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## 2023 Annual Estimate of the Strategic Security Environment

USAWC SSI  
*Strategic Research and Analysis Department*

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# 2023 ANNUAL ESTIMATE of the STRATEGIC SECURITY ENVIRONMENT

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Strategic Research and Analysis Department



U.S. ARMY WAR COLLEGE

**SSI**  
STRATEGIC STUDIES INSTITUTE





# 2023 Annual Estimate of the Strategic Security Environment

Strategic Research and Analysis Department

August 2023



# US Army War College

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# Foreword



In the twenty-first century, the United States operates within a global context that is increasingly complex, interconnected, and unpredictable. The *2022 National Defense Strategy* recognizes the urgency of addressing global challenges that have direct implications on our security and set forth a path to advance our national security goals. With the People’s Republic of China as our pacing challenge and Russia as an acute threat, the United States must strengthen its deterrence to face these challenges. Additionally, transnational threats, climate change, pandemics, and emerging security challenges transcend national borders and traditional domains, requiring international collaboration, cooperation, and understanding.

The Army recognizes the interconnectedness of these challenges and is committed to working alongside the global community to find comprehensive solutions. The Army is deeply vested in the stability and security of its allies and partners across the globe. Through our extensive network of alliances, partnerships, and multilateral organizations, the United States seeks to foster a peaceful and prosperous international order, ensuring the collective security of like-minded nations. This commitment extends to regions of strategic importance, where the Army plays an active role in addressing conflicts, combating extremist threats, and promoting stability. At the heart of the United States’ security interests lies the protection of its homeland and its citizens. The safety and well-being of the American people are paramount, and the Army is committed to preventing and countering any threats that may compromise domestic security.

The US Army War College stands as a venerable institution committed to the education and development of senior leaders beyond traditional military doctrine, emphasizing the importance of strategic thinking, leadership development, and developing comprehensive approaches to address security challenges that confront the Army and the nation. In pursuit of a more thorough understanding of the security environment, the US Army War College’s Strategic Studies Institute conducts rigorous research and analysis of national security challenges and provides indispensable insights that shape policies and safeguard the nation’s interests. Together, these institutions play a pivotal role in fortifying the Army’s resilience and preparedness to operate in a complex strategic environment, ensuring the nation remains steadfast in its commitment to a secure and prosperous future. The *2023 Annual Estimate of the Strategic Security Environment* serves as a guide to define broadly the contemporary security landscape and the diverse range of interests that shape our national security agenda.

Major General David C. Hill  
53rd Commandant  
US Army War College

# Introduction



Last year, the Strategic Studies Institute (SSI) published the inaugural *Annual Estimate of the Strategic Security Environment* to replace the *Key Strategic Issues List (KSIL)*. This second edition builds upon the inaugural publication to guide academics and practitioners in the defense community on the current challenges and opportunities in the strategic environment. It outlines key strategic issues across four broad themes:

- Theme 1 – Regional Challenges and Opportunities
- Theme 2 – Domestic Challenges
- Theme 3 – Institutional Challenges
- Theme 4 – Domains Impacting US Strategic Advantage



The broad themes represent a wide range of topics affecting national security and provide a global assessment of the strategic environment to help focus the defense community. Strategic competition with the People’s Republic of China and the implications of Russia’s invasion of Ukraine remain dominant challenges to US national security interests across the globe; therefore, they are primary themes in this year’s publication. These traditional adversary security threats persist and have far-reaching consequences. However, the evolving security environment also presents new and unconventional threats, such as cyberattacks, terrorism, transnational crime, and the implications of rapid technological advancements in fields such as artificial intelligence. At the same time, the United States faces domestic and institutional challenges in the form of recruiting and retention shortfalls in the all-volunteer force, the prospect of contested logistics in large-scale combat operations, and the health of the US Defense Industrial Base. Furthermore, rapidly evolving security landscapes in the Arctic region and the space domain pose unique potential challenges to the Army’s strategic advantage.

The strategic issues outlined in this estimate represent the collective understanding and expertise of the security environment by the US Army War College faculty and SSI. In addition to this estimate, SSI will continue to publish a list of strategic issues comparable to the *KSIL* that offers insight into the particularized matters impacting defense organizations.

The United States faces an ever-changing and increasingly complex security environment. The *2023 Annual Estimate of the Strategic Security Environment* will continue to evolve with these changes to serve the needs of the defense community and the Army. The US Army War College and SSI stand ready to address these challenges and opportunities by developing a thorough understanding of the security environment. Feedback and suggestions are always encouraged. Please send input for this year’s estimate or the supplemental issues list to Lieutenant Colonel Paul Milas at [paul.j.milas.mil@army.mil](mailto:paul.j.milas.mil@army.mil).

Dr. Carol V. Evans  
Director, Strategic Studies Institute and  
US Army War College Press

# Theme 1: Regional Challenges and Opportunities

## Asia

The rise of the People's Republic of China (PRC) and the advance of PRC power and influence worldwide represent the most significant long-term national security challenge to the United States in the Indo-Pacific and globally. This competition takes the form not just of increased military power and activity but competition over technology, regional economic and security architecture, and diplomatic-strategic narratives and strategic information operations.

Domestically, Xi Jinping has continued to consolidate power, securing his third term as General Secretary of the Chinese Communist Party at the 20th Party Congress in November 2022

(and the National People's Congress in March 2023) and appointing a leadership team composed mainly of loyalists without known factional cleavages. The contents of the party congress work report and subsequent leadership appointments suggest this team will sustain and enhance Xi's focus on "national" and regime security, even if those policies incur economic costs. That Xi is willing to bear higher economic costs to achieve regime security and social stability at a time when the PRC is facing significant economic headwinds suggests a clear shift in the policy priorities of the Chinese leadership from earlier in the reform and opening period; it is as yet unclear whether this shift will meaningfully sharpen the



Then US Army Chief of Staff General Raymond T. Odierno meets with the People's Liberation Army in Beijing, China, in February 2014. (US Army photo by Sergeant Mikki L. Sprenkle); Left sidebar: US Special Forces join Republic of Korea Special Forces for Freedom Shield 2023 in March 2023. (US Army photo by Sergeant Samuel Kim)



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**The most comprehensive and serious challenge to US national security is the PRC’s coercive and increasingly aggressive endeavor to refashion the Indo-Pacific region and the international system to suit its interests and authoritarian preferences.**

**—Excerpt from *2022 National Defense Strategy of the United States of America***

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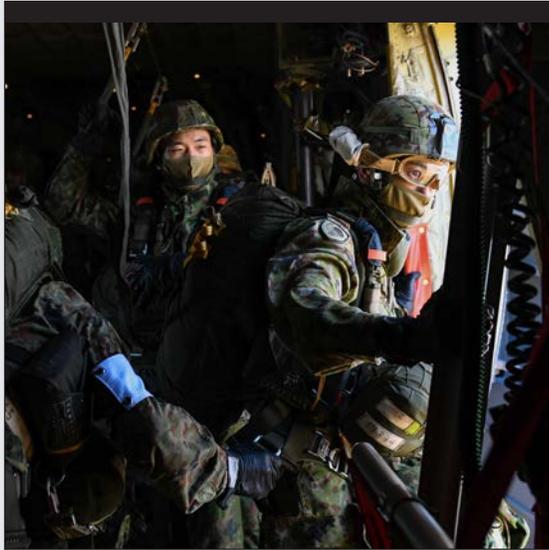
“guns and butter” trade-offs that the PRC’s high economic growth rates largely enabled it to bypass in previous periods.

The PRC’s investments in military power, including its naval buildup, hypersonic weapons development, and advancement of nuclear, missile, and space capabilities (in particular), are increasingly shifting the balance of power in the Indo-Pacific in the PRC’s favor. The People’s Liberation Army (PLA) continues to discuss a new operational concept, “multi-domain precision warfare,” intended to target vulnerabilities in an adversary’s C4ISR systems. In some locations, such as the East China Sea, South China Sea, and the Taiwan Strait, the PRC has increased the tempo and altered activity patterns in an apparent effort to create a “new normal” more favorable to the PRC. The Chinese military also appears increasingly willing to accept risks and impose new operational risks on United States forces by engaging in unsafe intercepts and encounters with the United States in the air and at sea. These developments, combined with Chinese unwillingness thus far to resume military-to-military communication channels and broader crisis management mechanisms, have

heightened tension in the US-PRC bilateral relationship and raised the risk of miscalculation leading to potential conflict.

Chinese officials continue to promote the Global Security Initiative (GSI) announced by Xi in April 2022 and fleshed out somewhat in a February 2023 concept paper. In official rhetoric, the GSI is often paired with the Global Development Initiative and a more recent Global Civilization Initiative and seems aimed at the Global South. China presents the GSI as an alternative to US-led global and regional security architecture, which it argues promotes security for some at the expense of others. However, it is not a direct mirror image of the US alliance/partnership network. Instead, the GSI is an external projection or component of Xi’s comprehensive national security (regime security) concept, seeking to shape the external security environment to enhance regime security. The GSI gives a more prominent place to nontraditional security issues, consistent with its audience in the developing world, and builds on the PRC’s past calls to strengthen and revise global security governance. Although the GSI began as more of a slogan than a

# Theme 1: Regional Challenges and Opportunities



A Japan Ground Self-Defense Force soldier assigned to the 1st Airborne Brigade, prepares to jump from a C-130J Super Hercules at the Hijudai Drop Zone in Japan in November 2021. (US Air Force photo by Staff Sergeant Jessica Avallone)

developed set of policies and includes some repackaging of past talking points and lines of effort, it nonetheless lays the conceptual groundwork for increased global security activities by the PRC that often bypass or exclude the United States. These activities include region-specific diplomatic initiatives, new regional and global security forums, and distinctive forms of security cooperation (such as those focused on police and law enforcement cooperation with non-democracies).

The PRC's security engagement across the Indo-Pacific has expanded in parallel. This engagement includes military diplomacy, port visits, and training (which were reduced during the pandemic and are now resurgent), and a newer willingness to offer/engage in security assistance via police and law enforcement training and activity.

Beijing's "international public security cooperation" includes active multilateral and bilateral diplomacy by the ministers of state and public security, as well as activities such as stationing police liaisons abroad and training foreign police officers.

The PRC's more assertive international behavior and increased domestic repressiveness have prompted policy and strategic changes among US allies and security partners in Asia and Europe. The United States has taken several steps to bolster its defense posture across Asia, with corresponding developments among allies and partners. Australia, Japan, the Pacific Islands, Papua New Guinea, the Philippines, and arguably South Korea (ROK) have all augmented their military capabilities or shown a renewed willingness to enhance American defense posture and security



American nuclear disablement teams (NDT) and South Korean nuclear characterization teams (NCT) strengthen interoperability on the Korean Peninsula during NDT-NCT Partnership VIII in March 2023. (US Army photo by Major Steven M. Modugno)



US servicemembers, Mongolian armed forces, the Philippine Navy, and Japanese Ground Self-Defense Forces participate in convoy operations training during Khaan Quest 23 in June 2023. (US Army photo by Sergeant Teresa Cantero)

cooperation—or both. Defense cooperation and training programs with Taiwan’s military have also increased. Meanwhile, new regional groupings and coalitions, such as AUKUS and the Quad, continue to build and strengthen diplomatic and security networks across the region, and Washington has sought to expand its security relationship with India despite political sensitivities, focusing mainly on defense industrial cooperation and critical technologies.

Evolution in Japanese defense posture and policy is particularly notable. In addition to increasing its military spending and announcing a new *National Security Strategy* late last year, Japan has expanded its role as a security provider in the region, particularly in Southeast Asia. Tokyo has strengthened trilateral cooperation with the United States and its partners, including Australia, the Philippines, and South Korean and

also held its first quadrilateral defense ministers’ meeting in June 2023 on the sidelines of the Shangri-La Dialogue with the United States, Australia, and the Philippines. In addition to these multilateral efforts, Tokyo signed a bilateral defense cooperation agreement with Manila in early 2023 and has transferred significant defense equipment and technology to the Philippines over the past several years.

European attention to and security presence in the Indo-Pacific has also increased. For the first time, NATO has incorporated the PRC into its strategy, more closely aligning the transatlantic alliance with Washington’s focus. Individual European allies are also expanding their activity levels in the region, with recent Australian, British, French, and German deployments to the Western Pacific and the South China Sea. At the same time, many

# Theme 1: Regional Challenges and Opportunities

Asian and European allies and partners continue to seek to balance stronger measures to address the security and systemic challenges posed by the PRC on the one hand and continued business and economic engagement with the PRC on the other. One future challenge for the United States will be to take advantage of windows of opportunity in each country to address the Indo-Pacific's changing security environment while engaging in sufficient outreach and planning to make an enhanced US security presence and augmented security cooperation as domestically sustainable as possible for the long term. These developments occur alongside significant challenges to broader American diplomacy and policy in Asia.

The United States' military and security activity in Asia has tended to outpace its economic and diplomatic engagement, leading to complaints and frustration among regional partners who would prefer Washington to engage the region across a broader spectrum of issues, especially on trade. The *National Security Strategy's* emphasis on democracy also encounters some headwinds in Asia, as the region is decidedly heterogeneous in terms of regime type, including among some of America's key security partners,



160th Special Operations Aviation Regiment (Airborne) servicemembers and Australian Defence Force military personnel commute to a rendezvous point aboard a US Army MH-60 Blackhawk helicopter during Exercise Talisman Sabre 21, at Royal Australian Air Force Base Tindal, Australia, in July 2021. (US Army photo by Private First Class Matthew Mackintosh)

such as Thailand and Singapore, while other partners, such as India, are experiencing serious democratic erosion.

North Korea remains a serious strategic challenge in Northeast Asia, with periodic missile tests that demonstrate an advancing and increasingly survivable nuclear and missile program. While North Korea often justifies its weapons tests as responses to US-ROK military exercises, there are technical and domestic political motivations for continued weapons testing and development and potential

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**We are strengthening our deterrence posture in the Indo-Pacific by developing new concepts and capabilities, deepening our alliances and partnerships, and expanding our activities and operations.**

**—Excerpt from “Message from the Secretary of Defense to the Force”**

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motivations to strengthen Pyongyang's hand in any future negotiations over its weapons programs. The most recent set of tests has not led to the imposition of sanctions at the UN Security Council, as Russia and the PRC have indicated little interest in constraining Pyongyang. North Korea's activities have led Japan, South Korea, and the United States to move to enhance trilateral security cooperation, most recently in the form of an agreement to share real-time data on North Korean missile launches.

