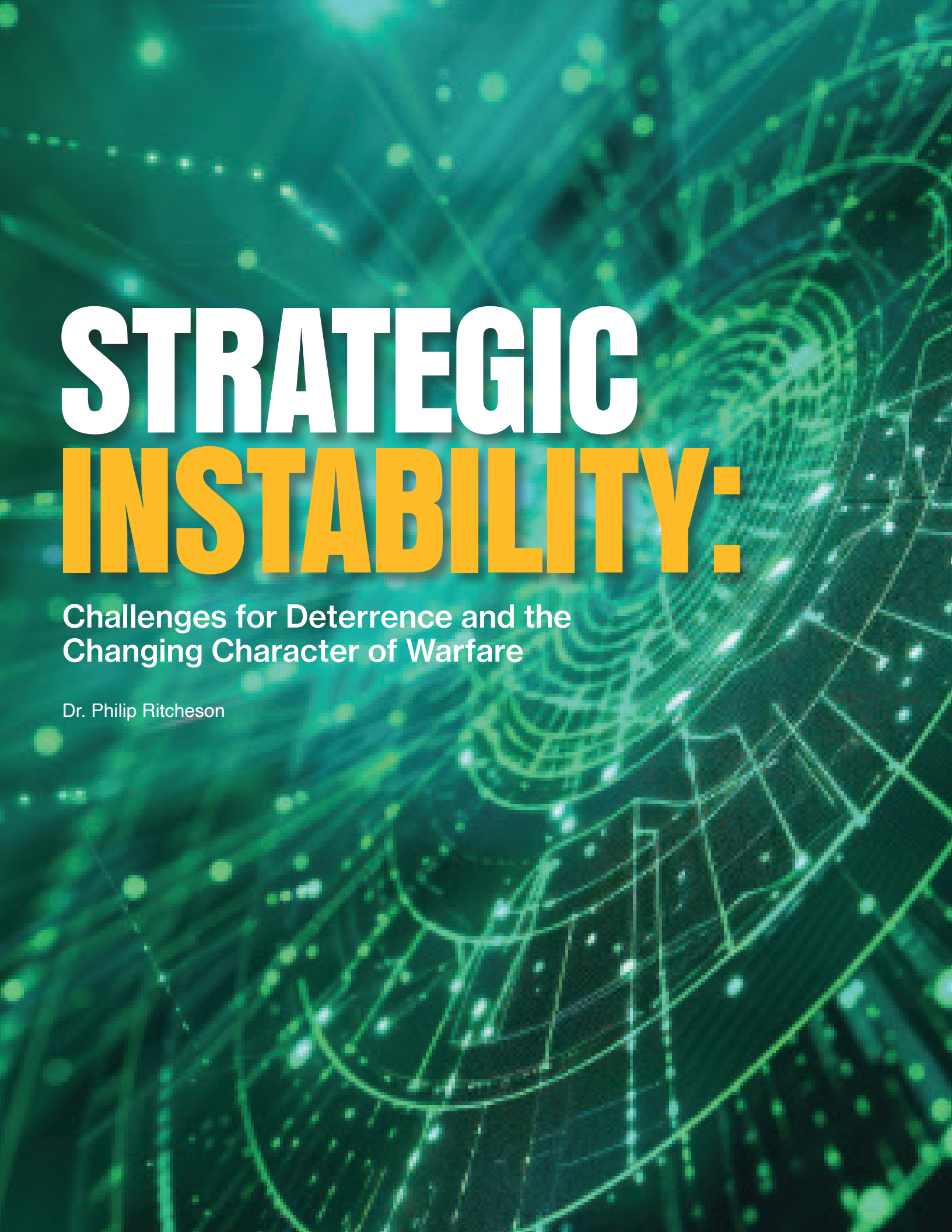

STRATEGIC INSTABILITY:

Challenges for Deterrence and the Changing Character of Warfare

Dr. Philip Ritcheson

INTRODUCTION

The strategy of deterrence has been used for millennia, but it is tricky. Its requirements are exacting, and its application is more art than science. Detailed knowledge of an adversary, credible capabilities, and clear communication all need to be employed at the right time and place and with a proper understanding of what the adversary values and how much an adversary will risk in order to be effective. Under the best of circumstances, deterrence is difficult to achieve.

Today, however, growing strategic instability, marked by the assertiveness of well-armed strategic adversaries, makes deterrence even more challenging. The real possibility of strategic escalation has returned to U.S. crisis management while new concepts, such as Trilateral Deterrence or Integrated Deterrence, make sense but are complex and untested. At the same time, advanced technologies, such as Artificial Intelligence (AI), space and cyber weapons, and hypersonic missiles, could reinforce a first-mover advantage.

