense security, cause political, economic and social chaos, and directly affect the country’s war potential.”¹⁹⁸ To accomplish this strategy, China has invested heavily in its offensive cyber capabilities. In its annual report to congress in 2022, the U.S.-China Economic and Security Review Commission found “China’s cyber operations pose a serious threat to U.S. government, business, and critical

¹⁹⁵ “Securing the U.S. electricity Grid from Cyberattacks,” *U.S. Government Accountability Office* (October 12, 2022), available at <https://www.gao.gov/blog/securing-u.s.-electricity-grid-cyberattacks>.

¹⁹⁶ Chuck Brooks, “3 Alarming Threats to the U.S. Energy Grid – Cyber, Physical and Existential Events,” *Forbes* (February 15, 2023), available at <https://www.forbes.com/sites/chuckbrooks/2023/02/15/3-alarming-threats-to-the-us-energy-grid-cyber-physical-and-existential-events/?sh=6da2dd69101a>.

¹⁹⁷ Project Everest, *The Science of Military Strategy 2020*, Translated by China Aerospace Studies Institute, US Air University (January 2022) p. 149.

¹⁹⁸ *The Science of Military Strategy 2020*, pp. 151-153.

infrastructure networks.”¹⁹⁹ This means that it is well within China’s strategy and capability to attack the critical infrastructure of the United States during a conflict over Taiwan.

Xi’s Decision for a Strategic Cyber Attack Against the United States

Adversary Profile

President Xi Jinping of the People’s Republic of China is the primary decision maker for this assessment. Xi took the reins of authority in 2012, quickly consolidated power in his own hands, and outlined his vision for the Great Rejuvenation of the Chinese Nation. While he is beginning an unprecedented third term as President of China, his power stems from his position as the Chairman of the Chinese Communist Party. In addition to his positions as Chairman and President, he is also the Chairman of the Central Military Commission, making him the head of the Communist Party, head of State, and Commander in Chief of the military – giving him tremendous authority over all aspects of China’s government.

Deng Xiaoping reformed the Chinese government to guard against strongman rule through a cult of personality, as the nation had experienced under Mao Zedong. The Politburo Standing Committee were a group of equals, with each member subject to term limits and able to veto the Chairman of the Chinese Communist Party. As each successive leader became weaker, however, the need for consensus resulted in gridlock. After Xi was selected as Chairman, he began consolidating power and reforming the system. Through his anti-corruption campaign, he was able

¹⁹⁹ U.S.-China Economic and Security Review Commission, *2022 Annual Report to Congress* (November 2022) p. 418.

to threaten and purge leaders who disagreed with him and weaken the power base of rivals. He consolidated decision making into his own hands, with the other members of the Politburo Standing Committee answering to him and beholden to him for their performance reviews.²⁰⁰ In his second term, he also removed the term limits for President, which allowed him to accept his third term in 2022 and thereby complete his dismantling of Deng Xiaoping's restraints. These reforms have made Xi Jinping the strongest Chinese leader since Mao Zedong.

Xi Jinping's decision-making style is characterized by his tendency to micromanage, "[intervening] often, unpredictably and sometimes vaguely in policy matters big and small."²⁰¹ The inclination to micromanage stems from Xi's belief that many officials in China lack competency and that without his input, nothing would be accomplished. Xi said in a speech, "I issue instructions as a last line of defense."²⁰² This opens Xi up to criticism if or when things go wrong, potentially weakening his hold on power. According to Joseph Fewsmith, an expert in Chinese Politics, "He will be blamed for whatever goes wrong, and he no doubt has many enemies."²⁰³

Xi's micromanaging decision making style is complicated by his unwillingness to accept criticism or be questioned. China had a tradition created during Mao's rule, in which subordinates were allowed to write the

²⁰⁰ Cai Xia, "The Weakness of Xi Jinping," *Foreign Affairs* (September/October 2022), available at <https://www.foreignaffairs.com/china/xi-jinping-china-weakness-hubris-paranoia-threaten-future>.

²⁰¹ Josh Chin, "Xi Jinping's Leadership Style: Micromanagement that Leaves Underlings Scrambling," *The Wall Street Journal* (December 15, 2021), available at <https://www.wsj.com/articles/xi-jinpings-leadership-style-micromanagement-that-leaves-underlings-scrambling-11639582426>.

²⁰² *Ibid.*

²⁰³ "Fewsmith in Bloomberg: Xi Jinping, Micromanager," *Boston University* (September 15, 2015), available at <https://www.bu.edu/pardeeschool/2015/09/15/fewsmith-in-bloomberg-xi-jinping-micromanager/>.

supreme leader with questions, suggestions, or criticism about his policies. This acted as a check and a method to ensure the best policies. Xi has removed this mechanism by punishing those that attempt to use it.²⁰⁴ He is inflexible and “insists that his instructions be obeyed to the letter.”²⁰⁵ Chinese officials have commented on this, stating, “When loyalty is the critical measure for officials, no one dares to say anything, even if the instructions from the great leader are vague and confusing about what to do.”²⁰⁶ This is a change, as in the past instructions were viewed as guidelines to be adapted to the unique circumstances of different provinces, removing an important mechanism for “regime adaptability and resilience.”²⁰⁷

Xi’s unwillingness to accept criticism may stem from an inferiority complex. Compared to his predecessors, he did not have the same quality of education. He was admitted to college on the basis of his political reliability, not his academic record, as his formal education was interrupted by the Cultural Revolution. Further, it is well documented that officials will often have other people complete their schoolwork, and his dissertation revealed many instances of plagiarism.²⁰⁸ Chris King, Senior Research Fellow for the MEMRI Chinese Media Studies Project, assesses Xi with a “deep lack of confidence. This may be why he often likes to talk about confidence, and why he needs to use the outrageous approach of a personality cult to enforce his position inside and outside the CCP to secure his power.”²⁰⁹

²⁰⁴ Cai Xia, “The Weakness of Xi Jinping,” *Foreign Affairs* (September/October 2022), available at <https://www.foreignaffairs.com/china/xi-jinping-china-weakness-hubris-paranoia-threaten-future>.

²⁰⁵ *Ibid.*

²⁰⁶ Josh Chin, “Xi Jinping’s Leadership Style: Micromanagement that Leaves Underlings Scrambling.”

²⁰⁷ U.S.-China Economic and Security Review Commission, *2022 Annual Report to Congress*, p. 59.

²⁰⁸ Cai Xia, “The Weakness of Xi Jinping.”

²⁰⁹ Chris King, “The Personality Cult of Xi Jinping – Part II: Xi’s Biggest Shortcoming is His Lack of Personal Prestige,” *MEMRI* (July 22, 2021), available

Assessed Decision

For this decision calculus assessment, the decision being assessed is Xi's decision to conduct a strategic cyberattack on the power infrastructure of the United States—specifically, the Bonneville Power Administration, which provides 28% of electricity for 300,000 square miles of the Pacific Northwest and operates 75% of the high voltage transmission for the region. The Department of Energy has assessed problems in Bonneville's cyber security program that, "if compromised, could have a significant impact on Bonneville and its customers."²¹⁰ In this scenario, the strategic objective is full unification with Taiwan on Beijing's terms. This strategic objective is not at risk of failure, though success is not yet assured. Xi is in a loss frame for the decision, due to being forced to take action to prevent Taiwan impendence. Taiwan independence is an existential threat to the Chinese Communist Party, and the unification with Taiwan is a sacred value of Xi Jinping. Xi has stated, "We will never allow any people, organization or political party to split any part of Chinese territory out of the country at any time, in any form. ... No one should expect us to swallow the bitter fruit that is harmful to our sovereignty, security or development interests."²¹¹

at <https://www.memri.org/reports/personality-cult-xi-jinping-%E2%80%93-part-ii-xis-biggest-shortcoming-his-lack-personal-prestige>.

²¹⁰ Office of the Inspector General, "Follow-up on Bonneville Power Administration's Cybersecurity Program," *The Department of Energy* (August 16, 2017), available at <https://www.energy.gov/ig/articles/audit-report-doe-oig-17-06>.

²¹¹ Philip Wen, Ben Blanchard, "President Xi says China Loves Peace but won't Compromise on Sovereignty," *Reuters* (July 31, 2017), available at <https://www.reuters.com/article/us-china-defence/president-xi-says-china-loves-peace-but-wont-compromise-on-sovereignty-idUSKBN1AH2YE>.

Notional Decision Context

In this scenario, demonstrations erupt in Taiwan's supporting a formal declaration by Taiwan's government of its status as an independent, sovereign nation, distinct from China. Although Taiwan's government tries to reaffirm the status quo, Beijing calls for immediate talks on unification, which Taipei refuses. China begins mobilizing forces in the Eastern Theater Command, initially in an attempt to coerce Taipei to the negotiating table. Concerned with China's military build-up, the United States, Japan, and Australia begin deploying forces to the region to deter Chinese aggression. With China's attempt at coercion having failed to produce results, and the independence movement growing in Taiwan, China initiates an air and missile campaign against key government and military targets in Taiwan using precision guided munitions and air strikes.²¹² International condemnation of China's attack ensues. The United States, Japan, and Australia form a coalition to defend Taiwan and begin active defense operations against Chinese forces, while sending additional forces into the region.

With the increased resistance to China's initial attack, China begins what is called the "Joint Island Landing Campaign" to take the island by force. This is the most complicated operation ever attempted by the Chinese military.²¹³ China seeks to accomplish its objectives quickly, before the defensive coalition is able to bring additional forces to the region.²¹⁴ However, with the ample warning time provided, Japan, Australia, and the United States were able to move significant forces into the region. A

²¹² Department of Defense, *Military and Security Developments Involving the People's Republic of China* (2022) p. 127.

²¹³ *Ibid.*

²¹⁴ Jennifer Bradley, "China's Nuclear Modernization and Expansion: Ways Beijing Could Adapt its Nuclear Policy," p. 28.

conventional conflict begins in the maritime, space, and cyber realms with all sides beginning to sustain significant losses.

Decision Calculus Assessment Model

History plays a unique role in the consciousness of the Chinese people, influencing politics, foreign policy, and international relations. Chinese author Hu Ping observed, "For Chinese people, history is our religion. ... We don't have a supernatural standard of right and wrong, good and bad, so we view History as the ultimate Judge."²¹⁵ China's perception of its history includes the beliefs that it was a victim of the West during the Century of Humiliation, that Taiwan is a rogue province, and that the unfinished business of the Chinese civil war impedes the Great Rejuvenation of the Chinese Nation. And if history is the ultimate judge for a Chinese person, then Xi will be judged on his ability to bring Taiwan back into the fold.

The notional decision scenario places Xi's decision to conduct a non-nuclear strategic attack in cyberspace in the early stages of conflict, after conflict has begun between China and coalition forces. While the strategic objective is unification with Taiwan on Beijing's terms, the primary benefit of the attack is to undermine U.S. support to Taiwan and coalition cohesion. There is some uncertainty as to whether the attack would achieve those goals. Further, Xi perceives he would incur significant costs of an attack in kind on China's critical infrastructure or kinetic attacks on war-supporting forces and infrastructure on the mainland. This may be why previous wargames found that both China and the United States refrained from strategic attacks on each other's homelands in order to better manage

²¹⁵ Zheng Wang, "In China, 'History is a Religion,'" *The Diplomat* (June 16, 2014), available at <https://thediplomat.com/2014/06/in-china-history-is-a-religion/>.

escalation.²¹⁶ Moreover, while the costs of restraint are significant, at the examined point in the scenario, they are not a significant driver in the decision. However, if the conflict were to shift in favor of Taiwan and coalition forces, Xi's position would become more uncertain and the threat to the regime would be more acute, increasing Xi's willingness to accept risk.

²¹⁶ Stacie Pettyjohn, Becca Wasser, and Chris Dougherty, "Dangerous Straits, Wargaming a Future Conflict over Taiwan," *Center for New American Security* (June 2022).

Figure 7: Assessment of Xi's Decision for Non-Nuclear Strategic Attack in Cyberspace

Undermine Deterrence		
Benefit of Action		
<i>Perception</i>	<i>Value</i>	<i>Likelihood</i>
Compel U.S. government to halt support for Taiwan	VH	M
Undermine coalition cohesion	VH	M
Create chaos in the United States	H	H
Undermine U.S. public support for conflict	H	H
Costs of Restraint		
<i>Perception</i>	<i>Value</i>	<i>Likelihood</i>
Regime survival at stake	VH	M
Xi's position of chairman is undermined	VH	M
Taiwan resists Chinese invasion with coalition support	VH	M
Popular nationalism turns on CCP	VH	L
Enhance Deterrence		
Cost of Action		
<i>Perception</i>	<i>Value</i>	<i>Likelihood</i>
Conventional coalition response on Chinese mainland	VH	VH
Cyberattack on Chinese critical infrastructure	VH	VH
Additional nations join U.S., AUS, JPN coalition	VH	M
U.S. expands conflict out of the region	M	H
Economic sanctions and boycotts expand	M	M
Benefits of Restraint		
<i>Perception</i>	<i>Value</i>	<i>Likelihood</i>
Save cyber tools for later in conflict	M	M

Key: VH - Very High, H - High, M - Medium, L - Low, VL - Very Low

Finally, a key gap in understanding is whether or not Xi would consider this action a strategic attack. While it does reach the threshold of strategic attack according to U.S. policy, China and the United States have different understandings of deterrence, coercion, and escalation control, which could lead to miscommunication,

misunderstanding and unintended escalation.²¹⁷ Further, a key risk in the decision is if the attack would stay localized on the Bonneville Power Administration, or if there would be cascading failures of power infrastructure managed by other administrations. The U.S. power grid is interconnected across administrators including Canada, meaning that an outage in one area can quickly overrun the transistors and impact other areas and nations.²¹⁸ This could increase the impact of the attack beyond Xi's initial intentions, increasing the risk of escalation.

Impact of the Individual and Private Sector on Adversary Decision Making

It is difficult to assess if the spontaneous outpouring of support for Ukraine from individuals and the private sector would be repeated in a conflict with China over Taiwan. Taiwan is a vibrant democracy that shares values with the West, and so this assessment assumes a similar level of individual and private sector support for Taiwan during a conflict with China. A war over the status of Taiwan would be the most complicated military operation the PLA has ever attempted. Considering that China has not engaged in a major military conflict since the 1970s, Xi will be faced with many uncertainties when ordering military operations. This will make undermining any coalition support for Taiwan an imperative, and actions taken by individuals and the private sector may complicate his decision making.

²¹⁷ For additional information, see: Jennifer Bradley, "China's Nuclear Modernization and Expansion: Ways Beijing Could Adapt its Nuclear Policy."

²¹⁸ Katherine Blunt, "America's Power Grid is Increasingly Unreliable," *The Wall Street Journal* (February 18, 2022), available at <https://www.wsj.com/articles/americas-power-grid-is-increasingly-unreliable-11645196772>.

Using the same methodology as was used with Putin's decision calculus, Xi's perceptions were analyzed to determine if they could be impacted by individuals and private sector actors using the new weapons of war described in Chapter Two. As with Putin's decision calculus, the analysis focused on Xi's assessment of the likelihood that a perception outcome could be achieved or would be incurred. The perceptions highlighted in red were assessed to be vulnerable to influence by the different options available to the private sector (See Figure 8). A qualitative assessment was conducted to determine the level of impact each new weapon of warfare had on each perception likelihood, using the same scale of high, medium, low, indirect or no impact (see Figure 9).

