



Strategic Weapons in the 21st Century
The New Dynamics of Strategic Conflict and Competition
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Co-hosted by Lawrence Livermore National Laboratory and Los Alamos National Laboratory

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The 12th annual Strategic Weapons in the 21st Century (SW21) workshop aimed to sustain high-level focus on key deterrence challenges and to promote well-informed discussion of them on a non-partisan basis. It brought together interested stakeholders from the national security laboratories, federal government, military, think tank, and academic communities, as well as allied counterparts, to share perspectives in an unclassified setting. The agenda was designed to examine the following key questions:

- How is the problem of strategic conflict changing, and why?
- How is the problem of strategic rivalry shaping up?
- How do adversaries think about and prepare for conflict and competition with the United States?
- What should the United States and its allies do to safeguard their interests?

All remarks and discussion were on a non-attribution basis.

Panel 1: Defining Strategic Conflict and Competition in the 21st Century

This panel focused on the following questions:

- How do Russia and China understand the strategic dimension of war with the United States and its allies? How do they imagine being successful in such a war and in circumstances short of war?
- How do Russia and China compete with the United States? Towards what ends?
- What are the prospects for dangerously intensified competition? And for conflict?

Two key themes emerged from this discussion. First, China and Russia share the objective of revising an international order they perceive to be unjust but present different challenges to that order and to the United States. Second, both are well advanced in their preparations for military conflict in their region and have diversified their strategic toolkits to try to gain escalation advantages.

The challenge from China is broad and multifaceted, with significant military, economic, political, and even ideological aspects. In responding to this challenge, the United States must constantly re-calibrate the balance between competition and cooperation, as there are many shared interests with China in addition to the competitive ones.

China's goals are threefold: (1) regime survival, (2) a return to its rightful place as the preponderant power in Eastern Eurasia, and (3) establishment of itself as a global superpower. Its strategy is to avoid premature confrontation, build up comprehensive national power, and advance incrementally. It seeks

to weaken the U.S. position in East Asia by pushing the United States away, severing its alliances in the region, and raising doubts about its security guarantees and is projecting power.

Militarily, China continues to expand the size and survivability of its nuclear forces and to counter U.S. missile defense and precision strike capabilities through hypersonics and mobile missiles. Beyond the military dimensions of competition, China is expanding its geopolitical influence and reducing its vulnerability to economic pressures through avenues such as its Belt and Road Initiative. It also leveraging difficult-to-counter psychological tools through information operations, deception, and perception management. Panelists speculated that the Chinese could be deliberately obscuring their thinking on issues such as escalation control in order to cause anxiety in adversaries, manipulating the perception that they don't understand the associated risks.

The challenge from Russia is much narrower—it is primarily military in character. And the proper calibration of the balance between competition and cooperation is a less complicated matter, as the opportunities for cooperation are few and as Russia has chosen to make itself an out-cast through its use of force and rejection of many previously-accepted norms and legal obligations.

Russia is more centrally focused on military competition with the West. Its leaders use nuclear weapons to prop up its status as a great power competitor to the United States and can be expected to do so for the foreseeable future. In support of its revisionist agenda, Russia's key aims are to (1) rebuild its security perimeter and (2) disrupt and undermine the global security architecture, especially in Europe. It seeks to do so while also avoiding direct military conflict with the United States. Russia uses grey zone tactics, cyberattacks, and information operations to stay short of war but is positioned in case of war for what it hopes will be a *fait accompli*, relying on air defenses and dual-capable precision strike systems. A strong premium is placed on integration of conventional and nuclear assets. Military and psychological means, such as reflexive control, are combined, regularly blurring the lines between peace and conflict. In order to deter the United States from its periphery, Russia emphasizes the importance of its nuclear weapons—including both low-yield, battlefield systems and larger, longer-range systems—as well as its A2/AD capabilities. Moscow also seeks to undermine U.S. extended deterrence and various international agreements (e.g., CFE, Open Skies, INF, CWC) to create a controlled chaos in the international, rules-based order.

Looking ahead, great power competition seems certain to continue to intensify. China is a rising power that is playing the long game, but also seeks near-term benefits of its rising power. Russia is a declining power that is playing a shorter-term game; but its decline brings with it a sense of urgency that makes Russia less risk averse in global affairs. While prospects for conflict sparked by deliberate aggression against the United States or its allies are low, the possibility for accidents cannot be ruled out. Of particular concern is miscalculation with respect to China's view of U.S. resolve and overestimation of their own capabilities.

Panel 2: Integrating for Effective Strategic Deterrence

This panel focused on the following questions:

- Why has the focus of U.S. thinking shifted from “cross-domain” to “multi-domain” to “integrated strategic” deterrence?
- What does deterrence “integration” mean to Russia and China?
- Is the United States adequately prepared to deter across the full spectrum of potential combat operations, including in the “new” domains? How can it be better prepared?
- What are the different roles of nuclear and non-nuclear means in an integrated approach?

The key theme that emerged is that the changing nature of warfare places a premium on the integration of new weapons and domains of conflict with traditional modes of conflict. A successful 21st century deterrence strategy also needs to integrate the full complement of American and allied power.

