CENTER FOR GLOBAL SECURITY RESEARCH

Lawrence Livermore National Laboratory

The Dynamic Tripolar Strategic Balance: A Net Assessment

Workshop Summary

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The Dynamic Tripolar Strategic Balance: A Net Assessment

Center for Global Security Research
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On December 9-10, the Center for Global Security Research (CGSR) at Lawrence Livermore National Laboratory (LLNL) hosted a workshop titled "The Dynamic Tripolar Strategic Balance: A Net Assessment." The discussion was guided by the following key questions:

- By what metrics should the strategic balance be assessed?
- How dynamic is the balance? How fragile?
- Is the United States gaining strategic advantage, losing it, or holding steady, overall?
- In order to gain new advantages or re-gain advantages lost, can or should the United States prioritize some domains and accept more risk in others? If so, which ones?

Key takeaways:

1. The tripolar strategic balance has shifted over the last decade in ways that disadvantage the United States and its allies and partners. China and Russia have improved their positions competitively while the United States has by-and-large chosen not to compete. The result is an erosion of deterrence, increased military risk-taking by adversaries, and a rising expectation of war.

2. Looking ahead a decade, such erosion seems likely to continue. Red's position will continue to improve. Russia and China are far along in mobilizing for war, and their Axis is gathering force. Blue's position will likely also continue to improve—but not at the speed needed to both catch up to and match the preparations of adversaries. The adaptations of regional deterrence postures being pursued by U.S.-led alliances are proceeding too slowly to catch up. Many "sputnik moments" have passed without generating new U.S. political resolve and

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thus future shocks cannot be counted on to have such an effect (baring a truly catastrophic loss of life).

3. The term "balance" is itself misleading. There is no equilibrium point among the three that all would judge to be stable and settled. The military relationships among the three are dynamic, not static. The strategies they pursue and the goals they set differ in significant respects. Moreover, the tripolar relationships cannot easily be separated from the more multipolar context within which they sit and the web of strategic relationships evident across Europe and Asia.

4. A net assessment of the tripolar balance is inherently difficult to construct because of the complexity of the tripolar system. Elements of the balance include:
    - The strategic nuclear forces of the three
    - The different geographic circumstances of the three and their different nuclear strategies
    - The rapidly evolving offense/defense dynamic within which the nuclear element sits
    - The overall conventional balance, which has a central role in influencing the probability of war and the ways in which it might escalate
    - Developments in multiple other domains (whether physical, virtual, or cognitive) when military operations there are capable of generating strategic effects
    - The assets needed for long-term competition such as strong alliances and a robust S&T basis
    - Their different capacities to wage and vulnerabilities to gray zone conflict.

    In some of these elements of the balance, the United States and its allies and partners enjoy huge advantages; in others, our vulnerabilities are more compelling.

5. Moreover, the precise state of the balance is not easily measured. The usual metrics are quantitative and generally lack the context needed to understand the story they tell. We tend to count what we can and find it difficult to assess what we should (qualitative factors). The asymmetric strategic nuclear postures of the three do not, for example, tell the story of the sufficiency of those postures to enable the nuclear strategies of each country. Some metrics were developed in the Cold War and have limited utility in the new strategic landscape (for example, nuclear-related concepts like parity and "second to none") where the overall balance of strategic potential is affected by many different factors. Moreover, the balance is assessed by decision-makers in Moscow, Beijing, Washington, and in allied capitals. Their key judgments are founded on the data available to them and their own predilections and biases. Net assessments in this new context are more art than science; hence a focus on trends rather than point judgments.

6. Generally speaking, leaders in Moscow and Beijing assess that the tripolar balance is shifting in their favor. This follows from their progress in modernizing and adapting their strategic nuclear forces to assure retaliation in the context of improving U.S. deep precision strike and homeland missile defense. Russia and China are well over a decade into major projects to modernize, diversify, and expand their nuclear forces at both the strategic and regional levels. They are also actively seeking supremacy in the new military domains of cyber space and outer space. And they have built learning organizations fueling military innovation. Both are actively studying the lessons of the Ukraine war for how to seize advantages in modern war. They are also studying together possible new ways of war and while experimenting together on new operational approaches. But they also appear to judge that they remain vulnerable to U.S. nuclear preemption and thus that the situation remains unstable.

7. The tilt of developments in Ukraine and the rising prospect of a Russian victory bring with them a likely dose of Russian triumphalism and new confidence in Moscow about its ability to take on NATO militarily. Or to attempt yet another war against Ukraine in a few years to settle the issue more decisively. Its grand strategy aims not at competing with the West but confronting it and dismantling the European order that took shape at the end of the Cold War.

8. China's approach is slightly different—it aims at both competition and confrontation. Both Putin and Xi are more assertive than before, but Xi appears to be less accepting of military risk than Putin.

9. In contrast, the view about the shifting tripolar balance from Washington appears to be quite relaxed. Experts and the occasional policymaker fret about unwelcome developments in the strategic military postures of Russia and China. But so far at least there has been no adaptation to the U.S. strategic military posture in response to Russia's novel systems or to China's "strategic breakout." If American policymakers are concerned about an erosion of the balance they have not been so concerned as to do something about it. This apparently laissez faire U.S. approach can only reinforce the judgment in Moscow and Beijing that the United States is a country in decline and retreat and doesn't grasp the essential challenge to its power and interests now taking shape.

10. In the tripolar strategic nuclear balance, the asymmetry in the strategies of the three is a key contextual factor. The United States maintains a role for counterforce damage limitation in its deterrence strategy and the forces to support the mission, whereas Russia and China do not. Their asymmetric vulnerability is a key factor motivating their force planning. The renewed U.S. debate about whether to maintain the counter-force role has brought out its significant value for extended deterrence and intra-war deterrence. Many experts judge that

these values should not be traded away for a promise of changes to Russian and Chinese modernization plans.

11. In the regional nuclear domain, the imbalance of forces is striking. Russia has modernized and diversified to build "a nuclear scalpel for every military problem in Europe." China is building up a force of dual-capable regional missiles and long-range bombers. The United States remains reliant on a posture for extended nuclear deterrence little changed from 1991. That posture is not fit for purpose, as the Strategic Posture Commission concluded. The result is a heightened risk of a plausible pathway from regional conventional to regional nuclear to strategic nuclear war.