These same advanced technologies, if harnessed in support of military and intelligence operations, may bolster deterrence as the character of warfare continues to evolve. Despite its challenges and frailties, deterrence remains a viable and useful strategy for the United States. In this environment, a premium for the United States will be placed on the role of intelligence to better understand and anticipate adversary behavior, harness the power of advanced technologies to increase military effectiveness, including digitization; and improve the integration of commercial industry and the interoperability with allies and partners.

As seen from one of the aircraft, four Fighter Squadron 41 (VF-41) F-14A Tomcat aircraft head into Iraq in support of a strike during Operation Desert Storm. | US Navy Public Domain

"Growing strategic instability, marked by the assertiveness of well-armed strategic adversaries, makes deterrence even more challenging."

STRATEGIC INSTABILITY

The Cold War was replaced by what the late commentator Charles Krauthammer termed a "Unipolar Moment."[1] The Soviet Union disintegrated without the Cold War turning hot, and the United States led a broad international coalition to reinforce the rules-based international order in the First Persian Gulf War. Some thought that without an ideological alternative to liberalism, there was an "end to history."[2] Meanwhile, a sense of strategic complacency set into the United States as it forgot that it needed to compete geostrategically, resulting in hubris.[3] Still, the United States was in an enviable position of not having to seriously account for strategic escalation with an adversary. That said, autocracy regained its footing in Russia, and a multi-dimensional form of competition emerged with China. In the background, terrorists planned, prepared, and conducted the September 11, 2001 attacks, and the United States focused on the Global War on Terror and linkages between rogue regimes, terrorists, and Weapons of Mass

President of Russia Vladimir Putin with President of China Xi Jinping in the Great Hall of the People in Beijing, during Putin' state visit to China. | Official website of the President of the Russian Federation | Adobe Stock

Destruction. In Europe, a growing NATO alliance seemed more focused on diplomatic engagement than military capability development and deterrence.

Today, Russia and China, in particular, are willing to push boundaries to (re)shape the international system while undermining US interests and advancing theirs. Western values are viewed as a threat to their societies and rule. President Putin has nurtured the idea of restoring a lost empire, relying on a narrative composed of her history, sense of geographic vulnerability, consistent authoritarianism, and conservative orthodoxy.[4] President Putin may feel that Russia has little to lose in challenging the United States as the dominant power and an international system from which it has not benefited.[5] The Russian incursion into Georgia in 2008, implementation of "hybrid warfare" in its 2014 annexation of Crimea, its anti-satellite test in September 2021,[6] and Moscow's war on Ukraine in 2022 illustrates rising Russian dissatisfaction with the status quo and willingness to challenge international order.[7]

China paid attention to the 1991 Persian Gulf War, including the speed of military operations and the stealth and precision of U.S. Airpower. Beijing was alarmed by the 1996 Taiwan Straits Crisis when two U.S. aircraft carriers converged on the Straits. China was unable to prevent U.S. power projection and had few ways to respond effectively.[8] In 2001, tensions rose again in the South China Sea as a Chinese fighter aircraft was overly aggressive and damaged a U.S. Navy EP-3 intelligence collection aircraft, resulting in the U.S. aircrew conducting an emergency landing on Hainan Island. The Chinese pilot died, and his body was not recovered.[9] These factors would contribute to China's decision to undertake programs to boost the defense industry and develop Anti Access/Anti-Denial weapons.

April 1, 2001 a Chinese Shenyang J-8II fighter crashed into a U.S. Navy EP-3 Intelligence aircraft near Hainan Island, China. The J-8II crashed into the sea killing the pilot. The EP-3 was heavily damaged and made an unauthorized emergency landing. This resulted in a dispute between the US and China. | Rob Schleiffert from Holland | CC BY-SA 2.0

Following President Xi Jinping's rise to power, he initiated a comprehensive military modernization program designed to help restore its great power status.[10] While China is concerned most about stability in the short term, its long-term view is that of a rising China and a declining United States. In the interim, China seeks to challenge the rules-based order itself by influencing and challenging the values, norms, and institutions.[11]