Central Asia is also experiencing some strategic recalibration propelled by

factors, including the United States' withdrawal from Afghanistan and the subsequent resurgence of Taliban control, regional reactions to Russia's invasion of Ukraine, the changing roles of the PRC and Russia in the region and shifting relations with middle powers such as India, Iran, and Türkiye. As with the strategic recalibrations described above, the United States' chief task will be to assess correctly how these developments shape the strategic environment across Asia, mitigate emerging risks, and capitalize on opportunities to secure American national security interests for the present and the long term.



Royal Thai Army soldiers train alongside US Army soldiers of the 1-2 Stryker Brigade Combat Team, 7th Infantry Division, during a live-fire exercise with a Stryker vehicle-mounted 120mm mortar during Exercise Cobra Gold 2023, near Lop Buri, Kingdom of Thailand, in March 2023. (US Army National Guard photo by Sergeant Alec Dionne)

# Theme 1: Regional Challenges and Opportunities

## Eurasia



Sandbag enforcements in Poltava, Ukraine; Left sidebar: US Army and British soldiers, in support of NATO's enhanced forward presence battle group in Poland, board a helicopter during Operation Lancer Lift in Pisz, Poland, in July 2023. (US Army photo by Sergeant Alex Soliday)

Russia's war in Ukraine presents the biggest challenge to US security interests since the end of the Cold War. It has long been a core tenet of US national security policy that preventing the emergence of a hegemon in Eurasia is a vital US interest. Historical experience has shown that without US engagement, the region is not reliably self-regulating in this regard. Russia clearly has ambitions of regional hegemony. If it succeeds in dismembering and subjugating Ukraine, the effect on the rules-based global order will be profound and not confined to Europe and Eurasia. Other authoritarian, revisionist powers, not least the People's Republic of China (PRC), are watching

the war in Ukraine closely and drawing lessons from it. It is, therefore, a vital US interest that Russia fails in Ukraine.

Catastrophic Russian failure also carries risks. A Russian military defeat so complete that it puts the country's stability at risk is not an outcome that advances US interests. Given Russia's military potential and arsenal of some 1,600 deployed strategic nuclear weapons (and a total arsenal of over 5,500), a civil war there poses a significant risk of escalation and nuclear proliferation. Even a bloodless coup would be a setback for US interests, since it almost certainly would come from figures who are set on prosecuting the war in Ukraine more



Chief Master Sergeant of the Ukrainian Air Force Kostiantyn Stanislavchuk visits Stuttgart, Germany, in March 2023. (US Army photo by Sherry Keene)

violently. The best outcome for US interests in Ukraine is a Russian defeat clear enough to degrade Russia's military potential and cause it to reexamine its national security interests but not so clear that it invites a violent overthrow of the Russian government.

The collapse of the Cold War arms control regime poses another challenge to US interests in Eurasia. All the treaties that defined US-Russian military interaction and enhanced strategic stability are now defunct. The Strategic Arms Reduction Treaty (START) regulated strategic nuclear weapons, the Intermediate-Range Nuclear Forces (INF) Treaty regulated intermediate-range nuclear weapons, the Conventional Armed Forces in Europe (CFE) Treaty put limits on the number and location of conventional forces in Europe, the Anti-Ballistic Missile (ABM) Treaty helped preserve the efficacy of the US

and Russian nuclear deterrents, and the Open Skies Treaty served to build confidence by allowing information-gathering overflights. None of the treaties is currently in force. Not only does this lapse limit interaction and understanding between the US and Russian militaries, but it also invites a new arms race and erodes crisis stability.

Indeed, the arms race may have already begun. Russia is near completion of a multiyear modernization of its nuclear arsenal. Given the degradation its conventional military has suffered in Ukraine, the Kremlin is likely to rely more on nuclear weapons to deter and coerce adversaries in the future. Russia is also developing nonnuclear strategic weapons, such as the Kinzhal hypersonic missile and the Poseidon torpedo, which is powered by a nuclear reactor, giving it unlimited range and underwater dwell time. Both weapons are also capable of



A Ukrainian soldier watches the horizon during training in the Joint Multinational Training Group-Ukraine in May 2022. (Florida Army National Guard photo by Sergeant Spencer Rhodes)

# Theme 1: Regional Challenges and Opportunities

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## Contemptuous of its neighbors' independence, Russia's government seeks to use force to impose border changes and to reimpose an imperial sphere of influence

—Excerpt from *2022 National Defense Strategy of the United States of America*

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carrying nuclear warheads. The PRC is conducting its own nuclear modernization program, having significantly increased its silo-based ICBM force; it is also developing mobile ICBMs, strategic nuclear submarines, and air-delivered nuclear weapons. United States Strategic Command reported in early 2023 that the PRC now has more ICBM launchers than the United States. The United States is relatively late to the nuclear modernization game. Upgrades to its nuclear triad are underway but are not scheduled to be complete until 2036.

Another challenge facing the United States is the need to balance the acute Russian threat and the long-term Chinese threat. This balance is not simply a matter of “walking and chewing gum”—the threats posed by Russia and the PRC are different and require different types of US capabilities to meet them. Russia's potential power is limited compared to the PRC's and is likely to decline further due to the war in Ukraine. However, Russia is much more willing to use its power in ways that directly threaten vital US interests and is far more acceptant of risk than the PRC. For its part, the PRC seems bent on renegotiating the rules of the international order in its favor, to include being granted a territorial sphere

of influence that would limit the sovereignty of key US allies and partners in the Indo-Pacific region. As its power grows, the PRC may become more willing to use force to unify Taiwan with the mainland. The nature of the PRC-Russia relationship is also important for the United States to consider. A true strategic partnership would be a grave threat to US interests, while a weaker relationship would allow the United States to focus on the most acute threat first.



A People's Liberation Army soldier saluting outside Bayi Building in Beijing, China, in June 2018. (Department of Defense photo by Army Sergeant Amber I. Smith)



Basic training soldiers with the Polish Army's 23rd Field Artillery Regiment parade through the town square during a military oath ceremony, attended by 4th Infantry leaders, in Lwówek Śląski, Poland, in June 2023. (US Army photo by Major Joseph Trovato)

Finally, democratic regression across the region merits US attention. The latest *National Security Strategy* places support for democratization as a key US national security interest. To advance this interest, the United States needs to adopt a policy that encourages democratic development and discourages authoritarian retrenchment in key partner states. In recent years, key US allies and partners, including Hungary and Georgia, have seen steep declines in their democracy scores. This shift is part of a long-term trend in Eurasia, which has seen 19 years of democratic decline. Current US policy avoids making hard choices in this area and fails to provide real incentives for partner states to build and maintain resilient, institutionalized democracies. To support democratic development in Eurasia, the United States should use the leverage inherent in its assistance programs to encourage democratization and punish backsliding.

Amidst these challenges—if America can negotiate them successfully—lies the opportunity to remake fundamentally the European and Eurasian security order. Russia's unprovoked invasion of Ukraine caused key European states like Germany to reexamine their views of Russia and their investments in their security. Poland has emerged as the key frontline state in confronting Russia and a leader of the NATO camp arguing for a more robust containment policy toward Moscow. Even Türkiye, which had long dallied with Russia as it tried to maintain its standing in NATO, has condemned Russia's invasion of Ukraine as illegal and unprovoked. NATO is more unified than it has been since the end of the Cold War, and more NATO members than ever are committed to meeting the goal of spending 2 percent of GDP on defense. If we can sustain and institutionalize these changes, they will enhance US and European security in meaningful ways.

# Theme 1: Regional Challenges and Opportunities

## Europe

Security in Europe has been completely upended by the second Russian invasion of Ukraine in 2022. Admittedly, Russia's first invasion of Ukraine in 2014 was also a major disruption. It marked the end of what many scholars view as the post-Cold War era in European security through Moscow's illegal annexation of Crimea and support for separatists in Luhansk and Donetsk. However, the first invasion and the limited conflict it generated pales in comparison to the magnitude, brutality, and duration of the second invasion and the subsequent war.

As a result of Russia's actions since February 2022, perceptions across Europe among elites and the public have fundamentally changed. Most Europeans previously conceived of Russia as an occasionally troublesome international actor that nonetheless needed to be cultivated as a partner through interdependence. Those in northeastern Europe largely did not subscribe to this view and have been far more skeptical of Russia for far longer. Today, interdependence between Europe and Russia is viewed as naive and outmoded. Instead, a more adversarial relationship has developed, manifested in three ways at the strategic level.

First, most European military budgets have continued, if not accelerated,



US Army units host Polish soldiers at the Abrams Logistical Summit in Drawsko Pomorskie, Poland, in October 2022. (US Army National Guard photo by Specialist Kevin T. Brown Jr.); Left sidebar: 12th Combat Aviation Brigade Headquarters in Ansbach, Germany, in March 2023. (US Army photo by Jonathan Bell)

the upward trajectory in evidence since 2014. For example, in the wake of the February 2022 invasion, Germany announced an unprecedented €100 billion increase in defense spending, aimed at significantly improving the Bundeswehr's capabilities. French President Emmanuel Macron announced that an additional €413 billion would be used toward modernizing France's armed forces in the 2024–30 budget cycle. The United Kingdom announced a defense spending increase of £6 billion over the next two years. And Poland announced that it would raise defense spending to 4 percent of GDP, surpassing its current rate of 2.4



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## **Russia’s illegal and unjust invasion of Ukraine is also an attack on the rules-based international order built at such high cost since 1945.**

**—Excerpt from “Message from the Secretary of Defense to the Force”**

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percent and most likely placing it in the lead among NATO countries. These additional funds are slowly—although perhaps too slowly—enabling European allies to build additional and more advanced capabilities, adapt force structure and posture to the reality of Russia’s challenge, and replenish the stocks of weaponry and supplies sent to Ukraine.

Second, NATO has been rejuvenated through a redefinition of its strategic purpose; a clearer conceptualization of its main adversary; an array of new, realistic planning documents; and the addition of two strong, heretofore nonaligned states in northern Europe.<sup>1</sup> Regarding the alliance’s purpose and aim, NATO’s 2022 Strategic Concept returned collective defense to the fore and was unequivocal in identifying Russia as the most significant and direct threat to the transatlantic community. In 2023, the alliance put the finishing touches on a new family of domain-specific and regionally focused operational plans, which will, in turn, drive defense capability development. Moreover, with the addition of Finland and Sweden, NATO has gained two exceptionally capable members, opened the door to a more holistic approach to Baltic/Arctic/Scandinavian security, and

created new dilemmas for Russian leaders who may be considering aggression against the West.

Third, through the European Union, Europe has taken previously unthinkable steps toward reducing the means by which Russia threatens vital Western interests. The Russian economy and the Russian state budget continue to rely heavily on hydrocarbon extraction, and it is here where EU action has been most impactful and surprising. Previously, energy trade formed the centerpiece of European efforts at the aforementioned policy of interdependence. Today though, the EU has nearly eliminated Russia as a natural-gas supplier, imposed a price cap on Russian oil exports, and placed sanctions on technology and equipment necessary for oil refining in Russia. Additionally, the EU has sanctioned more than 1,400 individuals and 200 entities in Russia and frozen €200 billion in Russian Central Bank reserves.

Beyond Russia, European security is also fundamentally challenged by conflict-induced migration and those fleeing economic dislocation. Although migration into Europe from Africa, the Middle East, South Asia, and elsewhere is nowhere near the levels of 2015–16, migrant arrivals into Europe have rebounded from

# Theme 1: Regional Challenges and Opportunities



A soldier assigned to the 8th Engineer Battalion with Task Force Ivy observes a live-demolition exercise at Bemowo Piskie Training Area, Poland, in July 2023. (US Army photo by Sergeant Alex Soliday)

the pandemic low of 2020. Today, the issue remains highly volatile politically, economically, and socially across Europe.

Similarly, terrorism remains a security concern but has lost much of the salience it had nearly a decade ago when Daesh was on the rise in Syria and Iraq, and spectacular terrorist attacks unfolded in Brussels, Paris, and Nice. In part, this decline is due to improved coordination and intelligence sharing among European security agencies and Europol.

Meanwhile, European attitudes toward the People's Republic of China (PRC) have changed dramatically over the last five to six years. Most Europeans do not perceive the PRC as a threat in Europe despite clear evidence of Chinese espionage, extraterritorial police operations, intellectual property theft, cyberattacks, and influence operations directed at institutions, companies, and individuals across Europe. The promise of

the massive Chinese market maintains a centripetal draw few European countries seem capable of escaping. As a result, Europe is likely to maintain a careful balancing act in the Indo-Pacific, seeking to maintain strong business ties with the PRC while simultaneously diversifying key supply chains and working where possible with Washington on limiting Chinese access to sensitive dual-use Western technologies.

Several risk factors will impact whether and how Europe navigates the security challenges outlined above. Chief among these is the state of European economic health, which fundamentally shapes the fiscal environment confronting every European government and the EU. The continent's largest economy—Germany—will likely endure a mild recession in 2023, resulting from falling consumer spending and energy price hikes. The United Kingdom (UK) will



also likely face a mild contraction in 2023 and then anemic growth in 2024. More worrisome over the next couple of years is the continuing impact of Brexit on the fundamentals of the UK economy, especially in terms of skills shortages and higher trade barriers with the EU. Meanwhile, France in 2023 is likely to see low growth (below 1 percent), a continuation of high public debt (109 percent of GDP), and residual inflation (above 5 percent, year on year). Italy, the continent's fourth-largest economy, will also likely see low growth of around 1 percent in 2023 and 2024. This projection sounds bad, but it would be far worse in the absence of Rome's vigorous use of pandemic-related EU assistance.

These economic headwinds will frustrate continued efforts to maintain or expand defense capability investments such as those noted earlier. For this reason, Europe will likely remain hampered in its efforts to wield power and function as the "Center of Gravity" envisioned in the *2022 National Defense Strategy of the United States of America*. This inability could have profound implications if additional Western military capacity (vice capability) is necessary to counter the Russian threat. Although such an eventuality seems unlikely given Russian losses in Ukraine so far, the siphoning of American forces from Europe to deal with a prospective crisis in the Indo-Pacific could bring such challenges to the fore.



9th Cavalry Regiment soldiers participate in German weapons qualification alongside NATO partners at Bemowo Piskie Training Area, Poland, in July 2023. (US Army photo by Captain Daniel Yarnall)

# Theme 1: Regional Challenges and Opportunities

## Middle East and North Africa

The Middle East appears to be going through a “rebalancing” that will create challenges and opportunities for the United States. While the US military continues its tit-for-tat exchanges with Iran, states like Saudi Arabia, the United Arab Emirates (UAE), Qatar, and Egypt are quietly rebalancing their partnerships in ways that benefit and endanger US interests.