12. At the conventional level of war, the United States appears invested in a theory of victory that is not sound. That theory emphasizes rapid decisive battle to deny the aggressor a fait accompli, and nuclear deterrence to prevent that aggressor from trying to escalate its way out of the resulting quagmire. This theory depends on the capabilities to quickly deny the adversary victory at the conventional level of war and credible threats to escalate. Both have eroded. The U.S. theory also is not well suited for other forms of military coercion, such as blockade strategies, and downplays the likelihood of protracted conventional conflict. The United States and its allies and partners need to do more to enable deterrence by threat of cost-imposition in the context of a protracted conflict.

13. In cyber space and outer space, the United States has proven unwilling and unable to adapt to new challenges and opportunities. Organizational reform has been resisted. Human capital investments remain low. China competes aggressively and comprehensively to replace the United States as the dominant space power while the United States sees a need to compete but largely rests on its laurels (its rapidly dwindling surfeit of space power). Cyber space and outer space have important contributions to make to a deterrence strategy, combining efforts to deny the expected benefits of attack and raise its expected costs and risks. But they are weak contributors to deterrence, not least because of the difficulty of making overt threats with them and their likely short-lived utility in high-end war.

14. A critical but frequently overlooked component of strategic posture is the capability and capacity to respond in a timely manner to dangerous developments in the security environment. Russia and China are both well postured for this purpose and also appear to be improving their positions. The United States has also been improving its position. But the addition of new or more nuclear weapons to the arsenal is likely not possible before the 2040s. Moreover, this problem is getting harder as the rate of change is accelerating. Super-convergence of changing technologies has taken us across a tipping point. The United States must now both catch up and go faster to stay even.

15. From the U.S. perspective, a key metric in the tripolar net assessment should be whether it can still be expected to prevail in war. There is disagreement in the expert community on the answer. Some judge that the United States has both the ability and resolve to deter aggressors, defend its interests and allies globally, and to prevail in war even in the new multipolar context. Some judge that it has one but not the other. Some judge that it has neither. All agree that remedial actions are needed on an urgent basis by the United States and its allies and partners to put in place the capabilities needed to prevail in the types of conflicts nuclear-armed adversaries are preparing without paying a high cost or running extremely high risks to do so.

16. To improve its position, the United States must set some priorities. It must invest in assured second (nuclear) strike, enable effective homeland missile defense, modernize the nuclear command, control, and communications (NC3) system, improve the resilience of systems in cyber space and outer space, beef up theater nuclear deterrents, improve long-range precision strike, and strive for superiority (not supremacy) in cyber and space (defined as the ability to gain an advantage for a sufficient period of time to benefit from it operationally). It should also prioritize the operational problems that are most important to solve. But setting priorities may prove unhelpful if the result is an attempt to provide an à la carte solution to a problem that requires a comprehensive and coherent approach.

17. The role of allies and partners in U.S. strategy is more open to question than at any time in a century. In the current U.S. policy debate, allies are seen variously as freeloaders selfishly riding on U.S. coattails, millstones inhibiting U.S. freedom of maneuver, lemming who will flit away at the first sign of risk, useful adjuncts to U.S. strategy, or an essential part of the solution to the problem presented by the new security environment. The vast majority of the U.S. deterrence community of interest converge on the last of these perspectives. Allies are not only important to U.S. interests; they are essential to addressing the strategic imbalance evident today. They have important incentives to cooperate with the United States. They bring capabilities, equities, but also vulnerabilities. They also have a vital interest in maintaining their sovereignty, freedom, and independence and thus in effective military solutions. They need a choice other than appeasement of their belligerent major power neighbor. And that choice is partnership with the United States and the protection of the U.S. extended nuclear deterrent.

18. More intense strategic competition among the three brings with it the risk of an arms race. The two are not the same—not all competitive relationships involve racing (defined here as the combination of the pursuit by at least one actor of strategic advantage of a kind that can be exploited to both seize and hold some strategic gain of consequence and the competitive response of the potential victim to deny the prospective aggressor the expectation of success). A tripolar nuclear arms race certainly seems plausible. But there

are reasons to be skeptical. Many of the drivers of the arms race of the 1960s and 1970s are not present. None seem to believe in the strategic value of quantitative nuclear supremacy. Each seeks to secure a “second to none” position in the form of assured retaliation. Moreover, the United States is heavily constrained from racing given the state of its defense industrial base. All three would benefit from avoiding an unconstrained arms race. But there is danger in a circumstance in which Russia and China compete and the United States does not. It may be that engaging in an arms race is the only way, short of war, to persuade leaders in Moscow and Beijing that the United States in fact has the resolve to defend its interests and thus to bolster Blue deterrence of Red.

Panel 1: Understanding the Challenge

- In the past, how did the U.S. expert community understand the requirements of strategic balance? What concepts and metrics did it use?
- How well do these legacy concepts and metrics fit the more multipolar nuclear world, the more multi-domain character of modern conflict, and the prospects for long-term strategic competition?
- Are new concepts needed?

This panel examined how the United States conceptualizes and measures strategic balance—how it has done so historically, how well those approaches fit the current global context, and whether new conceptual frameworks are needed for a multipolar, multi-domain, and information-driven age. The discussion revisited key methodological tensions within the U.S. strategic community, notably between the traditional quantitative approach to measuring force balances and strategic requirements and the net assessment approach, which emphasizes qualitative trends, long-term horizons, and the dynamic nature of competition.

The panel opened by reflecting on how the U.S. expert community understood strategic balance during the Cold War. A more conventional approach sought to define explicit strategic requirements—such as numbers of warheads, ratios of forces, and measurable indicators of parity—and then meet those requirements. An alternative, the net assessment approach, sought instead to understand the deeper dynamics of competition and how those dynamics would evolve over time. The two diverged across four main dimensions: the composition of data used, the horizon for planning, the attitude toward uncertainty, and the conception of competition itself. The conventional school emphasized quantifiable measures, near-term objectives, and a desire for certainty. By contrast, the net assessment framework accepted uncertainty as inevitable, favored long-range thinking, and treated strategic competition as a dynamic process rather than a fixed condition.