Figure 8: Individual and Private Sector Impact on Xi’s Decision Calculus

Undermine Deterrence		
Benefit of Action		
<i>Perception</i>	<i>Value</i>	<i>Likelihood</i>
Compel U.S. government to halt support for Taiwan	VH	M
Undermine coalition cohesion	VH	M
Create chaos in the United States	H	H
Undermine U.S. public support for conflict	H	H
Costs of Restraint		
<i>Perception</i>	<i>Value</i>	<i>Likelihood</i>
Regime survival at stake	VH	M
Xi’s position of chairman is undermined	VH	M
Taiwan resists Chinese invasion with coalition support	VH	M
Popular nationalism turns on CCP	VH	L
Enhance Deterrence		
Cost of Action		
<i>Perception</i>	<i>Value</i>	<i>Likelihood</i>
Conventional coalition response on Chinese mainland	VH	VH
Cyberattack on Chinese critical infrastructure	VH	VH
Additional nations join U.S., AUS, JPN coalition	VH	M
U.S. expands conflict out of the region	M	H
Economic sanctions and boycotts expand	M	M
Benefits of Restraint		
<i>Perception</i>	<i>Value</i>	<i>Likelihood</i>
Save cyber tools for later in conflict	M	M

Key: VH - Very High, H - High, M - Medium, L - Low, VL - Very Low

Figure 9: New Weapons of War and Impact on Perceptions

New Weapons of Warfare		Social Media	Computer Network Attack	Influence Operations	Economic Coercion	Open Source Intelligence	Private Satellite Companies	Mercenaries
Perceptions	Create chaos in the United States							
	Undermine U.S. public support for conflict	High		High		High		
	Regime survival at stake							Indirect
	Xi's position as chairman undermined							Indirect
	Taiwan resists Chinese invasion with coalition support	Med	High	High		High	High	Low
	Popular nationalism turns on CCP	Med		Med			Low	
	Economic sanctions and boycotts expand	Med				High		
Key		High	Med	Low	Indirect	No Impact		

Generally, the influence of individuals and the private sector on Xi’s decision making will be most enhanced by their ability to help Taiwan’s military to resist. However, this will be a much more difficult undertaking than what occurred in Ukraine because of Taiwan’s location as an island nation. It will be much more difficult for mercenaries to support Taiwan, or for the private sector to move in equipment such as the Starlink ground stations after a conflict has begun. Additionally, the economic dependence of the private sector on China means that it may be less willing to implement private sanctions or acquiesce to demands for boycotts. Further, China’s Great Firewall makes it extremely difficult for individuals to conduct influence operations on the Chinese population.

However, Xi’s perceptions are not immune to the influence of the private sector. The effectiveness of private satellite companies and Starlink specifically in aiding Ukraine is a real and growing concern for China. China’s scientific community has been tasked with developing methods to degrade or destroy Starlink’s satellites during a

conflict.²¹⁹ Such attacks, in and of themselves, could reach the threshold of strategic attacks. This is especially true if the satellites are destroyed in a debris-causing event that makes parts of space unusable or causes fratricide on additional satellites. Modern society's high level of dependence on satellites means that actions taken in space can reach the threshold of non-nuclear strategic attack despite not causing immediate loss of life.

Finally, China's popular nationalism may be a very volatile force during a conflict over Taiwan. While it will help to unite the nation behind the Party, it also could lead public opinion to fracture and turn on Xi if the Chinese military begins to suffer significant losses. Xi Jinping has reportedly stated that, "The Internet ... was an existential threat to the CCP, having caused the party to lose control of people's minds." A key gap in understanding is the Chinese populace's tolerance for military casualties. The One Child Policy implemented to control the population of China means that today, the Chinese military is largely comprised of individuals without siblings, making them the sole offspring of their family. If private internet hackers are able to breach parts of the Chinese firewall, it would allow social media, influence operations, and open-source intelligence to have a direct impact on the Chinese population, to include showing images of military casualties. Whether this impact would be limited, such as the impact on the Russian population, is unknown. However, if the population begins to blame Xi for failures in the Taiwan campaign, this could destabilize Xi by empowering his enemies in the Party to call for his removal.

²¹⁹ Ben Turner, "Chinese Scientists call for Plan to Destroy Elon Musk's Starlink Satellites," *Live Science* (May 27, 2022), available at <https://www.livescience.com/china-plans-ways-destroy-starlink>.

Conclusion

The threshold for what constitutes a non-nuclear strategic attack is ultimately a political decision. However, due to differences in values and cultures, where that threshold resides may differ between nations. This can lead to miscalculation and unintended escalation. Further, when the stakes are so high, as they would be in a China-Taiwan conflict, the willingness to accept risk increases, meaning that those thresholds may be crossed sooner than anticipated. In this notional scenario, Xi Jinping contemplates a significant cyberattack on the United States early in a conflict in order to complicate U.S. leadership decision making and undermine coalition cohesion, despite the potential for incurring significant costs in retaliation.

While it is more difficult for individuals and the private sector to influence elements of Xi's decision making than Putin's in the previous model, he is by no means immune. Further, strategic cyberattack is just one method of non-nuclear strategic attack. The concern that the Chinese government has expressed regarding private satellite companies suggests that a strategic attack in space is also a likely possibility. Advances in technology have not only provided more avenues for the private sector and individuals to impact warfare but also provided additional avenues for strategic attack. This becomes more dangerous during a conflict to defend a sacred value – an issue that the decision maker cannot compromise on, such as the status of Taiwan. Xi Jinping's willingness to accept risk in a Taiwan contingency may mean that it would take far less intervention by the private sector to undermine strategic deterrence and convince him to escalate.

Chapter Six

Recommendations

Types of Responses

Addressing the public's ability to undermine strategic deterrence is not straightforward. It is complicated by the inalienable rights and freedoms each citizen enjoys via the United States' Constitution. The new weapons of warfare available to the public are largely based on information technology enabling fast, easy, and affordable communication that is protected by freedom-of-speech guarantees. This means that government strategies may have to account for, or attempt to harness, the interference of individuals and the private sector. Recommendations for addressing private actions are grouped here according to their general type.

Legal

While the *Montreux Document* outlines the best practices for using private military contractors in a conflict, there is more that the United States can do via legislations to guard against mercenaries fighting in foreign wars or conflict zones. Will Mackie, a prosecutor in the U.S. Department of Justice, proposes an amendment to the International Traffic in Arms Regulations law adjusting the definition of "defense service" to include mercenaries. This would require an export license for any private military contractor providing "defense services" overseas, giving the U.S. government visibility on the activities that could challenge national security and allowing the government to approve

or reject requests as appropriate.²²⁰ This may mitigate situations where private security companies cause diplomatic or military crises, potentially undermining U.S. interests or strategy.

Institutional

Two specific institutional changes could help address this challenge. The first is establishing a Deterrence Strategy Center as part of the National Security Council. The Biden Administration's *National Security Strategy* (NSS) advocates for integrated deterrence to address security threats to the United States. Integrated deterrence seeks to combine all elements of U.S. national power, in cooperation with our allies, to deter our adversaries across the spectrum of conflict. To accomplish this, the NSS states it "requires us to more effectively coordinate, network, and innovate," but there is not one organization that is charged with this task.²²¹ This is a problem in a large bureaucracy because departments or agencies may have different deterrence objectives and various levels of analytical rigor while remaining unable to task other departments to conduct actions for deterrence purposes on their behalf. A Deterrence Strategy Center would have visibility into each Department's deterrence objectives and have the authority to task across the departments. This would allow the United States to better apply all elements of national power for deterrence purposes in a coordinated way. Further, it would create a demand signal for professionals educated in deterrence theory and strategy. This may help close the gap in deterrence knowledge that has been created due to strategic deterrence falling out of favor after the end of the

²²⁰ Will Mackie, "Soldiers of Fortune: Why U.S. Mercenaries should not be Legal."

²²¹ Biden Administration, *National Security Strategy*, The White House (October 2022), p. 22.

Cold War. A clear demand signal from government also may reinvigorate deterrence studies in higher education and professional military education.

Second, the United States should establish an Open-Source Intelligence Agency focused on unclassified data. Amy Zegart, Senior Fellow at the Hoover Institution, argues that an Open-Source Intelligence Agency could harness the power of the growing open-source intelligence community, be able to test out and adopt new technology for intelligence analysis, attract new talent not hindered by the need to wait for a security clearance, and free up other intelligence agencies to solely focus on classified analysis.²²² Further, an Open Source Intelligence Agency could share all of its analysis publicly, without the restrictions of classification, enabling it to counter disinformation campaigns by adversaries by serving as a trusted source for unclassified information. Another benefit is that it would enable stronger collaboration with allies and partners by removing the roadblocks that often occur with classified information sharing. The United States would be able to work more closely with its allies and partners to build a shared understanding of the threat.

Informational

The 2018 *Nuclear Posture Review* was the first review to clearly articulate the criteria for a non-nuclear strategic attack, which included significant attacks on nuclear command and control, civilians, and infrastructure. As technology continues to advance, the ability of our adversaries to perpetrate a strategic attack on the United States and our allies with non-nuclear means increases. It is important for political leaders to understand where the thresholds are for strategic attack and then to clearly

²²² Amy Zegart, "Open Secrets: Ukraine and the Next Intelligence Revolution."

articulate them in a declaratory policy. The declaratory policy is not akin to establishing a redline, but rather serves as a notification of things the U.S. values and is willing to defend, such as civilians. This would make the costs associated with such attacks more credible and may give adversaries pause when contemplating such an attack.

Further, U.S. policy makers need to think through the implications of adversaries attacking the U.S. private sector if individuals and companies take sides in a conflict, as in the case of Starlink providing satellite communication services to Ukraine. What are the implications if Russia were to destroy or disrupt those services? Would the United States respond? Would it send additional aid to Ukraine? What if the Russian attack is a debris causing space attack, reaching the threshold of strategic attack? There are significant policy and strategy implications that need to be addressed and then communicated to both the U.S. public and adversaries.

Resiliency

While a declaratory policy may give an adversary pause, the United States must build resiliency against strategic attack. This includes upgrading critical infrastructure such as space capabilities, power, and rail lines to decrease vulnerabilities to cyber intrusions or attack and building redundancies to be able to quickly bring services back online after an attack. This will require establishing security requirements and working with the private sector to ensure the infrastructure is well defended. By decreasing the vulnerability of the United States to strategic attack, it will deny the adversary the benefit of even attempting an attack in the first place.

Civil Defense

Civil defense needs to be reimagined for the 21st Century. The term largely fell out of favor after the end of the Cold War and was replaced with “emergency management.” But emergency management is more closely identified with natural-disaster responses than with protecting civilians from harm during conflict. While the Department of Homeland Security seeks to “build a national culture of preparedness” as part of its mission, it too is more focused on natural disasters than responding to strategic attack.²²³ While there may be a reticence to reintroduce the idea of civil defense into society due to concern for creating fear or alarmism, educating the population on the threat and practical ways to prepare and protect themselves is prudent. Not only will rethinking civil defense for the modern era better enable the United States to defend itself during times of crisis or conflict but it also may enhance deterrence by making the civilian population a harder and more resilient target.

Conclusion

While these recommendations largely do not prevent the ability of individuals and the private sector to undermine strategic deterrence, they do put the United States on a better footing to understand deterrence challenges, enhance the ability to coordinate and integrate deterrence operations across the government, harness the power of open-source intelligence, build resiliency, and defend against strategic attack. While the U.S. government may not be able to stop individuals and the private sector from undermining

²²³ “Strengthen Preparedness and Resilience,” *The Department of Homeland Security* (February 23, 2022), available at <https://www.dhs.gov/strengthen-preparedness-and-resilience>.

strategic deterrence, it can work to enhance deterrence and mitigate the effects if deterrence fails.

Chapter Seven

Conclusion

In the 1970s, telecommunications giant AT&T began an advertising campaign with the slogan “reach out and touch someone” to promote long distance calling, not just for life changing events but for the small everyday occurrences.²²⁴ Today, with the advances in information technology, it is commonplace to communicate with friends, colleagues, and strangers daily with the click of a button, without concern for cost. While the growing interconnection has had tremendous benefits for sharing knowledge, culture, ideas, and economic growth, it also poses new security challenges by allowing the private sector to participate in and influence national security in ways that national security professionals previously did not have to take into account.

The new weapons of warfare spawned by the information age give tremendous power to those outside of government to not only influence but also participate in diplomacy, information operations, military operations and economic coercion. For perspective, the acronym DIME is used by U.S. policy makers to describe the elements of national power. Standing for Diplomatic, Information, Military and Economic, the acronym describes the tools available to the nation to achieve its national strategies and aligns with the major departments of the executive branch such as the Department of State or Department of Defense.²²⁵ Today, using the technology available, individuals and the private sector are capable of impacting every element of DIME in ways that previously did not have

²²⁴ Vejay Anand, “Iconic Ads: AT&T – Reach Out and Touch Someone,” *Medium* (October 4, 2021), available at <https://medium.com/@onlykutts/iconic-ads-at-t-reach-out-and-touch-someone-c26b6745cc77>.

²²⁵ Joint Chiefs of Staff, *Joint Doctrine Note 1-18: Strategy*, Department of Defense (April 25, 2018) p. vii, available at https://www.jcs.mil/Portals/36/Documents/Doctrine/jdn_jg/jdn1_18.pdf.

to be considered. This has the potential to enhance or undermine the government's deterrence strategy.

In order to understand how the private sector's involvement may impact deterrence, a greater emphasis on deterrence analysis needs to be adopted. The basics of deterrence theory have been consistent for millennia, centered on influencing decision making to prevent hostile action. While this is straightforward, deterrence is complicated by the intricacies of human decision making. Emotion, biases, and heuristics impact decision making and are extremely difficult to account for. What can be accounted for is developing a better understanding of the adversary's strategic culture, values, history, and doctrine as well as the personality quirks of the decision maker. This requires adopting an empirical approach for deterrence analysis to develop a deeper understanding of the adversary, the decision context, and the unique decision factors.

The decision calculus model used in this study has its shortfalls. It does not predict adversary behavior, is limited by the information available, and could be influenced by the bias of the analyst. It does provide an ordered way to think through a deterrence challenge, however. Further, with a robust review process, potential analyst biases can be mitigated. For a more thorough assessment, multiple decision calculus assessments can be created for the same deterrence challenge, changing the scenario or the target in the decision in order to understand how the adversary's perceptions may change. Conducting robust analysis, in an ordered way, will assist in developing deterrence strategies tailored to the individual decision maker and will increase understanding of why deterrence may fail.

Technology is continuing to advance, opening up additional avenues for individuals and the private sector to influence national security. For example, the dual-use nature of Artificial Intelligence (AI) and machine learning is

not yet well understood. While it is being used for tremendous medical breakthroughs, it can also be used to create more lethal biological and chemical weapons.²²⁶ It has already been used to create “deep fakes:” videos created to look and sound like someone doing or saying something they have never done. This can be done to purposefully mislead the public, such as when it was used in 2018 to create a video of President Trump giving a speech he never actually gave.²²⁷ While this study focused on just a few of the new weapons of war available to individuals and the private sector, new technology is being developed and becoming available to the public. AI and machine learning is just one example of a potentially powerful tool that can be used to influence adversary decision making.

If Clausewitz is correct in his assessment that “every age has its own kind of war,” then this age is marked by the democratization of the tools of warfare, creating the opportunity for individuals and the private sector to influence national security strategy and deterrence in ways that were previously not possible.²²⁸ Addressing this challenge is not simple. The need to prevent deterrence failure is tempered by the rights and freedoms guaranteed to individuals by the U.S. constitution. If a group wants to taunt Russian Foreign Ministry officials online with memes of little dogs dressed up as soldiers, they are guaranteed the right to do so. People are allowed to vote with their pocketbooks, choosing not to do business with companies who do not share their values. Communicating, building

²²⁶ Fabio Urbina, Filippa Lentzos, Cedric Invernizzi & Sean Ekins, “Dual use of Artificial-Intelligence-Powered Drug Discovery,” *Nature Machine Intelligence* (2022) pp. 189-191.