### Iran

While the five permanent members of the UN Security Council (P5+1) continue to try to conclude a new Joint Comprehensive Plan of Action agreement with Iran, Iranian proxies continue to attack US forces in Syria and Iraq. There have been almost 80 attacks since 2021. Unfortunately, US options to stop these attacks appear limited. Tehrān’s interest in driving US forces from the region remains strong, and its use of proxies allows it to manage the costs of confronting the United States. Thus, US options are to

continue responding to these attacks, escalate against Iranian targets to increase Iran’s costs, or find a political solution.

The first option reinforces a status quo that may, over the long term, work against US interests. The stakes are arguably higher for Iran than the United States, suggesting Iran will always be incentivized to continue its resistance, even at a higher cost. Thus, to the extent endurance matters, Iran will likely win. It is not clear, however, that it is willing to bear any cost. After Operation Praying Mantis was undertaken in 1988 to stop Iranian attacks on US ships, the US Navy destroyed Iranian intelligence platforms and some of its most capable ships. Afterward, Iran stopped its attacks on US targets. Whether a similar threshold exists today is not clear. While attacks on US forces diminished after the 2020 strike that killed Islamic Republican Guards Corps-Quds Force commander Qassem Soleimani, they later resumed.

There may be options for a political solution. The recent restoration of

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**Iran further undermines Middle East stability by supporting terrorist groups and military proxies, employing its own paramilitary forces, engaging in military provocations, and conducting malicious cyber and information operations.**

*—Excerpt from 2022 National Defense Strategy of the United States of America*

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diplomatic relations between Saudi Arabia and Iran could lead to cooling tensions and reduce the sense of urgency Iran feels toward US force presence. In Yemen, for example, neither Saudi Arabia nor Iran has urged the renewal of hostilities following the expiration of the last UN-brokered cease-fire in October 2022. With diplomatic relations between the two restored, there is hope that a more permanent settlement will be possible.

Of course, this reduction also poses risks. Iran could feel emboldened by improving ties with the Gulf and increasing attacks on US forces in Syria. Tehran may also be able to exploit the perception that the United States is a disinterested and unreliable partner to increase local and regional opposition to US force presence. To reduce this risk, the United States would have to find a way to signal a willingness to turn up the temperature without sacrificing key interests and see if Iran reciprocates. If the United States does not, option one may be the best way forward for the time being, though as a long-term approach, it will likely allow Iran to portray the United States convincingly as the destabilizing presence in the region, which could reduce cooperation, even among longtime allies.

### **Saudi Arabia, the UAE, and Qatar**

Saudi Arabia, the UAE, and Qatar appear to be quietly realigning their relationships with great-power competitors like the United States and the People's Republic of China (PRC), as well as with Iran. Not only did Saudi Arabia work with the PRC to renew diplomatic



US regional partners form a multinational boarding team in the Middle East in December 2022. (US Navy photo by Sonar Technician [Surface] 1st Class Kevin Frus); Left sidebar: A High Mobility Artillery Rocket System travels through the desert during a live-fire exercise in the Middle East in March 2021. (US Army photo by Captain Patrick Montandon)

relations with Iran, but Saudi Arabia and the UAE have taken steps to demonstrate independence from the United States. Saudi Arabia, for example, recently hosted Syrian President Bashar al-Assad at an Arab League summit to rehabilitate him with the Arab League. The UAE has also played a prominent role in bringing Syria back into the Arab fold. It recently announced it would not participate in the US-led naval task force conducting anti-piracy patrols in the Gulf.

Most Gulf states have also not sided with the United States to oppose the Russian invasion of Ukraine. For oil-producing states, this reluctance is motivated, in part, by a desire for continued Russian cooperation in energy markets. It also likely reflects a more general desire to take advantage of political, economic, and security

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opportunities with the PRC as Beijing seeks growing regional influence. Not only has Saudi Arabia cooperated with the PRC on its relations with Iran, the Saudi Crown Prince has also increased cooperation on energy and security. Additionally, the UAE has cooperated with the Chinese firm Huawei on telecom infrastructure development and have permitted the Chinese military to construct a military base near Abu Dhabi, though its status is unclear.

Qatar, for its part, has grown closer to the United States. Because Qatar supported the Afghan withdrawal, the United States designated Qatar as a major non-NATO ally. Since then, the Qatari emir left the Arab summit just before Assad was supposed to speak and improved ties with Iraq. He has made two visits in two years, and three Qatari companies recently announced \$9.5 billion worth of investments, including two much-needed power plants. These efforts align with US interests in supporting Iraq's recovery and give Qatar alternatives to Iran for economic and political cooperation.

Iraq continues to face complex and interrelated challenges that have limited prospects for recovery. The poor security situation constrains economic opportunity, which equates to high unemployment rates (especially for youth) that force Iraqis to look elsewhere for resources. Local self-reliance in the face of hardship reinforces informal bonds but erodes government legitimacy. This erosion allows armed militias to build bases of support and resist government efforts to

conduct security-sector reform. Political gridlock, largely due to a sectarian quota system governing elections, has made a political solution impossible.

There are positive signs, however. While the PRC gets much of the credit for the recent restoration of diplomatic relations between Saudi Arabia and Iran, Iraq's hosting of an ongoing dialogue between senior Saudi and Iranian officials arguably created the space necessary for the Chinese intervention to be effective. Also, as noted above, the political and security situation may be reaching a point where more corporations are willing to invest on a scale similar to that of the three Qatari companies.



A member of the 1-14th Field Artillery Battalion conducts loading operations of the High Mobility Artillery Rocket System during an exercise in the Middle East. (US Army photo by Captain Patrick Montandon)



## Iraq

The Iraqi Security Forces continue to improve capabilities and have prevented an Islamic State resurgence, though there are areas of Iraq where the terrorist group is relatively free to operate. Despite calls to remove US forces, US advisers continue to assist in counterterrorism operations, and NATO recently established an advisory mission in Iraq to provide additional capabilities. These additional advisory and assistance efforts suggest that while progress in security sector reform will be limited, the Iraqi Security Forces will remain able to contain Islamic terrorist groups operating within its borders.

## Egypt and the Levant

The United States continues its security assistance to Egypt, including counterterrorism cooperation and joint military exercises. Egypt's high level of debt, however, makes it dependent on international donors and lenders who can constrain the kinds of political action it can take. Much like Saudi Arabia and the UAE, Egypt has increased cooperation with the PRC and maintained relations with Russia after it invaded Ukraine. Moreover, Egypt's poor human rights record will limit expanding cooperation, though it will not likely affect the status quo.

Despite efforts to rehabilitate Assad, the Syrian civil war seems to have no end in sight. Thus, much of Syria will remain permissive to Islamist terrorist groups and Iran-backed militias that can threaten

the United States regionally. As noted above, shifting regional relationships could strengthen Iran's hand, making a continued US presence difficult to maintain.

## Conclusion

The regional realignment will present the United States with challenges and opportunities. To the extent key Gulf allies value their relationship with Iran, they may be reluctant to support US military presence and operations in the region, even those conducted in self-defense. However, the perception of loss of US interest seems to have triggered regional approaches to conflict resolution, which impact otherwise intractable conflicts in places like Syria and Yemen, reducing the need for US forces in the first place.

There are also likely limits to the extent US partners will cooperate with the PRC, especially on security. The PRC's arms exports are notoriously unreliable, suggesting that the United States will remain the preferred partner, especially when stakes are high. So, while the United States will not gain cooperation on everything in its interests, there will continue to be opportunities to incentivize cooperation on those the United States prioritizes. These points suggest a regional approach closely monitoring the ongoing realignment to identify or create opportunities to advance US interests or mitigate risks. Such an opportunistic approach could be facilitated by increased engagement, especially where the United States has a comparative advantage relative to the PRC and the regional alternatives.

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## Latin America and the Caribbean

Strategic access to and influence in Latin America continues to be bolstered by strong commercial and cultural ties and the human bonds of those in the region with family or experiences in the United States. That influence and access are reinforced by geography, particularly for the countries closest to the United States, including the Caribbean basin, Central America, and Mexico. Nonetheless, the region is currently becoming more unstable, less willing to work with the United States, and more open to engaging with extra-hemispheric rivals of the United States. This dangerous transformation is driven by reinforcing economic, political, and external factors that are degrading governance, increasing insecurity, and fueling political and economic crises.

The deterioration of US access negatively impacts a collaborative response to shared security challenges such as migration, drugs, and criminal and terrorist groups in the region. At the same time, expanded opportunities for US geopolitical rivals in the US “near abroad,” arising from the same political trend, including advances by the People’s Republic of China (PRC), Iran, and Russia, create strategic vulnerabilities for the United States in the hemisphere, particularly in the event of war with the PRC.



Team Costa Rica huddles at the opening ceremony for Fuerzas Comando 2017 in July 2017, a US Southern Command–sponsored special operations skills competition and combating terrorism fellowship program at the Institute of Army Education in Mariano Roque Alonso, Paraguay. (US Army photo by Staff Sergeant Chad Menegay); Left sidebar: Military members from five countries conduct static-line jump exercises at Air Base London, Guyana, in July 2023. (US Army National Guard photo by Specialist Trevor Wilson)

Deep-rooted frustration in the region with endemic insecurity, corruption, and poor economic conditions predates the COVID-19 pandemic yet was exacerbated by the pressures of the pandemic and sources of contention exposed by the government response. COVID-19 hit Latin America particularly hard, producing one of the highest per capita death rates in the world while highlighting corruption and neglect in the region’s health care systems and the inability of governments to protect their populations effectively. The economic



disruptions from fighting the pandemic ruined businesses and pushed many from the middle class into poverty and the informal sector. Meanwhile, Latin American public-sector spending gravely weakened fiscal balances, hampering the government's response to future needs and driving politically unpalatable tax increases and other adjustments. On the heels of the pandemic, Russia's invasion of Ukraine accelerated inflation and impacted already vulnerable populations through increased prices for basic foodstuffs and fuel.

In the security domain, populations have become more vulnerable to mass migration, which exposes them to exploitation by human smugglers, traffickers, and other criminal organizations, while further stressing the societies through which the migrants move. The displacement of more than seven million Haitians, Nicaraguans, and Venezuelans, and others has produced significant migratory flows in multiple directions, including through Panama's

Darien Gap, through Central America to the United States-Mexico border, through the Caribbean, and from Venezuela through Colombia, Ecuador, Peru, and Chile. These migratory flows strain the resources of fiscally and economically vulnerable host countries and empower criminal organizations that prey upon them.

In the political domain, disillusionment and discontent have brought an unprecedented number of nontraditional politicians generally less disposed to cooperate with the United States on important traditional security issues to power. They are charged with managing deeply polarized countries, often with fragile legislative coalitions, while advocating state-led solutions unpalatable to investors in an environment where the fiscal balances of their government are already fragile, and the private sector is unable to absorb new costs, setting the stage for further protests, economic difficulties, and political instability.



A US Army airborne instructor teaches parachuting techniques to mixed nation servicemembers at Air Base London, Guyana, in July 2023. (US Army National Guard photo by Specialist Trevor Wilson)

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On the radical left extreme of the chaotic and less US-friendly political space, entrenched authoritarian regimes in Venezuela, Nicaragua, and Cuba have consolidated power internally and outlawed, or otherwise incapacitated, oppositions that could replace them. They have leveraged outreach from the expanded group of sympathetic governments to reengage politically and economically with the region, facilitating the expansion of criminal networks operating in their territory and potentially radical groups seeking to weaponize the region's ample discontent. The increased economic and political viability of authoritarian populist regimes such as Venezuela and Nicaragua have made them increasingly willing to host threats that US rivals Russia and Iran have sought to project into the region.

Although the United States has found common ground with the region's new left regimes on select environmental and social justice issues, their willingness to collaborate on key security and strategic issues has eroded markedly. Examples include Mexico's 2020 National Security Law, which increased barriers to working-level collaboration against organized crime, the Gustavo Petro government in Colombia's redefinition of the security agenda with the United States, and the Luiz Inácio Lula da Silva government in Brazil inviting Russian Foreign Minister Sergey Lavrov to the region, as well as permitting the Iranian warship *Makran* access to Brazil's ports.

The shift to fewer US-oriented governments has also accelerated the

PRC's expansion of commercial, political, and security engagement in the region, reaching \$449 billion in 2022, making the PRC the principal trade partner for most nations south of Costa Rica. In the past two decades, PRC-based entities have invested more than \$172 billion in the region, and its two principal policy banks alone have loaned \$136 billion to the region.

Companies based in the PRC, such as Huawei, play a key role in the region's telecommunication infrastructure and are positioned to dominate 5G. Huawei is also a leader in cloud computing. Huawei, Hikvision, and Dahua have an important role in security systems in the region, including "smart cities" and "safe cities" initiatives. Chinese companies also have significant access to the region's data through Alibaba in eCommerce, DiDi Chuxing in ride-sharing, Nuchtech customs scanners, and container "reading" technology in Zhenhya Port Machinery Company (ZPMC) port cranes.

PRC companies have also captured key positions in strategic minerals, including lithium in Argentina, Bolivia, Chile, and Mexico and niobium in Brazil; a significant share of the region's energy transmission and generation infrastructure, particularly in hydroelectric, wind, and solar; and strategic positions in maritime logistics, operating major ports in the Bahamas, Brazil, Mexico, Panama, and soon, Peru. The PRC is also expanding its role in the region's space architectures, collaborating on satellites and other infrastructure with Argentina, Bolivia, and Brazil.



Security engagement with the region is also expanding, including sales and donations of equipment to military and police forces, hosting of their senior officers in the PRC for training and institutional visits, and periodic travel by its warships and delegations to the region.

The PRC's influence in, and access to, the region is expanded by "flips" in diplomatic recognition, as seen in recent years in the Dominican Republic, El Salvador, Honduras, Nicaragua, Panama, and Honduras. Such changes are routinely accompanied by multiple nontransparent agreements involving "gifts" of infrastructure and PRC training programs, Confucius Institutes, media collaboration, and projects in sectors ranging from telecommunications to electricity to port infrastructure.

In the event of a US military conflict with China, its commercial presence provides leverage to persuade Latin American governments to suspend some cooperation and access to the United States while providing cover for operations observing and disrupting US deployment and sustainment operations. The PRC's relationships with Latin American security forces, operation of multiple ports in the region, and its access to Latin American space assets could be leveraged to support operations against the United States from the hemisphere, even without formal alliance or basing agreements. In the context of such a war, Russian and Iranian assets, in combination with those of US-hostile actors (such as Cuba, Nicaragua, and Venezuela), could be employed against the United States



Military personnel from seven countries conduct a fast rope insertion and extraction system (FRIES) exercise at Air Base London, Guyana, in July 2023. (Missouri Army National Guard photo by Sergeant Christopher Saunders)

with PRC support in ways those actors would be reluctant or under-resourced to do in peacetime.