To illustrate these contrasting mindsets, participants recalled historical examples of analytic disagreement in assessing long-term competitors. Conventional analysts often dismissed forecasts that diverged from present-day data, such as early predictions of China's economic and military rise. Net assessment practitioners, however, sought to identify underlying trends and drivers—such as industrial capacity, institutional learning, and technological adaptation—that could change the competition over decades.

Turning to the present, the panel assessed how well legacy Cold War concepts apply to today's environment. While some participants noted that the bipolar framework of U.S.–Soviet competition is re-emerging in certain respects, others emphasized that the contemporary landscape is fundamentally different. Modern strategic competition now spans multiple domains—from cyber and space to the information environment—and is increasingly shaped by commercial as well as governmental actors.

The panel also explored the user perspective—how decisionmakers interpret and act upon assessments. Participants observed that decisionmakers often prefer concise, quantitative measures that convey confidence and decisiveness, even when such measures obscure underlying complexity. The conventional approach risks encouraging overconfidence or tunnel vision,

emphasizing easily counted quantities and easy-to-model scenarios over qualitative context. Net assessment, while slower and more resource-intensive, can produce richer insights by integrating both quantitative and qualitative evidence.

The conversation then shifted to whether new concepts are required for a changing world. Some argued that the enduring principles of net assessment remain sufficient if refined and applied to new domains. The fundamental need to evaluate long-term trends, consider multiple metrics, and integrate uncertainty is timeless. However, others contended that the rise of new forms of competition—such as cyber operations, space systems, information warfare, and economic coercion—demands fresh conceptual language and methodological innovation.

From a methodological standpoint, the panel stressed two lessons for employing net assessment effectively. First, strategic balance should be analyzed in terms of capabilities and trends, not absolute counts or densities. Assessing whether adversaries are developing more capable systems, rather than simply more numerous ones, offers better insight into the evolving balance. Second, analysts should emphasize relative trajectories rather than static comparisons. Understanding both one's own baseline and an adversary's baseline allows for more meaningful trend analysis and early identification of shifts in advantage. This approach encourages policymakers to think in terms of direction and adaptability rather than fixed parity.

Several exchanges addressed the adequacy of existing analytic modes. Participants noted that the conventional focus on quantity persists, but counting warheads or missiles alone provides limited strategic insight. Quantity remains relevant but gains meaning only when combined with qualitative context—how fast systems are produced, how reliably they operate, and what strategic purpose they serve. The panel underscored that qualitative analysis does not replace quantitative rigor; rather, it complements it. Effective assessment of strategic balance depends on the integration of both.

Other participants raised the issue of how learning organizations and adaptive institutions fit into long-term strategic planning. The ability of states to learn from experience, innovate, and institutionalize knowledge may prove as decisive as their material capabilities. This learning dimension extends beyond the conventional military sphere, encompassing industrial, technological, and societal resilience. Analysts must therefore evaluate not only adversaries' force structures but also their capacity to evolve.

Panel 2: Adversary Guideposts for Strategic Military Competition

- How do leaders in Beijing and Moscow understand and plan for strategic military competition with the United States?
- What are their force development ambitions, both nuclear and non-nuclear?
- How do they conceive of force sufficiency? How much is enough? Why?

The panel explored how leaders in Beijing and Moscow understand and plan for strategic military competition with the United States, exploring their ambitions for force development—both nuclear and non-nuclear—and their conceptions of force sufficiency. Drawing on recent events, evolving

military doctrines, and ongoing modernization programs, the panel provided insight into the strategic calculations guiding both countries as they seek to shape the future balance of power.

The Chinese and Russian militaries are learning organizations, actively preparing for continued military competition with the United States. Both countries have closely tracked lessons from the war in Ukraine. Indeed, Russia is already incorporating these lessons into its calculations of force sufficiency.

Once the war ends and combatants return to Russia, a decade-long reconstitution of the Russian military is expected. Russia has established infrastructure to integrate lessons from the war into its training programs and combat tactics. However, after waging over three years of war, Russia faces significant financial burdens. Given its weakened economy, Russia will need to prioritize rebuilding certain capabilities. Russia appears satisfied with its drone fleet, which will influence future force sufficiency calculations. The country is seeking to improve its unmanned aircraft systems (UAS) and make its missiles more resilient against Western missile defense systems. Russian leadership will also have to overcome traditional cultural barriers to incorporate decentralization and automation into its command and control (C2) structure. Russia continues to neglect several areas, including professionalism and discipline, oversight, and quality control.

The panel identified two major trends to watch for in Russia over the next decade, which will push in opposite directions. First is the risk of Russian post-war triumphalism following a perceived victory in Ukraine. Specifically, the belief that Russia defeated Ukraine despite NATO support may foster overconfidence and provoke acts of retribution against NATO countries—a risk that could be exacerbated if Russia perceives a weakening of the transatlantic alliance. An overconfident Russia may also feel emboldened to launch another war against Ukraine following a ceasefire.

Cutting in the other direction, Russia is going to be consumed with rebuilding its military power and deeply concerned about falling behind technologically. It will thus take some time before Russia is in a position to attack NATO. Russia's invasion of Ukraine coincided with rapid advancements in artificial intelligence (AI), putting Russia at a disadvantage in developing AI capabilities. Due to sanctions and its focus on Ukraine, Russia will likely have to rely on China for assistance in technology sectors.

Russia seeks to undermine and defeat NATO rather than merely outlast it. Russia may need to reassess its understanding of NATO if the United States distances itself from the alliance. NATO struggles to proactively counter Russia, instead responding to Russian buildups with increased mass of its own. Participants expressed concern about NATO countries' varying abilities to withstand a prolonged conflict with Russia. While Ukraine has demonstrated resilience, it is important to consider which NATO partners might be most vulnerable to capitulation.

Participants agreed that the China-Russia relationship is more of a business partnership rather than an ironclad alliance. However, there was disagreement about how much tension between China and Russia will affect their ability to achieve common interests. On one hand, Russia is concerned about Chinese nuclear expansion, the two countries remain competitors in certain markets, and they lack substantive efforts to increase military interoperability. On the other hand, some participants argued that their shared interest in eroding the rules-based international order is a strong binding factor. While Russia and China do not fully trust each other, both have resources to

offer. For Russia, its most valuable currency following the war in Ukraine is combat experience, which it is already sharing with its partners.