²²⁷ Dave Johnson, “What is a Deepfake? Everything You Need to Know About the AI Powered Fake Media,” *Business Insider* (August 10, 2022), available at <https://www.businessinsider.com/guides/tech/what-is-deepfake>.

²²⁸ David Betz, “Clausewitz and Connectivity,” *Military Strategy Magazine* (Winter 2012), available at <https://www.militarystrategymagazine.com/article/clausewitz-and-connectivity/>.

support for a cause, analyzing the mass amounts of data available online, and conducting commerce by providing space-enabled services are all protected activities. This makes this challenge to deterrence very difficult to prevent even as it must be taken into account and moderated. By creating additional institutions, amending the law where applicable, creating declaratory policy, improving civil defense, and building resiliency, the United States can harness or mitigate the influence of individuals and the private sector on strategic deterrence—even if it no longer can prevent such influence.

Appendix I

Case Study – 2022 Russia-Ukraine War

Appendix I presents the full decision calculus assessment model for Putin’s decision to use tactical nuclear weapons in the 2022 Russia-Ukraine war. It provides justification and sources for each perception identified, as well as justification and sources for each value and likelihood judgement. It includes the full assessment of how individuals and the private sector using the new weapons of war can impact the perceptions in the decision calculus.

Profile

The primary decision maker in this case study is Vladimir Putin, President of the Russian Federation. The below profile will describe some of the key characteristics of his decision-making style, values, and characteristics.

- What are some key characteristics of President Putin?
 - a. Paranoia: According to Massa Gessen, “[Putin] is obsessed with the idea that Russia is surrounded by enemies; he is terrified of all protest and dissent, even though he has long since disabled any levers by which either could influence his regime; his fear of the coronavirus and, possibly, assassination, has driven him into near-total isolation and compels him to hold in-person conversations across giant tables.”²²⁹ According to Charles Strozier founder of the Center on Counter Terrorism at The City University of New York, paranoia causes

²²⁹ Masha Gessen, “Vladimir Putting Would use Nuclear Weapons in Ukraine,” *The New Yorker* (November 1, 2022), available at <https://www.newyorker.com/news/our-columnists/why-vladimir-putin-would-use-nuclear-weapons-in-ukraine>.

inflexibility in decision making, leading to mistakes and miscalculation.²³⁰

- b. Holds a Grudge: Throughout his life Putin has demonstrated a tendency to hold a grudge against those who offend or betrayed him. According to his biographer, Steven Lee Myers, “He always remembered acts of loyalty ... just as he never forgave betrayals.”²³¹ This includes feeling betrayed by the United States in the aftermath of the Cold War and believing that the United States continued to undermine Russia and sow discord among the populace, with Putin stating “despite the fact that we considered ... our former adversaries as close friends and even allies, the support for separatism in Russia from across the pond ... was absolutely obvious and left no doubt that they would gladly let Russia follow the Yugoslav scenario of disintegration and dismemberment.”²³² This has led William Taubman, biographer of Khrushchev and Gorbachev, to conclude that Putin’s “main theme of life is a fierce determination to avoid defeat by lashing out against those who humiliate and betray him.”²³³
- c. Indecisive/Procrastinator: Stephen Sestanovich, a fellow at the Council on Foreign Relations and the former U.S. Ambassador-at-Large to the former Soviet states, observes, “[Putin] finds decisions hard, defers and defers, and then

²³⁰ Ibid.

²³¹ William Taubman, “How Putting Learned to Hold Deadly Grudges,” *Foreign Policy* (July 17, 2022), available at <https://foreignpolicy.com/2022/07/17/putin-revenge-nato-west-ukraine/>.

²³² Ibid.

²³³ Ibid.

makes them impulsively. Much of the Putin personality we've come to know and love is an invention—but a pretty good invention. He carries all the confidence of a summer intern.”²³⁴ Commenting on Putin's decision making during the beginning of the COVID-19 pandemic, Pavel K. Baev, Nonresident Senior Fellow at the Brookings Institution, commented, “His authority is compromised by indecisiveness, and the costs of his habitual procrastination have multiplied amid the complex interplay of public health and economic crises.”²³⁵ However, Putin's indecision is not a new phenomenon. In 2001, Masha Lipman, a Russian Policy scholar at Carnegie Endowment for International Peace, wrote, “There are different theories about the causes of Putin's indecision. He may cherish the seeming consensus, for in spite of all the overt disputes and covert conflicts, prominent political figures stop short of criticizing the president. Or it may be that on many issues Putin genuinely doesn't know whose side he is on.”²³⁶

²³⁴ Robin Wright, “Putin, A Little Man Still Trying to Prove his Bigness,” *The New Yorker* (March 20, 2018), available at <https://www.newyorker.com/news/news-desk/putin-a-little-man-still-trying-to-prove-his-bigness>.

²³⁵ Pavel K. Baev, “The Imperatives and Limitations of Putin's Rational Choices,” *The Brookings Institution* (April 28, 2020) <https://www.brookings.edu/blog/order-from-chaos/2020/04/28/the-imperatives-and-limitations-of-putins-rational-choices/>.

²³⁶ Masha Lipman, “The Indecisive President,” *The Washington Post* (February 6, 2001), available at <https://www.washingtonpost.com/archive/opinions/2001/02/06/the-indecisive-president/560b33cd-9783-4d27-ad9c-84ebd1b5bd68/>.

- What are Putin’s sacred values?
 - a. Russia is an undisputed and respected great power. This includes a sphere of influence over Russia’s near abroad.²³⁷
 - b. “A powerful Russian state that controls the nation’s wealth and industry”²³⁸
 - c. Retain power as leader and President of Russia.²³⁹
- What is the decision-making structure and process in the nation?
 - a. Decision-making is centralized in Putin’s hands. While routine issues may be delegated to lower levels, the most important issues are decided by Putin himself. The system is highly centralized, which during peacetime works relatively efficiently. However, during times of crisis or conflict, this becomes more of an issue as the situation may develop rapidly, and Putin’s ability to make decisions rapidly becomes strained and can lead to mistakes.²⁴⁰
 - b. Putin is surrounded by “yes men”: According to Boris Bondarev, former Russian diplomat, “Putin likes his foreign minister, Sergey Lavrov, because he is “comfortable” to work with, always saying yes to the president and telling him what he wants to hear.”²⁴¹ Further, diplomats delivering positive reports, despite evidence to the contrary, received career advancement. This suggests an unwillingness to

²³⁷ Dan McLaughlin, “On the Character of Vladimir Putin,” *National Review* (February 24, 2022), available at <https://www.nationalreview.com/corner/on-the-character-of-vladimir-putin/>.

²³⁸ *Ibid.*

²³⁹ *Ibid.*

²⁴⁰ Daniel Treisman, “What Could Bring Putin Down?”

²⁴¹ Boris Bondarev, “The Sources of Russian Misconduct,” *Foreign Affairs* (October 17, 2022).

pass bad news to Putin. Further, according to Mark Galeotti, an academic and Russia expert, the COVID-19 pandemic has only exacerbated this phenomenon due to Putin's isolation and exposure to only his most trusted advisors. "Exposed to fewer alternative opinions and scarcely even seeing his own country, Putin seems to have 'learned' that all his assumptions were right and all his prejudices justified," Galeotti observed.²⁴²

- c. According to Putin, Russia's nuclear declaratory policy is, "Russia reserves the right to use nuclear weapons solely in response to a nuclear attack, or an attack with other weapons of mass destruction against the country or its allies, or an act of aggression against us with the use of conventional weapons that threaten the very existence of the state."²⁴³
 - d. Putin is up for reelection in 2024.
- How does the nation's history impact the decision in question?
- a. The Cuban Missile Crisis is viewed as a retreat and a humiliation by Russian leaders. When Putin was asked to put himself in the shoes of Soviet leader Khrushchev, he responded, "No way. I cannot imagine myself in the role of Khrushchev, by no means," not wanting to identify as a leader that backed down.²⁴⁴

²⁴² Mark Galeotti, "Russia's Vladimir Putin at 70: Seven Key Moments that Made Him," *The BBC* (October 5, 2022), available at <https://www.bbc.com/news/world-europe-63117878>.

²⁴³ Peter Clement, "Putin's Risk Spiral," *Foreign Affairs* (October 26, 2022), available at <https://www.foreignaffairs.com/ukraine/putin-risk-spiral-logic-of-escalation-in-war>.

²⁴⁴ Timothy Naftali, "Putin's Fear of Retreat," *Foreign Affairs* (November 16, 2022), available at <https://www.foreignaffairs.com/russian-federation/putin-fear-retreat-cuban-missile-crisis>.

- b. “After all the shocks that Russia has suffered – the loss of Eastern Europe, the dissolution of the Soviet Union, the great economic crisis of 1998, the huge increase in economic inequality through the enrichment of some and the impoverishment of most, the enlargement of NATO, the presence of U.S troops in Central Asia, and the talk of Ukraine and Georgia joining NATO - it is only normal that there should be a reaction of resentment and a wish for reassertion now that conditions permit,” stated research director Pierre Hassner during the Seymour Martin Lipset Lecture on Democracy in the World in 2007.²⁴⁵
- What are key international relationships?
 - a. Ukraine – Ukraine was part of the Soviet Union until it declared independence in 1991. This left Ukraine as the fourth largest nuclear power, only agreeing to give up nuclear weapons after the Budapest Memorandum was signed. After transitioning to a capitalist economy and building a democracy, Ukraine became interested in NATO membership in the 2000s. Russia is opposed to this as leaders view it as a threat to Russia’s security. In 2014, Russia invaded Ukraine, securing the Crimean Peninsula and invading the Donbas region. Russia suffered economic sanctions from the West, but its efforts were largely successful. However, this event inspired Ukrainian nationalism and an effort to modernize its

²⁴⁵ Pierre Hassner, “Russia’s Transition to Autocracy,” *The Journal of Democracy* (April 2008), available at <https://www.journalofdemocracy.org/wp-content/uploads/2012/04/Hassner-19-2.pdf>.

military.²⁴⁶ In July 2021, Putin published on the Kremlin's website a paper called, "On the Historical Unity of the Russians and Ukrainians." In it, he asserted that historically, "Russians and Ukrainians were one people—a single whole," that Ukraine never existed as a state, and that Ukraine's current government was under "direct external control," as demonstrated by the presence of "foreign advisers" and the "deployment of NATO infrastructure" on Ukrainian territory.²⁴⁷

- b. NATO—Russian leaders have been concerned with NATO expansion since the collapse of the Soviet Union. Putin announced that Ukraine joining NATO is a Red Line for the nation, stating, "No Russian leader could stand idly by in the face of steps toward NATO membership for Ukraine. That would be a hostile act toward Russia."²⁴⁸
- c. United States—Formal diplomatic relations were established with Russia in 1809. These ties were interrupted, though not severed, after the 1917 Bolshevik revolution, and resumed in 1933. The United States and Soviet Union were wary allies during World War II and after a shared victory, found themselves on the opposite side of the Cold War. This contest lasted until the

²⁴⁶ Becky Sullivan, "Russia's at War with Ukraine: Here's How we Got Here," *NPR* (February 24, 2022), available at <https://www.npr.org/2022/02/12/1080205477/history-ukraine-russia>.

²⁴⁷ Peter Clement, "Putin's Risk Spiral."

²⁴⁸ Jonathan Masters, "Why NATO has become a Flashpoint with Russia in Ukraine," *Council on Foreign Relations* (January 20, 2022), available at https://www.cfr.org/backgroundunder/why-nato-has-become-flash-point-russia-ukraine?gclid=CjwKCAiAmjGgBhAZEiwA1JZolrmac8UZ0RuJsjnWdbxsxI5hAHlkeK7-C193dGP8Os8K8G9dp0GXZRoCNvMQAvD_BwE.

collapse of the Soviet Union in 1991.²⁴⁹ However, many in Russia feel that the United States humiliated it and failed to help it sufficiently rebuild. Further, there is the perception that Russia's legitimate security concerns were overlooked or dismissed by the United States. This has led to an often-contentious relationship.²⁵⁰

Assessed Strategic Decision

Putin's decision to use tactical nuclear weapons against military forces in Ukraine.

Decision Context

- What is the strategic objective in this situation?
 - a. Secure Ukraine as part of Russia's sphere of influence, providing strategic security for Russia's southern flank, while halting the eastward expansion of NATO.²⁵¹
- Is that strategic objective at risk of failure?
 - a. Yes. Russia's "Special military operation" to seize Ukraine has faltered, forcing Russia to pull

²⁴⁹ Bureau of European and Eurasian Affairs, "U.S. Relations with Russia," *U.S. Department of State* (September 2, 2021), available at <https://www.state.gov/u-s-relations-with-russia/>.

²⁵⁰ Angela Stent, "Why are U.S.-Russia Relations so Challenging," *The Brookings Institution* (April 27, 2020), available at <https://www.brookings.edu/policy2020/votervital/why-are-us-russia-relations-so-challenging/>.

²⁵¹ Eugene Rumer, "Putin's Long War," *The Carnegie Endowment for International Peace* (December 9, 2022), available at <https://carnegieendowment.org/2022/12/09/putin-s-long-war-pub-88602>.

back, while preparing for a much longer conflict.²⁵²

- What is the strategic context of the situation?
 - a. Russia invaded Ukraine on 24 February 2022 from the east and the west in an attempt to defeat the nation quickly and overrun the capital city of Kyiv. Lack of Russian planning, poor equipment, and unprepared troops coupled with significant Western military and financial aid resulted in Ukraine managing to hold off and defeat the initial Russian offensive.²⁵³
 - b. As Ukrainian forces continued to push Russian forces back and regain territory occupied by Russia throughout the summer, Putin staged rigged referendums in the Donbas region of Ukraine, announcing the annexation of Donetsk, Luhansk, Kherson and Zaporizhzhia, about 15% of Ukraine’s land mass. The United Nations Secretary General condemned the annexation, stating it was illegal.²⁵⁴
 - c. Russia has used long-range munitions to target civilians, including suburban areas, power stations, and hospitals, in an attempt to decrease support for Ukraine’s government.²⁵⁵

²⁵² Paul Kirby, “Has Putin’s War Failed and What does Russia want from Ukraine?” *The BBC* (February 24, 2023), available at <https://www.bbc.com/news/world-europe-56720589>.

²⁵³ Thomas Graham, “Ukraine has held off Russia’s Invasion so Far. Here’s How,” *Council on Foreign Relations* (February 17, 2023), available at <https://www.cfr.org/in-brief/ukraine-has-held-russias-invasion-so-far-heres-how>.

²⁵⁴ Andrew Osborn and Alexandra Hudson, “Putin to Annex Seized Ukrainian Land, U.N. Warns of ‘Dangerous Escalation’,” *Reuters* (September 29, 2022), available at <https://www.reuters.com/world/europe/russia-set-annex-ukraine-territory-west-warns-new-sanctions-2022-09-29/>.

²⁵⁵ Center for Preventive Action, “Conflict in Ukraine,” *Council on Foreign Relations* (November 8, 2022), available at <https://www.cfr.org/global-conflict-tracker/conflict/conflict-ukraine>.