The reinforcing dynamics of economic stresses, transnational crime, discontent, political polarization, and fragility threaten to deepen the region's governance crisis, creating further opportunities for the PRC, including a security and political crisis in Ecuador, one of the few remaining US-aligned governments. At the same time, discontent with many leftist governments and the possibility for more US-friendly actors to prevail in Argentina's October 2023 general elections raise hopes for escaping from the current cycle of deteriorating democracy and institutions, particularly if the United States can leverage the opportunity and help its partners succeed.

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## Sub-Saharan Africa

**T**he US strategy toward sub-Saharan Africa underscores the region's importance to US national security interests and recognizes Africa's growing strategic significance. Situated along key sea lines of communication and maritime choke points, Africa has one of the world's fast-growing populations, is the largest regional voting bloc in the United Nations, and continues to increase in geopolitical importance.<sup>2</sup> The United States is vested in supporting peace, promoting security, and advancing democratic values across Africa. Nevertheless, terrorism, democratic backsliding, protracted conflict, and mass migration undermine US national security interests on the African continent and

across the globe. Strategic competition with the People's Republic of China (PRC) and Russia poses a unique challenge to US national security interests in the region as Beijing and Moscow pursue increased access and influence, albeit for different reasons. Beyond China and Russia, middle-power countries such as Türkiye, the United Kingdom, France, and India also vie for access and influence across the continent, providing African nations with alternate options for security, economic, and trade partners.

Terrorism continues to pose a significant threat to US national security interests in Africa and directly threatens US personnel, US nationals, and facilities on the continent. Violent



US Army soldiers assigned to the East Africa Response Force (EARF), 101st Airborne Division, board a C-130J Super Hercules assigned to the 75th Expeditionary Airlift Squadron, at Camp Lemonnier, Djibouti, in January 2020. (US Air Force photo by Senior Airman Daniel Hernandez); Left sidebar: A Uganda People's Defence Force soldier suppresses fire to relocate during a multinational field training exercise as part of Exercise Justified Accord 23 (US Africa Command's largest exercise in East Africa) in Isiolo, Kenya, in February 2023. (US Army photo by Sergeant Christian Dela Cruz)



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## Nonstate actors pose an increasing threat to US regional interests, including Allies and partners, particularly in the Middle East and Africa.

—Excerpt from *2022 National Defense Strategy of the United States of America*

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extremist organizations (VEOs), such as Boko Haram in Nigeria, al-Shabaab in Somalia, Jama'at Nusrat al-Islam wal-Muslimin (JNIM) in West Africa, and ISIS-affiliated groups in the Sahel and Central Africa, threaten regional stability. These VEOs exploit weak governance, porous borders, and political instability, undermine state institutions, and impede socioeconomic development while also exploiting bad governance, corruption, and tensions stemming from the misuse and abuse of security forces. Many of these groups seek to kidnap American citizens and attack US diplomatic facilities and American interests. As these groups gain strength and capability, the potential to export terrorism to other parts of the world, including the United States, also rises. Africa's geographic location also makes it a transit point for transnational threats, including arms smugglers, drug traffickers, and the movement of illicit goods and people. The revenue generated from these illicit activities funds other security threats, including terrorism.

Protracted conflict and civil war confront several African nations, leading to widespread violence, displacement, and humanitarian crises. The Central African Republic, the Democratic Republic of the

Congo, Ethiopia, and Sudan face ongoing conflict that has exacerbated humanitarian crises leading to food insecurity, famine, extreme poverty, the spread of infectious diseases, and the forced displacement and mass migration of millions of people. These conditions also provide fertile ground for criminal activity, extremist groups, human rights abuses, and weapons proliferation. Africa's abundant natural resources, including minerals, oil, and natural gas, have led to disputes over resource control, extraction, and revenue sharing and escalated into armed conflict. Resource-related conflicts destabilize countries, undermine governance, and impede socioeconomic development. Instability and disruption in the supply chain of resources can have significant economic consequences, including price fluctuations and market disruptions that impact the US economy and national security.

Democratic backsliding in Africa undermines the key institutions sustaining democracy, such as the rule of law; the independent judiciary; free media; and the democratic electoral processes. The weakening of these institutions erodes the checks and balances essential for a functioning democracy, frequently leads to social unrest, political instability,

# Theme 1: Regional Challenges and Opportunities



A Mauritanian soldier executes a dismounted patrol training scenario while being assessed by German Bundeswehr soldiers during Flintlock 2020 in Kaédi, Mauritania, in February 2020. (US Army photo by Corporal Kevin Sterling Payne)

authoritarianism, the concentration of political and economic power by political elites, disregard for human rights, and opens the door for VEOs and criminal groups to exploit disenfranchised populations. Since 2021, Africa has experienced increased military coups, such as those in Burkina Faso, Chad, Guinea, Mali, and Niger. Military coups undermine counterterrorism efforts by eroding the capacity and legitimacy of security forces, hindering US and other Western security cooperation and intelligence sharing, and diverting resources away from counterterrorism efforts. These actions open the door for Russia and other actors to expand their military and political influence at the cost of US influence and interests.

Russia's malign activities and engagements in Africa undermine US national security interests by fueling instability and undermining democracy.

Russia's increasing use of private military companies (such as Wagner) exploits vulnerable governments and populations to achieve its strategic objectives and extort profits through mineral extraction and resource concessions. United Nations experts and Western countries criticize Wagner's operations in the Central African Republic, Libya, and Mali for a lack of accountability, disregard for the rule of law, and egregious human rights abuses that further destabilize fragile states and erode Africa's stability. Additionally, Russia seeks to achieve its political and economic goals by supporting autocratic governments, obstructing democratic processes, and engaging in disinformation campaigns to spread its influence and undermine democracy.<sup>3</sup>

China's military, diplomatic, and economic engagement in Africa remains a priority for Beijing as it seeks to challenge the rules of the international



order in its favor, advance its geopolitical and economic interests, and undermine democracy. As Africa's largest trading and investment partner with more than \$200 billion annually, Beijing seeks to leverage its political and economic weight to influence African votes in international organizations and shape UN policy to its benefit.<sup>4</sup> While Chinese investments provide a path for economic development and modernization, African countries must be cognizant of the risks associated with these investments, including corruption, data theft, unsustainable debt, inferior quality of goods and services, and intrusion of Chinese surveillance technology. Beyond its existing Doraleh Naval Base in Djibouti, the PRC is pursuing additional military facilities along the east and west coasts.<sup>5</sup> While PLA (People's Liberation Army) basing in Africa poses a marginal risk

to US national security interests on the continent, the PLA will have a greater ability to project military power against the United States and its allies during a conflict.<sup>6</sup>

Many challenges threatening US national security interests, if negotiated successfully, present significant opportunities to support security interests that mutually benefit African countries and the United States. Through diplomatic, economic, and military engagement, the United States and African countries can reinforce the international rules-based system, promote economic development, strengthen counterterrorism cooperation, advance conflict resolution initiatives, and strengthen democratic institutions. However, US national security challenges will persist as long as strategic competition, VEOs, protracted conflict, and democratic backsliding undermine American interests.



Artillery soldiers of the Kenya Defense Forces engage in firing the M119A2 howitzer during a live-fire exercise in Archers Post, Kenya, in January 2020. (US Army photo by Sergeant Miles O. Andrade)

## Theme 2: Domestic Challenges

### Civil-Military Relations

The United States has an enviable record of fruitful civil-military relations that underpins its historic success as a republic. Nevertheless, it is a record that requires constant attention and maintenance as society evolves and new military challenges emerge. Part of American civil-military success stems from society's healthy skepticism of martial values and military institutions—especially standing armies—rooted in the events and principles of the nation's founding. The Constitution enshrines three civilian-led branches of government that share divided control of the levers of power, including the military. The central martial tenet of the structure is military subordination to civilian control. The central tenet of civilian control has never been violated in the United States in profound ways, such as military coups and dictatorships that are all too common throughout history and around the world. There are, however, many examples of friction in civil-military relations that give pause for concern and lead to recurring contentions about real or potential crises in the healthiness of military subordination.

Using *civilian* and *military* as terms presents a distinction and a gap. The manner in which gaps between civilians and the military are understood to be natural, necessary, and/or unhealthy is a recurring theme of American discourse. An extremely important gap in



President of the United States Joseph R. Biden, Vice President Kamala D. Harris, Secretary of Defense LLOYD J. Austin III and US Army Major General Allan M. Pepin, the commander of Joint Task Force-National Capital Region and the US Army Military District of Washington participate in a wreath-laying ceremony in honor of Memorial Day at Arlington National Cemetery, in Arlington, Virginia, on May 29, 2023. (US Army photo by Sergeant David Resnick); Left sidebar: Secretary of Defense Lloyd J. Austin III (US Army photo by Henry Villarama)

responsibilities exists between the civilian leaders, empowered by the electorate to make society's governing decisions about policy ends, and the leaders and institutions that contribute unique military ways and means toward those ends. Professional military advice reflecting even the best discretionary judgments may collide with the values and judgments of the government's civilian executive or legislative leaders as well as with society more broadly. Optimally, civilian/societal ends and military ways and means align effectively and harmoniously. However, with stakes so high, especially in the context of war or other uses of coercive force, even relatively harmonious



alignments typically reflect regrettable and painful, albeit necessary, choices. Even in the best of times, perennial national security issues such as when to use force, how to use force, how to maintain readiness, how to anticipate and prepare for future challenges, and how to allocate national resources (especially people and money) entail significant civil-military tensions, concentrated negotiations, and difficult trade-offs. These issues touch upon the basic question of how to use the military to attain national security without endangering the core principles of the republic or, as Peter Feaver has articulated in *The Civil-Military Problematique*,” “how to reconcile a military strong enough to do anything the civilians ask them to do with a military subordinate enough to do only what civilians authorize them to do . . . .”<sup>7</sup> In a polarized society, these already daunting and uncomfortable choices can be kindling for fraught civil-military relations.

With the 50th anniversary of the All-Volunteer Force, another exceptionally important civil-military relations gap that commands attention is between those who are able and willing to serve and those who cannot or do not want to serve. Beyond the basic numerical challenge of how to fill the ranks of our high-turnover volunteer force are questions about the societal influence of those who support, oppose, or are indifferent to military service that can affect recruitment and retention.

American society’s current atmosphere of severe political polarization poses challenges for the nonpartisan military

profession. A military member’s oath and commitment to the Constitution (not to any individual or party) is meant to be a strong shield in the service of civilian control. Legal standards, such as the Hatch Act and the Uniform Code of Military Justice, reinforce fundamentals of military deference, especially among those in active service; however, are existing specifications sufficient for the current era? For example, what are the appropriate standards and norms for military social media use at individual and institutional levels? Furthermore, the military is not a monolith; existing laws and norms do not necessarily thwart unhealthy partisanship across the broader military community that includes veterans and retirees.

Monitoring and attending to the health of American civil-military relations is imperative now, just as it has been ever since the nation’s founding. Vigilant care—especially preventative—is central to military professionals’ constitutional duties.



Army Vice Chief of Staff General Randy George, nominated to become the next Army Chief of Staff by President Joseph R. Biden, answers questions from members of the Senate Armed Services Committee during his confirmation hearing at the Dirksen Senate Office Building, Washington, DC, July 12, 2023. (US Army photo by Sergeant David Resnick)

## Theme 2: Domestic Challenges

### Challenges to the Defense Industrial Base

The United States defense industrial base has atrophied in the years since the end of the Cold War. A 38 percent reduction in the size of the US military since 1989 has reduced the overall demand for weapons of war. These reduced requirements have driven the large-scale consolidation of many defense contractors. Despite spikes in requirements to support operations in Afghanistan, the Balkans, and Iraq, the overall demand has been greatly reduced, especially since large-scale US participation in conflicts ended.

The changing character of war has resulted in a greater emphasis on smart weapons. Those high-precision weapons have revolutionized modern warfare and have become the new American way of war and are very accurate and very expensive.

The defense industrial base has become fragile over the last several years, and its resilience depends on five key components:

- Stable and predictable budgets – Stable and predictable budgets are one of the key issues for defense contractors, but they are nearly impossible to create because of how the Department of Defense budget works. Congress has failed to pass the budget on time every year for more than a decade, resulting in a continuing resolution that slows production and forces contractors into limbo. Smaller contractors cannot afford to float contracts until a budget is approved and, therefore, must either merge or go out of business.
- Specialized workforce – Domestic manufacturing, in general, has declined in recent decades, and supply chains have become global. This dependence on foreign sources for critical defense components has made the system vulnerable. The defense industry requires a skilled workforce with science, engineering, and advanced manufacturing expertise.



David Norquist, president and chief executive officer of the National Defense Industrial Association and the former deputy secretary of defense, addresses the Defense Logistics Agency Supply Chain Alliance Conference and Exhibition in Richmond, Virginia, in May 2023. (Photo by Christopher Lynch); Left sidebar: US Army soldiers line up M113 armored personnel carriers during Combined Resolve 18 in Hohenfels, Germany, in May 2023. (US Army photo by Specialist Joshua Zayas)





Interest in manufacturing jobs has also declined, so replacing workers becomes more difficult as they age and retire.

- Diversified, modern infrastructure – Budget instability and contractor consolidation have prevented the modernization necessary for efficient and cost-effective production.
- Manufacturing innovation – The consolidation of aerospace industries from more than 100 to five indicates the volatility and fragility of the defense contracting community. The Department of Defense estimates that the number of defense suppliers has declined by 40 percent over the last decade. This decline reduces competition, stifles innovation, and makes the system more fragile.
- Surge capacity – That lack of infrastructure investment and reliance on sole-source suppliers

reduces the surge capacity and resilience of the system.

The character of war will continue to evolve as technology advances. The defense industrial base must lead this innovation to preserve military advantage. Emerging technologies, such as AI, autonomous systems, and cybersecurity, require continuous investment in research and development.

The drive toward innovation has produced lighter and more flexible organizations, but it has also had unintended consequences. The Army moved to just-in-time logistics, following the commercial world example. While this method works in peacetime and a low-threat environment, it does not work in wartime or global emergencies. The COVID-19 pandemic showed the system's fragility—and three years later—many aspects of the defense industry have not yet fully recovered.