China is also preparing for potential conflict. Civilian leaders determine the overall budget, set modernization goals, and issue major missions, but China's People's Liberation Army (PLA) heavily influences the modernization agenda. PLA modernization is driven by internal factors, foreign militaries as models, and the United States as a pacing threat. Internal military modernization goals are closely tied to external objectives, such as taking Taiwan and achieving world-class military status. China looks to foreign militaries as benchmarks for its own advancement and areas where further growth is needed. China is particularly focused on U.S. capabilities. Since the 1990s, a Taiwan contingency has been central to Chinese military planning, with emphasis on denying and countering U.S. weapons and systems. Preparations for this contingency have accelerated in recent years. China is considering what hardware and doctrine are necessary to execute both low- and high-level operations, as well as the force sufficiency required to win at an acceptable cost and risk of escalation.

One of the most alarming developments in the Chinese military has been its significant nuclear buildup. The objective and endpoint of China's expansion remain unclear. It is known that civilian leadership heavily shapes policy in the nuclear sphere, but there has been no official explanation by the government. The panel suggested several metrics of nuclear force sufficiency that China may be considering: secure second-strike capability; deterrence against conventional intervention (a nuclear shield); great power status signified by a larger arsenal; and deterrence of theater-level nuclear war. Depending on which model China is following, its nuclear growth may still be in its early stages.

Participants emphasized the need to continue monitoring key signposts in Russia's reconstitution period and China's nuclear buildup. Despite tensions in their relationship, China and Russia continue to cooperate. Further developments in joint military exercises and integrated defense planning between Russia and China should be closely watched. In the face of increasingly capable Chinese and Russian forces, the United States and its allies must learn substantial lessons of their own.

Panel 3: Conventional Deterrence in a Two-Peer World

- Looking back a decade, has the deterrence position of U.S. alliances in Europe and Asia improved or eroded? How? Why? How serious is the risk of opportunistic aggression?
- Looking ahead a decade, will projected developments in Red and Blue conventional warfighting capabilities combine to the advantage or disadvantage of the United States and its allies and partners? Can Blue rapidly close gaps in its theater strike postures?
- What should be done?

The deterrence landscape facing the United States and its allies has steadily eroded in both Europe and the Indo-Pacific. Although the drivers of this decline differ across regions, there is broad agreement that today's balance is more fragile, crisis-prone, and vulnerable to opportunistic aggression. In Europe, deterrence has weakened primarily due to doubts about U.S. willpower and political cohesion, while in Asia, erosion stems from China's rapid and comprehensive military

modernization and buildup. Together, these trends have created a strategic environment in which adversaries possess more options for coercion or force, and in which the United States must manage two theaters simultaneously under resource constraints.

China's expanding missile forces, larger magazines, and improving precision strike capabilities have outpaced U.S. adaptations, limiting the credibility of traditional denial strategies. Moreover, a range of coercive tools—from paramilitary pressure to nuclear threats—will soon enable Beijing to pursue political or military coercion strategies that are cheaper, faster, and more difficult to deter. While China may remain deterred from a high-cost amphibious invasion, it could still employ blockade tactics, decapitation strategies, nuclear coercion, or graduated escalation designed to impose costs on the United States and Taiwan while constraining U.S. intervention.

This environment heightens the longstanding challenge of opportunistic aggression. If the United States is engaged in a conflict with China, Russia or other adversaries may exploit the opportunity to act elsewhere. Additionally, adversary cooperation, whether explicit or tacit, could further strain U.S. flexibility. Participants largely agreed that the United States must improve its military position vis-à-vis China without losing the ability to manage simultaneous crises.

In Europe, NATO has achieved institutional gains, increased spending, and reactivated parts of its industrial base, but it still lacks sufficient long-range strike capacity, air defenses, and sustainable munitions production. Improvements in these areas will require long-term, sustained investment before they are realized.

In Asia, participants suggested that long-standing assumptions about denial, especially in the Taiwan scenario, should be re-examined. A decade ago, analysts believed that dispersed denial architectures, resilient bases, and long-range strike systems could deter Chinese expansion. Participants agreed that this is no longer sufficient. Even as Japan rearms, the Philippines strengthens cooperation, and Australia expands its strategic role, China continues its breakneck, across-the-board military modernization. Compounding the challenge is China's expanding ability to threaten the U.S. homeland through missile forces, cyber capabilities, and other strategic tools.

Deterrence by denial remains critical, but the protective barrier is clearly thinning and dependent on munitions stockpiles that are currently insufficient. There was a suggestion that the United States should place greater emphasis on punishment strategies—such as blockade, horizontal escalation, or targeted strikes on critical industrial nodes in China—to supplement but not replace denial. Such an approach would aim to impose costs on China for gradualist coercion while preserving U.S. capacity for rapid, decisive action and readiness for other global contingencies.

Political dynamics exacerbate these military trends. China's and Russia's authoritarian leadership—aging, insular, and preoccupied with internal control—faces economic pressures and narrower ruling coalitions, creating incentives for external aggression. Meanwhile, although the United States and its allies retain overwhelming latent advantages in technology, economic scale, global finance, and control of key chokepoints, the near-term balance depends on mobilization speed and willingness to absorb punishment at the outset of conflict. Autocracies may also hold advantages in rapid decision-making and proximity to combat zones, though lacking comparable alliance depth.

Ultimately, the panel suggested that U.S. deterrence in a multi-adversary world is at a crossroads. Deterrence can be restored but it will require rebuilding the defense industrial base in the United

States and among its allies; integrating allied production and technology networks into a more unified Blue defense ecosystem; and developing capabilities that can deter both invasion and coercion while sustaining a protracted war if necessary. The United States must transition from a posture built for uncontested primacy to one capable of managing simultaneous threats, protracted conflict, and adversaries willing to exploit gaps in time, geography, and political cohesion. Achieving this will require strategic clarity, industrial revitalization, alliance integration, and a more holistic conception of how denial and punishment interact across domains and theaters.

Panel 4: Deterrence in the Global Commons

- Looking back a decade, has the deterrence position of the United States and its allies in cyber space and outer space improved or eroded? How? Why?
- Looking ahead a decade, how troubling are projected adversary developments?
- What should be done?

