



## **Strategic Weapons in the 21<sup>st</sup> Century**

### **Nuclear Deterrence at the “Inflection Point”**

**18th Annual Symposium on Strategic Weapons in the 21st Century**  
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#### **Workshop Summary<sup>1</sup>**

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The 18th annual Strategic Weapons in the 21<sup>st</sup> Century (SW21) workshop focused on sustaining high-level focus on key deterrence challenges and promoting a well-informed discussion on a non-partisan basis. The event brought together interested stakeholders from the national laboratory, federal government, military, think tank, and academic communities, as well as allied counterparts from Europe and Asia, to share perspectives in an unclassified setting.

This year’s SW21 examined the following key questions related to nuclear deterrence at an “inflection point”:

- From the perspective of nuclear deterrence, what are the new challenges and opportunities?
- How should deterrence be strengthened? What enduring advantages can be built?
- How can the United States and its allies best balance multiple priorities in an eroding security environment?
- What can or should be done to deter further strategic breakouts by Russia and China?

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

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## **Panel 1: Russia's War on Ukraine and its Nuclear Implications**

- What roles have nuclear weapons played? What roles might they yet play? What lessons follow?
- How has NATO responded to new nuclear dangers and what more needs to be done?
- Are adjustments to U.S. nuclear policy and posture needed to ensure that deterrence will remain effective over the next decade?

From the perspective of the United States and its NATO allies, strategic deterrence seems to hold despite the ongoing war in Ukraine. There have been no signs of a major change in Russian strategic posture and no indications of meaningful movement of strategic assets. Russia has suspended its participation in the New START Treaty. While this will become a challenge over time, it is a manageable problem at present. With regards to Ukraine, the United States did not have a credible deterrent policy to prevent a Russian conventional attack on a non-NATO member state in Europe. While the U.S. and its NATO allies tried to dissuade Russia from an attack, the stakes were higher for Russia, and President Putin decided that it was worth taking the risk of attacking Ukraine. However, it seems that Ukraine is successfully defending itself against Russia because the United States and its allies have been able to maintain a coalition to provide military assistance to Ukraine. This includes transferring armor, artillery, and air defense assets to Ukraine over allied territory and training Ukrainian forces on these systems. Since Russia has not attacked NATO nor changed its overall military posture towards Europe, deterrence seems to hold. It implies that deterrence is successful if it is integrated, well established, multilateral, and has a certain longstanding credibility.

In the post-Cold War period, Russia has been worried about the credibility of its strategic second-strike capability and has instituted a host of programs to address this perceived weakness. The Russians also identified problems in the conventional domain and have spent the past 15 years attempting to rebuild and restructure their conventional forces. They concluded that a strong conventional military capability is key because a country that dominates this domain and is backed by a secure nuclear second-strike posture can successfully conduct coercion in a regional conflict. However, Russian conventional performance on the ground during the prolonged war in Ukraine suggests that they did not solve this problem.

The alternative to this strategy is to use limited nuclear options and other asymmetric threats to achieve Moscow's desired military objectives. Russia's irresponsible rhetoric and its reported plans to base nuclear weapons in Belarus blur the line between the conventional and nuclear levels of war. Although a possible deployment of nuclear weapons in Belarus would not give Moscow new military options or shift the military balance between NATO and Russia, the United States and its NATO allies should still work to convince Russia that limited nuclear use from any direction would not be accepted with impunity. Russia also seems to think that limited nuclear use would be containable, and it has already created a narrative that would be

used to justify a potential nuclear attack. The United States and its allies need to find the right ways to undermine this confidence and to counter Russia's narrative. This requires more intense public messaging that any nuclear use by Russia would have catastrophic consequences. Since even limited battlefield effects of a nuclear attack would have strategic consequences for global security, the United States and its allies must be ready to respond. This, however, does not necessarily require a nuclear tit-for-tat strategy—the United States and its allies can inflict significant damage with conventional means or non-nuclear strategic attacks.

One important task for the future is to think seriously about the stakes in Europe beyond NATO. Another challenge is to revisit public messaging strategies and figure out how to signal intent and communicate effectively with authoritarian regimes. The key lessons that allies are taking from the war in Ukraine are the continued value of dual-capable aircraft, the importance of forward-basing military assets, and the need for additional modernization efforts. Without Russia's war against Ukraine, many of these issues would have been difficult conversations to broach in European capitals. However, given the ongoing war and the level of destruction Russia has inflicted, there is a growing support for prepositioning military assets to frontline states. Over the next few years, the Alliance may have to consider building more military facilities to demonstrate that it is ready to defend the Eastern flanks.