Undersecretary of the Army Gabe Camarillo receives an orientation to the Transport Erector Launcher of the Long-Range Hypersonic Weapon by members of the US Army Rapid Capabilities and Critical Technologies Office and Lockheed Martin during a visit to Huntsville, AL, in April 2022. (Photo by William King)

## Theme 3: Institutional Challenges

# Leader Development and the Future of the Profession

**H**ow well is the US military profession understood by itself and the society it serves? A key responsibility for military leaders is to provide clarity about the military profession's essence or character. Military leaders must work with civilian leaders to clarify the profession's expert knowledge (for example, leadership in the use of coercive force) and its jurisdictions of practice (such as major combat operations, deterrence, stabilization, and homeland defense) to serve the American people best. Moreover, framing healthy civil-military negotiations informed by professional military judgment and governed by ultimate deference to civilian decisions require effective leader development.

The central enduring and recurring question is: What should the US military profession's role on behalf of American society be in the future? The US military profession may have similarities with the armed forces of other countries; however, complex civil-military relations, peculiar circumstances, and contingent policy decisions have uniquely shaped the US military over time. Additionally, the geopolitical environment evolves and shifts in ways that require continued assessment and reassessment.

In the current era, developing leaders for the Army and the broader US military profession requires attention to the following important challenges:



US Army South soldiers maneuver the Leader Reaction Course during a battalion staff exercise on Joint Base San Antonio-Camp Bullis, Texas, in May 2023. (US Army photo by Private First Class Joshua Taeckens); Left sidebar: Major General Michele H. Bredekamp, commanding general of United States Army Intelligence and Security Command, speaks during a May 2023 leadership personal development session in Vicenza, Italy. (US Army photo by First Lieutenant Katherine Sibilla)



- How to deal with increasingly assertive strategic challengers, especially the People’s Republic of China and Russia
- How to make sense of and adjust to the changing character of war that includes significant new domains—such as space and cyberspace—underpinned by advanced technology
- How to learn and adapt given a dearth of strategic effectiveness in recent conflicts despite strong operational and tactical execution (such as Afghanistan, Iraq, Libya, and Syria)
- How to respond to pressures on the military to adapt and conform to emerging societal norms in areas such as diversity, equity, inclusion, and accessibility
- How to deal with heightened risks of politicization of the armed forces
- How to respond to the growing societal rejection of professionalism that has accelerated since the onset of the COVID-19 pandemic
- How to define the military profession’s role in relation to other professions and communities that affect American national security (for example, academic, business, diplomatic, economic, health, intelligence, and legal, among others)

Intimately related to meeting society’s military security needs in war, deterrence, stabilization, and homeland defense are the internal jurisdictions of practice required to develop and refine the profession’s expertise (in other words,



A US Army nuclear and countering weapons of mass destruction officer pursues a doctorate in nuclear engineering at the Massachusetts Institute of Technology. (Photo by Gretchen Ertl, courtesy of MIT)

what is the profession’s map of abstract, expert knowledge?) and inculcate such expertise through professional military education and training. The imperatives of leader education and development are most acute with respect to the specialized military expertise not resident elsewhere in society. Military-unique technical, moral-ethical, political-cultural, and human development expertise are the intellectual foundations for professional military education and training. However, many fields of knowledge salient to military professionals are readily available in American society’s broader educational system. Distinguishing, evaluating, and updating the specialized knowledge the military must steward and identifying whether and how to tap into civilian expertise and institutions is another important area for fruitful exploration.

## Theme 3: Institutional Challenges

### Recruiting and Retention

**W**hile the final report of the Gates Commission that spurred the creation of the All-Volunteer Force stated that there was unanimous agreement that “the nation’s interests would be better served” by that reform of the military, there was no such unanimity about the viability of the proposal. There were many concerns about the rising cost of volunteers. One commission member feared the unintended consequences of turning military service into “just another job,” as Army advertising campaigns have done more than the other services. The Department of Defense did not think the new force would attract the full spectrum of society, creating a warrior class or mercenary class separated from those it served. The Department of Defense also questioned whether reserve components could be kept up to strength in the new environment. Ironically, many liberals supported the shift as a way to limit the size of the military, envisioning difficulties in recruiting a large number of volunteers in a positive light. Moreover, the initial conception of the All-Volunteer Force assumed the existence of a viable draft for large conflicts.<sup>8</sup> After 50 years, it might be time to reexamine all those concerns again.

Recruiting crises for the All-Volunteer Force are nothing new. Shortfalls in the 1970s were initially fixed

by lowering standards, especially for high school graduates, but by 1979 no service was meeting recruiting goals. General Maxwell Thurman reversed the negative trends with a combination of advertising and Operational Research and Systems Analysis (ORSA), setting up an ORSA cell in his headquarters to monitor closely the course of recruiting. Reagan administration increases in pay and incentives were helpful, but cuts in recruiters as a result of the drawdown of the 1990s led to a return to missing goals. The Army focused on increasing the numbers of recruiters and improving soldier quality of life to reverse those trends. However, 1999 proved to be the worst recruiting year in the history of the All-Volunteer Force. The multidisciplinary



Lieutenant Colonel Patrick Cunningham assumes command of US Army Recruiting Battalion – San Antonio during a June 2023 ceremony. (Photo by Rochelle Naus); Left sidebar: New recruits take the oath of enlistment at Fort McCoy, Wisconsin, in June 2023. (US Arm photo by Scott T. Sturkol, Fort McCoy Public Affairs Office)



A Cadet Summer Training (CST) Basic Camp drill sergeant mentors ROTC cadets on how to succeed as soldiers at Fort Knox, Kentucky, in July 2023. (Photo by Keaton Silver, University of Mississippi, CST Public Affairs Office)

Program Analysis and Evaluation Directorate (PA&E) of the US Army Recruiting Command (USAREC), successor to Thurman’s ORSA cell, then led a complete reengineering of the command to transform its approach to the youth market. By 2001, the directorate had eliminated all active component and reserve component recruiting shortfalls, as USAREC enjoyed the best performance in its 30-year history. The use of stop/loss and reserve call-ups as a result of Operation Iraqi Freedom caused more

disruption in recruiting and retention. Multiple deployments of some high-demand/low-intensity Reserve Component units caused them almost to disappear. A focus on more stabilized rotations and the legacy of the 1999 reforms eventually helped restore recruiting numbers. However, USAREC PA&E Directorate was disbanded after it was transferred to TRADOC in late 2002. Combined with a massive reduction in Army ORSA positions as part of the 1990s drawdown, this lack of dedicated Army analytical capability to recruiting issues has also contributed to the current problems.<sup>9</sup>

Despite all that history, there are some aspects of the current crisis that are unique. As a 2006 RAND study concluded, “Ultimately, however, the ability to grow the all-volunteer force will depend on the willingness of young men and women to join. Increased incentives have always proven to stretch enlistments, but there is a limit. . . . So far, the all-volunteer force has proven to be very resilient, but the all-volunteer force does not lend itself to guarantees.”<sup>10</sup>

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**We face historic challenges—but we will meet them. We have the best fighting force in history, and our military families, civilian and contractor workforce, and domestic and international allies and partners are without equal. We will continue to recruit and sustain a uniformed and civilian workforce that embodies the diversity and dynamism of our great democracy—because our people are the bedrock of a strong national defense.**

—Excerpt from “Message from the Secretary of Defense to the Force”

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## Theme 3: Institutional Challenges

### Contested Logistics

Logistics support is as old as military power and attempts to disrupt or destroy an adversary's logistics system. The increasing size of armies with more complex and sophisticated structures rendered their logistics more vulnerable, especially following the advent of modern war with mass, conscripted armies and widespread industrialization. The focus on contested logistics today is the recognition of how advanced and numerous the threats have progressed in relatively short order. Consider world events in the twenty-first century. The single-hegemon world, which the United States secured with its bloodless victory in the Cold War, received a rude awakening on September 11, 2001. American forces then fought two major counterinsurgencies in Afghanistan and Iraq over two decades, besides other contingencies.

Simultaneously, the most intertwined degree of globalization to date had promoted economic growth. Three years of a pandemic and Russia's invasion of Ukraine in 2022 upended the "good news story." The pandemic wreaked havoc on supply chains based on best-case assumptions for efficiency, not effectiveness, exposing the degree of Chinese and Russian dominance of key resources. Russian trade links had become a painful liability. China had played by the rules to extract maximum benefit at



The Fort McCoy, Wisconsin, rail operations team and Logistics Readiness Center conduct a rail movement operation in May 2023. (US Army photo by Scott T. Sturkol, Fort McCoy Public Affairs Office); Left sidebar: A soldier loads equipment at Military Ocean Terminal Sunny Point near Southport, North Carolina, during Operation Patriot Bandoleer in March 2015. (US Army National Guard photo by Sergeant First Class Robert Jordan)

minimal cost to centralized control of the Party. Worst of all, potential adversaries blurred the distinctions between competition, crisis, and conflict, and traditional notions of peace vice war.

The United States now recognizes a multipolar world with great-power competition. The armed forces must reorient on large-scale combat operations (LSCO) in all five domains under far less favorable circumstances, hence the focus on contested logistics. The tyranny of distance always imposed enormous restraints and constraints on Joint Force deployment. Now the proliferation of cheap, easily obtained, disruptive technologies has exacerbated those liabilities. American air and naval supremacy, and even superiority, are no longer valid strategic assumptions. The





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**For logistics and sustainment, we will reinforce our capability to quickly mobilize and deploy forces and to sustain high-intensity joint denial operations despite kinetic and non-kinetic attack and disruption.**

**—Excerpt from *2022 National Defense Strategy of the United States of America***

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assured, predictive, scientific deployment of massed Landpower on tight timelines has become problematic.

The latest sobering realities of contested logistics have showcased the centrality of setting the theater with a mostly CONUS-based force. The original objections to proverbial iron-mountain stocks were cost and efficiency; now, the issue is survivability. Setting the theater has never been more critical.

The conundrum of contested logistics today is the depth and breadth of threats “from factory to foxhole.” Analysis of, and proposed solutions for, contested logistics must account for the strategic, theater strategic,

operational, and tactical levels and their vulnerable seams.

Strategic logistics deals with the deeply interconnected and increasingly fragile wider world. Mitigation must account for fragmenting globalization, disrupted supply chains, “normal” commodity markets, labor shortages, and capital investments. The current Defense Industrial Base reflects different characteristics from its twentieth-century predecessor. Theater logistics is the critical bridge between the strategic and operational levels and is central to setting the theater. Army Service Component Commands and Theater Sustainment Commands must posture Joint Force theater and operational logistics to set the conditions for tactical logistics in LSCO.

Contested logistics in LSCO throughout five domains demands that logisticians achieve far greater mental integration and synchronization with all Army warfighting and Joint functions. Setting the theater today is—and will be—different from the 1990–91 Persian Gulf War or the 2003 Iraq War thunder run to Baghdad, the most unfavorable circumstances since World War II.



Lieutenant General Patrick D. Frank, commanding general of United States Army Central, shakes hands with Colonel Fahad A. Buresli with the Kuwait Land Forces during the United States Army Central autonomous vehicle demonstration welcome brief at the Udari Range Complex near Camp Buerhing, Kuwait, in July 2023. (US Army Reserve photo by Specialist David Campos-Contreras)

## Theme 4: Domains Impacting US Strategic Advantage

### Great-Power Competition in the Polar Regions



Captain Chelsea Brisbois, 2nd Infantry Brigade Combat Team (Airborne), 11th Airborne Division, pulls security in the Yukon Training Area, Alaska, during Joint Pacific Multinational Readiness Center-Alaska 23-02 in March 2023. (US Army photo by John Pennell); Left sidebar: An Alaska Army National Guard infantryman conducts military tactical movements in Alaska in December 2022. (Army National Guard photo by Specialist Bradford Jackson, 134th Public Affairs Detachment)

Climate change is an environmental, economic, and national security concern, and the polar regions are on the front lines of these global challenges. For example, Antarctica is warming three times faster than anywhere else on Earth, second only to the Arctic, which is warming four times faster. In the Arctic, new shipping routes revealed by melting sea ice have expanded access to markets and critical natural resources, thus increasing the potential for great-power competition. According to the US Geological Survey, the Arctic has “13% of the world’s undiscovered conventional oil resources and 30% of its undiscovered conventional natural gas resources,” as

well as significant marine fisheries and rare earth minerals. These major resources are increasingly drawing the attention of multiple nations as more of the region thaws and accessibility increases. For nearly three decades, the Arctic was one of the few places where Russian scientists worked harmoniously with their Western counterparts. The Russian attacks on Ukraine in 2014 and 2022, however, upset Europe’s peaceful status quo and permanently altered the circumpolar North, leading to what will likely be NATO membership for seven of the eight Arctic nations. In the southern hemisphere, dozens of nations now have a scientific footprint on Antarctica, while



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## Climate change is creating new corridors of strategic interaction, particularly in the Arctic region.

—Excerpt from *2022 National Defense Strategy of the United States of America*

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competitors such as the People’s Republic of China and Russia are potentially operating dual-use facilities on the continent and attempting to weaken frameworks within the Antarctic Treaty System through lawfare to gain greater future access to potential resources on the continent.

### Challenges

The United States faces a series of northern and southern circumpolar dilemmas imposed by a harsh physical environment in the most extreme areas of Earth. Both polar regions are characterized by great distances; extreme cold, wind, and dryness; low population levels;

limited infrastructure; high establishment and maintenance costs; and complex international legal frameworks that all create the potential for great-power competition or even conflict in the regions. Search and rescue, transportation, logistics, and security operations in such austere and harsh environments require intensive training and specialized equipment that is cost-prohibitive to produce and maintain. Within the northern region alone, three combatant commands share some responsibility for the Arctic, but responsibilities are not clearly delineated. Forces currently assigned in the Arctic are apportioned to different combatant commands. Much planning has been



Soldiers from Charlie Troop, 3-71 Cavalry Regiment, 1st Brigade Combat Team, 10th Mountain Division, and Finnish soldiers participate in a weapons familiarization training event using Finland’s 7.62mm RK62 assault rifle during Exercise Arctic Forge in Sodankylä Garrison, Finland, in February 2023. (US Army photo by Sergeant First Class Matthew Keeler)

## Theme 4: Domains Impacting US Strategic Advantage

focused on deployment from and through the Arctic, but there is little clarity on appropriate missions in the Arctic. The Army Arctic War Game 2.0, planned for January 2024, will be designed to address this shortfall. Despite these significant constraints, Arctic nations must prepare to defend their people. In Antarctica, on the other hand, the continent has served as a remarkable global commons for peaceful, scientific research for decades but is increasingly of interest to numerous nations for its potential resources as they become more accessible with warming.