- d. Russia announced a partial mobilization, its first since World War Two, calling up 300,000 reservists.²⁵⁶ These reservists are poorly equipped and trained. There is an increase in close combat, with these forces armed with handguns and shovels, unsupported by artillery fire due to shortages in short-range munitions.²⁵⁷
 - e. The West remains committed to Ukraine, increasing the amount of military aid to the nation, with the United States announcing an additional \$400 billion in assistance.²⁵⁸
 - f. U.K. defense intelligence estimates Russian casualties range from 175-200,000, with 40-60,000 dead.²⁵⁹
- Is the decision maker in a loss frame?
- a. Yes. Putin expected a quick a decisive victory when he first invaded Ukraine. One year later, Russia’s military has suffered tremendous losses, its economy is heavily sanctioned, and Putin’s reputation has suffered.²⁶⁰

²⁵⁶ Paul Kirby, “Has Putin’s War Failed and What does Russia want from Ukraine?”

²⁵⁷ “Ukraine War: Russian Reservists Fighting with Shovels - UK Defence Ministry,” *The BBC* (March 5, 2023), available at <https://www.bbc.com/news/world-europe-64855760>.

²⁵⁸ Jonathan Masters and Will Merrow, “How Much Aid has the U.S. Sent Ukraine? Here are Six Charts,” *Council on Foreign Relations* (February 22, 2023), available at <https://www.cfr.org/article/how-much-aid-has-us-sent-ukraine-here-are-six-charts>.

²⁵⁹ Paul Kirby, “Has Putin’s War Failed and What does Russia want from Ukraine?”

²⁶⁰ Peter Dickinson, “2022 Review: Why has Vladimir Putin’s Ukraine Invasion gone so Badly Wrong?”

Decision Calculus

Undermine Deterrence		
Benefit of Action		
<i>Perception</i>	<i>Value</i>	<i>Likelihood</i>
Force Ukraine to capitulate and agree to Russia's terms	VH	M
Diminish Western Public Support for Ukraine	H	H
Degrade NATO cohesion	H	M
Establish escalation dominance to deescalate	H	M
Costs of Restraint		
<i>Perception</i>	<i>Value</i>	<i>Likelihood</i>
Conventional military continues to be attrited	VH	H
Russian elites lose confidence in Putin	H	H
Ukraine is victorious in defeating Russia	VH	M
Fail to meet the expectations of the Russian Populace	H	M
Lose power and removed from Office	VH	M
Regime collapse	VH	M
Enhance Deterrence		
Cost of Action		
<i>Perception</i>	<i>Value</i>	<i>Likelihood</i>
Nuclear retaliation by the U.S.	VH	L
Lose support of China	VH	H
Overwhelming conventional response by NATO in Ukraine	VH	H
Break the nuclear taboo and become an international pariah	M	VH
Benefits of Restraint		
<i>Perception</i>	<i>Value</i>	<i>Likelihood</i>
Offer off-ramp and consolidate gains	VH	L
Outlast Ukraine in a war of attrition	M	M

Key: VH - Very High, H - High, M - Medium, L - Low, VL - Very Low

Benefits of Action

- *Force Ukraine to capitulate and agree to Russia's terms:* Agreeing to Russia's terms and surrendering is the best possible outcome for Putin and his regime. Russian strategic attacks on Ukrainian civilian infrastructure and attempts to assassinate President

Zelensky demonstrate Russia's attempts to force Ukraine's capitulation.²⁶¹

- Value: Very High
 - Ukrainian capitulation is the best possible outcome for Putin, and would achieve his political objectives.
- Probability: Medium
 - Ukraine's sense of nationalism has unified the nation. The public has shown a willingness to suffer to maintain the existence of their state. This may also apply to suffering limited nuclear strikes.²⁶²
 - If Ukraine were to surrender, it would mean Russian occupation and a loss of their nation.²⁶³ This would be a complete reversal of their independence movement from 1991.
- *Diminish Western public support for Ukraine:* The public in the West currently supports Ukraine, and the majority is still in favor of sending military aid.²⁶⁴
 - Value: High
 - Western democratic governments must answer to their people. If public support for Ukraine were to diminish, governments

²⁶¹ Max Colchester, "U.K. Says Russian Mercenary Group Aims to Assassinate Ukraine's President," *The Wall Street Journal* (March 24, 2022), available at <https://www.wsj.com/articles/u-k-says-russian-mercenary-group-aims-to-assassinate-ukraines-president-11648137870>.

²⁶² Marnie Howlett, "New Research shows how Ukrainian Nationalism has Endured and Evolved Amidst the Ukraine-Russia Conflict," *University of Oxford* (November 9, 2022), available at <https://www.politics.ox.ac.uk/news/new-research-shows-how-ukrainian-nationalism-has-endured-and-evolved-amidst-ukraine-russia>.

²⁶³ Liana Fix and Michael Kimmage, "Putin's Last Stand," *Foreign Affairs* (January/February 2023).

²⁶⁴ Russia Matters Staff, "Polls Show Western Public Favors General Support for Ukraine, But is Increasingly Skeptical about Supplying Arms," *Russia Matters Harvard Kennedy Center* (February 9, 2023), available at <https://www.russiamatters.org/blog/polls-show-western-public-favors-general-support-ukraine-increasingly-skeptical-about>.

- would reassess the support they were providing to Ukraine's war effort. If they fail to adjust, leaders risk losing power in subsequent elections.
- Probability: High
 - According to Peter Clement, "Putin's multiple references to nuclear weapons suggest he may believe that the psychological terror aspect induced by these weapons could be decisive."²⁶⁵
 - *Degrade NATO cohesion*: NATO nations have varied security concerns and stakes in the conflict in Ukraine. This stresses its ability to maintain cohesion to respond to conflicts and crises.²⁶⁶
 - Value: High
 - Without cohesion, NATO may not be able to mount a unified response to Putin's use of nuclear weapons. This confusion and fracture would delay any sort of response that NATO may choose to mount.
 - Probability: Medium
 - "This sustained cohesion is in large part due to the shared view among Western states that Russia, even if militarily crippled, poses a threat to Europe and, more broadly, that its actions toward Ukraine, if left unchallenged, would further degrade the liberal order and its definition of sovereignty."²⁶⁷ Putin's use of nuclear weapons may put the threat to Europe into even sharper relief.

²⁶⁵ Peter Clement, "Putin's Risk Spiral."

²⁶⁶ Kelly A. Grieco, Evan Cooper, Aude Darnal, Christopher Preble, Emma Ashford, James Siebens, "Testing Assumptions About the War in Ukraine, One Year Later," *The Stimson Center* (February 15, 2023), available at <https://www.stimson.org/2023/testing-assumptions-about-the-war-in-ukraine-one-year-later/>.

²⁶⁷ *Ibid.*

- *Establish escalation dominance to deescalate*: From Russian military doctrine—“Deescalation of aggression [means] forcing the enemy to halt military action by a threat to deliver or by actual delivery of strikes of varying intensity with reliance on conventional and (or) nuclear weapons.”²⁶⁸
 - Value: High
 - Russian Major General Viktor Levshin has written “nuclear weapons ought to be regarded not only as a means for bringing about a decisive rout of the adversary but also as a means for deescalating military operations if deterrence proves insufficiently effective and an aggression takes place after all.”²⁶⁹ Further, he and other Russian military strategists have “suggested that nonstrategic nuclear weapons—smaller-yield nuclear weapons used on the battlefield—could be used in a phased approach to intimidate an adversary while the threat of using strategic nuclear weapons—longer-range weapons aimed at the adversary's homeland—would deter the opponent from further escalation.”²⁷⁰
 - Probability: Medium
 - While Russian military leaders and scholars have written extensively on this theory, there is no evidence that it would be successful as it has never been attempted with nuclear weapons. There would be uncertainty as to

²⁶⁸ Kevin Ryan, “Is ‘Escalate to Deescalate’ Part of Russia’s Nuclear Toolbox?” *Russia Matters Harvard Kennedy School* (January 8, 2020), available at <https://www.russiamatters.org/analysis/escalate-deescalate-part-russias-nuclear-toolbox>.

²⁶⁹ *Ibid.*

²⁷⁰ *Ibid.*

whether or not this would be successful or lead to additional escalation.

Costs of Restraint

- *Conventional military forces continue to be attrited:* Russia's military has performed poorly in the first 18 months of the conflict. It has suffered numerous defeats, had issues with logistics, lost a significant amount of hardware, and suffered extensive casualties.²⁷¹ Further, its electronic warfare operations have been thwarted.²⁷²
 - Value: Very High
 - As Russia's conventional military capabilities are attrited, it decreases the options available to achieve its strategic objectives.
 - Probability: High
 - Russia is unable "to properly train and equip the 300,000 called up during the autumn mobilization. ... The fact is that these 300,000 mobilized do not have enough weapons," Markov said. "When will they get the military technology? Putin also does not have the answer to this question."²⁷³
 - Russia is running low on conventional missile and precision guided munitions.²⁷⁴

²⁷¹ Anthony H. Cordesman, "How? (and Does?) the War in Ukraine End: The Need for a Grand Strategy," *Center for Strategic and International Studies* (February 24, 2023), available at <https://www.csis.org/analysis/how-and-does-war-ukraine-end-need-grand-strategy>.

²⁷² Peter Clement, "Putin's Risk Spiral."

²⁷³ Catherine Belton, "Putin, Unaccustomed to Losing, is Increasingly Isolated as War Falts," *The Washington Post* (December 30, 2022), available at <https://www.washingtonpost.com/world/2022/12/30/putin-isolated-russia-ukraine-war/>.

²⁷⁴ Peter Clement, "Putin's Risk Spiral."

- Ukraine continues to counterattack, destroying more of Russia's force and retaking occupied territory.²⁷⁵
 - *Russian elites lose confidence in Putin*: With continued failures in Ukraine, and as the war drags into its second year, Putin's relationship with his elites has become strained.²⁷⁶
 - Value: High
 - The elites that surround Putin were chosen for their loyalty. However, if they begin to lose confidence in Putin, it creates the condition for a power struggle and may threaten Putin's position.²⁷⁷ To guard against this, Putin is attempting to marginalize some of the key elites in Russia.²⁷⁸ This would threaten one of Putin's sacred values.
 - Probability: High
 - "Among Russia's elite, questions are growing over Putin's tactics ... following humiliating military retreats. ... A divide is emerging between those in the elite who want Putin to stop the military onslaught and those who believe he must escalate further, according to the state official and Tatyana Stanovaya, a senior fellow at the

²⁷⁵ Dara Massicot, "Russia's Repeat Failures," *Foreign Affairs* (August 15, 2022), available at <https://www.foreignaffairs.com/ukraine/russia-repeat-failures>.

²⁷⁶ Daniel Treisman, "What Could Bring Putin Down?"

²⁷⁷ Sergey Radchenko, "Coups in the Kremlin," *Foreign Affairs* (September 22, 2022), available at <https://www.foreignaffairs.com/russian-federation/coups-kremlin>.

²⁷⁸ Benjamin Quenelle, "Exposing the Face - and Silence - of Russia's Liberal Elites," *World Crunch* (January 13, 2023), available at <https://worldcrunch.com/focus/russian-elites-putin>.

Carnegie Endowment for International Peace.”²⁷⁹

- A state official stated, “How can he tell us everything is going to plan, when we are already in the 10th month of the war, and we were told it was only going to take a few days.”²⁸⁰
 - Putin canceled the annual New Year meeting with the business elite in order to avoid answering questions.²⁸¹
 - “Prokopenko, the former Central Bank official, said the Russian elite, including many under sanctions, are watching the situation in horror: ‘Everything they built collapsed for no reason.’ ”²⁸²
- *Ukraine is victorious in defeating Russia: Ukraine has overturned a significant portion of Russia’s territorial gains from the February 2022 invasion.*²⁸³
- Value: Very High
 - The optics of Russia, a nuclear power, suffering a defeat from a non-nuclear state would be unsatisfactory for Putin. Further, it undermines Putin’s sacred values of Russia as a strong and powerful state with its sphere of influence in the near abroad.
 - Probability: Medium
 - Ukraine requires continued support from the West, in both financial aid and military

²⁷⁹ Catherine Belton, “Putin, Unaccustomed to Losing, is Increasingly Isolated as War Falters.”

²⁸⁰ Ibid.

²⁸¹ Ibid.

²⁸² Catherine Belton, “Putin, Unaccustomed to Losing, is Increasingly Isolated as War Falters.”

²⁸³ Peter Dickinson, “2022 Review: Why has Vladimir Putin’s Ukraine Invasion gone so Badly Wrong?”

- equipment. So far, the West has been willing to provide that support.²⁸⁴
- Ukraine has made significant gains retaking territory. However, Russia continues to respond by striking civilian infrastructure to weaken resolve.²⁸⁵ It also enacted the partial mobilization to continue the war.
- *Fail to meet the expectations of the Russian populous*: The Russian public views Putin as the architect of this conflict with expectations for success. As the conflict has changed and more defeats become apparent, the Russian populace may begin to blame Putin for the failures.²⁸⁶
- Value: High
 - Putin is a student of Russian history. The Russian Revolutions and the abdication of the Tsar occurred from an uprising of the people. A dramatic shift in public opinion against him could generate a crisis.²⁸⁷
 - Probability: Medium
 - More Russian fatalities and lack of progress could undermine the people's confidence in Putin.²⁸⁸
 - This could potentially result in protests against the regime.²⁸⁹
 - Putin canceled his annual State of the Nation address and press conference, in order to avoid having to answer direct questions about the war. Further, this suggests he may

²⁸⁴ Peter Clement, "Putin's Risk Spiral."

²⁸⁵ Ibid.

²⁸⁶ Vladislav Zubok, "No One Would Win a Long War in Ukraine," *Foreign Affairs* (December 21, 2022), available at <https://www.foreignaffairs.com/ukraine/no-one-would-win-long-war-ukraine>.

²⁸⁷ Ibid.

²⁸⁸ Boris Bondarev, "The Sources of Russian Misconduct."

²⁸⁹ Daniel Treisman, "What Could Bring Putin Down?".

- not have a concrete plan going forward, which he would not want to convey to the public.²⁹⁰
- Current polling suggests that the majority of the populace continues to support Putin and believe the Russian propaganda.²⁹¹ However, there is increased pressure from the public to pursue peace talks.²⁹²
 - Inflation is at 14%.²⁹³
- *Lose power and be removed from office:* Putin could face wide scale backlash and lose power if the campaign in Ukraine continues to falter.²⁹⁴ This could result in his removal from office.
- Value: Very High
 - Putin’s retention of power is one of his sacred values.
 - Probability: Medium
 - “Failures at the front do not always doom autocrats. The political scientists Giacomo Chiozza and Hein Goemans analyzed all wars from 1919 to 2003 and found that, although military defeat increased a dictator’s odds of forcible ouster, in just over half of the cases, autocrats survived for at least a year after the war ended, and those who did so became quite secure again.”²⁹⁵
 - Failures in Ukraine has caused Putin to lose face with members of the elite.

²⁹⁰ Catherine Belton, “Putin, Unaccustomed to Losing, is Increasingly Isolated as War Falters.”

²⁹¹ Ibid.

²⁹² Russia Matters Staff, “Polls Show Western Public Favors General Support for Ukraine, But is Increasingly Skeptical about Supplying Arms.”

²⁹³ Peter Clement, “Putin’s Risk Spiral.”

²⁹⁴ Boris Bondarev, “The Sources of Russian Misconduct.”

²⁹⁵ Daniel Treisman, “What Could Bring Putin Down?”