In response to the war in Ukraine, NATO initiated five main lines of effort: 1) adapting NATO's deterrence posture and planning to ensure that deterrence remains safe, secure, credible, and effective; 2) enhancing the complexity and realism of exercises; 3) enhancing strategic communications; 4) modernizing nuclear command, control, and communications (NC3) systems to ensure survivability and invulnerability; and 5) pursuing strategic risk reduction to enhance stability in a world without arms control.

Connecting the lessons of the war to the practice of deterrence, it is clear that strategic nuclear deterrence does not prevent conventional conflicts outside of the U.S. nuclear umbrella. Going forward, the biggest challenge for the United States is to figure out how to deter successfully in a world with two nuclear peers who are increasing their arsenals. For now, Russia and China have different risk acceptance profiles. China is still a rising power with a longer time horizon and a more risk hesitant behavior. Russia, on the other hand, is more risk acceptant and nuclear threats play a more prominent role in its rhetoric and its regional military strategy. The United States and its allies will need to carefully distill the right lessons from the war in Ukraine to determine when deterrence might succeed and fail in the two-peer security environment.

## Panel 2: The Emerging Two-Peer Problem

- Is China's emergence as a second nuclear peer additive or transformative from the perspective of U.S. nuclear deterrence theory and practice?
- What should be done by the United States and its allies and partners?
- Given growing missile defense capabilities in Russia and China, who has the advantage in this realm and how long will it last?

In a two-peer world, a key question is how to adjust deterrence theory to address this evolving security environment. The three-body problem (i.e., one defined by the United States, Russia, and China as nuclear peers or near peers) cannot be simply reduced to the sum of two individual parts—the formula instead rather looks like “1+1=3.” There are two ways to think about China's emergence. On the one hand, there is an “emerged problem,” which is China's completion of three new fields of ICBMs and its increasingly close strategic partnership with Russia. On the other hand, there is an “emerging problem,” which is the continued modernization and diversification of China's nuclear arsenal that could lead to a stockpile of about 1,500 nuclear weapons by 2035. The panelists argued that both problems require an immediate response.

In terms of deterrence theory, these new developments do not call into question the basic validity of deterrence, but there are two important implications. First, when China's arsenal was lower, damage limitation was plausible. But the two-peer problem sharpens the debate about the value of a counterforce component in deterrence. Second, there might be incentives or arguments for the United States to prioritize one peer or region over the other. However, panelists countered that prioritization would only create a more dangerous world, and the United States needs capabilities to address both peers at the same time.

Regarding the practice of strategic deterrence, the emerged problem requires a response of some kind—not only for deterrence, but also for the signaling value of U.S. resilience and willingness to engage. One option is uploading weapons that were downloaded under the New START agreement. In terms of hedging, panelists recommended some capacity to hedge against future growth by adversaries—both to address China's growing theater-range forces and to address Russia's new types of exotic systems.

The two-peer world also has important implications for extended deterrence. U.S. extended nuclear deterrence was designed in the early 1990s. Apart from a few minor modifications, it has changed very little. This legacy posture may prove inadequate to address the two-peer problem. Allies warn that China has always managed to exceed estimates and timelines in the past, and the United States needs to be more serious about extended deterrence. In the Asia-Pacific region, the United States has enjoyed a past position of superiority, but China is now challenging the regional balance of nuclear and conventional forces. This is a new situation for the United States and its allies which creates three important challenges. First, China's nuclear buildup can allow for a mutual vulnerability relationship with the United States. This situation requires extended deterrence to be operated in a different way. In the Cold War period, for

example, when a mutually assured destruction relationship emerged between the United States and the Soviet Union, the U.S. decided to forward deploy theater nuclear capabilities on the territory of allies. The second challenge is the gap in theater nuclear forces between the United States and China. China has accurate conventional ballistic missiles and strong air defense systems, which could make certain modes of delivery difficult and put pressure on strategic nuclear forces. The third challenge is the lack of coordination on nuclear options and operations in the Asia-Pacific. In the conventional domain, there is shared planning between the United States and its allies, but this does not extend to nuclear operations, exercises, and planning. One of the panelists argued that the United States should do more to prepare allies for nuclear operations in the region, which should include deeper coordination and maybe even nuclear capabilities on the ground.