### Opportunities

The United States, the Department of Defense, and all the military services have developed Arctic strategies to address these challenges. The Department of Defense recently established a sixth regional study center—the Ted Stevens Center for Arctic Security Studies (TSC)

at Joint Base Elmendorf-Richardson, Alaska. The Center's four missions are:

- Advance Arctic awareness among partners and within the increasingly professionalized field of US Arctic service
- Advance Department of Defense Arctic priorities
- Reinforce the rule-based order in the Arctic
- Address the impacts of climate change in the region

The US Army must invest in scientific research in the Arctic to understand climate change and ecosystem dynamics better to inform policy decisions, enable resource management, develop technology and equipment, conduct operational planning, and enable multidomain operations. The research should also include infrastructure



Soldiers carry tactical gear to a bivouac site during cold-weather indoctrination training at Camp Carroll, Alaska, in February 2023. (US Army National Guard photo by Staff Sergeant Katie Mazos-Vega, 134th Public Affairs Detachment)



Specialist Charles Conrad, assigned to 1st Battalion, 5th Infantry Regiment, 1st Infantry Brigade Combat Team, 11th Airborne Division, maintains watch at a remote fighting position during Joint Pacific Multinational Readiness Center-Alaska 23-02 at the Yukon Training Area, Alaska, in April 2023. (US Air Force photo by Senior Airman Patrick Sullivan)

development and adaptation to protect existing and planned facilities. That infrastructure development should include investment in dual-use facilities that will benefit the military and the indigenous peoples most affected by military operations in the region. Efforts should be made to protect the world from the effects of melting permafrost, which can potentially spread dangerous

pathogens. Within Antarctica to the south, the United States should encourage the legacy of peaceful, nonmilitarized, global cooperation by ensuring that scientific research in the region continues, adversaries are not operating dual-use facilities on the continent, and international support for a strong Antarctic Treaty System is promoted well into the future.

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**The Department will deter threats to the US homeland from and through the Arctic region by improving early warning and ISR capabilities, partnering with Canada to enhance North American Aerospace Defense Command capabilities, and working with Allies and partners to increase shared maritime domain awareness.**

*—Excerpt from 2022 National Defense Strategy of the United States of America*

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### Future of the Space Domain

The establishment of United States Space Force and United States Space Command and increasing threats to American interests in the space domain have highlighted the importance of the space domain to the Joint Force. The United States relies on satellite assets for communication, PNT (position, navigation, and timing), ISR (intelligence, surveillance, and reconnaissance), missile warning, and weather. Adversaries continue to develop capabilities to disrupt these functions with serious implications for warfighting effectiveness. They also increasingly rely on their own satellites for military operations. More countries and private companies are accessing space, and the Russia-Ukraine War has shown how a country with no satellites can exploit commercial services for warfighting purposes.

The Space Force faces important decisions about which capabilities to obtain and, more importantly, how to obtain them. Commercial providers are making rapid technological advances

and fielding highly capable systems. The United States can purchase communication and imagery services rather than deploying its own systems. This choice comes with complicated questions about security, autonomy, and the division of responsibilities. The United States will have to decide which offensive and defensive capabilities to develop and the impacts on foreign policy and diplomacy beyond warfighting. It will also have to balance these acquisitions against less exciting but more important investments in areas like space domain awareness and resilient ground architecture.

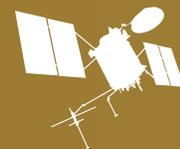
As new services, the Space Force and Space Command face organizational issues. These services are making decisions about responsibilities and lines of authority within the organizations and with the rest of the Joint Force and issues that may arise with intelligence and civil space agencies. Integrating operations within the Joint Force and with allies and partners remains a challenge, especially given the barriers caused by classification.

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**In the space domain, the Department will reduce adversary incentives for early attack by fielding diverse, resilient, and redundant satellite constellations.**

*—Excerpt from 2022 National Defense Strategy of the United States of America*

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1st Space Brigade soldiers at Fort Carson, Colorado, monitor a perimeter during a May 2021 training exercise. (Photo by Staff Sergeant Dennis Hoffman, US Space Command); Left sidebar: Astrophotography showcases the ground-based electrical optical deep space surveillance facility (GEODSS) operated by the 15th Space Surveillance Squadron at the White Sands Missile Range, New Mexico, in August 2022. (US Space Force photo by Airman First Class Kaitlin Castillo)

Training and simulation will require innovations given the infeasibility of conducting live exercises in space. Discussions about developing a unique Space Force culture have been common but lack specificity. Increasing awareness of the threats in the domain and publicizing Space Force's mission and efforts are necessary for the public and the rest of the Joint Force.

Moreover, there is a great deal of work left to do in developing policy, strategy, theory, and doctrine. The Department of Defense has labeled space as a "warfighting domain," but warfighting concepts for space are still in their infancy. Basic questions, such as whether to prioritize supporting ground forces or protecting space assets, must

be worked through. Concepts like "space superiority" have been imported from the air domain, but precise definitions remain elusive. Beyond warfighting, strategists must define the role of space in strategic competition and integrated deterrence. Understanding adversary strategy and doctrine will be critical. Strategists must also anticipate how these concepts could be impacted by the changing technological landscape, particularly the proliferation of small satellite constellations.

The governance of space will be a major challenge in the coming years. Space is described as "congested, contested, and competitive." Operating in the shared environment of space requires rules, procedures, and norms of behavior and can be improved through international cooperation and technology and data sharing. There are already rules on issues such as registration and liability for damages and established principles such as free access. Areas that could benefit from improved governance include debris mitigation, space traffic management, space domain awareness, standards for rendezvous and proximity operations, and the allocation of limited physical space and the electromagnetic spectrum. Other international cooperation and coordination issues range from creating rules for resource extraction and developing common standards for interoperability to ensuring the continued use of space for scientific purposes and addressing the environmental effects of space launches.

## Theme 4: Domains Impacting US Strategic Advantage

### Uses and Ethics of Artificial Intelligence

The race to develop and implement artificial intelligence (AI) and data-driven capabilities continues. Near-peer competitors like the People's Republic of China (PRC) and Russia devote considerable resources to developing AI-driven capabilities that can offset the United States' other technological advantages. While the United States is so far able to keep pace with, if not surpass, these competitors in military AI technologies, the United States may find itself in a future conflict where it is technologically disadvantaged in a critical way. To respond effectively to these challenges, the United States needs an "AI ecosystem" that allows the Department of

Defense to leverage private-sector expertise while developing talent and improving AI literacy across the services.

At a minimum, an effective AI ecosystem requires large quantities of data; skilled AI and data-science researchers, engineers, and operators to develop and implement models that make the best use of that data; effective governance to ensure users can have confidence in model output; and effective stakeholder management to optimize the allocation of development and acquisition resources. Ensuring it is effective requires understanding how it interacts with other ecosystems, especially adversary ones. How these adversaries seek an advantage over the United States will largely determine what acquisition strategies will contribute to the ecosystem's overall health.

#### People's Republic of China

The PRC continues to put considerable resources into developing AI capabilities. According to Stanford University's 2023 *AI Index Report*, the PRC led in journal, conference, and repository publications.<sup>11</sup> The PRC's advantage is that its large, digitally sophisticated population not only gives it access to large amounts of data but also provides a large, skilled workforce that can curate the data gathered. Moreover, its ability to synchronize civilian-sector



Depiction of an artificial intelligence brain; Left sidebar: An engineer trains in a virtual environment to prepare for real missions. (US Army photo by Private First Class Samantha J. Whitehead)



applications effectively with military requirements amplifies its data advantage.

However, the PRC has limits. It currently lags behind the United States in machine learning and generative AI.<sup>12</sup> Probably more than the United States, the PRC suffers from a lack of AI talent, which is especially acute in the People's Liberation Army (PLA) because security requirements can limit access to military programs.<sup>13</sup> The PRC also suffers from uneven investment and a limited ability to manufacture advanced logic and memory chips.<sup>14</sup> Moreover, its relative isolation compared to the United States limits the cooperation for technology development it can gain from its partners.

While much of the PRC's AI innovations prioritize domestic surveillance, the PLA will likely prioritize information dominance to ensure decision superiority and improve its ability to operate jointly.<sup>15</sup> Additionally, the PLA is focusing much of its AI efforts on space, cyber, and electronic warfare, where AI models can provide an advantage in managing satellite constellations, speeding network defenses, and recognizing and classifying signals.

## Russia

Despite Russian President Vladimir Putin's famous 2017 declaration that whoever leads in AI "will become the ruler of the world," Russian capabilities lag behind those of the United States and the PRC.<sup>16</sup> This gap is not for lack of effort. The Russian military has devoted considerable effort to developing AI and



A soldier participates in SIM X virtual-reality training. (US Army Air National Guard photo by Staff Sergeant Renee Seruntine)

data-driven technologies to improve decision making and the autonomy of its weapons systems.<sup>17</sup> The reasons for this gap include limited talent, exacerbated by brain drain resulting from the war in Ukraine, and the subsequent withdrawal of Western technology companies and sanctions, which have reduced access to critical technologies and materials.<sup>18</sup>

Like the PRC, Russian AI efforts appear to prioritize information operations over other applications. Most notably, they use algorithms and machine learning to generate and amplify disinformation campaigns related to the war in Ukraine.<sup>19</sup> Russia is also developing its version of the joint all-domain command and control (JADC2) system called the "automated control system" (ACS), which will utilize AI to integrate sensors with combat systems.<sup>20</sup> Due to its declining population, Russia is also investing in systems that will reduce

## Theme 4: Domains Impacting US Strategic Advantage

the number of humans necessary for operations. In 2017, the Russian Military Industrial Committee set a goal of 30 percent of Russian combat power being entirely remote controlled or autonomous by 2030.<sup>21</sup>

It is unclear how much these systems will rely on machine learning vice remote control by a human operator. For example, the remote-controlled light tank, Uran-9, has a limited capability to operate if it loses its signal.<sup>22</sup> Reports also indicate that it may be able to detect, identify, and engage targets autonomously. However, its use in Syria demonstrated that it is not very effective if it does.<sup>23</sup> It is worth noting that Russia has not employed much in the way of AI-enabled weapon systems in Ukraine.<sup>24</sup>

### United States

While the PRC and Russia can better synchronize civilian and military AI development efforts, the United States private sector arguably generates most of the innovation in this field.<sup>25</sup> This innovation gives the Department of Defense access to critical technologies; however, limited access to skilled

personnel can impede their application. While the US military is actively educating and training soldiers in AI and data-related skills, it will be some time before such skills permeate the force. Thus, the US military will depend on and compete with the private sector for AI expertise. The military will also have to address retention issues as newly educated and trained personnel find better opportunities in the private sector. Additionally, to ensure newly acquired skills are used well, the Department of Defense must improve AI literacy throughout the force, ensuring personnel understand AI's benefits, limits, and risks.

Effectively responding to these challenges will require improved management of Department of Defense AI acquisition programs and processes and the development of an acquisition strategy that finds the right balance between more capable but expensive systems and less capable but cheaper systems.

According to a 2021 baseline inventory by the Joint Artificial Intelligence Center (JAIC), the Department of Defense had more than

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**To tackle emerging challenges, we are modernizing every aspect of the Joint Force, from hypersonic weapons to our Joint Warfighting Concept, from data analysis to artificial intelligence. We are also accelerating the development of advanced technologies to deliver new capabilities to the Force.**

**—Excerpt from “Message from the Secretary of Defense to the Force”**

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A soldier assigned to the Army Futures Command Artificial Intelligence Integration Center conducts field testing with a drone during Project Convergence 2022 at Fort Irwin, California, in October 2022. (US Army photo by Sergeant Woodyne Escarne)

685 AI projects ranging from major weapon systems with service-wide applications to limited decision support programs tailored to specific organizations.<sup>26</sup> Thus, there is the risk of inefficiency as these programs can sometimes overlap, creating inefficiencies in the distribution of resources. The Department of Defense created the Chief Digital and Artificial Intelligence Office (CDAO) in 2022 to help organizations coordinate better and make AI and data-driven capability development more efficient. Doing so depends first on ensuring the right focus. A recent study observed that treating AI- and data-related problems as a function of technology and talent obscured the importance of the organization's business requirements.<sup>27</sup>

As a result, while businesses have obtained benefits from establishing CDAOs, few report creating a data-driven organization or culture. Moreover, marginal benefits undermine confidence in these technologies, further impeding their application.

Military AI development programs could suffer the same private-sector outcomes described above. According to a 2022 Government Accounting Office report, the Department of Defense has nine different AI strategies, most of which emphasize accelerating AI development but do not fully account for performance measures, resources, investments, and risks.<sup>28</sup> Without such an accounting, it will be difficult to tie technology to outcomes, leading to a similar lack of confidence in military applications.

The tension between expense and capability is not unique to AI. During the Cold War, the "Second Offset" famously prioritized fewer but technically more advanced weapons to counter the Soviet Union's overwhelming numbers of cheaper and less capable systems.<sup>29</sup> Fortunately, the world did not get to find out if this offset would have worked. Nevertheless, this dynamic is playing out in Ukraine. The Ukrainian government bought the effective Turkish-made TB2 Bayraktar unmanned aerial vehicle (UAV) at a reported cost of \$5 million each; however, a little over a year later, almost all of them have been reportedly shot down, and the remaining ones assigned to missions outside the range of Russian air defenses.<sup>30</sup> If Ukraine had become more dependent on these systems, it is possible

## Theme 4: Domains Impacting US Strategic Advantage

Russia's older, less capable, and cheaper tanks would win the day.

The US Army may have to make a similar choice. For example, the Army plans to spend (after development) \$607 million for 211 robotic combat vehicles (RCV), which brings them to \$2.87 million each.<sup>31</sup> Since they may be easily destroyed by something like the Switchblade 600 UAV, which costs \$10,000 each, ensuring they are a good investment will require matching roles with capabilities. The choice, of course, is not either/or. Rather, investing in sophisticated technologies that may be too brittle or vulnerable in a given environment could be self-defeating. Thus, an effective AI acquisition strategy must find the right balance between cheap, expendable, but effective munitions that offset the advantages of more capable but expensive ones.

### Future Developments

Maintaining the lead in AI development is not simply a function of investments in technology and talent. Nor can it be understood in terms of single technologies. Instead, there are various technologies that need to be aligned with outcomes and compatible with organizational culture to be effective. The following are newer technologies that offer capabilities that can improve the United States' competitive edge.