- According to Daniel Treisman, Professor of Political Science at the University of California, “Yet the obstacles to such a coup are formidable. Putin has rigged the system with numerous tripwires to prevent one.”²⁹⁶
 - Putin has deliberately shown members of Russia’s Security Council and Defense Ministry as contributing to the decisions taken in Ukraine, diffusing blame amongst the elites.²⁹⁷
 - *Regime collapse*: In Russian history, military losses have often been followed by regime change. Following World War I, the Tsarist regime collapsed and following the loss in Afghanistan, the communist regime collapsed. Putin, as a student of Russian history, would be very aware of these facts.
 - Value: Very High
 - Russia’s continued survival is a sacred value for Putin.
 - Probability: Medium
 - According to Daniel Treisman, Professor of Political Science at the University of California, “Putin’s regime is more vulnerable than ever to another threat: a paralyzing meltdown as accumulating crises overwhelm the Kremlin’s decision-making capacity. The war is exacerbating the system’s internal weaknesses, nudging it in the direction of collapse.”²⁹⁸
 - As elites lose confidence in Putin, they may begin procrastinating as they lose faith in the system. This inaction could exacerbate problems in the system.

²⁹⁶ Ibid.

²⁹⁷ Peter Clement, “Putin’s Risk Spiral.”

²⁹⁸ Daniel Treisman, “What Could Bring Putin Down?”

- Putin's own history of procrastination and indecision could also cause problems to magnify.
- "'There is a feeling that we cannot attain the political aims that were originally forwarded,' [Alexandra Prokopenko, a former adviser at Russia's Central Bank] said. 'This is clear to all.' But no one knows how large a loss Russia can sustain before its leaders believe its existence is in jeopardy, he said."²⁹⁹

Costs of Action

- *Nuclear retaliation by the United States*: The United States is a nuclear power and capable of retaliating to Russian nuclear use.
 - Value: Very High
 - The United States has a ready, reliable, and resilient nuclear force that poses an existential threat to Russia. Even limited nuclear retaliation by the United States would have the potential to escalate further.
 - Probability: Low
 - Masha Gessen, a Russia-American journalist studying Putin's risk taking propensity, assesses Putin believes, "Western nations don't have the strength of their convictions to retaliate if it comes to nukes."³⁰⁰
 - Ukraine is not under the U.S. nuclear umbrella, and the United States has no obligation to retaliate on Ukraine's behalf.

²⁹⁹ Catherine Belton, "Putin, Unaccustomed to Losing, is Increasingly Isolated as War Falters."

³⁰⁰ Masha Gessen, "Vladimir Putin Would use Nuclear Weapons in Ukraine," *The New Yorker* (November 1, 2022), available at <https://www.newyorker.com/news/our-columnists/why-vladimir-putin-would-use-nuclear-weapons-in-ukraine>.

- President Biden has stated on several occasions a fear of starting World War III.
 - *Lose support of China*: Prior to Russia’s invasion of Ukraine in 2022, Russia and China declared a “no-limits partnership.” China has continued to support Russia, though with limits, after the invasion.³⁰¹
 - Value: Very High
 - Confrontation with the West requires Russia to have a good relationship with China. Putin has learned from the Soviet Union’s experience in the Cold War that to confront both China and the West simultaneously is an unnecessary geopolitical strain.³⁰²
 - In the current conflict, Russia depends on China’s economic support in the face of the sanctions that were imposed following the invasion of Ukraine.³⁰³
 - Further, media reports indicate that China has “also defended Russian falsification attempts of atrocities. And at the United Nations, the Chinese blocked motions to censure Russia for its actions, voted against motions to investigate war crimes, and backed Russia’s March draft Security Council resolution that omitted mention of Russia’s role in the Ukraine crisis.”³⁰⁴
 - Probability: High
 - Xi Jinping has had concerns for the state of the war. In a phone call with Putin in

³⁰¹ Jason Li, “Ukraine at One Year: Has China Support Russia?,” *The Stimson Center* (February 13, 2023), available at <https://www.stimson.org/2023/ukraine-at-one-year-has-china-supported-russia/>.

³⁰² Eugene Rumer, “Putin’s Long War.”

³⁰³ Sergey Radchenko, “Coups in the Kremlin,” *Foreign Affairs* (September 22, 2022), available at <https://www.foreignaffairs.com/russian-federation/coups-kremlin>.

³⁰⁴ Jason Li, “Ukraine at One Year: Has China Support Russia?”

December 2022, Xi Jinping stated that improving cooperation was hampered by the “complicated and quite controversial international situation.”³⁰⁵

- In February 2023, China released a document called “China’s Position on the Political Settlement of the Ukraine Crisis,” which contained the statement, “Nuclear weapons must not be used and nuclear wars must not be fought. The threat or use of nuclear weapons should be opposed. Nuclear proliferation must be prevented and the nuclear crisis avoided. China opposes the research, development, and use of chemical and biological weapons by any country under any circumstances.”³⁰⁶
 - Xi Jinping has warned Putin not to use nuclear weapons.³⁰⁷ Putin’s use of nuclear weapons would risk international backlash on China.
- *Overwhelming conventional response by NATO in Ukraine*: NATO has sufficient and effective capability to launch an overwhelming conventional response on Russian forces in Ukraine and potentially the Russian Black Sea Fleet. As part of its response to Russian aggression, NATO has reinforced its forces in Estonia, Latvia, Lithuania, and Poland while establishing new

³⁰⁵ Catherine Belton, “Putin, Unaccustomed to Losing, is Increasingly Isolated as War Falters.”

³⁰⁶ Chris Devonshire-Ellis, “China’s Peace Plan for Ukraine, Russia, The European Union and United States: Latest Updates and New Analysis,” *China Briefing* (February 24, 2023), available at <https://www.china-briefing.com/news/chinas-peace-plan-for-ukraine-russia-the-european-union-and-united-states/>.

³⁰⁷ Stuart Lau, “China’s Xi warns Putin not to use Nuclear Arms in Ukraine,” *Politico* (November 4, 2022), available at <https://www.politico.eu/article/china-xi-jinping-warns-vladimir-putin-not-to-use-nuclear-arms-in-ukraine-olaf-scholz-germany-peace-talks/>.

multinational battle groups in Bulgaria, Hungary, Romania and Slovakia.³⁰⁸

- Value: Very High
 - Putin has attempted to deter the West and NATO from intervening in the conflict with increased threats and nuclear signaling. NATO has the ability to employ significant conventional force to defeat the Russian military in Ukraine.³⁰⁹ Putin would not be able to achieve his strategic objective if this were to occur.
- Probability: High
 - President Biden has stated, “Any use of nuclear weapons in this conflict on any scale would be completely unacceptable to us as well as the rest of the world and would entail severe consequences.”³¹⁰
 - At the Diplomatic Academy in Brussels, European Union foreign policy chief Josep Borrell stated, “Putin is saying he is not bluffing. Well, he cannot afford bluffing, and it has to be clear that the people supporting Ukraine and the European Union and the Member States, and the United States and NATO are not bluffing neither. Any nuclear attack against Ukraine will create an answer, not a nuclear answer but such a powerful

³⁰⁸ Steve Bernard, et al., “Russia’s Invasion of Ukraine in Maps – Latest Updates,” *Financial Times* (March 3, 2023), available at <https://www.ft.com/content/4351d5b0-0888-4b47-9368-6bc4dfbccbf5>.

³⁰⁹ Fiona Hill and Angela Stent, “The World Putin Wants,” *Foreign Affairs* (September/October 2022), available at <https://www.foreignaffairs.com/russian-federation/world-putin-wants-fiona-hill-angela-stent>.

³¹⁰ J. Andres Gannon, “If Russia Goes Nuclear: Three Scenarios for the Ukraine War,” *Council on Foreign Relations* (November 9, 2022), available at <https://www.cfr.org/article/if-russia-goes-nuclear-three-scenarios-ukraine-war>.

- answer from the military side that the Russian Army will be annihilated.”³¹¹
- NATO has warned of severe consequences if Russia were to use nuclear weapons, with senior officials stating, “There would be a sharp response – almost certainly drawing a physical response from many allies, and potentially from NATO itself.”³¹²
 - *Break the nuclear taboo and become an international pariah:* There is a strong international norm against the use of nuclear weapons.
 - Value: Medium
 - Becoming an international pariah and the isolation from the international system will increase the economic and social costs of the conflict.³¹³ This will be especially true if states that are currently supporting Russia decide to pull out.
 - However, Putin continues to threaten nuclear use to coerce adversaries, while accepting the isolation from the West for his invasion of Ukraine.
 - Probability: Very High
 - Nuclear weapons have not been used since 1945. It would cause a psychological shock to the international system. Nations would choose to isolate Russia.

³¹¹ “EU warns Russian Army will be ‘annihilated’ if Putin uses Nuclear Weapon on Ukraine,” *The Times of Israel* (October 13, 2022), available at <https://www.timesofisrael.com/eu-warns-russian-army-will-be-annihilated-if-putin-uses-nuclear-weapon-on-ukraine/>.

³¹² *Ibid.*

³¹³ Erin Snodgrass and Kelsey Vlamis, “Russia will be a ‘Pariah State in the Eyes of Many People Forever’ and there’ll be no ‘starting over’ while Putin’s Still in Charge,” *Business Insider* (April 21, 2022), available at <https://www.businessinsider.com/russia-pariah-state-while-putin-is-in-charge-expert-says-2022-4>.

Benefits of Restraint

- *Offer off-ramp and consolidate gains:* Putin has offered to hold peace negotiations on his terms.
 - Value: Very High
 - Peace negotiations on Russia’s terms would solidify gains and work to achieve Russia’s strategic objectives.
 - Probability: Low
 - Putin has offered peace negotiations, attempting to force Ukraine and the West into accepting them by continuing to strike Ukraine’s critical infrastructure and civilian population.³¹⁴ Thus far, Ukraine has been able to withstand this attacks and resist taking the offramp.
- *Outlast Ukraine in a war of attrition:* The Russian military and economy has not collapsed and are capable of still fighting. Russia also has more forces to mobilize to continue to outlast Ukraine.³¹⁵
 - Value: Medium
 - While this would achieve Russia’s strategic objective, it would be taxing to both the military and the economy. This would cause more casualties and may require further mobilization, which has been unpopular.
 - Probability: Medium
 - Russia’s conventional force has suffered heavy losses, has poor equipment due the impact of economic sanctions following the 2014 invasion of Ukraine, and its force has low morale.³¹⁶

³¹⁴ Catherine Belton, “Putin, Unaccustomed to Losing, is Increasingly Isolated as War Falters.”

³¹⁵ Vladislav Zubok, “No One Would Win a Long War in Ukraine.”

³¹⁶ Boris Bondarev, “The Sources of Russian Misconduct.”

- There is risk in this course of action. If the Russian military continues to suffer losses, this may cause the military to collapse. Further, continued Russian losses may motivate the West to increase support for Ukraine.
- Economic sanctions are having an effect on the populace. If the war continues, many people risk losing their jobs creating the potential for domestic unrest.³¹⁷

Summary

For this particular decision, Putin is in a loss-frame as he has suffered many defeats in the past 18 months, including modifying his strategic objective in order to be more achievable. This may increase his risk-taking propensity. Due to the loss-frame, the costs of restraint may have a great influence on his decision as those consequences directly impact his ability to achieve his strategic objective and are contrary to his sacred values. This does not mean that nuclear use is inevitable, as there are significant consequences for this action, which will not guarantee a favorable outcome to the conflict.

Gap: Would Russia's population support nuclear use or would it hasten regime collapse?

Risk: Some Russian elites may not support nuclear use.

³¹⁷ Vladislav Zubok, "No One Would Win a Long War in Ukraine."

Impact of the Private Sector on the Decision Calculus

		New Weapons of Warfare						
		Social Media	Computer Network Attack	Influence Operations	Economic Coercion	Open Source Intelligence	Private Satellite Companies	Mercenaries
Perceptions	Diminish western public support for Ukraine	High	Med	Low	Indirect	No Impact		
	Conventional military continues to be attrited							High
	Russian elites lose confidence in Putin	High	Med	Low	Indirect	No Impact		
	Ukraine is victorious in defeating Russia	High	Med	Low	Indirect	No Impact		High
	Fail to meet the expectations of the Russian populace	High	Med	Low	Indirect	No Impact		
	Putin loses power and removed from office	High	Med	Low	Indirect	No Impact		
	Russian regime collapses	High	Med	Low	Indirect	No Impact		
	Break the nuclear taboo and become an international pariah	High	Med	Low	Indirect	No Impact		
	Outlast Ukraine in a war of attrition	High	Med	Low	Indirect	No Impact		
			Key	High	Med	Low	Indirect	No Impact

Benefits of Action

- *Diminish Western public support for Ukraine:* The public in the West currently supports Ukraine, and the majority is still in favor of sending military aid.³¹⁸
 - o Social Media – social media provides a platform for users to communicate, inform, organize, fundraise, and be involved in international politics and national security in ways that was unimaginable just a few decades ago.³¹⁹ Individuals have used social media to organize, grow and maintain public support for Ukraine.

³¹⁸ Russia Matters Staff, “Polls Show Western Public Favors General Support for Ukraine, But is Increasingly Skeptical about Supplying Arms,” *Russia Matters Harvard Kennedy Center* (February 9, 2023), available at <https://www.russiamatters.org/blog/polls-show-western-public-favors-general-support-ukraine-increasingly-skeptical-about>.

³¹⁹ “The Invasion of Ukraine is not the First Social Media War, but it is the Most Viral,” *The Economist*.

- Influence Operations – The NAFO group is just one organization using memes to influence the public in support of Ukraine.³²⁰
- Economic Coercion – The public has instituted boycotts of companies still doing business in Ukraine.
- Assessment: These actions demonstrate Western public support for Ukraine. Political leaders in Western countries have more latitude to continue sending aid to Ukraine when the population supports the actions.

Costs of Restraint

- *Conventional military continues to be attrited*: Russia's military has performed poorly in the first year of the conflict. It has suffered numerous defeats, had issues with logistics, lost a significant amount of hardware, and suffered extensive casualties.³²¹ Further, its electronic warfare operations have been thwarted.³²²
 - Social Media – Social media has been used to drive crowd-sourcing campaigns to purchase drone technology. These drones have been used to locate Russian troops and attack them. These drones are also capable of delivering an explosive payload.³²³
 - Computer Network Attack – Authorities assess that over 400,000 hackers from all over the world

³²⁰ "A Virtual Army of Impish Cartoon Pooches is Waging War on Russia," *The Economist*.

³²¹ Anthony H. Cordesman, "How? (and Does?) the War in Ukraine End: The Need for a Grand Strategy," *Center for Strategic and International Studies* (February 24, 2023), available at <https://www.csis.org/analysis/how-and-does-war-ukraine-end-need-grand-strategy>.

³²² Peter Clement, "Putin's Risk Spiral."

³²³ Prarthana Prakash, "A Crowdfunding Campaign for Ukraine to buy Drones Raised Nearly \$10 Million in 24 Hours."

- have launched digital attacks against Russia.³²⁴ Further, corporations have actively defended Ukraine's networks from attack.³²⁵
- Open-Source Intelligence – Amateur enthusiasts are using social media, satellite imagery, videos, and more to track Russian troop movements.³²⁶ This information is then available to Ukrainian military planners and operators.
 - Private Satellite Companies – In addition to imagery that is provided for targeting, Starlink has assured that Ukraine stays connected to the internet allowing it to command and control its own military, to degrade Russian forces.³²⁷
 - Mercenaries – More than 20,000 foreign volunteers from 52 nations have gone to Ukraine to fight.³²⁸
 - Assessment: Individuals and the private sector have enhanced the performance of the Ukrainian military. Further, without the private satellite company support, Ukraine would have lost the ability to command and control its military, and the economy would not have been able to function. This alone enabled Ukraine to continue the conflict.
- *Russian elites lose confidence in Putin*: With continued failures in Ukraine, and as the war drags into its

³²⁴ Tom Huddleston Jr., "What is Anonymous? How the Infamous 'Hacktivist' Group Went from 4chan Trolling to Launching Cyberattacks on Russia."