Strategic instability is rising in other critical geographic areas, too. North Korea continues to expand its nuclear program and improve space and missile capabilities in defiance of UN Security Council Resolutions. Its continued provocations and coercive behavior against the United States and the Republic of Korea, as well as its recent military-technical cooperation with Russia, further underscores the challenges posed by North Korea.[12] In the Middle East, the October 7, 2023 surprise attack by Hamas against Israel scuttled the existing security paradigm for Israel, delayed efforts to build upon the Abraham Accords for regional peace, highlighted the vastly improved Iranian strategic position, and left the region teetering on the edge of a wider regional war ever since.[13]

The United States is now confronted by four strategic adversaries—China, Russia, Iran, and

North Korea unveiled what analysts believe to be the world's largest liquid-fueled intercontinental ballistic missile at a parade in Pyongyang | Korean Central TV

Damage following an Israeli airstrike on the El-Remal aera in Gaza City on October 9, 2023. | WAFA (Q2915969) in contract with a local company (APA images) | CC BY-SA 3.0

North Korea—all of whom are militarily capable and willing to confront the United States and challenge the current international order. More than this, these challenges are occurring with greater frequency, and most recently, there have been signs of economic, diplomatic, and military cooperation. For example, in Ukraine, Iran is supplying missiles and Unmanned Aerial Vehicles (UAV),[14] North Korea is supplying artillery shells,[15] and China provides its support diplomatically and economically so that Russia can avoid the impacts of U.S.-led economic sanctions.[16] Iran and North Korea have withstood withering economic sanctions as well. Increasingly meaningful cooperation between U.S. strategic adversaries will have negative strategic consequences for U.S. deterrence strategies, US-based alliance systems, and the liberal democratic order.

THE CHALLENGES TO DETERRENCE

Deterrence is a strategy used by Nations to shape their relations with other Nations and non-state actors. It seeks to persuade an adversary through the threat of retaliation or the denial of objectives. Thus, an adversary must fear retaliation or be convinced that objectives will not be achieved. Deterrence can operate in a general sense, in a crisis, before and during a conflict, and it can be extended to others[17]

Deterrence theory has five elements that can be compressed into three: capability, credibility, and communication. Deterrence assumes that both actors are rational and that knowledge of what the adversary values most, and therefore what can be put at risk, is known. Beyond this, the deterrence threat needs to be made clear, either to deny objectives or to punish for continuing on the present path; the message needs to be received and understood within the given context, and acted upon in the correct way. Finally, there must be the perceived ability and will to use military capabilities to punish or deny.[18]

Deterrence is challenging and is prone to failure. During the Cold War, a bipolar competition pitted the United States and its Allies against the Soviet Union and theirs. The presence of nuclear weapons sharpened the mind as strategists and decision-makers considered and implemented deterrence concepts and strategies. Perilous times, but there were stretches of (relative) strategic stability based, in part, on credible day-to-day deterrence backed by conventional and nuclear capabilities. Diplomatic engagement, including arms control treaties, acted as additional guardrails to the bilateral relationship. But even that period demonstrated the frailties of deterrence, including U.S. decision-makers being surprised that adversaries would contemplate certain actions.[19]

As difficult as deterrence was in the Cold War's bilateral context, it is more so today.[20] Whereas there was one strategic competitor in the Cold War, the United States now faces four strategic adversaries who are increasingly linked. They are also armed with and using more sophisticated and lethal weapons.[21] More importantly, these adversaries are inclined to take more risk for core interests.

The Pentagon, looking northeast with the Potomac River and Washington Monument in the distance. | "DoD photo by Master Sgt. Ken Hammond, U.S. Air Force." Public Domain

The implications are real for U.S. national security. Bilateral deterrence was difficult and dangerous, but trilateral deterrence is an untested and unknown area for the United States. The U.S. Department of Defense now pursues "integrated deterrence", a strategy that seeks to integrate the various tools of the U.S. Government, with allies and partners in a coordinated and tailored way.[22] However, challenges with this approach exist. There are organizational difficulties in coordinating integrated deterrence in a timely manner, as well as bureaucratic politics. Additional challenges may exist when the United States tries to coordinate actions that are intended to deter one adversary but may be misperceived by another.[23] The United States must now plan, prepare, and budget for a conventional and nuclear force structure that will both deter and defeat two states operating in two distinct geographic areas.[24]

This new environment poses other dangers to the strategy of deterrence. There is a growing "asymmetry in stakes." More specifically, Russia and China consider Ukraine and Taiwan to be

"Deterrence assumes that both actors are rational and that knowledge of what the adversary values most, and therefore what can be put at risk, is known."