Among the panelists, there was an agreement that a possible crisis or war would result in significant demand signals from allies and that therefore more capabilities are needed to reassure them. These capabilities must, however, be flexible and survivable to be effective in these scenarios. Given this, the Nuclear-Armed Sea-Launched Cruise Missile (SLCM-N) capability should be reconsidered. In 2018, the SLCM-N was recommended as a hedge against the unfolding great power competition. Although the 2022 Nuclear Posture Review acknowledged the challenges of the two-peer world, it recommended cancelling the SLCM-N. Congress, however, restored funding of the SLCM-N program in the FY2023 budget. The issue is contentious because some argue that there is no time to waste in adjusting U.S. nuclear posture and building new capabilities, but others are worried about cost overruns and program delays. There is also a camp that believes that building new nuclear weapons is simply not the right answer. From a military perspective, adversaries have perceived advantages in limited nuclear use, which creates a strategic gap between the United States and its adversaries. The SLCM-N seems to be an adequate solution to close this gap.

While this would be a useful stopgap for the moment, other adjustments might also be needed. Future force planning should consider five important factors: 1) the need to enhance survivability, 2) the importance of closing the perceived regional deterrence gap, 3) the expectation that China will continue to increase its arsenal, 4) the greater pressure on the hedge to address geopolitical changes, and 5) the end of the New START Treaty.

Panelists noted that arms control could be an excellent tool to manage the emerging competition, but there are no willing partners at the moment in Moscow and Beijing. However, this absence does not relieve the United States from providing its own vision of what kind of role arms control could play in the new world order. Laying the foundations for future talks could help mitigate the fact that adversary proposals for arms control would likely not be beneficial for the United States and its allies. A U.S.-led proposal should also account for the growing need to include China in the arms control process. Developing an agenda for arms control is also important to maintain bipartisan support for nuclear modernization. Allies also continue to value arms control as a tool to manage competition, even if they recognize that the current environment might not be favorable for cooperative security. The bottom line is that

this new problem is hard, politically uncomfortable, and will require political leaders to work together across partisan divides.

### **Panel 3: The Volatile Nuclear Order and International Diplomacy**

- How damaged is the Treaty on the Non-Proliferation of Nuclear Weapons (NPT)?
- What impact might Iran's next choices have on the regime?
- How much momentum does the Treaty on the Prohibition of Nuclear Weapons (TPNW) have?
- Are the United States and its allies competing effectively for control of the narrative?

The nuclear order, including the NPT, is a main battleground for great power competition as Russia and China look to undermine the United States and the rules-based order. As a result, the NPT is damaged and very fragile. The past two NPT Review Conferences (RevCons) failed to reach consensus (i.e., unanimous agreement to a joint statement), and several nuclear-armed states remain outside the NPT. Over the past two review cycles, the NPT has become highly polarized. Some are even calling on states to leave the NPT and join the TPNW to change the status quo. Despite these difficulties, there is no real concern that the NPT will collapse overnight. However, if the main problems are not addressed, the NPT could gradually slide into irrelevance.

There are several key drivers behind the NPT's fragility. The first is the security environment and the fact that disarmament does not happen in a vacuum. Great power competition and Russia's invasion of Ukraine have amplified existing problems among the P5 and deadlocked several arms control agreements. As a result, the P5 is constantly accused of not making serious efforts to disarm and not living up to Article VI commitments. Critics also argue that the NPT is simply not fit for purpose in the face of rapid technological changes. In the past, bilateral arms control efforts between the United States and Russia helped the NPT, but this is changing. Right now, many non-nuclear weapon states have an all-or-nothing approach to arms control, which means that even if a follow-on New START agreement is brokered in the future, it would still not be considered a serious demonstration of Article VI commitments.

The next step for the NPT is the preparatory meeting in Vienna. Efforts are currently focused on ways to improve NPT processes. Over the past few years, P5 progress on NPT-related issues has slowed. Pursuing risk reduction was seen as a unifying effort in the NPT, but this effort has lost its credibility among non-nuclear weapon states. Therefore, it is not clear what the priorities will be for state parties, and the NPT may become a forum without a focus.