The United States and its allies have become increasingly dependent on space and cyberspace for conventional and strategic military operations, even as confidence in the availability and survivability of these capabilities has eroded. The panel argued that deterrence in these domains has not meaningfully improved and, in some respects, has become more fragile. Reliance on space- and cyber-enabled capabilities has outpaced the ability to assure them in crisis or conflict, creating incentives for adversaries to target these systems early and often.

Despite repeated declarations that the United States would prioritize cyber operations, the same structural problems persist: readiness gaps, manpower shortages, uneven training pipelines, and fragmented organizational responsibility. Meanwhile, adversaries have dramatically expanded their cyber capabilities. The only way to close the gap, one panelist argued, is the creation of the U.S. Cyber Force, following in the footsteps of the U.S. Space Force but ideally learning from the mistakes associated with its standing up.

Deterrence in cyberspace is an ill-defined and unrealized condition. The result is not a stable environment, but one characterized by constant probing, rapid adaptation, and an absence of clear thresholds. Punishment-based deterrence has proven ineffective, as cyber capabilities are quickly exposed, neutralized, and replaced. Additionally, credible attribution rarely produces timely or politically acceptable responses.

Space deterrence faces similar challenges. For decades, space systems were treated as extensions of nuclear deterrence, protected implicitly by the assumption that attacks on key satellites would signal nuclear escalation. As space became central to conventional warfighting after the Gulf War, this framework persisted, even though it was poorly suited to a domain in which attacks may be limited, reversible, or deniable. Adversaries have increasingly concluded that they can disable and destroy U.S. space capabilities without triggering catastrophic escalation.

A core challenge is the growing gap between reliance and assurance. U.S. forces depend on space systems for navigation, communications, intelligence, surveillance, missile warning, and conventional force protection, yet many of these systems are not designed to survive direct,

sustained attack. This imbalance—high reliance combined with low assurance—creates a strategic vulnerability and crisis instability.

Since the mid-2010s, the United States has taken steps to address this problem by increasing spending on space capabilities and expanding force structure. However, improvements in assurance have not kept pace with rising dependence and adversary counterspace developments. Resilience efforts have concentrated on a narrow set of approaches, particularly proliferation in low-Earth orbit (LEO), which presents new challenges. While commercial manufacturing and launch have enabled speed and scale, concentrating sensitive or mission-critical capabilities in low or very low orbits introduces vulnerabilities that higher orbits naturally mitigate. In some cases, economic logic has substituted for warfighting logic. As a result, assurance has improved at the margins but remains insufficient for sustained, high-end conflict. Other resilience mechanisms—such as disaggregation, protection, diversity, deception, and reconstitution—have received less consistent attention.

Meanwhile, adversaries have not only developed the ability to threaten U.S. space assets but have also built their own space architectures to support power projection and conventional operations. This dual development has altered the strategic balance. While it may now be harder for adversaries to solve the U.S. space problem than it was a decade ago, they currently possess far more potent counterspace capabilities. The United States and its allies must make their space capabilities more assured and resilient so that U.S. forces never enter conflict without space on their side. Additionally, the United States must deny adversaries confidence that their own space-enabled power projection will survive intact. Without credible counterspace options, adversaries may conclude that U.S. reliance on space offers exploitable windows of advantage.

These challenges are compounded by unresolved questions about persistence, reconstitution, and institutional capacity in both the space and cyber domains. Space capabilities have not been fully integrated into concepts of sustained conflict or industrial replenishment, raising the risk that future conflicts devolve into unfavorable attritional dynamics. Fragmented organizational structures, especially in cyber, have limited the development of shared doctrine, professional identity, and strategic-level effects.

The absence of a mature community of strategists and analysts focused on space and cyber issues, combined with persistent overclassification of critical information, has constrained campaign planning, alliance coordination, and informed tradeoffs. Commercial and allied actors further shape the environment: the commercial space sector provides scale and resilience but complicates escalation dynamics, while allied space capabilities remain underutilized despite their potential to strengthen assurance and deterrence.

Panel 5: The Tripolar Strategic Nuclear Equation

- Is the tripolar nuclear balance becoming more or less stable? Why?
- Are we headed into a strategic competition in this domain and, if so, why should we care?
- Are new U.S. strategic nuclear capabilities needed? If so, of what kind? When?

This panel assessed the emerging tripolar nuclear environment shaped by the United States, China, and Russia, considering its implications for stability, competition, and U.S. force posture. Participants converged on a sober near-term outlook: trend lines are concerning, and the United States has not yet adjusted its strategy or modernization program to match the pace or character of change. While some features of tripolarity may dampen incentives for a deliberate first strike, the broader effect is not stabilizing. Diversification of Chinese forces, continued Russian adaptation, and widening gaps at the theater level all point toward intensifying strategic competition, and allied confidence in U.S. extended deterrence under growing strain.

In general, the United States views the emerging tripolar nuclear balance as far less stable than a decade ago. China is not only increasing its nuclear force numbers; it is diversifying delivery systems and building out theater-range capabilities, signaling a shift away from minimum deterrence toward something closer to equivalence with the United States. Russia's suspension of New START and experimentation with novel systems keep uncertainty high, even if underlying capacity constraints persist.

On the other hand, one benefit of nuclear tripolarity is that any state contemplating a first strike must worry about vulnerability to a third bystander power; this should enhance first-strike stability. Yet this bystander effect comes with a dangerous corollary: greater room for below-threshold coercion and limited regional escalation under the shadow of perceived strategic stalemate, sharpening the stability–instability paradox and the threat to U.S. allies and partners.

The panel explained that China's buildup is driven by more than counting rules. Its aim appears to be eliminating U.S. advantages in counterforce and damage limitation, locking in strategic stalemate, and gaining freedom of action for conventional or theater nuclear leverage. To sustain the credibility of extended deterrence, the United States will need to seek advantage and optimum instability so that adversaries are not confident they can initiate hostilities while avoiding nuclear escalation. Several participants also stressed the importance of adjusting U.S. nuclear posture as a way of sending a costly signal of resolve to change adversary expectations and allied perceptions of U.S. staying power.