Airmen from the 452nd Air Mobility Wing and Marines from the 1st Marine Expeditionary Force from Camp Pendleton, CA., load an M777 howitzer onto a C-17 Globemaster III at March Air Reserve Base, CA., Apr. 27, 2022. The security assistance the U.S. is providing to Ukraine is enabling critical success on the battlefield against the Russian invading force. | U.S. Department of Defense | Public Domain

core, existential objectives. Leaders in Moscow and Beijing think that they are correcting historical wrongs, that they are right, and that they will prevail. This asymmetry suggests a growing risk of our adversaries having a higher risk tolerance and a greater willingness to inflict and absorb punishment in pursuing their objectives. This, in turn, requires that the United States be ready to match the same level of commitment as our adversaries while convincing our adversaries that the cost of achieving their goals is higher than the current situation.[25] The current vacillation on the part of the United States to continue to fund, arm, and aid Ukraine in the face of Russia's war reflects this. Russian military responses, mobilization of reserves, sanctions avoidance, weapons deliveries from Iran and North Korea, and putting its economy on a war footing, demonstrate the criticality of Ukraine to Putin's thinking and his level of commitment. Whatever the U.S. response, messages about U.S. credibility and commitment will be received and interpreted in China with respect to Taiwan.

Two other strategic adversaries, Iran and North Korea, pose unique challenges that must be accounted for. Despite economic sanctions, they are more capable than at any other time in their history and are willing to challenge the United States and its allies. Iran has one of the largest ballistic missile inventories in the world, is as close as it has ever been to developing a nuclear weapon, uses growing cyber capabilities, and has financed, armed, and supported a range of proxies —an "Axis of Resistance"—throughout the Middle East. It remains committed to being the dominant power in the Middle East, has learned from the past two decades of war in the region, and has made significant improvements and adaptations to its military capabilities.[26] North Korea has produced

Unveiling ceremony of Khorramshahr-4 ballistic missile Mohammad Hasan Zarifmaneshl CC BY 4.0

plutonium, conducted six nuclear tests since 2006, possesses an array of ballistic missiles, and employs its formidable cyber capabilities. It recognizes changes in the conduct of war and has focused on developing secure second strike nuclear capabilities to complement its quantitatively robust conventional forces to ensure greater cost imposition on the United States and its allies.[27]

"Iran has one of the largest ballistic missile inventories in the world, is as close as it has ever been to developing a nuclear weapon, uses growing cyber capabilities, and has financed, armed, and supported a range of proxies throughout the Middle East."

Deterrence of each of these countries is challenging enough. Russia was not deterred from attacking Ukraine and China and is using military coercion to re-write the rules of engagement surrounding Taiwan and in the South China Sea. In the Middle East, Iran's proxies attacked U.S. interests and forces approximately 160 times before the United States responded militarily, and North Korea is as capable as ever as it increases threats against the United States and its treaty ally, South Korea. Deterrence in the future will be complicated by a greater willingness to challenge the United States and the international system, rising military capabilities, fewer consequences, and the possibility of an asymmetry of stakes. More troubling is the fact that these four countries are increasingly cooperating together.[28]

U.S. deterrence is harder to attain given the levels of strategic instability, an asymmetry of stakes, and the chances for misperception, miscommunication, and miscalculation. Four strategic adversaries, with common objectives pose a broad conflict spectrum, the need for new deterrence frameworks, and risks of strategic escalation in ways that the United States has not experienced. The changing character of warfare adds additional promise and peril.

THE CHANGING CHARACTER OF WARFARE

The nature of warfare remains constant but its character constantly changes. In the past, the character of war—how nations used military force to achieve their political objectives—changed relatively slowly. Technology advancement tends to be the main driver of these shifts, but for most of human history, technological change has been relatively slow. To turn a technological advancement into a military advantage, the technology must be successfully used, integrated into organizations, and then standardized for future use. This effect—to include significant increases in lethality, pace, and geographic scope—can be referred to as a Revolution in Military Affairs (RMA).[29] Artificial Intelligence (AI), advanced space and counterspace weapons, cyber, and hypersonic missiles are likely technology components of the next step in the conduct of military operations.[30]

Simultaneously, the technologies that are leading to RMA are also contributing to a Revolution in Intelligence Affairs (RIA), a future where machines will not only be used to collect and analyze unclassified and classified information, as they are today, but will "become intelligence consumers, decision-makers, and even targets of other machine intelligence operations."[31] Related to the RIA and RMA, is the coming digitization of the battlefield whereby advantage will accrue to the nation that can harness the value of software, intellectual property, and digital systems for supplying and sustaining military operations.[32]

"The United States is now contending with four strategic adversaries and an ongoing shift in the character of warfare."