In the meanwhile, the momentum of the TPNW has also slowed, specifically because of Russia's invasion of Ukraine. The TPNW has primarily targeted European NATO allies, but Russia's

invasion has united them and silenced the supporters of the TPNW. The TPNW has several inherent weaknesses, particularly the lack of verification measures and the lack of engagement from nuclear weapon states. It does not offer a practical pathway to disarmament. A panelist also argued that the TPNW has a credibility problem due to its hypocritical approach towards China and Russia. Last June, the TPNW had a meeting of states parties, but they did not condemn Russia's invasion of Ukraine or China's expansion of its nuclear program. Members could not come to a consensus because the states in the Global South did not want to go on the record criticizing either Russia or China. But despite the TPNW's loss of momentum, it will probably regain momentum once the Ukraine war is over, and the campaign's likely targeting NATO member states once again will perfectly align with Russian and Chinese interests.

Looking at the nuclear order as a whole, there are more threats than just the current status of the NPT. The Democratic People's Republic of Korea (DPRK), or North Korea, continues to remain a challenge, and an Iranian breakout or a full collapse of the Joint Comprehensive Plan of Action (JCPOA) would also be detrimental. The nuclear order has many building blocks—norms, risk reduction, other multilateral and bilateral treaties, and deterrence. Extended deterrence is crucial for non-proliferation. Russia and China are both competing for leadership of the global nuclear order, and they are aligned with the TPNW in targeting the United States and its nuclear sharing arrangements. To counter these efforts, the United States must build a coalition of states that support the rules-based order, and it must also engage the Global South. If the current environment forces the U.S. to implement changes in its nuclear posture and forces, there should be a focused effort to explain these choices, and craft careful and effective narratives to counter Russian and Chinese messaging. We are starting to see the securitization of the NPT, which has led to a fight about narratives.

Effective communication matters tremendously. Right now, there are multiple narratives confronting the United States—many generated by Russia and China, but others from the Global South. Most of the international community struggles to condemn China's nuclear expansion, and the failure to do so within the NPT is worrisome. Another aspect of narrative confrontation is about the efficacy of nuclear deterrence. In this regard, the United States and its allies are not doing enough to convince the world that nuclear deterrence can provide strategic stability and that extended deterrence is an effective tool of non-proliferation. The United States needs to do more to convince the international community that nuclear deterrence works even in the face of emerging technologies and in an increasingly complicated security environment. International diplomacy will be significantly shaped by whether the United States and its allies are able to control the narrative.

There are multiple ways to compete effectively for control of the narrative. One is to be firm in arguments but reasonably humble. Many in the Global South are hedging between Washington on one side and Beijing and Moscow on the other, but—in most cases—honesty attracts and hubris alienates. The United States should talk more about nuclear responsibility. The United States's failsafe review of nuclear weapons, NC3, and integrated tactical warning/attack assessment systems was an important demonstration of responsible stewardship. However, its

intention to build enduring advantages for strategic deterrence leaves the Global South uneasy, and many are disenchanted by themes of great power competition and arms racing. The United States should more actively try to engage the rest of the world and more proactively pursue a nuclear risk reduction narrative, which could be done in the framework of the NPT. NATO strategic communications would be better postured by conducting outreach and providing moral arguments. If the alliance could make more efforts to engage in the debate on the TPNW, strategic communications would also be better positioned to make a greater impact. Even if progress with Beijing or Moscow cannot be made, it would strengthen the NPT if the United States was seen as a leader in talking about and pursuing risk reduction measures. Arms control is still important and unilateral steps—such as the failsafe review—can be taken to signal Washington’s seriousness. Allies should also staff up institutional capacity for arms control and talk more about what is already being done. Western governments should not wait for Russia to return to strategic stability talks. Nuclear arms control should be insulated from great power competition. There is a common interest among the P5 in reducing the risks of miscalculation, sustaining the narrative of working towards disarmament, and minimizing proliferation. The U.S. leadership should revive the P5 process, which would move allies back to the center of the narrative.

#### **Panel 4: Sustaining and Strengthening Nuclear Deterrence**

- In integrating deterrence, what is being done to implement the commitment to improved conventional-nuclear integration?
- In campaigning for deterrence, what is being done to implement the commitment to strengthen deterrence, including extended nuclear deterrence?
- In creating enduring strategic advantages, what is being done to implement the commitment to develop “modern weapons and a modern infrastructure” and “a balanced, flexible stockpile capable of pacing threats, responding to uncertainty, and maintaining effectiveness”?
- How can we channel the competition toward areas of U.S. and allied economic and technological advantage?