³²⁵ Elisabeth Braw, "Ukraine's Digital Fight goes Global."

³²⁶ "A New Era of Transparent Warfare Beckons," *The Economist*.

³²⁷ "How Elon Musk's Satellites have Saved Ukraine and Changed Warfare," *The Economist*.

³²⁸ Isaac Chakyan Tang, "The Latest in a Long Line: Ukraine's International Legion and a History of Foreign Fighters," *Harvard Law Review* (September 2, 2022), available at <https://hir.harvard.edu/the-latest-in-a-long-line-ukraines-international-legion-and-a-history-of-foreign-fighters/>.

second year, Putin's relationship with his elites has become strained.³²⁹

- Assessment—The ability of the private sector and the individual to impact this directly is low but has impact from the second order effects of impacting the effectiveness of the Ukrainian military, undermining Russian public support for the regime and maintaining Western support for Ukraine.
- *Ukraine is victorious in defeating Russia*: Ukraine has overturned a significant portion of Russia's territorial gains from the February 2022 invasion.³³⁰
 - Assessment—All of the same tools used to diminish the effectiveness of Russia's military will be used to assure Ukraine's victory. However, one issue is whether or not the attention span of the public or private sector is long enough as people begin to lose interest, or other events take center stage.
- *Fail to meet the expectations of the Russian populous*: The Russian public views Putin as the architect of this conflict with expectations for success. As the conflict has changed and more defeats become apparent, the Russian populace may begin to blame Putin for the failures.³³¹
 - Social Media—Western news sources have been made available on Russian social media platforms, making it more difficult for the government to block them.³³²

³²⁹ Daniel Treisman, "What Could Bring Putin Down?"

³³⁰ Peter Dickinson, "2022 Review: Why has Vladimir Putin's Ukraine Invasion gone so Badly Wrong?"

³³¹ Vladislav Zubok, "No One Would Win a Long War in Ukraine," *Foreign Affairs* (December 21, 2022), available at <https://www.foreignaffairs.com/ukraine/no-one-would-win-long-war-ukraine>.

³³² Robert McMahon, "Russia is Censoring News on the War in Ukraine. Foreign Media are Trying to Get Around That," *Council on Foreign Relations* (March 18,

- Influence Operations—Individuals are actively trying to influence the Russia populace about the war, posting images on popular Russian review sites in Moscow and St. Petersburg.³³³
- Economic Coercion—The impact of boycotts, private economic sanctions, and the exit of Western corporations from Russia have impacted the citizens of Russia, including job losses, loss of banking services, and a decrease of products available.³³⁴
- Assessment—The Russian government is actively countering the efforts by Western governments, the private sector, and individuals to influence Russian public opinion. However, there is some evidence that public opinion in Russia is souring on the conflict. This is a concern as the election is in 2024. To combat this, the Russia government has stringent controls limiting the ability of the public to organize for protests and has enabled the most dissatisfied to leave the country, removing the threat.³³⁵
- *Lose power and removed from office*: Putin could face widescale backlash and lose power if the campaign in Ukraine continues to falter.³³⁶ This could result in his removal from office.
 - Assessment—The ability of the private sector and the individual to impact this directly is low,

2022), available at <https://www.cfr.org/in-brief/russia-censoring-news-war-ukraine-foreign-media-are-trying-get-around>.

³³³ Katie Collins, "Google Restaurant Reviews Hijacked to Share News from Ukraine with Russia Citizens."

³³⁴ John Milton, "Private Sector Sanctions on Russia."

³³⁵ Denis Volkov, Andrei Kolesnikov, "My Country. Right or Wrong: Russian Public Opinion on Ukraine," *The Carnegie Endowment for International Peace* (September 7, 2022), available at <https://carnegieendowment.org/2022/09/07/my-country-right-or-wrong-russian-public-opinion-on-ukraine-pub-87803>.

³³⁶ Boris Bondarev, "The Sources of Russian Misconduct."

but has impact from the second order effects of impacting the effectiveness of the Ukrainian military, undermining Russian public support for the regime, and maintaining Western support for Ukraine.

- *Regime collapse*: In Russian history, military losses have often been followed by regime change. Following World War I, the Tsarist regime collapsed and following the loss in Afghanistan, the communist regime collapsed. Putin, as a student of Russian history, would be very aware of these facts.
 - Assessment—The ability of the private sector and the individual to impact this directly is low, but has impact from the second order effects of impacting the effectiveness of the Ukrainian military, undermining Russian public support for the regime, and maintaining Western support for Ukraine.

Costs of Action

- *Break the nuclear taboo and become an international pariah*: There is a strong international norm against the use of nuclear weapons.
 - Social Media—The nuclear weapons effects and impact would be captured on videos and pictures, and readily shared around the world. The effects would be prominently displayed and better empower those wanting to make Russia an international pariah.
 - Influence Operations—It can be expected that additional groups would use social media to influence others against Russia. Further, this is a tool that is already being used by International

Red Cross to create an ethical norm against nuclear weapons possession and use.³³⁷

- Economic Coercion—It can be expected that the international public and private sector would advocate for even stronger private economic sanctions and boycotts after nuclear weapons were used for the first time since World War II.
- Assessment—The nuclear taboo is readily established, though it is uncertain the impact it would have as autocratic governments tend to value international public opinion less. Though the long term impact of being a pariah may drive some caution.³³⁸

Benefits of Restraint

- *Outlast Ukraine in a war of attrition:* The Russian military and economy has not collapsed and are capable of still fighting. Russia also has more forces to mobilize to continue to outlast Ukraine.³³⁹
 - Assessment: All of the tools that individuals and the private sector have been using to hinder Russia thus far would continue.

³³⁷ “Why does the Nuclear Ban Treaty Matter?” *International Committee of the Red Cross* (January 19, 2021), available at <https://www.icrc.org/en/document/why-nuclear-ban-treaty-matters>.

³³⁸ Brad Roberts, “Ban the Bomb? Or Bomb the Ban? Next Steps on the Ban Treaty,” *European Leadership Network, Global Security Policy Brief* (March 2018).

³³⁹ Vladislav Zubok, “No One Would Win a Long War in Ukraine.”

Appendix II

Case Study – Notional China-Taiwan Conflict

Appendix II presents the full decision calculus assessment model for Chinese President Xi Jinping’s decision to conduct a non-nuclear strategic attack in a notional China-Taiwan conflict. It provides justification and sources for each perception identified, as well as justification and sources for each value and likelihood judgement. It then has the full assessment of how individuals and the private sector using the new weapons of war can impact the perceptions in the decision calculus.

Profile

- What are some key characteristics of President Xi?
 - Micromanager
 - Xi is assessed to be “a micromanager who intervenes often, unpredictably and sometimes vaguely in policy matters big and small.”³⁴⁰
 - He has a belief that many officials in China aren’t competent and without his input, nothing would be accomplished. Xi said in a speech, “I issue instructions as a last line of defense.”³⁴¹
 - By micromanaging decisions, Xi sets himself up for more criticism if/when things go wrong. According to Joseph Fewsmith, an

³⁴⁰ Josh Chin, “Xi Jinping’s Leadership Style: Micromanagement that Leaves Underlings Scrambling,” *The Wall Street Journal* (December 15, 2021), available at <https://www.wsj.com/articles/xi-jinpings-leadership-style-micromanagement-that-leaves-underlings-scrambling-11639582426>.

³⁴¹ Ibid.

expert in Chinese Politics, “He will be blamed for whatever goes wrong, and he no doubt has many enemies.”³⁴²

- Unwilling to accept criticism or be questioned
 - The PRC had a tradition created during Mao’s rule, in which subordinates were allowed to write the supreme leader with questions, suggestions, or criticism about his policies. This acted as a check and a method to ensure the best policies. Xi has removed this mechanism by punishing those that attempt to use it.³⁴³
 - He is inflexible and “insists that his instructions be obeyed to the letter.”³⁴⁴ This is a change, as in the past instructions were viewed as guidelines to be adapted to the unique circumstances of different provinces.
 - According to PRC officials, “When loyalty is the critical measure for officials, no one dares to say anything, even if the instructions from the great leader are vague and confusing about what to do.”³⁴⁵
 - “Xi has concentrated too much power and does not listen much anymore,” commented Jean-Pierre Cabestan, a researcher at the

³⁴² “Fewsmith in Bloomberg: Xi Jinping, Micromanager,” *Boston University* (September 15, 2015), available at <https://www.bu.edu/pardeeschool/2015/09/15/fewsmith-in-bloomberg-xi-jinping-micromanager/>.

³⁴³ Cai Xia, “The Weakness of Xi Jinping,” *Foreign Affairs* (September/October 2022), available at <https://www.foreignaffairs.com/china/xi-jinping-china-weakness-hubris-paranoia-threaten-future>.

³⁴⁴ *Ibid.*

³⁴⁵ Josh Chin, “Xi Jinping’s Leadership Style: Micromanagement that Leaves Underlings Scrambling.”

French Centre for Research on Contemporary China, Hong Kong.³⁴⁶

- Inferiority complex
 - Compared to his predecessors, he has not had the same quality of education. He was admitted to college on the basis of his political reliability, not his academic record. Further, it is well documented that officials will often have other people complete their schoolwork, and his dissertation had many instances of plagiarism.³⁴⁷
 - According to Chris King, a Senior Research Fellow for MEMRI, “Xi Jinping, on the other hand, pretends to be knowledgeable and fond of reading books. However, he has misread words in his speeches many times. During his visits to Russia and France, he memorized a long list of books in order to show his knowledge. The CCP and Xi have never said exactly how many of the articles in Xi's so-called works that have now been published were written by Xi himself. This shows Xi's deep lack of confidence. This may be why he often likes to talk about confidence, and why he needs to use the outrageous approach of a personality cult to enforce his position inside and outside the CCP to secure his power.”³⁴⁸

³⁴⁶ Cindy Sui, “Xi Jinping – The Man Leading China for Better or Worse,” *Voice of America* (October 16, 2022), available at <https://www.voanews.com/a/xi-jinping-the-man-leading-china-for-better-or-worse-/6791987.html>.

³⁴⁷ Cai Xia, “The Weakness of Xi Jinping.”

³⁴⁸ Chris King, “The Personality Cult of Xi Jinping – Part II: Xi’s Biggest Shortcoming is His Lack of Personal Prestige,” *MEMRI* (July 22, 2021), available at <https://www.memri.org/reports/personality-cult-xi-jinping-%E2%80%93-part-ii-xis-biggest-shortcoming-his-lack-personal-prestige>.

- What are Xi’s sacred values?
 - Xi’s primary goal: “fully developed, rich, and powerful” country to achieve the “great rejuvenation of the Chinese nation” by the one hundredth anniversary of the founding of the People’s Republic of China in 2049.³⁴⁹
 - Xi experienced both great privilege from being a child of a revolutionary hero, but also suffered greatly during the Cultural Revolution as one of the sent down youth. According to Jeffrey A. Bader at Brookings, “He emerged from the experiences of privilege and suffering with a firm faith in the necessity of a strong *Communist Party to govern China*, an aversion to *chaos and social instability*, a commitment to *China’s economic growth based on acceptance of the role of markets*, and demand for *respect for China internationally*.”³⁵⁰
 - The sovereignty of China is an issue that Xi is unwilling to compromise. Speaking at the 90th anniversary of the founding of the People’s Liberation Army, Xi said, “The Chinese people love peace. We will never seek aggression or expansion, but we have the confidence to defeat all invasions. We will never allow any people, organization or political party to split any part of Chinese territory out of the country at any time, in any form...No one should expect us to swallow the bitter fruit that is harmful to our

³⁴⁹ Graham Allison, “What Xi Jinping Wants,” *The Atlantic* (May 31, 2017), available at <https://www.theatlantic.com/international/archive/2017/05/what-china-wants/528561/>.

³⁵⁰ Jeffrey A. Bader, “How Xi Jinping Sees the World...and Why,” *The Brookings Institution* (February 2016) p. 8.

- sovereignty, security or development interests.”³⁵¹ Taiwan is considered part of China.
- What is the decision-making structure and process in the nation?
 - Deng Xiaoping reformed the Chinese government to guard against strongman rule through a cult of personality, as the nation experienced under Mao Zedong. The Politburo Standing Committee were a group of equals, with each member subject to term limits and able to veto the Chairman of the Chinese Communist Party. As each successive leader became weaker, the need for consensus resulted in gridlock. After Xi was selected as Chairman, he began consolidating power and reforming the system. Through his anti-corruption campaign, he was able threaten and purge leaders who disagreed with him. He consolidated decision making into his own hands, with the other members of the Politburo Standing Committee answering to him and beholden to him for their performance reviews.³⁵² In his second term, he also removed terms limits, which allowed him to accept his third term in 2022, completely dismantling the system that Deng Xiaoping created.
 - While this is his third term as president, his greatest power comes from his position as the Chairman of the Chinese Communist Party, and there are no term limits for that position, just a tradition to step down after two terms, which he broke.

³⁵¹ Philip Wen, Ben Blanchard, “President Xi says China Loves Peace but won’t Compromise on Sovereignty,” *Reuters* (July 31, 2017), available at <https://www.reuters.com/article/us-china-defence/president-xi-says-china-loves-peace-but-wont-compromise-on-sovereignty-idUSKBN1AH2YE>.

³⁵² Cai Xia, “The Weakness of Xi Jinping.”

- Government ministries are compartmentalized from each other, meaning that there are occasions where the Ministry of Defense may take an action that the Foreign Ministry is unaware of.³⁵³
- Xi Jinping is the commander and chief of the military. While reforming the PLA, he also “reworked the official lines of authority to emphasize his grip over the military,” according to media reports.³⁵⁴ “Xi has restructured the military and paramilitary apparatus to increase centralization and vest more authority in his own hands. Decisions on the use of China’s military and paramilitary forces are subject to an increase in the personal discretion exercised by Xi.”³⁵⁵
- Even when there is clear evidence of a failing policy, such as China’s Zero-Covid Policy, it is extremely difficult for the overly centralized government to change course.³⁵⁶
- How does the nation’s history impact the decision in question?
 - Century of Humiliation (1839-1949)³⁵⁷ – The period of time between the First Opium war and the creation of the People’s Republic of China in 1949. This was a time when China was at the

³⁵³ Christopher Johnson, “Xi the Survivor,” *Foreign Affairs* (February 22, 2023), available at <https://www.foreignaffairs.com/china/xi-survivor>.

³⁵⁴ *Ibid.*

³⁵⁵ U.S.-China Economic and Security Review Commission, *2022 Annual Report to Congress* (November 2022) p. 26.

³⁵⁶ Minxin Pei, “The Sudden End of Zero-Covid: An Investigation,” *The China Leadership Monitor* (March 1, 2023), available at <https://www.prcleader.org/pei-spring-2023>.

³⁵⁷ For more information, see: Allison Kaufman, “The ‘Century of Humiliation’ and China’s National Narratives,” Testimony before the U.S.-China Economic and Security Commission (March 10, 2011), available at <https://www.uscc.gov/sites/default/files/3.10.11Kaufman.pdf>.

mercy of foreign powers. This resulted in a series of conflicts between China and Western powers and Japan that resulted in the occupation, colonization, and eventual collapse of dynastic rule of China in 1911.³⁵⁸ Successive governments failed to take hold in China, resulting in a civil war between the Nationalists and Communists. The invasion and occupation by Japan resulted in additional atrocities perpetrated against China. The establishment of the People's Republic of China occurred when the Communists defeated the Nationalists in October 1949.