Recent conflicts illustrate relevant insights about the future of warfare. In Ukraine, the impact of rapid commercial technology innovation and adaptation, such as small, lethal, and less expensive UAV's, is real. Space X's Starlink satellite-based internet services are being used to coordinate artillery strikes,[33] and today there are over 7,000 satellites in space, the vast majority of which are owned and operated by commercial space companies from 80 countries. Some of these satellites are collecting, analyzing, and disseminating different types of sophisticated space-based data, providing insights to the Ukrainian military, news organizations, and individuals.[34] Given the prevalence of the internet and social media, the war in Ukraine is a global information war.[35]

In Asia, China's People's Liberation Army—Navy, Air Force, and Rocket Force—have played key roles in intimidating, coercing, and conducting operations in the Gray Zone, short of armed conflict. These activities,—such as information operations, legal maneuvers ("lawfare") designed to undermine U.S. legitimacy,[36] use of commercial ships or other non-military ships in aggressive maritime ways—just short of military force—are designed to create political power and reshape the status quo to China's advantage.[37] China's transformation of the geography of South China Sea and Paracel Islands is an example, as is the repetitive military exercising designed to intimidate and coerce Taiwan.[38] The current situation between China and the Philippines surrounding the Second Thomas Shoal in the South China Sea provides additional insight into Chinese gray zone tactics.[39]

Starlink Mission | Starlink Mission | CC0 1.0

While Russia and China pose the most serious strategic challenges to the United States, the Middle East underscores different dangers. More specifically, Hamas' bold and brutal surprise attack reminds of a mix of old and new technology trends: patient intelligence collection operations, automatic weapons, motorcycles, bulldozers, and grenades enabled by crypto financing, commercial technologies, innovative tactics, and deception. While the attack may not appear as the most "sophisticated" or representative of the latest advanced technologies, it highlights the perils of a failure to imagine, the complexities of truly knowing your adversary, and the disturbing prospect that some actors may not be deterred.[40]

CONCLUSION

The United States is now contending with four strategic adversaries and an ongoing shift in the character of warfare. The conflict spectrum is broad and deep.[41] These features have existed individually or in some combinations before, but today's conflict spectrum is more dynamic, complex, and varied, offering dangerous potential for first-mover advantage and strategic escalation.

The possibility of an asymmetry of stakes—where U.S. adversaries may pursue objectives with more commitment and determination than the United

China flag and Taiwan the Republic of China island flag, American USA Flag, military equipment tank, fighter, warship. concept of a possible military conflict, war in Asia RomanWhale studio | Adobe Stock

States will resist—is more than theoretical. It suggests that key elements of deterrence—capability, credibility, and communication could be undermined by an adversary willing to do whatever it takes, to absorb more punishment than the United States can deliver, and to try and win quickly.[42] Russian commitment to its war against Ukraine and Hamas' October 7, 2023 attack serve as a warning for how China may consider its relationship with Taiwan, for example.

Today's challenge is access to and integration of rapidly advancing technologies; there is an innovation race to understand, integrate, and standardize these technologies for military and intelligence applications. Whoever wins the innovation and adaptation race will have a strategic advantage. While the United States enjoys a lead in AI research and development, it needs to quicken the pace of AI investments in terms of recruiting, retention, and training of personnel to the use and scaling of AI across the national security enterprise.[43]
To bolster deterrence, and keep pace with the speed and lethality of the conflict spectrum, the United States should focus on capability development, intelligence transformation, and integration of commercial capabilities, and interoperability with key allies and partners. From a capability development perspective, U.S. nuclear capabilities need to be modernized, tested, and as appropriate, modified to contend with an emerging trilateral deterrence context. Space forces must be designed to complicate adversary decision making, including adopting hybrid architectures, continuing counter space capability development, and experimenting with cutting edge capabilities and concepts.[44] Conventional forces need to be designed and operationalized in ways that emphasize speed, lethality, and digitization.[45]

Continued intelligence transformation needs to accelerate to take advantage of advanced technology investment and application (e.g., big data analytics, AI and Generative AI, quantum, and semiconductors particularly). Given the persistent challenges of understanding an adversary's intent, a complementary focus on predictive AI is necessary whereby the proper human-machine balance could help U.S. decision-makers better understand how our adversaries translate policy into actions and anticipate the further blending of civilian and military intelligence.[46] But more

Military are at work. Generative AI | Planum | Adobe Stock

investment is required as is a greater focus on enterprise-wide integration that enables speed, eliminates bureaucratic and organizational "seams", and enables Integrated Deterrence.