The panelists noted that the threat environment is not moving in the right direction. This seems to be the most complicated security landscape the United States has ever faced. The United States and its allies are confronted with a complex threat environment, one dominated by two nuclear peers, rising regional challengers, and an evolving array of threats from non-state actors. This is compounded by global challenges, climate change, human and health security risks, and economic issues that are spurred by energy and food insecurity. Emerging and disruptive technologies provide both positive and negative outcomes for traditional business and society, while also introducing a great deal of uncertainty.

In terms of nuclear threats, the Russian invasion of Ukraine—from the beginning—has carried the risk of escalation to a direct NATO-Russia confrontation. The situation with China is also getting worse due to the expansion of China’s nuclear forces and China’s rejection of engaging



with the United States on nuclear issues. In addition, China and Russia are working together more closely. There is ongoing Russian support to China in providing highly enriched uranium (HEU) fuel, which has now reached the military domain. The United States called on China to open those reactors for voluntary inspections, but China has refused to do so. In the near future, the United States is going to face two nuclear peer competitors. In addition to these threats, there is a growing threat from the DPRK and Iran, as well.

A panelist argued that the Biden administration's Nuclear Posture Review (NPR) is up to the challenges of this current moment, partly because the Department of Defense (DOD) started the NPR process with these possible threats in mind. These worst-case assumptions were baked into the analysis. In order to strengthen deterrence, DOD conducted the National Defense Strategy (NDS), NPR, and Missile Defense Review (MDR) in tandem to help improve integration across the toolkit. Nuclear weapons serve a unique role in U.S. defense strategy because their effect cannot be replicated by any other tool. Their fundamental role is to deter an attack on the United States and its allies and partners, and they complicate adversary decision calculus. This strategy is supported by maintaining safe, secure, and effective nuclear forces. The NPR also called for the incorporation of suitable non-nuclear capabilities, which helps to sustain deterrence while reducing nuclear risks. Deterrence alone will not reduce nuclear dangers. The United States will have to pursue arms control and non-proliferation objectives as well. The current arms control and strategic stability framework has collapsed under the weight of new arms racing, but the United States needs to be ready for cooperation when the political conditions will allow again.

To meet national security needs in this more complex environment, the President's budget request asked for full funding for the modernization of the nuclear triad, NC3, the nuclear infrastructure, and science and technology programs. The United States is also investing in conventional, cyber, and outer space capabilities to counter the threats it is facing. Part of U.S. strategy to deter limited nuclear use by Russia is to deter a conventional war in the first place. In addition to investing in deterrence hardware, the United States is also investing in improving deterrence software, which includes better integration of nuclear and non-nuclear capabilities, and better integration with allies.

The United States is increasing its coordination with allies to develop tailored options to shape adversary decision calculus. Better synchronization of planning, exercises, and operations help raise adversary thresholds for nuclear use by undermining their confidence in escalation control. In U.S. extended deterrence relationships, improving integration and strengthening allied cooperation are working in tandem. In the Indo-Pacific, there are new efforts underway to deepen extended deterrence dialogues. The Washington Declaration opens new ways for the Republic of Korea (ROK) to provide conventional support in nuclear operations. There will be joint table-top exercises for nuclear contingencies, U.S. strategic assets will be more visible on the Korean Peninsula by ballistic missile submarine (SSBN) port visits to the ROK, and military-to-military cooperation will also be strengthened. These measures are aimed at better protecting the alliance against new threats. The United States is also increasing its cooperation with Japan on emerging technologies and counter-hypersonic capabilities. European extended

deterrence is currently focused on Russia. Russia's actions in Ukraine are destabilizing in many domains, and NATO is undertaking a range of activities to strengthen deterrence. Existing consultative bodies have been re-energized, such as the NATO High Level Group, and the United States is also strengthening bilateral nuclear cooperation with the United Kingdom (UK) and France.

This new environment stresses stability and provides new challenges for deterrence and assurance. The United States and its allies are working together to lay the foundation to respond to future threats. The NPR provides a playbook to meet these challenges in a pragmatic and programmatic way. It is clear that the United States does not need to match adversary doctrines and capabilities tit-for-tat, but it needs the right mix of capabilities to shape competitor deterrence and risk calculus.