This panel reprised some of the themes from the opening panel but expanded on integration as a theme in the deterrence strategies of Russia and China, arguing that there appears to be some coherence and orchestration in their separate approaches, in a manner that is suggestive of the possibility that their integration across domains and the escalation ladder is more advanced than that of the United States.

Panelists opined that successful U.S. strategies to confront the emerging multipolar, global competition will need Presidential attention and must be coordinated at high levels within the National Security Council. The strategy must also consider our entire diplomatic, economic, military and legal toolkit. Furthermore, Washington must be clear about who we are deterring and what course of action we seek to forestall. Additionally, U.S. and allied policymakers need to understand that not every undesirable enemy action can be deterred; deterring cyber operations and grey-zone challenges directed at U.S. allies are especially knotty problems and will require creative, whole-of-government responses.

As the United States, in concert with allies, seeks to develop an “integrated strategic” deterrent posture, Washington must prepare for and be accepting of mistakes. Panelists argued that we should not strive for perfection, but rather ensure that we are constantly improving our performance over time. There are still several outstanding questions on how to measure success in “integrated strategic” deterrence campaigns and how to identify signs of progress that offer rich opportunities for future policymakers and scholars.

Panel 3 – Fostering a Competitive Mindset

This panel explored three key questions:

- How is a “competitive mindset” different from a “deterrence mindset?”
- How do we out-think, out-partner, and out-innovate potential adversaries, as called for in the National Defense Strategy?
- What are the potential benefits and risks of intensified all-domain strategic competition?

The key theme that emerged here is best reflected in a quote from one of the panelists: “Mindset is the spark that catalyzes engagement in the business of competitive strategy development, and it is the fuel that sustains strategy implementation.”

Recent changes in the international environment have produced a broad bipartisan consensus on the need to move to a more competitive mindset vis-à-vis peer competitors like China and Russia. This view is largely shared by the United States' allies and partners, although some advance a more cautious approach. While the United States is in the process of adjusting its force posture, a *fait accompli* scenario, potentially facilitated through nuclear coercion, presents the greatest near-term danger to U.S. interests abroad. Additionally, since dominance across all domains is no longer guaranteed as adversaries seek to exploit asymmetric advantages, the United States can no longer rely alone on deterring aggression. Instead it must out-think its adversaries by delaying, degrading, and denying their theories of victory through tailored, multi-domain strategies that include non-military means of competition. It is also important that the United States out-partner its adversaries by leveraging its extensive network of alliances and partnerships. Capability gaps remain that allies and partners must reduce to better respond to a deteriorating security environment.

U.S. leadership also continues to be crucial for overcoming collective action problems, particularly in the Indo-Pacific region. However, neither China nor Russia can draw on the benefits of such extensive security cooperation relationships and alliances for global power projection. Finally, the United States and its allies and partners must capitalize on their economic and technology bases to out-innovate their adversaries. While military modernization efforts are critical in the acute competition, Western national industrial bases will have to embrace strategic logic for competition with China in the long term.

Panel 4 – Improving the Impacts of Science and Technology on National Security

This final panel focused on the following main questions:

- What is the role of science and technology in this effort?
- What are the lessons of recent USG efforts to accelerate defense innovation? Are there lessons for the nuclear complex?
- What can be done to accelerate the development of high-leverage strategic technologies?
- How can the private sector be more effectively engaged in accelerating innovation?
- How can the national laboratories become more effective in delivering technical solutions in an increasingly dynamic technology environment?

The key theme that emerged on this panel is that the future positive impact of S&T on national security cannot be taken for granted and requires sustained leadership focus and commitment.

This discussion including a significant historical component. Leadership in science and technology, facilitated by the National Science Foundation and extensive cooperation and enduring partnerships between the federal government, industry, and academia, elevated the United States to superpower status with the end of World War II. Through the Cold War, its capacity to innovate allowed the United States to effectively compete with the Soviet Union at the strategic level. The post-Cold War unipolar moment and the regional wars the United States has been engaged in since 2001, however, diverted attention and resources away from great power challengers. As the U.S. national security apparatus redevelops its competitive mindset, science and technology must again be recognized as essential for long-term competition and leveraged accordingly. This will require an appreciation of changing nature of strategic technologies.

No longer are nuclear warheads the only strategic weapons in the arsenals of major powers, non-nuclear technologies increasingly too present strategic challenges. While the nuclear enterprise remains

largely centralized around the national laboratories, the development of non-nuclear strategic technologies has a broader constituency, involving the private industry to a much larger extent than in the past. Proliferation concerns, accordingly, have also grown. Effective strategic competition, thus, requires greater public-private integration, partnerships, and cooperation, also with small companies. Grand challenges, supported by the government's unparalleled purchasing power, can help set the right incentives for improved collaboration, expedited timescales, and better outcomes. Greater flexibility with acquisition rules and contractual mechanisms could improve processes as well. Additionally, attracting, developing, and retaining human capital will again become essential for succeeding in long-term strategic competition. Overblown fear of industrial espionage would be counterproductive.

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