Focused efforts are required to improve the integration of commercial industry capabilities. While the impact of commercial technologies are not a new feature of warfare, the growing ability of commercial companies to rapidly propel innovation, contribute to situational awareness, and impact military operations are an additional tool to improve its deterrence posture. Implementation of DoD's Replicator Initiative, designed to produce large numbers of small, cheap, and lethal UAV's is correct, as is the Space Development Agency's focus on the Proliferated Warfighter Space Architecture. In both cases, the role of commercial industry plays a critical role in furthering the concepts of diversification and resilience. But there needs to be a concerted effort to identify: requirements for commercial industry, including operational and architectural gaps in the space-based architecture that industry can compete for; resources for dedicated government acquisition of commercial capabilities; and opportunities to accelerate the digitization of the defense industry.

While the United States has allies and partners, future conflict environments will benefit from increased interoperability with key allies and partners across war-fighting domains, including space and cyber. Priority is being given to the Five Eye Partners (Australia, Canada, New Zealand, and the United Kingdom) and key allies in Asia (Japan and South Korea) but more is required. A greater number of more sophisticated combined exercises and advanced collaboration on key strategic capabilities such as AI, will bolster deterrence by operationalizing these partnerships and complicating crisis decision-making for adversaries.

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"Today's challenge is access to and integration of rapidly advancing technologies; there is an innovation race to understand, integrate, and standardize these technologies for military and intelligence applications."

ENDNOTES

1 Charles Krauthammer, "The Unipolar Moment," *Foreign Affairs*, January 1990. For a review of the theoretical debates surrounding the end of the Cold War, see, James E. Dougherty and Robert L. Pfaltzgraff, Jr., *Contending Theories of International Relations: A Comprehensive Survey* (Third Edition), Harper Row, 1990.

2 Francis Fukuyama, *The End of History and the Last Man*, Free Press, 1992.

3 H.R. McMaster, *Battlegrounds: The Fight to Defend a Free World*, New York, NY: Harper Collins, 2020.

4 Jon Gabriel, ed., "Finnish Intelligence Officer Explains Russian Mindset," Ricochet, April 4, 2022.

5 Thom Shanker and Mark Landler, "Putin Says U.S. Is Undermining Global Stability," *New York Times*, February 11, 2007; and "Gates dismisses Putin remarks as blunt spy talk," Reuters, August 9, 2007.

6 "Russian direct-ascent anti-satellite missile test creates significant, long-lasting space debris," United States Space Command Public Affairs Office, November 15, 2021.

7 See, Eugene Rumer and Richard Sokolsky, "Etched in Stone: Russian Strategic Culture and the Future of Transatlantic Security," Carnegie Endowment for International Peace, September 8, 2020;

Ofer Fridman, "The Russian Mindset and War: Between Westernizing the East and Easternizing the West," *Journal of Advanced Military Studies*, 2022. Accessed on March 24, 2024 at: https://www.usmcu.edu/Portals/218/JAMS_SpecialIssue_The_Russian_Mindset and War.pdf.;

Michael Kimmage and Hanna Notte, "Containing Global Russia," War on the Rocks, March 4, 2004.

8 Porch, Douglas (1999), "The Taiwan Strait Crisis of 1996," *Naval War College Review*: Vol. 52 : No. 3 , Article 2. Available at: https://digital-commons.usnwc.edu/nwc-review/vol52/iss3/2.

9 Elisabeth Rosenthal and David E. Sanger, "U.S. Plan in China After it Collides with Chinese Jet,": *New York Times*, April 2, 2001; and

James Bamford, "Mistakes by the US's top spies allowed China to turn a deadly mid-air collision into an intelligence coup," Business Insider, March 22, 2023.

10 Lindsay Maizland, "China's Modernizing Military," Council on Foreign Relations: Backgrounder, February 5, 2020.

11 Various political, economic, and military programs are designed to move China down this path (e.g., the Belt and Road Initiative, Wolf Diplomacy, Three Wars), although their implementation has had negative consequences. Its mix of hard and soft power has encouraged a U.S. focus on competition with China and solidified U.S. alliances. See Elizabeth C. Economy, The World According to China, Cambridge, UK: *Polity Press*, 2022.

12 See the Defense Intelligence Agency, North Korea Military Power: A Growing Regional and Global Threat, Washington DC, 2021; Scott A. Snyder, "Why Is North Korea Turning More Aggressive?" Council on Foreign Relations, February 7, 2024; and

Victor Cha and Andy Lim, "Slow Boil: What to Expect from the DPRK in 2024," Center for Strategic and International Studies, January 16, 2024.