On the question of whether the world is entering strategic competition in the nuclear domain, the panel's answer was yes, though it argued a classic tit-for-tat arms race remains unlikely in the near term. China appears motivated less by parity for its own sake and wants to avoid being tricked into engaging in an expensive symmetric race. Russia may try to grow forces at the margin, but financing, technology, and readiness—particularly in light of the continued cost of the Ukraine war—impose limits. The United States, meanwhile, is poorly postured to run a sustained production race; many of the nation's key production capabilities atrophied in the 1990s, and timelines for new capacity extend into the 2030s to 2040s. Strategic competition is likely to intensify, but through asymmetric moves, low-cost adjustments, and theater-level pressure rather than a rapid quantitative spiral.

The discussion repeatedly returned to U.S. nuclear posture and modernization. Participants judged the current program as designed for a more benign era and now lagging behind the problem. The question is not simply "more" or "different," but how to realign ends, ways, and means to meet today's tripolar demands. Options discussed included uploading warheads in the near term, restoring flexibility lost when the force was optimized for a less contested environment, and addressing gaps in theater nuclear capabilities—particularly in the Asia-Pacific, where adversaries are fielding new theater-range, dual-capable systems.

The topic of damage limitation as an objective of U.S. nuclear strategy received sustained scrutiny. Panelists distinguished a damage-limitation objective from a damage-elimination objective: the former is about being able to threaten to reduce harm enough to increase U.S. resolve and adversary uncertainty, while the latter entails eliminating the threat entirely with a perfect shield. In practice, damage limitation requires an ensemble of measures: counterforce capabilities against fixed and mobile systems; intelligence, surveillance, and reconnaissance (ISR) and reconnaissance improvements to track mobile launchers; anti-submarine warfare; attacks on nuclear C2; active and passive defenses; and resilient warning and decision support. Participants generally agreed on the value of having a damage-limitation capability, but some questioned whether improving U.S. damage-limitation capabilities is the right focus given the various aspects of U.S. conventional and nuclear posture that require shoring up.

Allies' perceptions were a recurring barometer. The panel noted that the balance may be favorable enough to forestall immediate strategic use, yet not rosy enough to allay concerns about limited aggression under a perceived strategic stalemate. If allied confidence erodes, incentives for hedging or even allied proliferation could rise, with destabilizing effects during any transition period and the risk of wider cascades. This prospect magnifies the premium on visible U.S. resolve, credible theater options, and modernization choices that are understood by partners as well as competitors.

Across these debates, one constraint dominated: political will, not technical feasibility. Participants judged that the U.S. technical base can produce needed adaptations, but the political system has not yet aligned resources and authorities, backed by prioritization and urgency. The immediate task is therefore twofold: clarify the deterrence problem the United States seeks to solve in a tripolar world and align a modernization strategy that sends an unmistakable signal of resolve. In short, the tripolar equation is hardening into a long contest.

Panel 6: The Damage-Limitation Balance

- How robust is the current U.S. combination of homeland missile defense, conventional precision strike, and nuclear counterforce relative to the nuclear forces of Russia and China?
- What are Russia, China, and North Korea doing to defeat U.S. damage-limitation strategy and otherwise improve their retaliatory postures? Is it consequential for the United States?
- What is the United States doing to sustain its strategy? What more should be done, if anything?

The panel agreed that the capability to limit damage against the United States and its allies and partners has been a longstanding part of U.S. defense and nuclear strategy. Maintaining such an option sows doubt in adversaries' minds about their ability to control nuclear escalation and thus discourages large-scale nuclear use against the United States and its allies.

While the U.S. strategy and capabilities have been for the most part sufficient so far, the overall requirements and cost of sustaining an effective damage-limitation capability against multiple adversaries simultaneously are rising. One of the principal challenges is the rise of China as a nuclear power, which is creating more targets to hold at risk and complicating deterrence

calculations. As China's nuclear arsenal grows and its readiness increases, it may be emboldened to take greater risks.

One panelist identified six ways adversaries attempt to counter U.S. damage limitation: hardening nuclear forces, expanding nuclear forces, improving their ability to penetrate defenses, investing in active defenses for their national command authorities, improving NC3 to enable more responsive counter-strike, and denying the type of exquisite intelligence collection that is required for damage limitation against mobile targets. China has enhanced its defenses against allied and U.S. precision strikes, including counterspace capabilities and integrated space, cyber, kinetic, and electronic warfare defenses. Russia has developed sophisticated missile defenses, advanced kinetic kill capabilities, and has shown interest in space-based nuclear anti-satellite weapons.

While these adversary advancements complicate U.S. damage-limitation planning, they have not eliminated U.S. advantages. Russia's Strategic Rocket Force has suffered several test failures, and China faces limitations due to corruption and inexperience with nuclear decision-making delegation. These enduring liabilities may reduce the effectiveness of adversary efforts. Additional challenges to damage limitation include the absence of arms control treaties like New START, which previously helped quantitatively constrain adversary force developments, making damage limitation more tractable.

To sustain the damage-limitation strategy, one panelist argued that the United States should field additional nuclear forces to account for Chinese developments. In the near term, this would involve uploading additional warheads on land- and sea-based ballistic missiles and re-opening missile tubes and deploying additional missiles on SSBNs. Over the long term, more substantial investments would be required, such as deploying additional SSBN, as adversaries continue to expand their forces and take additional steps to enhance survivability.

The panelists also emphasized that allies could play a stronger role in damage limitation. While European nuclear forces are not sized or structured for large-scale counterforce attacks, they could supplement U.S. capabilities. Non-nuclear contributions—such as allied ISR; fast, deep-precision strike; and conventional-nuclear integration—could help distribute the burden of alliance defense, though political and logistical obstacles remain.

Some participants expressed concerns about the future viability of damage limitation and its consistent role in U.S. nuclear strategy. Will America be willing to pay the high cost of sustaining this capability going forward? The general sense of the group was that this investment is worth it. Limited resources prevent the United States from building robust conventional denial in multiple theaters, making greater reliance on nuclear weapons necessary. Alternatives to maintaining counterforce damage limitation as a primary mission for U.S. nuclear forces, such as prioritizing conventional denial or relying on missile defense for damage limitation, are likely to be even more expensive and not as effective.

Panel 7: The Theater Nuclear Balances

- Is the asymmetric nuclear posture of the United States in both Europe and Asia fit for purpose? Why? Why not?