To develop these capabilities, important changes are needed in the nuclear enterprise. The nuclear security paradigm under which NNSA has operated since its founding has changed fundamentally. After the Cold War, U.S. infrastructure was shrinking, and the goal was to secure nuclear and radiological materials and prevent regional states from acquiring chemical, biological, radiological, and nuclear (CBRN) capabilities. Today, NNSA is moving towards a new paradigm where it needs to rebuild its infrastructure against multiple nuclear adversaries without nuclear arms control, secure nuclear and radiological materials, and address regional proliferation challenges where the likelihood of diplomatic cooperation is low. NNSA plays a critical role in responding to these new challenges.

The two key elements of success are responsiveness and integration. To ensure that NNSA is responsive to the evolving geopolitical environment, mission capabilities need to be delivered more effectively. There are several major construction programs underway, and NNSA's global security programs are also evolving. A prime example is NNSA's response to Russia's war in Ukraine: NNSA has been essential to the U.S. response in Ukraine by helping to deploy radiation sensors in and around Ukraine, and training Ukrainian personnel.

But none of these programs will be effective if NNSA does not have the right workforce. NNSA needs to be responsive in the job market as well. Last year, a mid-year salary adjustment was approved, and more flexible benefits packages have been implemented. This helped to lower attrition, but this will be a challenge going forward.

NNSA thinks about integration in three ways, the first being integration between DOD and NNSA. The Nuclear Weapons Council is doing a good job ensuring there is more effective coordination, and there are discussions underway about the type of stockpile the United States will need in the evolving strategic environment. Second, effective integration with allies and partners is needed. NNSA conducts multilateral and bilateral cooperation with many allies and partners. The International Atomic Energy Agency (IAEA) is one of the key areas where NNSA can provide force multipliers, which is critical to the functioning of the organization. Third, better integration is needed between the nuclear deterrence enterprise and the arms control and non-proliferation enterprise. During the Cold War, IAEA and NNSA worked tightly together

because the U.S. government recognized the importance of merging the hard security toolkit with diplomacy and economic measures to meet national security objectives. Effective nuclear security is difficult if deterrence and arms control are not integrated. For many allies, arms control remains crucial in building domestic support for deterrence.

To meet the new challenges, the nuclear weapons complex also needs more agility and resiliency in the infrastructure. There is a growing demand signal for deterrence. The United States has lost its production capacity and now must rebuild some of that. It spent the last 30 years downscaling and downsizing, and now must reverse these actions. Re-energizing production lines is incredibly important to meet deterrence needs. Within the production base, the United States lacks muscle memory and production capacity, and figuring out how to retain the knowledge-base from the 1960-1990 era of stockpile development is crucial. A small fraction of past agility needs to be found again. The enterprise should also be more outspoken about the resources that are needed to scale up.

The administration is asking every modernization program to be delivered on time, and the margins are disappearing. Programmatic risks are present, which can lead to operational risks if they are not addressed. The enterprise has made significant progress, but there is a long road ahead. The national laboratories have done a great job on warhead modernization. The W76-2 was achieved quickly: the administration identified a serious problem, and the enterprise provided a quick solution. Overall, it was a huge success. Over the next 10 years, NNSA will execute a series of warhead and weapons programs to support U.S. nuclear deterrent, including the W93 warhead, which is critical to both U.S. and UK national security. Since there are interdependencies between all these programs, it is crucial to deliver everything on time.

However, sustainment alone is not enough in the current environment. The program of record was established in 2010. With minor adjustments, the United States is implementing the Obama modernization program, which is absolutely necessary but may not be enough anymore. The environment has changed dramatically. The Nuclear Weapons Council uses a strategic framework to rank operational objectives, but the United States can no longer make individual decisions specific to certain programs; it is important to understand the integrated suite of decisions and programs. On the working level, the requirements process must be updated. A variety of studies are needed to inform hard decisions. The enterprise must identify risk mitigation opportunities and develop contingency plans. Long-term solutions will need to be balanced with near-term requirements. The United States must regain some sense of urgency. The dawn of the modernization age has begun—the opportunities are enormous, but innovative ideas are needed as the enterprise transitions to this new era. NNSA is well positioned to help to respond to this new security environment if it becomes more responsive and it learns to integrate more effectively.