13 See Omer Dostri, "Attack on Israel: The End of the Deterrence Strategy in Gaza," *Military Review Online*, November 2023., pp. 1-13; and

Blaise Misztal, "Israel's Strategic Challenge," War on the Rocks, October 30, 2023.

14 Olivia Yanchik, "Arsenal of Autocracy: North Korea and Iran are Arming Russia in Ukraine," The Atlantic Council, January 11, 2024; and

Kian Sharifi, "U.S. Says Growing Russia-Iran Military Ties 'Should Concern' World," Rdadsio Free Europe/Radio Free Liberty, February 22, 2024.

15 Ibid.; and Sangjin Cho, "North Korean-Russian Military Cooperation Could Threaten Global Security," Voice of America, January 1, 2024; and

Voice of America News, "North Korea Accused of Sending Russia Military Equipment, Munitions," Voice of America, October 13, 2023.

16 See Markus Garlauskas, Joseph Webster, and Emma C. Verges, "China's support for Russia has been hindering Ukraine's counteroffensive," The Atlantic Council, November 15, 2023; and

Office of the Director of National Intelligence, Support Provided by the People's Republic of China to Russia, July 2023. Accessed March 24, 2024 at: https://democrats-intelligence.house.gov/UploadedFiles/ODNI_Report_on_Chinese_Support_to_Russia.pdf.

17 King Mallory, *New Challenges to Cross-Domain Deterrence*, RAND, April 12, 2018, p. 3

See also, Thomas C. Shelling, *The Strategy of Conflict*, 2nd ed. (Cambridge, MA, Harvard University Press, 1980), Chapter 3;

Robert Art, "The Four Functions of Force," in *The Use of Force: Military Power and International Politics*, 4th ed., edited by, Robert Art and Kenneth Waltz (Lanham, MD: University Press of America, Inc. 1993).

18 King Mallory, New Challenges to Cross-Domain Deterrence, RAND, April 12, 2018, p. 4.

See also the classic descriptions of deterrence in: Gordon A. Craig and Alexander L. George, *Force and Statecraft: Diplomatic Problems of Our Time*, 2nd ed., (Oxford: Oxford University Press, 1990);

Alexander L. George and Richard Smoke *Deterrence in American Foreign Policy: Theory and Practice* (New York, NY: Columbia University Press, 1974); and

Richard Jervis, ed., Psychology and Deterrence (Baltimore, MD: The Johns Hopkins University Press, 1985).

19 See, "Deterrence Implications of Russia's Invasion of Ukraine," Proceedings, National Institute for Public Policy, November 2022, p. 107. Payne reminds that the United States did not think the Japanese would attack the United States in 1941, that the Chinese would not engage in Korea, that the Soviets would not deploy missiles into Cuba, that the Syrians and Egyptians would not invade Israel, that Saddam Hussein would not invade Kuwait, and that Russia would not annex Crimea in 2014.

20 See Jacqueline K. Davis and Robert L. Pfaltzgraff, Jr., Coalition Management and Escalation Control in a Multinuclear World, Annapolis, MD: *U.S. Naval Institute Press*, 2020; and

Keith B. Payne, "Deterrence is Not Rocket Science: It is More Difficult," National Institute for Public Policy (527), July 6, 2022.

21 See the Defense Intelligence Agency, Russian Military Power, Washington DC, 2017; and
the Department of Defense, Military and Security Developments Involving the People's' Republic of China, A Report to Congress Pursuant to the National Defense Authorization Act of 2000, Washington DC, 2023.

22 The Department of Defense, National Defense Strategy, Washington DC, 2022.

23 Kathleen McInnes, "'Integrated Deterrence' Is Not So Bad," Center for Strategic and International Studies, Washington DC, October 27, 2022.

24 See Madelyn R. Creedon, John L. Kyle, et. al., *America's Strategic Postures, The Final Report of the Congressional Commission of the Strategic Posture of the United States*, October 2023.

25 Remarks of Keith Payne, "Deterrence Implications of Russia's Invasion of Ukraine," Proceedings, *National Institute for Public Policy*, November 2022, p. 105.

26 See the Defense Intelligence Agency, Iran: Military Power, Ensuring Regime Survival and Securing Regional Dominance (Washington DC, 2019).

27 See the Defense Intelligence Agency, North Korea Military Power: A Growing Regional and Global Threat, Washington DC, 2021.