### Transformer Models

Transformer models are the latest deep-learning breakthrough, as evidenced by large language models like Chat Generative Pre-Trained Transformer (ChatGPT).<sup>32</sup> What makes transformers novel is their new, more computationally efficient way of enabling AI models to have a degree of memory between a series



A Spot autonomous-legged robot performs a demonstration during the 10X Robotic and AI Equipped Dismounted Infantry platoon mission scenario in July 2022. (Photo by Alexander Gago, Fort Moore Public Affairs Office)



Soldiers train with unmanned aerial vehicles and remote-piloted vehicles as part of Project Convergence 2022. (Photo courtesy of Army Futures Command)

of input samples—which is especially important in natural language processing (NLP). Transformer models have much potential beyond NLP. They are showing promise in solving other problems, including time series prediction, image recognition, video understanding, and biological sequence analysis. The value of these technologies is that they can be adapted to new uses with fewer resources, especially in terms of data development and curation.

### Generative AI

Generative AI refers to the field of AI that focuses on developing models capable of generating new content, such as text, images, or music. These models, such as generative adversarial networks (GANs) or variational autoencoders (VAEs), can learn a dataset’s underlying patterns and structures and generate new samples that resemble the training data. Generative adversarial networks

and variational autoencoders can be used to generate realistic synthetic data, such as images or video, which can be used for training military AI systems. This capability can be particularly useful when there is a shortage of real-world data or when collecting such data is difficult or expensive. These technologies can help offset the Chinese data advantage.

### Edge AI

Edge AI refers to deploying artificial intelligence algorithms and models on edge devices, such as smartphones, Internet of Things (IoT) devices, embedded systems, and edge servers, rather than relying on a centralized cloud infrastructure. It brings the power of AI directly to the edge of the network, enabling real-time data processing and analysis without the need for constant connectivity to the cloud. By eliminating the need for cloud access, Edge AI can allow for better real-time situational

## Theme 4: Domains Impacting US Strategic Advantage

awareness, such as detecting and identifying threats, monitoring battlefield conditions, and analyzing sensor data from unmanned vehicles. It also improves information security by allowing data to be used locally. Employing Edge technologies will require the ability to operate without data pipes or cloud access, which will take time to develop.

### Responsible AI

While the Department of Defense has established effective, ethical guidelines, the evolving nature of these technologies suggests new challenges to ensure the Department can employ AI responsibly. Responsible AI (RAI) programs ensure that AI systems perform well in ways that account for ethical values and social impact.<sup>33</sup> A significant barrier to RAI is the perception that it will slow innovation. As a result of this

concern, RAI is often addressed after the design, testing, and evaluation phases, when it may be too late to implement it without compromising system performance. When RAI is an afterthought, risk assessment is often superficial and poorly coordinated throughout the enterprise. There are also other barriers, largely owing to the diverse nature of AI programs, that include lack of agreed-upon terms such as *fairness*, *trust*, and *bias*. Additionally, as AI systems are applied below the threshold of war, they could risk violating data privacy and cause other concerns not normally considered in wartime.

The effectiveness of AI systems will thus depend on ensuring the human-machine teaming fits relative to the function it is supposed to serve. The “centaur” team model places the human in



Lieutenant General Milford Beagle (right), commanding general for the Combined Arms Center and Fort Leavenworth, General Gary Brito, commanding general for the US Army Training and Doctrine Command, Lieutenant General Patrick Matlock, the US Army Deputy Chief of Staff for G-3/5/7, and Brigadier General Katherine Trombley (fourth from right), the deputy commanding general of the Army Reserve at the Combined Arms Center, view an augmented reality demonstration of the Virtual Operations and Rehearsal Tool – eXtended (VORTX) at the National Simulation Center’s Combined Arms Center Training Innovation Facility in January 2023. (Photo by Russell Toof)



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**A wide range of new or fast-evolving technologies and applications are complicating escalation dynamics and creating new challenges for strategic stability.**

*—Excerpt from 2022 National Defense Strategy of the United States of America*

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control.<sup>34</sup> The logic behind this model is that humans are better at decision making in complex and unexpected circumstances, while the machine does tasks that require integrating large amounts of data and quick responses. The “minotaur” model, on the other hand, places machines in control—at least at certain levels. The logic behind this model is that robotics technology lags in environments requiring perception, dexterity, navigation, and locomotion over varied terrain. As a result, it will be difficult to harness AI into autonomous systems where those environments are required for effective use. Because they can acquire targets, plan logistics and maintenance, and achieve situational awareness better than humans, machines will more likely direct human activity rather than the other way around. This model, obviously, raises a number of RAI concerns associated with transparency, accountability, risk assessment, and bias.

### **Conclusion**

This analysis suggests that while the United States may face unique challenges in data collection and curation and stakeholder management that authoritarian regimes like Russia and the PRC do not face, its advantages

in better access to skilled AI talent and better governance set conditions for more effective development and use of these technologies. Talent may be the most important factor regarding AI dominance, as having the right talent allows AI to adapt better to dynamic conditions. For example, the right human-machine teaming improves agility when AI starts to underperform and better enables the exploitation of new use cases as opportunities present themselves. These conditions may be amplified if the United States can take advantage of technologies like Transformer models and Edge AI to offset the PRC’s and Russia’s data advantage. While the public-private sector divide will always complicate stakeholder management, superior innovation from the private sector can also offset that disadvantage. Moreover, as the CDAO is better able to harmonize Department of Defense efforts, this disadvantage may disappear. Thus, the United States remains in a good position to stay ahead in the AI races if these efforts receive high-level attention and adequate resourcing. One final note: for the sake of irony, the author used ChatGPT in the development of this analysis.

## Theme 4: Domains Impacting US Strategic Advantage

### Contemporary Nuclear Deterrence



US Army soldiers respond to a nuclear catastrophe during training. (US Army Reserve photo by Master Sergeant Michel Sauret); Left sidebar: Nuclear power plant.

Fears of nuclear war dominated the Cold War. The twin dangers of nuclear proliferation and nuclear terrorism have driven foreign policy in recent decades. Although nuclear weapons do not make headlines as frequently today, they remain one of the most important topics in national security. They are the most powerful weapons in the world and can still pose an existential threat. They also pose serious intellectual challenges for strategists. More than any other military issue, the use of nuclear weapons requires deep thinking about how their possession and use could rationally serve national objectives—if at all.

The United States relies on nuclear weapons to deter major attacks against itself and its allies. A deterrence strategy must consider not only survivability and warfighting effectiveness but also threat credibility, international stability, miscalculation and misperception, treaty obligations, and reassurances for allies. Debates over response options—including flexible and tailored responses—often involve specific questions about targets, weapons' effects, numbers, platforms, and deployments. These specifics must be couched in broader debates about conditions for use, escalation management, and war termination. Declaratory policy about conditions for use is a regularly



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**To maintain credible and effective deterrence of both large-scale and limited nuclear attacks from a range of adversaries, the Department will modernize its nuclear forces, nuclear command, control, and communications, and the nuclear weapon production enterprise, and strengthen extended deterrence.**

*—Excerpt from 2022 National Defense Strategy of the United States of America*

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debated topic. Tailored responses require understanding adversary strategy, doctrine, and force structure.

Changes in the threat environment have created new issues and revived old ones. China's nuclear buildup and increased tensions with China and Russia have introduced the problem of three-way deterrence. Strategists must consider the role of nuclear weapons in the broader strategy of integrated deterrence. The war in Ukraine has revived debates over response options for limited nuclear attacks, including questions about fighting through nuclear battlefields. Technological innovations such as hypersonics, AI, and cyber and space threats have posed new questions about security and stability. Force modernization has been hotly debated regarding its cost, necessity, and impact. Debates over missile defense, particularly its feasibility and its effect on stability, have not been resolved.

Alongside issues of deterrence, a nuclear strategy also involves efforts to reduce international tensions and prevent inadvertent or accidental use. Arms control and disarmament efforts seem to have stalled, as have efforts to improve

communication and transparency for crisis management. Debates over command and control and the proper authorities for use have resurfaced. Operational and technical issues about the safety of nuclear operations and the prevention of accidents are enduring. Creative thinking on all these issues could help make progress toward greater safety. Research on the role of international law, norms about nuclear use, and public opinion could also help in the development of nuclear strategy.

Finally, the issue of nuclear proliferation is not going away. Iran appears to be the only imminent proliferation threat, but preventing the spread of nuclear weapons requires constant management. Preventing proliferation may require diverse strategies, from aggressive counter-proliferation efforts to cooperative endeavors to control the spread of nuclear material and technology. Proliferation concerns touch on other aspects of US foreign policy, such as alliance management and counterterrorism. The United States must also consider the arms reduction and disarmament obligations it is willing to undertake in pursuit of its nonproliferation goals.

## Endnotes

1. Editorial note: This formulation assumes Türkiye and Hungary approve Sweden's application to join NATO, since Turkish elections concluded on May 28, 2023.
2. White House, *U.S. Strategy toward Sub-Saharan Africa* (Washington, DC: White House, August 2022), <https://www.whitehouse.gov/wp-content/uploads/2022/08/U.S.-Strategy-Toward-Sub-Saharan-Africa-FINAL.pdf>.
3. Africa Center for Strategic Studies, *Tracking Russian Interference to Derail Democracy in Africa* (Fort Lesley J. McNair/Washington, DC: Africa Center for Strategic Studies, June 21, 2023), <https://africacenter.org/wp-content/uploads/2023/06/Russian-Interference.pdf>.
4. Foreign Affairs Committee, "China Regional Snapshot: Sub-Saharan Africa," *Foreign Affairs Committee* (website), November 14, 2022, <https://foreignaffairs.house.gov/china-regional-snapshot-sub-saharan-africa/>.
5. Michael Langley, "U.S. Africa Command - Full Testimony to the Senate Armed Services Committee, March 16, 2023," *United States Africa Command* (website), uploaded March 17, 2023, YouTube video, [https://www.youtube.com/watch?v=1yu\\_rilLuhc](https://www.youtube.com/watch?v=1yu_rilLuhc).
6. Langley, "2023 Posture Statement."
7. Peter D. Feaver, "The Civil-Military Problematique: Huntington, Janowitz, and the Question of Civilian Control," *Armed Forces and Society* 23, no. 2 (Winter 1996): 149–78, <https://doi.org/10.1177/0095327X9602300203>.
8. Thomas S. Gates et al., *The Report of the President's Commission on an All-Volunteer Force* (Washington, DC: US Government Printing Office, February 1970).
9. Bernard Rostker, *I Want You!: The Evolution of the All-Volunteer Force* (Santa Monica, CA: RAND Corporation, 2006).
10. Rostker, *I Want You!*, 701.
11. *Artificial Intelligence Index Report 2023*, Artificial Intelligence Index and Stanford Institute for Human-Centered Artificial Intelligence (Stanford, CA: Stanford University, 2023).
12. Derek Cai and Annabelle Liang, "ChatGPT: Can China Overtake the US in the AI Marathon?," BBC (website), May 23, 2023, <https://www.bbc.com/news/business-65034773>; and Seaton Huang, "Tracking the Race to Develop Generative AI Technologies in China," *Net Unbound* (blog), Digital and Cyberspace Policy Program, and *Asia Unbound* (blog), Council on Foreign Relations (website), February 16, 2023, <https://www.cfr.org/blog/tracking-race-develop-generative-ai-technologies-china>.
13. Ben Jiang, "China Struggles to Quench Its Thirst for AI Talent amid ChatGPT Frenzy, as Nation Lags US in Top Brains," *South China Morning Post* (website), April 20, 2023, <https://www.scmp.com/tech/policy/article/3217759/china-struggles-quench-its-thirst-ai-talent-amid-chatgpt-frenzy-nation-lags-us-top-brains>; and Ryan Fedasiuk, *Chinese Perspectives on AI and Future Military Capabilities*, Center for Security and Emerging Technology (CSET) Policy Brief (Washington, DC: CSET August 2020), <https://cset.georgetown.edu/wp-content/uploads/CSET-Chinese-Perspectives.pdf>.
14. Amy J. Nelson and Gerald L. Epstein, "Commentary: The PLA's Strategic Support Force and AI Innovation," *Brookings* (website), December 23, 2022, <https://www.brookings.edu/articles/the-plas-strategic-support-force-and-ai-innovation-china-military-tech/>.
15. Gregory C. Allen, "Understanding China's AI Strategy: Clues to Chinese Strategic Thinking on Artificial Intelligence and National Security," *Center for a New American Security* (website), February 6, 2019, <https://www.cnas.org/publications/reports/understanding-chinas-ai-strategy>; and Nelson and Epstein, "PLA's Strategic Support Force."
16. Radina Gigova, "Who Vladimir Putin Thinks Will Rule the World," *CNN* (website), September 2, 2017, <https://www.cnn.com/2017/09/01/world/putin-artificial-intelligence-will-rule-world/index.html>.
17. Sanur Sharma, "IDSA Comment: Russia's AI Enabled Military Ecosystem and Its Algorithmic Warfare," *Manohar Parrikar Institute for Defense Studies and Analyses* (website), March 16, 2022, <https://www.idsa.in/idsacomments/russias-ai-enabled-military-ecosystem-sshurma-160322>.
18. Samuel Bendett, "Ideas: Russia's Artificial Intelligence Boom May Not Survive the War," *Defense One* (website), April 15, 2022, <https://www.defenseone.com/ideas/2022/04/russias-artificial-intelligence-boom-may-not-survive-war/365743/>; Brendan Bordelon, "Russia's AI Industry Faces Collapse," *Politico* (website), March 8, 2022, <https://www.politico.com/newsletters/morning-tech/2022/03/08/russias-ai-industry-faces-collapse-00014998>; and Daphne Psalidakis, "U.S. Targets Russia's Technology Sector in Fresh Sanctions," *Reuters* (website), March 31, 2022, <https://www.reuters.com/world/us-imposes-additional-russia-related-sanctions-treasury-website-2022-03-31/>.
19. Christian Perez and Anjana Nair, "Information Warfare in Russia's War in Ukraine: The Role of Social Media and Artificial Intelligence in Shaping Global Narratives," *Foreign Policy* (website), August 22, 2022, <https://foreignpolicy.com/2022/08/22/information-warfare-in-russias-war-in-ukraine/>.
20. Yasmin Tadjeh, "Algorithmic Warfare: Russia Expanding Fleet of AI-Enabled Weapons," *National Defense: NDLA's Business and Technology Magazine* (website), July 20, 2021, <https://www.nationaldefensemagazine.org/articles/2021/7/20/russia-expanding-fleet-of-ai-enabled-weapons>.
21. Tamir Eshel, "Russian Military to Test Combat Robots in 2016," *Defense Update* (website), December 31, 2015, [https://defense-update.com/20151231\\_russian-combat-robots.html](https://defense-update.com/20151231_russian-combat-robots.html).
22. Sebastien Roblin, "Russia's Uran-9 Robot Tank Went to War in Syria (It Didn't Go Very Well)," *National Interest Buzz* (blog), January 6, 2019, <https://nationalinterest.org/blog/buzz/russias-uran-9-robot-tank-went-war-syria-it-didnt-go-very-well-40677>.
23. Roblin, "Russia's Uran-9 Robot Tank."
24. Gregory C. Allen, "Russia Probably Has Not Used AI-Enabled Weapons in Ukraine, but That Could Change," *Center for Strategic and International Studies* (website), May 26, 2022, <https://www.csis.org/analysis/russia-probably-has-not-used-ai-enabled-weapons-ukraine-could-change>.
25. Cai and Liang, "AI Marathon."
26. US Government Accountability Office (USGAO), *Artificial Intelligence: DOD Should Improve Strategies, Inventory Process, and Collaboration Guidance*, GAO-22-105834 (Washington, DC: USGAO, March 2022), <https://www.gao.gov/assets/gao-22-105834.pdf>.
27. Randy Bean and Allison Sagraves, "Why Chief Data and AI Officers Are Set Up to Fail," *Harvard Business Review* (website), June 20, 2023, <https://hbr.org/2023/06/why-chief-data-and-ai-officers-are-set-up-to-fail>.
28. USGAO, *Artificial Intelligence*.
29. Rebecca Grant, "The Second Offset," *Air and Space Forces Magazine* (website), June 24, 2016, <https://www.airandspaceforces.com/article/the-second-offset/>.
30. Aaron Stein, "The TB2: The Value of a Cheap and 'Good Enough' Drone," *Airpower after Ukraine* (content series), Atlantic Council (website), August 30, 2022, <https://www.atlanticcouncil.org/content-series/airpower-after-ukraine/the-tb2-the-value-of-a-cheap-and-good-enough-drone/>; and Alia Shoaib, "Bayraktar TB2 Drones Were Hailed as Ukraine's Savior and the Future of Warfare. A Year Later, They've Practically Disappeared," *Insider* (website), May 28, 2023, <https://www.businessinsider.com/turkeys-bayraktar-tb2-drones-ineffective-ukraine-war-2023-5>.
31. Andrew Feickert, *In Focus: The Army's Robotic Combat Vehicle (RCV) Program*, Congressional Research Service (CRS) IF11876 (Washington, DC: CRS, April 3, 2023), <https://crsreports.congress.gov/product/pdf/IF/IF11876>.
32. Rick Merritt, "What Is a Transformer Model?," *NVIDIA* (blog), March 25, 2022, <https://blogs.nvidia.com/blog/2022/03/25/what-is-a-transformer-model/>.
33. Department of Defense (DoD), "Press Release: DOD Adopts Ethical Principles for Artificial Intelligence," DoD (website), February 24, 2020, <https://www.defense.gov/News/Releases/Release/Article/2091996/dod-adopts-ethical-principles-for-artificial-intelligence/>.
34. Robert J. Sparrow and Adam Henschke, "Minotaurs, Not Centaurs: The Future of Manned-Unmanned Teaming," *Parameters* 53, no. 1 (Spring 2023): 115–30, <https://press.armywarcollege.edu/parameters/vol53/iss1/14/>.