- Taiwan—The Nationalists fled to Taiwan after their defeat in 1949. The United States and other nations recognized the Republic of China on Taiwan as the legitimate government of China, even having them hold China's seat at the United Nations and the Security Council. Through a series of crises in the 1950s, the United States and Taiwan signed a mutual defense agreement to deter the PRC from attempting to unify the nation. In order to establish a relationship with the mainland, the United States changed its recognition from Taiwan to the PRC in the 1970s and established a formal relationship with China in 1979. The Three Communiques defined the basis of the relationship but put the status of Taiwan in a state of limbo.

The U.S.-Taiwan Relations Act establishes the basis for an economic relationship with Taiwan,

³⁵⁸ Mark Tischler, "China's 'Never Again' Mentality," *The Diplomat* (August 18, 2020), available at <https://thediplomat.com/2020/08/chinas-never-again-mentality/>.

while also declaring that the hostile takeover of the island is a threat to the peace and security of the Asia-Pacific. It therefore authorizes the sale of military equipment to Taiwan, and states that the U.S. military must be capable of defending Taiwan, leaving it ambiguous if a U.S. president would defend Taiwan from a Chinese military attack.³⁵⁹ However, China views Taiwan as a rogue province and the unfinished business of the Chinese civil war. Also, the Chinese Communist Party narrative as the unifier of China is part of the basis for its legitimacy to rule China, meaning that it views the failure to unify with Taiwan as a threat to its legitimacy to rule China.³⁶⁰

- What are key international relationships?
 - The United States—The relationship between China and the United States has been in decline for several years and has become more confrontational. China views the United States as its primary adversary and a strategic threat as the primary guarantor of Taiwan’s security. At the same time, the United States is China’s largest trading partner. The United States policy towards China has also changed to one of strategic competition. This is one area of bipartisan agreement in the U.S. government, and the Trump strategy for China was kept

³⁵⁹ 96th Congress, *Taiwan Relations Act* (January 1, 1979), available at <https://www.ait.org.tw/taiwan-relations-act-public-law-96-8-22-u-s-c-3301-et-seq/>.

³⁶⁰ John Culver and Ryan Hass, “Understanding Beijing’s Motives Regarding Taiwan, and America’s Role,” *The Brookings Institution* (March 30, 2021), available at <https://www.brookings.edu/on-the-record/understanding-beijings-motives-regarding-taiwan-and-americas-role/>.

largely intact by the Biden Administration.³⁶¹ Beijing believes that the United States is intent on denying it its right place at the top of the world order. Further, Xi believes that U.S. hostility toward China is bipartisan.³⁶² China's deputy Foreign Minister commented that "a whole-of-government and whole-of-society campaign is being waged [by the United States] to bring China down."³⁶³

Assessed Strategic Decision

Xi Jinping's possible decision to conduct a strategic cyberattack on elements of the U.S. power grid on the West Coast—specifically, the Bonneville Power Administration, which provides 28% of electricity for 300,000 square miles of the Pacific Northwest and operates 75% of the high voltage transmission—is assessed here. The Department of Energy has assessed problems in Bonneville's cyber security program that, "if compromised, could have a significant impact on Bonneville and its customers."³⁶⁴

Decision Context

- What is the strategic objective in this situation?
 - Full unification with Taiwan on the PRC's terms

³⁶¹ "A Hostile Meeting Sets the Tone for US-China Relations," *The Economist* (March 20, 2021), available at <https://www.economist.com/china/2021/03/20/a-hostile-meeting-sets-the-tone-for-us-china-relations>.

³⁶² Christopher Johnson, "Xi the Survivor."

³⁶³ Michael Beckley, Hal Brands, "The End of China's Rise," *Foreign Affairs* (October 1, 2021).

³⁶⁴ Office of the Inspector General, "Follow-up on Bonneville Power Administration's Cybersecurity Program," *The Department of Energy* (August 16, 2017), available at <https://www.energy.gov/ig/articles/audit-report-doe-oig-17-06>.

- Is that strategic objective at risk of failure?
 - Not yet, but success is not assured.
- What is the strategic context of the situation?
 - In this scenario, demonstrations erupt in Taiwan’s populace supporting a formal declaration by Taiwan’s government of its status as an independent, sovereign nation, distinct from the PRC. Although Taiwan’s government tries to reaffirm the status quo, Beijing calls for immediate talks on unification, which Taipei refuses.
 - China begins mobilizing forces in the Eastern Theater Command, initially in an attempt to coerce Taipei to the negotiating table.
 - The United States, Japan and Australia form a coalition to defend Taiwan and begin flowing forces to the region to deter China’s aggression.
 - With China’s attempt at coercion failing to produce results, and the independence movement growing in Taiwan, China initiates an air and missile campaign against key government and military targets in Taiwan using precision guided munitions and air strikes.³⁶⁵
 - International condemnation of China’s attack erupts. The United States, Japan, and Australia form a coalition to defend Taiwan and begin active combat with Chinese forces.
 - With the increased resistance to China’s initial attack, China begins the so-called “Joint Island Landing Campaign” to take the island by force. This is the most complicated operation ever attempted by the Chinese military.³⁶⁶

³⁶⁵ Department of Defense, *Military and Security Developments Involving the People’s Republic of China* (2022) p. 127.

³⁶⁶ *Ibid.*

- China seeks to accomplish its objectives quickly, before coalition forces are able to bring additional forces to the region.³⁶⁷ However, with the ample warning time provided, Japan, Australia, and the United States are able to move significant forces in the region. A conventional conflict begins in the maritime, space, and cyber realms with all participants beginning to sustain significant losses.
- Is the decision maker in a loss frame?
 - Yes. The calls for Taiwan independence threaten the legitimacy of the Chinese Communist Party and the sacred values of Xi Jinping.

³⁶⁷ Jennifer Bradley, "China's Nuclear Modernization and Expansion: Ways Beijing Could Adapt its Nuclear Policy," p. 28.

Decision Calculus

Undermine Deterrence		
Benefit of Action		
<i>Perception</i>	<i>Value</i>	<i>Likelihood</i>
Compel U.S. government to halt support for Taiwan	VH	M
Undermine coalition cohesion	VH	M
Create chaos in the United States	H	H
Undermine U.S. public support for conflict	H	H
Costs of Restraint		
<i>Perception</i>	<i>Value</i>	<i>Likelihood</i>
Regime survival at stake	VH	M
Xi's position of chairman is undermined	VH	M
Taiwan resists Chinese invasion with coalition support	VH	M
Popular nationalism turns on CCP	VH	L
Enhance Deterrence		
Cost of Action		
<i>Perception</i>	<i>Value</i>	<i>Likelihood</i>
Conventional coalition response on Chinese mainland	VH	VH
Cyberattack on Chinese critical infrastructure	VH	VH
Additional nations join U.S., AUS, JPN coalition	VH	M
U.S. expands conflict out of the region	M	H
Economic sanctions and boycotts expand	M	M
Benefits of Restraint		
<i>Perception</i>	<i>Value</i>	<i>Likelihood</i>
Save cyber tools for later in conflict	M	M

Key: VH - Very High, H - High, M - Medium, L - Low, VL - Very Low

Benefits of Action

- *Compel the U.S. government to halt support for Taiwan:*
The U.S. Taiwan Relations Act establishes the basis for an economic relationship with Taiwan, while also declaring that the hostile takeover of the island is a threat to the peace and security of the Asia-Pacific. It therefore authorizes the sale of military equipment to Taiwan, and states that the U.S. military must be

capable of defending Taiwan, leaving it ambiguous if a U.S. president would defend Taiwan from a Chinese military attack.³⁶⁸ The 2019 PRC Defense White Paper outlines the primary roles and responsibility of the military to deter and resist aggression and to oppose and contain Taiwan independence.³⁶⁹

- Value: Very High
 - Without the support of the United States and coalition partners, Taiwan would most likely not be able to prevail against the Chinese military.³⁷⁰
- Probability: Medium
 - Xi would be uncertain if this would be successful in compelling the U.S. government to halt its support of Taiwan. From observing how the United States reacted after the homeland was attacked on September 11, 2001, Xi would understand the unity and desire for revenge the erupted after that attack. However, that attack was perceived as unprovoked by the U.S. populace, while this attack was the result of the United States entering into a conflict to defend Taiwan.
- *Undermine coalition cohesion*: Both Japan and Australia have shown additional concern with the status of Taiwan in their official documents. Japan identified the status of Taiwan as significant to its national security in its defense white paper, and Australia is concerned with Chinese goals of undermining the

³⁶⁸ 96th Congress, *Taiwan Relations Act* (January 1, 1979), available at <https://www.ait.org.tw/taiwan-relations-act-public-law-96-8-22-u-s-c-3301-et-seq/>.

³⁶⁹ Department of Defense, *Military and Security Developments Involving the People's Republic of China*, p. 34.

³⁷⁰ John Culver and Ryan Hass, "Understanding Beijing's Motives Regarding Taiwan, and America's Role."

rules-based international order, which led to its joining AUKUS.³⁷¹ Undermining this coalition would diminish the military force that China would be facing.

- Value: Very High
 - China does not have allied partners that would come to its aid to defend Taiwan. This gives the United States an advantage, since its allies are highly capable, have bases in the region, and are able to bring significant military power to the conflict.³⁷² Undermining the cohesion of the alliance may cause one or more members to back out of the conflict, weakening the resistance.
- Probability: Medium
 - If the United States were to suffer a strategic cyberattack, the coalition may be strengthened as the nature of the conflict may change from one of preventing Taiwan independence to denying the PRC a sphere of influence or the ability to change the rules based international order. However, this would depend on the political will to potentially suffer strategic attacks on their own homelands.
- *Create chaos in the United States*: According to the Annual Threat Assessment of the Office of the Director of National Intelligence, one of the chief goals of a PRC cyberattack would be to create national panic and impede decision making.³⁷³

³⁷¹ Jennifer Bradley, "China's Nuclear Modernization and Expansion: Ways Beijing Could Adapt its Nuclear Policy," p. 28.

³⁷² Stacie Pettyjohn, Becca Wasser, and Chris Dougherty, "Dangerous Straits, Wargaming a Future Conflict over Taiwan," *Center for New American Security* (June 2022) p. 9.

³⁷³ Office of the Director of National Intelligence, *Annual Threat Assessment of the U.S. Intelligence Community* (February 6, 2023) p. 10.

- Value: High
 - Creating chaos in the United States may hinder the ability of national leaders to deal with two crises at the same time: a war with China and a potential disaster unfolding on the West Coast. This may give the PRC an advantage in the conflict, putting it closer to achieving its national objectives.
- Probability: High
 - The Colonial Pipeline cyberattack caused a panic among consumers as more than 1,000 gas stations on the East Coast ran out of fuel.³⁷⁴ While the United States has demonstrated its ability to address natural disasters, this has the potential to cause a significant portion of customers in eight Western states to lose power for a significant amount of time. This would stress the ability of emergency management to respond. It would also complicate and stress U.S. leadership decision making.
- *Undermine U.S. public support for conflict:* As a democracy, the U.S. government is beholden to its people. China has been working to sow doubt and discord between the government and the U.S. population.³⁷⁵
 - Value: High
 - Without U.S. public support for a conflict, the U.S. government will adjust its military

³⁷⁴ Allison Harris, Taylor Delandro, Sydney Kalich, “Biden Urges Americans not to Panic, says Fuel Shortages to End as Colonial Pipeline Reopens,” *KETK News* (May 13, 2021), available at <https://www.ketk.com/news/live-biden-delivers-remarks-as-colonial-pipeline-slowly-restarts-fuel-prices-remain-high/>.

³⁷⁵ Office of the Director of National Intelligence, *Annual Threat Assessment of the U.S. Intelligence Community*, p. 10.

strategy or reconsider the deployment of forces.³⁷⁶

- Probability: High
 - Public opinion polling shows that a majority of the U.S. public supports defending Taiwan. This could be changed if the U.S. homeland comes under attack.³⁷⁷ The U.S. homeland has always been a sanctuary during times of warfare in the modern era. The psychological impact of being under attack could reduce the public support for the war.

Costs of Restraint

- *Regime survival at stake:* Xi Jinping believes that the loss of Taiwan is an existential threat to the Chinese Communist Party.
 - Value: Very High
 - The survival of the Party is a sacred value for Xi Jinping
 - Probability: Medium
 - Currently, the strategic objective is not at risk of failure, though it is far from assured. This increases the uncertainty for the Party.
- *Xi's position of Chairman is undermined:* Xi is the sole decision maker for choosing to initiate a conflict to seize Taiwan. If it goes poorly, this may empower his enemies to remove him from power.
 - Value: Very High

³⁷⁶ Eric V. Larson, *Public Support for U.S. Military Operations* (Santa Monica, CA: RAND, 1996), available at https://www.rand.org/pubs/research_briefs/RB2502.html.

³⁷⁷ Timothy Rich, "New Public Opinion Polling on US Support for Defending Taiwan," *Global Taiwan Institute* (August 24, 2022), available at <https://globaltaiwan.org/2022/08/new-public-opinion-polling-on-us-support-for-defending-taiwan/>.

- Xi has worked to eliminate rivals and degrade their power bases, consolidate decision making on all key economic and national security matters into his hands, and rework the rules and norms for the Chinese government—enabling him to remain in power. He values his position and his hold on power very highly.
- Probability: Medium
 - The unification with Taiwan is a sacred value for members of the Chinese Communist Party. Because the objective is not yet under threat, they would not be seeking to remove Xi. However, it is not yet assured either. Meaning, Xi's enemies could be waiting for an opportunity to remove him from power if the conflict takes a negative turn and begins to go poorly.
- *Taiwan resists Chinese invasion with coalition support:* Taiwan has built a force to resist a Chinese invasion with U.S. military arms sales. Coalition support would increase the effectiveness of the Taiwan military.
 - Value: Very High
 - A more effective Taiwan military would make it more challenging for the PLA to unify with the island, potentially leading to greater losses.
 - Probability: Medium
 - There is concern that the Taiwan military has been investing in the wrong types of capabilities and that its current strategy for resisting a Chinese invasion is faulty. Even with coalition support this would inhibit

Taiwan's ability to defend itself.³⁷⁸ However, the Taiwan population overwhelmingly rejects unification with China, which increases their willingness to resist.³⁷⁹

- *Popular nationalism turns on the CCP:* The Party has used popular nationalism to increase the legitimacy of the Party, by using it to demonstrate the Party's role in returning China to international power and prominence after the Century of Humiliation.³⁸⁰
 - Value: Very High
 - Xi was a victim of the Cultural Revolution, being sent to the countryside as one of the sent down youth, and his family was persecuted. He personally understands the power of mob rule. However, Xi has nurtured a more aggressive online nationalism to keep unity of the people behind the party. This may prove difficult to control, and the people may turn on the Party if they view it as inept or the cause of challenges facing China.³⁸¹
 - Probability: Low
 - At this time in the conflict, the strategic objective is not at risk of failure. Nationalism and the desire to see Taiwan punished

³⁷⁸ "Taiwan needs a New Defense Strategy to Deal with China," *The Economist* (March 6, 2023), available at <https://www.economist.com/special-report/2023/03/06/taiwan-needs-a-new-defence-strategy-to-deal-with-china>.

³⁷⁹ Shelly Rigger, Lev Nachman, Chit Wai John Mok, Nathan Kar Ming Chan, "Why is Unification so Unpopular in Taiwan? It's the PRC Political System, not just Culture," *The Brookings Institution* (February 7, 2022), available at <https://www.brookings.edu/blog/order-from-chaos/2022/02/07/why-is-unification-so-unpopular-in-taiwan-its-the-prc-political-system-not-just-culture/>.