28 Kayse Jansen, "New Strategic Deterrence Frameworks for Modern-Day Challenges," *Joint Force Quarterly*, February 15, 2024.

29 Examples of a Revolution in Military Affairs include the seemingly innocuous (e.g., the stirrup used by Ghengis Khan to stabilize archery, the Long Bow, and Napoleonic battlefield command and control) to the more obvious (e.g., aircraft carrier, nuclear weapons, and precision guided munitions.
See Tevor N. Dupuy, *The Evolution of Weapons and Warfare*, New York, NY: A Da Capo Paperback, 1984); and
Martin Van. Creveld, *Technology and War: From 2000 B.C. to the Present*, (New York NY: The Free Press, 1989.

30 There is a distinction that can be made between a RMA and a Military Revolution, the latter seeing societal-wide effects. In this way, RMAs are more frequent, affecting the operational and tactical levels of war, while Military Revolutions are rare and potentially but more consequential as they affect the organization and operation of society writ large. According to one author, there have only been five military revolutions in all of human history.
See, Bill Edwards, "Revolution in Military Affairs vs Military Revolution: The Emergence of Drones and Robotics as a driver in Societal Change", *Small Wars Journal*, November 11, 2022; and
Albert Palazzo, "The Military Revolution of Limits and the Changing Character of War," *Small Wars Journal*, October 21, 2013.

31 Anthony Vinci, "The Coming Revolution in Intelligence Affairs," Foreign Affairs, August 31, 2020.

32 Beth McGrath, et. al., "The future of warfighting: How militaries can build, buy, and deliver capabilities in a digital age," Deloitte Center for Government Insights. Accessed March 24, 2024 at:
https://www2.deloitte.com/us/en/insights/industry/public-sector/future-of-warfighting-in-a-digital-age/the-future-of-war.html.

33 Kristin D. Thompson, "How the Drone War in Ukraine is Transforming Conflict," Council on Foreign Relations, January 16, 2024.

34 The National Space Intelligence Center and the National Air and Space Intelligence Center, Competing in Space, 2nd ed., December 2023.

35 Seven Feldstein, "Disentangling the Digital Battlefield: How the Internet has Changed War," War on the Rocks, December 7, 2022; and
"The invasion of Ukraine is not the first social media war, but it is the most viral," *The Economist*, April 2, 2022.

36 Lawfare was identified by the Chinese as a component of their strategy as early as 1999.
See, Jill I. Goldenziel, "Law as a Battlefield: The U.S., China, and the Global Escalation of Lawfare," *Cornell Law Review*, Volume 106, pp. 1085 - 1171.
As Lawfare relates to Chinese space activities, see Dean Cheng, "China and Space: The Next Frontier of Lawfare," U.S. Institute of Peace, August 2, 2023.

37 Also referred to as "Three Warfares", a concept with a long history in China.
See, Peter Mattis, "China's 'Three Warfares' in Perspective," War on the Rocks, January 30, 2018.

38 Bonny Lin, et. al., "A New Framework for Understanding and Countering China's Gray Zone Tactics," RAND, March 30, 2022.

39 Dean Cheng, et. al., "Are China and the Philippines on a Collision Course?," United States Institute of Peace, March 14, 2024.

40 Michael Shoebridge, "Hamas' Attack: Failures of Deterrence and Imagination Are Lessons Beyond Israel."

41 The technological competition is most acute with China, who recognizes that advancing technologies can create strategic effects and therefore impact strategic stability.
See, Alison A. Kaufman and Brian Waidelich, "PRC Writings on Strategic Deterrence: Technological Disruption and the Search for Strategic Stabvility," Center for Naval Analysis, February 2023, pp. i - iv.

42 Michael Marrow, "Pacific Fleet chief Paparo on China's big lesson from Ukraine: Win quickly," *Defense News*, February 1, 2024.

43 Michelle A. Flournoy, "AI Is Already at War: How Artificial Intelligence Will Transform the Military," *Foreign Affairs*, November/December 2023.

44 Marc Berkowitz, "Redesigning Space Forces for Deterrence and Warfighting," Mormon Center for Space Studies, February 22, 2023.

45 Creedon, et. al., pp. vii - xi; and Hal Brands and Zach Cooper, "Dilemmas of Deterrence: The United States' Smart New Strategy Has Six Daunting Trade-offs, Center for Strategic and International Studies, March 12, 2024.

46 Flournoy, "AI Is Already at War"; and Vinci, "The Coming Revolution in Intelligence Affairs."