- Looking ahead a decade, how troubling are projected developments in relevant Red and Blue military capabilities?
- What should be done?

While the U.S. theater nuclear force posture in Europe and, to a lesser extent, Asia has been fit for purpose, it will erode in both regions over time. Regional, or theater, nuclear weapons are a critical tool that can strengthen this posture in the years ahead, alongside efforts to promote damage limitation and increase U.S. conventional superiority in these regions.

Introducing regional nuclear weapons allows for escalation within the theater of engagement, which can constrain the risk of strategic nuclear use. If a state is losing a war, it may threaten or use nuclear weapons to avoid defeat. Conversely, if a state is winning, possessing regional nuclear weapons can deter the opposing side from escalating with its own arsenal. Ultimately, the main purpose of the United States developing and maintaining limited nuclear forces is to provide the president with more options on the escalation ladder during intense regional conflicts, rather than forcing a choice between strategic nuclear use or accepting an unfavorable outcome. When regional nuclear weapons are understood as theater-specific, there is less concern about immediate escalation to strategic or preemptive counterforce strikes.

The panel noted that there is no universally accepted definition of theater nuclear weapons but offered three characteristics: 1) they are not triad-based and do not reside on strategic platforms; 2) they are forward-deployed to the Indo-Pacific or Europe; and 3) they have a different range than strategic nuclear weapons. While the exact dividing line is unclear, these traits are useful for discussion.

One panelist emphasized that regional nuclear forces are not a substitute for strategic damage limitation, as some argue, because U.S. regional nuclear deterrence is only effective when backed by an advantage at higher levels of escalation. Regional nuclear weapons are complementary—they operate at a lower level of conflict and do not replace other tools for dealing with Russia and China.

Currently, the U.S. nuclear posture in Europe is fit for purpose. The primary objectives in NATO are to deter Russian military action within the theater and to reassure U.S. allies and partners. However, it is uncertain whether this posture will remain adequate over the next 10 to 15 years. Evolving Russian capabilities will likely require the United States to develop more credible regional capabilities within NATO. France's capabilities also influence Russia's calculations, but it would need additional options for escalation management in order to make its informal nuclear umbrella over Europe more credible. One near-term recommendation is for the United States to certify additional NATO F-35s for nuclear missions, expanding beyond just basing states. In the long-term, NATO could consider an upgraded air-delivered capability that could effectively threaten key targets from standoff range or potentially ground-launched options.

In the Indo-Pacific, the U.S. theater nuclear force posture is weaker. China and North Korea are aggressively expanding their respective nuclear postures, including developing and deploying new theater and tactical range capabilities. To improve force posture, the United States plans to deploy a sea-launched cruise missile that is nuclear armed (SLCM-N) to the Indo-Pacific in the 2030s. SLCM-N is well-suited to the geography of the region, particularly compared to gravity bombs delivered by DCA. While SLCM-N will go a long way in shoring up U.S. posture, one participant argued that the United States should also consider deploying ground-based capabilities.

This panel's findings complemented discussions on conventional military balance and damage limitation. If the conventional military balance is not in the U.S. favor and the U.S. damage-limitation capability is slipping, a robust regional nuclear deterrent becomes even more important. Greater flexibility in nuclear options is critical to affecting adversary calculus in a range of circumstances.

Panel 8: Competitive Hedging—Preparing for the Future

- Looking back a decade, what has the United States done to maintain and improve the national capacity to surge more and new capabilities, both nuclear and non-nuclear, in response to surprise or crisis? What lessons stand out from this experience?
- Looking ahead a decade, is its competitive position relative to Russia and China likely to improve or erode? Why?

The U.S. ability to rapidly develop new and improved nuclear capabilities has declined since the late 1970s. In that era, systems like the B-77 gravity bomb and the Pershing II missile were designed and tested within just a few years—remarkable, given the primitive design and production tools available at the time. Engineers lacked the computational power for complex simulations but had adaptable processes for revising and re-manufacturing designs to enable rapid development.

Despite advances in design and production technologies, the pace of U.S. nuclear weapons development has slowed dramatically over the past 50 years. Key components of the current modernization program, such as the Sentinel land-based ballistic missile and the SLCM-N submarine-launched cruise missile, are expected to take more than a decade to develop and deploy. Programs started in the mid-to-late 2010s are not expected to reach deployment until the early-to-mid 2030s.

This slow pace poses a critical risk to the long-term credibility of the U.S. nuclear deterrent and its security commitments. Low-probability, high-impact events that radically alter the security environment could occur with little warning, requiring the rapid development of new capabilities. If U.S. development timelines are years longer than those of Russia or China, the United States could find itself at a critical disadvantage.

As for the reasons behind this slowdown, one panelist argued that the underlying problems of the U.S. nuclear enterprise have remained largely unchanged for decades. Widely recognized issues that have been identified by commissions for decades—such as risk aversion, poor alignment of authority and responsibility, and weak coordination between the federal government, laboratories, and the production complex—were never addressed and persist today. In addition, the broader societal systems that once enabled rapid development have sclerotized.

Another major factor discussed was the increasing complexity of modern strategic systems. As delivery platforms like aircraft have become more sophisticated, testing and validation processes have become more cumbersome. Each change in a complex system often requires full-system testing to ensure no unintended consequences, which significantly slows development.

Despite these challenges, another panelist argued that significant progress has been made in the past 10 to 20 years, particularly by the U.S. Air Force. The adoption of open modular architectures—systems with interchangeable components—has made it easier to design, test, and upgrade complex systems. Changes can be validated at the component level rather than requiring full-system testing. These systems are also easier to upgrade, as components can be replaced or repurposed without redesigning the entire system. For example, certifying the modern F-35 fighter to carry nuclear bombs is much faster and more scalable than it was for the older F-16.

Modular open architectures also allow for the relatively easy addition of new capabilities to existing weapons. While some criticize the current modernization program for focusing too much on replacing existing systems rather than developing new ones, the panelist argued that open architectures in new systems like the Sentinel missile and B-21 bomber will allow for significant capability expansion over time.