³⁸⁰ "Xi Jinping has Nurtured an Ugly Form of Chinese Nationalism," *The Economist* (July 13, 2022), available at <https://www.economist.com/china/2022/07/13/xi-jinping-has-nurtured-an-ugly-form-of-chinese-nationalism>.

³⁸¹ "Xi Jinping has Nurtured an Ugly Form of Chinese Nationalism," *The Economist*.

would unite the people behind the Party. However, if the Chinese military began to suffer tremendous losses or the strategic objective were in doubt, the people may turn on the Party, blaming its ineptness for the outcome.

Costs of Action

- *Conventional coalition response on Chinese mainland:* The 2018 National Cyber Strategy states, “All instruments of national power are available to prevent, respond to, and deter malicious cyber activity against the United States. This includes diplomatic, information, military (both kinetic and cyber), financial, intelligence, public attribution, and law enforcement capabilities.”³⁸² The Biden Administration reaffirmed this policy. This means that a kinetic conventional response is a potential response to a strategic cyberattack.
 - Value: Very High
 - The sovereignty of the Chinese homeland is a sacred value for Xi.
 - Probability: Very High
 - The United States and coalition forces are involved in a conflict with China at this time in the scenario.
- *Cyber-attack on Chinese critical infrastructure:* The PRC believes that the United States has an offensive strategy in cyberspace and can target Both sides are sustaining losses. Following a strategic attack on the U.S. homeland, it is likely the President would authorize kinetic strikes on the PRC mainland to destroy/disrupt military infrastructure supporting the conflict. its critical infrastructure.³⁸³

³⁸² Trump Administration, *National Cyber Strategy of the United States of America* (September 2018) p. 21.

³⁸³ *Science of Military Strategy* (2020), p. 154.

- Value: Very High
 - The sovereignty of the Chinese homeland is a sacred value for Xi. Disruption of critical infrastructure such as oil and gas would inhibit the ability of the PLA to sustain combat operations.
- Probability: Very High
 - Following Russia's invasion of Ukraine, President Biden was presented with options to disrupt Russia's critical infrastructure with cyber means.³⁸⁴ There had been no direct attack on the United States when these options were contemplated. This makes it increasingly likely that Xi would perceive the threat of a cyber response on Chinese critical infrastructure as highly credible.
- *Additional nations join the United States, Australia, and Japan in coalition:* NATO has identified China as a systemic challenge to the security of the Euro-Atlantic region, warning that there would be "severe consequences" should China seek to unify with Taiwan by force.³⁸⁵ Further, NATO has stated that serious cyberattacks on member states could trigger Article 5 of the defense treaty.³⁸⁶
 - Value: Very High
 - If the coalition were to grow larger, this could make it more difficult for Xi to achieve

³⁸⁴ Ken Dilanian and Courtney Kube, "Biden has been Presented Options for a Massive Cyberattack against Russia," *NBC News* (February 24, 2022), available at <https://www.nbcnews.com/politics/national-security/biden-presented-options-massive-cyberattacks-russia-rcna17558>.

³⁸⁵ Kentaro Iwamoto and Shoichiro Taguchi, "NATO Chief says China has 'No Justification' for Taiwan Threats," *Nikkei Asia* (February 1, 2023), available at <https://asia.nikkei.com/Editor-s-Picks/Interview/NATO-chief-says-China-has-no-justification-for-Taiwan-threats>.

³⁸⁶ Jens Stoltenberg, "NATO will Defend Itself," *NATO Newsroom* (August 27, 2019), available at https://www.nato.int/cps/en/natohq/news_168435.htm?selectedLocale=en.

- his strategic objective of unification with Taiwan.
- Probability: Medium
 - There is no historical precedence for NATO article 5 to be invoked following a strategic cyberattack, so there would be great uncertainty if the coalition would grow. However, NATO or South Korea could assume regional security responsibility, freeing up or assisting U.S. forces to engage in the Pacific.
 - *The United States expands the conflict out of the region:* The United States has the ability to project power globally and can expand the conflict to China's interests outside the region.
 - Value: Medium
 - Xi's immediate concern is the conflict over Taiwan. Attacks in other regions, such as its military base in Djibouti, would be a less pressing matter.
 - Probability: High
 - The United States would be seeking to complicate Xi's decision making, potentially choosing to escalate by expanding the conflict to other regions. It would seek to use its ability to project power globally to its advantage.
 - *Economic sanctions and boycotts expand:* Following Russia's invasion of Ukraine, nations banded together to implement economic sanctions and boycotts focused on Russia. These are popular tools to punish bad behavior.
 - Value: Medium
 - In the short term, Xi would be willing to accept economic costs in order to achieve the objective of securing Taiwan. However, if

the sanctions were effective, this may increase in value over time if an economic recession destabilizes the government.

- Probability: Medium
 - More nations and companies are dependent on China for natural resources, manufacturing, and economic prosperity. This gives Xi tremendous leverage to avoid or remove the teeth of economic sanctions. Further, he is learning from Russia's experience in Ukraine and building ways to protect China's economy from sanctions.

Benefits of Restraint

- *Save cyber tools for later in the conflict:* Once a cyber weapon is used, it becomes obsolete because the defender is able to patch the vulnerability and remove the threat. Once China exploits this critical vulnerability, it may not be able to exploit similar vulnerabilities on other networks as the different operating systems are patched.³⁸⁷
 - Value: Medium
 - The earlier China can undermine the coalition's will to continue, the more likely it will be able to achieve its goals at an acceptable level of escalation.
 - Probability: Medium
 - The U.S. Cyberspace Command would increase its readiness once the United States entered into conflict. This may render some of China's cyber weapons useless as vulnerabilities are discovered and patched.

³⁸⁷ Christopher A. Bartos, "Cyber Weapons are not Created Equal," *Proceedings* (June 2016), available at <https://www.usni.org/magazines/proceedings/2016/june/cyber-weapons-are-not-created-equal>.

Summary

In the scenario, the populace of Taiwan begins protesting in favor of independence and Taipei is unable to silence the populace or enter into negotiations for unification with China. This put Xi in a position where he feels he is at risk of losing Taiwan, a potential existential threat for the Chinese Communist Party. This means that when contemplating this decision, Xi would be in a loss frame, making him more risk acceptant. That said, the regime is not currently at risk of losing control in the scenario, meaning that the costs of restraint are not driving the decision. There are significant benefits in undermining the decision making of the U.S. government, which could potentially hinder its military operations or undermining the public's support for the conflict. While the costs for such an attack are credible, this may not be the only decision that risks those particular costs. General conventional warfare with the United States may result in kinetic strikes on the Chinese mainland or a cyberattack on its critical infrastructure, meaning that even though the costs are credible, they may not have as great a restraining impact on Xi's decision making in this situation.

Gap: Are there other more likely avenues for strategic attack (such as attacks in space)?

Gap: Would China consider this a strategic attack?

Risk: If China's military is not performing well, they may be more likely to undertake more risky operations.

Risk: Because there has never been such a significant attack on critical infrastructure, it may have cascading effects, resulting in a far more escalatory attack.

Impact of the Private Sector on the Decision Calculus

		New Weapons of Warfare						
		Social Media	Computer Network Attack	Influence Operations	Economic Coercion	Open Source Intelligence	Private Satellite Companies	Mercenaries
Perceptions	Create chaos in the United States							
	Undermine U.S. public support for conflict							
	Regime survival at stake							
	Xi's position as chairman undermined							
	Taiwan resists Chinese invasion with coalition support							
	Popular nationalism turns on CCP							
	Economic sanctions and boycotts expand							
Key		High	Med	Low	Indirect	No Impact		

- *Create chaos in the United States*: According to the Annual Threat Assessment of the Office of the Director of National Intelligence, one of the chief goals of a PRC cyberattack would be to create national panic and impede decision making.³⁸⁸
 - o Assessment: The public support for Taiwan could be a powerful motivator for this action in order to divert the attention of the U.S. public from external aid to Taiwan to internal concerns.
- *Undermine U.S. public support for conflict*: As a democracy, the U.S. government is beholden to its people. China has been working to sow doubt and discord between the government and the U.S. population.³⁸⁹
 - o Social Media: Public support for Taiwan could be mobilized via social media.
 - o Influence Operations: By countering China’s influence operations, the private sector could

³⁸⁸ Office of the Director of National Intelligence, *Annual Threat Assessment of the U.S. Intelligence Community*, p. 10.

³⁸⁹ Ibid.

- enable the maintenance of public support for Taiwan. This would allow the government to continue military operations in support of the coalition to defend Taiwan.
- Open-Source Intelligence: Many in the United States would be demonstrating support for Taiwan by analyzing data and providing open-source intelligence analysis.
 - Assessment: Public support for Taiwan would be necessary to sustain U.S. military operations. Using the tools available, they could sway public opinion in favor of Taiwan. Disrupting this support would be a primary goal for PRC military planners.
- *Regime survival at stake*: Xi Jinping believes that the loss of Taiwan is an existential threat to the Chinese Communist Party.
- Assessment: Individuals and the private sector would have an indirect impact on this perception. If, with their aid, Taiwan was not only able to resist China's invasion but take steps towards successful independence, this may undermine the legitimacy of the Chinese Communist Party.
- *Xi's position of Chairman is undermined*: Xi is the sole decision maker for choosing to initiate a conflict to seize Taiwan. If it goes poorly, this may empower his enemies to remove him from power.
- Assessment: Individuals and the private sector would have an indirect impact on Xi's position as Chairman. By aiding Taiwan's military to resist, or helping to solidify support for the coalition, private actors may cause the conflict momentum to favor Taiwan. This may empower Xi's rivals on the Politburo to call for him to step down.

- *Taiwan resists Chinese invasion with coalition support:* Taiwan has built a force to resist a Chinese invasion with U.S. military arms sales. Coalition support would increase the effectiveness of the Taiwan military.
 - Social Media: Social media could be used to crowdsource funds for military equipment, organize people to resist, and counter Chinese propaganda.
 - Computer Network Attack: The Russia-Ukraine war saw at last 400,000 private hackers join the conflict. This sort of support for Taiwan could help the island resist China's attack.
 - Influence Operations: Influence operations would increase Taiwan's will to resist while undermining Chinese will to continue.
 - Open-Source Intelligence: The existence of 300 new Chinese ICBM silos was first made public by private citizens. Open-source intelligence analysis has been used to monitor Chinese forces and would be used to track troop movements to aid Taiwan in defending itself.
 - Private Satellite Companies: The Chinese government has shown in recent months that it is extremely concerned that private satellite companies and Starlink in particular pose a security threat to the nation. First, they have asked Elon Musk not to sell Starlink internet service in China, as it would bypass China's internet controls. Second, they have observed that Starlink enabled Ukraine to overcome Russia's electronic warfare and supported the command and control of Ukraine's military. They have asked their defense industry to

develop a way to disrupt or destroy Starlink's systems.³⁹⁰

- Mercenaries: While mercenaries may be able to help Taiwan resist, as an island nation with limited avenues of entry, it may be difficult for them to join the conflict.
- Assessment: It will be more difficult for the private sector to aid Taiwan because it is an island nation. This decreases the effectiveness of mercenaries as they may not be able to get onto the island. Further it will be more difficult for crowdsourcing efforts to be effective in getting equipment to Taiwan, as it must come by boat or plane. However, private satellite companies and open source intelligence can still have a significant impact on Taiwan's ability to resist by countering China's electronic warfare and providing information in China's troop movements.
- *Popular nationalism turns on the CCP:* The Party has used popular nationalism to increase the legitimacy of the Party, by using it to demonstrate the Party's role in returning China to international power and prominence after the Century of Humiliation.³⁹¹
 - Social Media: Besides allowing populations of the Western coalition to organize and show support, it would also allow Taiwan citizens to organize and counter the Chinese information campaigns.

³⁹⁰ Ben Turner, "Chinese Scientists call for Plan to Destroy Elon Musk's Starlink Satellites," *Live Science* (May 27, 2022), available at <https://www.livescience.com/china-plans-ways-destroy-starlink>.

³⁹¹ "Xi Jinping has Nurtured an Ugly Form of Chinese Nationalism," *The Economist* (July 13, 2022), available at <https://www.economist.com/china/2022/07/13/xi-jinping-has-nurtured-an-ugly-form-of-chinese-nationalism>.

- Computer Network Attack: The Chinese network is closed off from global networks, to allow the Party to control it. This is due in large part to the Party's fear of a free and open internet that allows the exchange of ideas. Xi Jinping has reportedly stated that, "The Internet ... was an existential threat to the CCP, having caused the party to lose control of people's minds."³⁹² If private internet hackers were able to breach parts of the PRC firewall, it would allow social media, influence operations and open source intelligence to have a direct impact on the Chinese population.
- Influence Operations: The Russia-Ukraine conflict demonstrated the creativity of the private sector in using different methods to influence the population against the actions of their government. It can be expected that the same sort of actions would take place in a Taiwan conflict as well.
- Open Source Intelligence: Open Source Intelligence access could provide the Chinese populace with a direct source of information on how the conflict is going. If it demonstrated PLA troops performing poorly, or showed casualties, it could cause them to view the initiation of a conflict as a miscalculation by Xi.
- Assessment: The CCP has attempted to close its networks in order to control the type of information that is consumed by the population. This allows the Party to have greater control over what is consumed by the population and allows them better control over popular nationalism. During a crisis or conflict, the Party

³⁹² Cai Xia, "The Weakness of Xi Jinping."

would be even more sensitive to the attempts to breach its control mechanisms.

- *Economic sanctions and boycotts expand*: Following Russia's invasion of Ukraine, nations banded together to implement economic sanctions and boycotts onto Russia. This is a popular tool to punish bad behavior.
 - o *Social Media*: Social media could be used to organize boycotts, or name and shame those corporations still doing business in China.
 - o *Economic Coercion*: Private companies have far more to lose if they enact private sanctions or boycotts on Chinese companies as compared with similar actions in Russia. As significant trading partners, the U.S. and Chinese economies are far more interdependent than the U.S. and Russian economies. While companies may still be concerned about offending their client base, it may have too significant an impact on the bottom line for companies to sanction China. Private boycotts also may be more difficult once conflict has started. COVID-19 demonstrated how easily supply chains could be interrupted coming from China, and a conflict would have an even greater impact, meaning that there may not be products on shelves to actually boycott.
 - o *Assessment*: While economic sanctions and boycotts are popular tools of punishment, when both economies are dependent on each other, the costs are more evenly distributed. This could prevent them from being enacted or ultimately effective.

About the Author

Dr. Jennifer Bradley is a Senior Deterrence Analyst in the Plans and Policy Directorate of United States Strategic Command. As the Program Manager for deterrence analysis and research, she leads a team dedicated to applying deterrence theory to strategic problems in order to inform strategy and plans development. On this team, she serves as the lead analyst for the Indo-Pacific region. Prior to becoming an Air Force Civilian, Dr. Bradley served as a Deterrence Analyst for the National Institute for Public Policy contracted to U.S. Strategic Command developing tailored deterrence processes and analysis. Dr. Bradley is a Senior Fellow at the National Institute for Deterrence Studies where she writes on deterrence challenges facing the United States and its allies. Dr. Bradley completed her Doctorate in Defense and Strategic Studies from Missouri State University in 2023 where she previously earned her Masters of Science in the same discipline in 2007. She received her Bachelor of Science degree in Political Science, Philosophy, and Economics from Eastern Oregon University in 2002.

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