### Pull Quotes

Pages 7, 14, 20, 29, 41, 43, 45–46, 55, 57

Department of Defense (DoD), *2022 National Defense Strategy of the United States of America* (Washington, DC: DoD, 2022), 3–6, 8–9, 16–17, <https://media.defense.gov/2022/Oct/27/2003103845/-1/-1/1/2022-NATIONAL-DEFENSE-STRATEGY-NPR-MDR.PDF>.

Pages 10, 17, 39, 50

Lloyd J. Austin III to all Department of Defense personnel, memorandum, "Message to the Force," March 2, 2023, Washington, DC, 1–2, <https://media.defense.gov/2023/Mar/02/2003171462/-1/-1/1/MESSAGE-TO-THE-FORCE.PDF>.



## Photo Credits

### Cover

Alan Brutus, *EDRE Mission: Kauai* [Image 2 of 16], December 10, 2020, Defense Visual Information Distribution Service (DVIDS), <https://www.dvidshub.net/image/6459909/>.

Freepik, *Topographic Map Background Design*, Freepik (website), [https://www.freepik.com/free-vector/topographic-map-background-design\\_8870370.htm](https://www.freepik.com/free-vector/topographic-map-background-design_8870370.htm).

### Title Page

Unsplash, *Photo of Outer Space*, Unsplash (website), <https://unsplash.com/photos/Q1p7bh3SHj8>.

### Page 2

Sidebar: Freepik, *Closeup Shot of the Waving Flag of the United States of America with Interesting Features*, Freepik (website), [https://www.freepik.com/free-photo/closeup-shot-waving-flag-united-states-america-with-interesting-textures\\_10303067.htm](https://www.freepik.com/free-photo/closeup-shot-waving-flag-united-states-america-with-interesting-textures_10303067.htm).

### Page 6

Sidebar: Samuel Kim, *1st SFG (A) Green Berets Join ROK Special Forces for Freedom Shield 2023* [Image 1 of 8], DVIDS, March 5, 2023, <https://www.dvidshub.net/image/7711845/>.

Mikki Sprenkle, *US Army Chief of Staff Visits China* [Image 6 of 20], February 21, 2014, DVIDS, <https://www.dvidshub.net/image/1172703/>.

### Page 8

Jessica Avallone, *U.S.-Japan Conducts Airborne Operation* [Image 11 of 16], November 15, 2021, DVIDS, <https://www.dvidshub.net/image/6943711/>.

Steven Modugno, *American, South Korean Nuclear Teams Improve Interoperability on Korean Peninsula*, March 22, 2023, DVIDS, <https://www.dvidshub.net/image/7762439/>.

### Page 9

Teresa Cantero, *Japanese Ground Self-Defense Forces Participate in Convoy Operations Training as Part of Khaan Quest 23* [Image 2 of 5], June 23, 2023, DVIDS, <https://www.dvidshub.net/image/7880786/>.

### Page 10

Matthew Mackintosh, *Talisman Sabre 21: US, Australian Forces Conduct Bilateral Fast Rope Training* [Image 3 of 14], July 17, 2021, DVIDS, <https://www.dvidshub.net/image/6748101/>.

### Page 11

Alec Dionne, *Thai and U.S. Soldiers Fire Mortars during Cobra Gold 23* [Image 4 of 4], March, 3, 2023, DVIDS, <https://www.dvidshub.net/image/7667393/>.

### Page 12

Sidebar: Alex Soliday, *Task Force Ivy Soldiers Participate in Joint, Multinational Operation Lancer Lift* [Image 3 of 5], July 19, 2023, DVIDS, <https://www.dvidshub.net/image/7926638/>.

Margarita Marushevska, *A Pile of Rocks*, Unsplash (website), <https://unsplash.com/photos/KZfFOSYaB4>.

### Page 13

Sherry Keene, *Konstantyn Stanislavchuk, Chief Master Sgt. of the Ukrainian Air Force, Visits Patch Barracks* [Image 4 of 5], March 20, 2023, DVIDS, <https://www.dvidshub.net/image/7842645/>.

Spencer Rhodes, *Ukrainian Soldiers Train on New Weapon Systems at Grafenwoehr Training Area* [Image 5 of 6], March 7, 2023, DVIDS, <https://www.dvidshub.net/image/7671435/>.

### Page 14

Amber Smith, *SD Meets with China's MinDef* [Image 8 of 29], June 27, 2018, DVIDS, <https://www.dvidshub.net/image/4520228/>.

### Page 15

Joseph Trovato, *4th Infantry Division Leaders Join Polish Allies for Military Oath Ceremony* [Image 3 of 4], June 3, 2023, DVIDS, <https://www.dvidshub.net/image/7835151/>.

### Page 16

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Kevin Brown, *U.S. Army Units Host Abrams Logistical Summit in Drawosko Pomorskie* [Image 6 of 15], October 26, 2022, DVIDS, <https://www.dvidshub.net/image/7505244/>.

### Page 18

Alex Soliday, *8th Engineer Battalion with Task Force Ivy Conducts Live-Demolition Exercise* [Image 2 of 3], July 14, 2023, DVIDS, <https://www.dvidshub.net/image/7912629/>.

### Page 19

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### Page 20

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Kevin Frus, *U.S., Regional Partners Form Multinational Boarding Team in Middle East* [Image 1 of 2], December 10, 2022, DVIDS, <https://www.dvidshub.net/image/7559774/>.

### Page 22

Patrick Montandon, *High Mobility Artillery Rocket System Loading* [Image 6 of 14], March 7, 2021, DVIDS, <https://www.dvidshub.net/image/6813904/>.

### Page 24

Sidebar: Trevor Wilson, *Multinational Airborne Training at Air Base London* [Image 3 of 6], July 18, 2023, DVIDS, <https://www.dvidshub.net/image/7927925/>.

Chad Menegay, *Fuerzas Comando 17* [Image 2 of 4], July 7, 2017, DVIDS, <https://www.dvidshub.net/image/3577585/>.

### Page 25

Trevor Wilson, *Multinational Airborne Training at Air Base London* [Image 3 of 6], July 18, 2023, DVIDS, <https://www.dvidshub.net/image/7927931/>.

### Page 27

Christopher Saunders, *Multinational Extraction and Insertion Exercise Takes Place during TRADEWINDS23 Exercise on July 17, 2023 at Air Base London, Guyana* [Image 3 of 9], July 16, 2023, DVIDS, <https://www.dvidshub.net/image/7921245/>.

### Page 28

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Daniel Hernandez, *EARF Deploys to Provide Airfield Security at Manda Bay* [Image 1 of 2], January 5, 2020, DVIDS, <https://www.dvidshub.net/image/6014420/>.

### Page 30

Kevin Payne, *Dismounted Patrol in the Mauritanian Desert* [Image 10 of 21], February 23, 2020, DVIDS, <https://www.dvidshub.net/image/6121460/>.

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David Resnick, *National Memorial Day Wreath-Laying and Observance 2023 at Arlington National Cemetery* [Image 1 of 2], May, 29, 2023, DVIDS, <https://www.dvidshub.net/image/7829488/>.

### Page 33

David Resnick, *VCSA Gen. Randy George Confirmation Hearing* [Image 1 of 7], July, 12, 2023, DVIDS, <https://www.dvidshub.net/image/7917088/>.

Page 34

Sidebar: Joshua Zayas, *Contact! [Combined Resolove 18]* [Image 5 of 12], May 9, 2023, DVIDS, <https://www.dvidshub.net/image/7787169/>.

Christopher Lynch, *Industrial Base Strength Is Necessary for Future DOD Success, Says Former Deputy Defense Secretary*, May 3, 2023, DVIDS, <https://www.dvidshub.net/image/7783606/>.

Page 35

William King, *Army Under Secretary Visits Redstone Arsenal: A "Center of Gravity" for the Army* [Image 2 of 2], April 1, 2022, DVIDS, <https://www.dvidshub.net/image/7137253/>.

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Sidebar: Katherine Sibilla, *Major General Michele H. Bredenkamp Visit to the 207th Military Intelligence Brigade (Theater)* [Image 2 of 3], May 22, 2023, DVIDS, <https://www.dvidshub.net/image/7816834/>.

Joshua Taeckens, *U.S. Army South Soldiers Conduct Leader Reaction Course* [Image 4 of 9], May 10, 2023, DVIDS, <https://www.dvidshub.net/image/7794154/>.

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Gretchen Ertl (courtesy of MIT), *U.S. Army Officer Pursues PhD in Nuclear Engineering at MIT* [Image 4 of 6], October 25, 2022, DVIDS, <https://www.dvidshub.net/image/7503120/>.

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Rochelle Naus, *U.S. Army San Antonio Recruiting Battalion Welcomes New Commander* [Image 1 of 10], June 21, 2023, DVIDS, <https://www.dvidshub.net/image/7875914/>.

Page 39

Keaton Silver, *Task Force Wolf: Prepare Future Officers at CST 2023* [Image 4 of 5], June 9, 2023, DVIDS, <https://www.dvidshub.net/image/7919813/>.

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Robert Jordan, *Army Logistics Community and National Guard Increase Readiness* [Image 5 of 6], March 17, 2015, DVIDS, <https://www.dvidshub.net/image/1961821/>.

Scott T. Sturkol, *Fort McCoy Supports First Major Rail Movement of 2023* [Image 15 of 52], May 19, 2023, DVIDS, <https://www.dvidshub.net/image/7811053/>.

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David Campos-Contreras, *USARCENT Autonomous Vehicle Demonstration* [Image 5 of 16], July 25, 2023, DVIDS, <https://www.dvidshub.net/image/7932515/>.

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John Pennell, *Joint Pacific Multinational Readiness Center-Alaska 23-02* [Image 4 of 4], March 20, 2023, DVIDS, <https://www.dvidshub.net/image/7716900/>.

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Katie Mazos-Vega, *Arctic Engineers* [Image 1 of 12], February 25, 2023, DVIDS, <https://www.dvidshub.net/image/7655698/>.

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Dennis Hoffman, *1st Space Brigade Space Training* [Image 4 of 5], May 25, 2021, DVIDS, <https://www.dvidshub.net/image/6998511/>.

Page 48

Sidebar: Samantha Whitehead, *Engineers Train in Virtual Environment to Prepare for Real Missions* [Image 5 of 5], June 6, 2015, DVIDS, <https://www.dvidshub.net/image/2343944/>.

Gerd Altmann, *Artificial Intelligence Brain*, Pixabay (websites), <https://pixabay.com/illustrations/artificial-intelligence-brain-think-3382507/>.

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Renee Seruntine, *SIM X Virtual Reality Training* [Image 1 of 5], April 20, 2023, DVIDS, <https://www.dvidshub.net/image/7758938/>.

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Alexander Gago, *Close Combat Lethality Task Force Hosts Artificial Intelligence for Small Unit Maneuver Working Group* [Image 1 of 4], July 28, 2022, DVIDS, <https://www.dvidshub.net/image/7358543/>.

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Army Futures Command, *Project Convergence 2022 - 2 Yorks Experimental Company* [Image 11 of 22], November 11, 2022, DVIDS, <https://www.dvidshub.net/image/7502734/>.

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Russell Toof, *Augmented Reality Demonstration* [Image 1 of 2], January 10, 2023, DVIDS, <https://www.dvidshub.net/image/7587169/>.

Page 56

Sidebar: Markus Distelrath, *Nuclear Power Plant*, Pexels (website), <https://www.pexels.com/photo/nuclear-power-plant-3044473/>.

Michel Sauret, *U.S. Army Trains to Respond to Nuclear Catastrophe* [Image 24 of 26], April 27, 2017, DVIDS, <https://www.dvidshub.net/image/3340143/>.

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