A notable disagreement during the discussion was whether there is an inherent tradeoff between quality and quantity in nuclear capabilities. One participant rejected this idea, citing the iPhone as an example of an advanced system produced at scale—implying that economies of scale can help overcome the tradeoff. Another participant disagreed, arguing that highly advanced systems like future fighters are so expensive and sophisticated that only limited numbers can be procured, while simpler systems like drones and cruise missiles can be produced in higher volumes. A solution is to maintain a mix of high-end, exquisite capabilities and lower-end, high-volume systems.

Panel 9: Setting U.S. Priorities

- What are the most important military competitions that the United States must prioritize to maintain a strategic military posture that is fit for purpose? Why?
- Can it afford to take (more) risk in other domains to enable such prioritization? If so, which one(s)?
- What goal should guide the development of the resulting mix of capabilities? Dominance? Parity? Second to none? Strategic stability? Other?

The tripolar nuclear balance presents the United States with existential threats that require an urgent response. The 2022 Strategic Posture Commission Report demonstrated that it is no longer realistic to prioritize just Russia or China; U.S. force posture must be prepared to deter both simultaneously, in both the conventional and nuclear realms. However, panelists expressed concern that the dual-peer challenge is not sufficiently reflected in the 2025 U.S. National Security Strategy.

Panelists noted a lack of guidance in the strategy regarding goals for future U.S. capability development. They suggested that strategic stability is a more appropriate metric for assessing further development of U.S. capabilities than “parity” or “second to none.” The United States should focus on securing strategic stability and maintaining its second-strike capability in the context of a dual-peer environment. While the United States should pursue dominance in certain areas, dominance is costly; therefore, it must prioritize where to seek advantage. The panel emphasized that the United States already maintains an advantage in space and should solidify and expand it.

Participants agreed that the United States must increase both the quantity and diversity of its conventional capabilities. The panel also highlighted that Russia and China are located in two very different theaters, which require different sets of capabilities. This disparity has implications not only for capability development but also for determining which military service is best suited to taking primary responsibility for each theater. The panel posited that if the United States does not sufficiently enhance its conventional capabilities, it will have to rely more on nuclear capabilities. However, the current U.S. nuclear posture is increasingly less fit for purpose, and modernization of the nuclear complex is proceeding too slowly.

The development of Chinese and Russian capabilities presents the United States with a need to compete. First is the maintenance of an assured nuclear second-strike capability, which is the cornerstone of U.S. nuclear and overall deterrent posture. The panel described several components of second-strike capability: undersea competition, in which the United States maintains a steady advantage but must continue to support both quantitatively and qualitatively; the current offense-dominant strike competition, which requires greater penetrability of hypersonic and cruise missiles; and the survivability and resilience of NC3 systems against cyberattacks.

The second area of competition is homeland defense, which is essential to second-strike capability and the deterrence of limited attacks. The United States must build missile defense systems that introduce greater uncertainty into adversary calculations. Third, the United States must ensure that its strategic systems are not overly reliant on cyber and space systems; the resiliency of these systems is vital to supporting second-strike capability. The fourth area is theater nuclear weapons, which provide more flexible and proportional response options. In assessing the efficacy of its theater nuclear forces, the United States should consider whether adversaries feel confident in their ability to preempt U.S. theater capabilities. Fifth, the United States and its allies should increase focus on developing long-range conventional strike capabilities. Sixth, the United States should pursue superiority in cyber and space capabilities.

Participants noted that one of the United States' greatest assets is its human capital. Further investment in education is vital to maintaining the U.S. advantage in military and technology spheres. The United States should strengthen professional pipelines to address deficits in industries such as shipbuilding and submarine technology.

Ultimately, participants agreed that failure to compete will only worsen the U.S. security environment, emboldening adversaries to initiate conventional conflict or escalate to nuclear war. In particular, the dual-peer problem raises the risk of simultaneous or sequential aggression. To meet these challenges, the United States must maintain its advantage in key areas and address its vulnerabilities in others.

Closing Roundtable

- Is the United States gaining strategic advantage, losing it, or holding steady, overall?
- Is the overall U.S. approach to strategic military competition coherent, effective, and promising of future success? If not, what needs to be done?

At present, the United States maintains strategic advantage, but the challenges to U.S. dominance are real and profound. It is difficult to define "strategic advantage," determine which factors contribute to it, and decide which areas should be prioritized to achieve it. Participants agreed that "numbers" are only one part of the conversation and a poor metric for judging net assessment.

The panel argued that priorities should always be interest-focused and that, in the current security environment, defense should be paramount. China's PLA is a key focus. In setting priorities, the United States must exploit its strengths and limit its vulnerabilities. The panel identified three key advantages: the U.S. alliance and partner network, military know-how, and a proven track record of crisis and wartime innovation. The U.S. alliance and partner network spans economic, societal, and military domains, allowing the United States to extend its influence globally. U.S. military know-how is another critical advantage, characterized by both the requisite capabilities and confidence in success. Finally, the United States has a well-established record of pulling together in a crisis, innovating, and prevailing. In these areas, China is currently at a disadvantage but is gaining strength.

On the other hand, the panel highlighted several key challenges or liabilities for U.S. strategic advantage: ambiguity around the role of allies and partners, weak systems for recruiting and retaining talent, and the incoherence of the U.S. competition strategy. The 2025 National Security Strategy (NSS), the panel argued, does not adequately prioritize allies and partners and lacks a clear vision for their role. Allies and partners cannot share the burden of their own security without understanding what the United States expects of them.

Further, there is a need for a more agile and effective system for recruitment, retention, and succession. There is also a need to bring in more STEM talent and hire people with expertise in contracting and oversight. In the face of these challenges, the United States is currently competing poorly, while China is outperforming it and Russia is adapting more effectively to the challenges it faces. China is building its innovation ecosystem and its ability to scale and adapt, while improving in areas of previous weakness such as operational know-how, advanced combat air tactics, and combined operations in general. In the competition with China and Russia, many of the contested areas are not primarily military but are instead in innovation and strategy.

The U.S. approach to competition, the panel concluded, is not coherent, effective, or promising. It remains to be seen whether the forthcoming National Defense Strategy (NDS) will offer more clarity. But there is strong bipartisan consensus that we need to change our strategic orientation and increase accountability. Urgency must be accompanied by effective execution, including changes to the incentive structure so that delivering on time and on budget is more rewarding than maintaining the status quo.