On the centennial of the start of World War I—a war that began largely as a result of crisis miscalculations and escalations—we are entering a new era of strategic relations that holds important implications for deterrence, escalation control, and coalition management in a crisis confrontation. Today, as at the time of World War I, we confront a large number of actors who have the potential to misread cues and red lines, while relying on treaty relationships to come to their rescue if they miscalculate or go over a red line that may or may not have been accurately conveyed. Then, as now, military technologies were widely diffused. Prevailing assumptions about how an adversary (or potential adversary) would react in a crisis or confrontation were based on imperfect intelligence and inadequate understanding of his red lines. During the Cold War, global stability was predicated on the state of the U.S.-Soviet strategic relationship, which underwent periods of instability, predictability, and even confrontation. However, the bipolar nature of the international system was such that even in periods of instability, there was a certain predictability about U.S.-Soviet relations, based on a presumption of rationality in each side’s decision-making and, over time, an exquisite knowledge about the other side’s capabilities, interests, and Achilles’ heels. Both sides understood that the other could destroy it if nuclear forces were used, and even with the development of active and passive defenses (particularly in the Soviet Union), the existence of survivable second-strike forces meant that “victory” might never be attained.

In the post-Cold War era, marked by the dissolution of the Soviet Union and the diffusion of nuclear technology, U.S. strategic planning assumptions were increasingly challenged. The emergence of multiple nuclear power centers meant that individual states could make decisions that would have far-reaching consequences for regional and global stability. As the possibility of catalytic warfare increased, the United States began to understand that it might very well be drawn into a nuclear war by a third party that had little regard for U.S. interests or the

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1 Catalytic warfare was a term of art first coined by Herman Kahn. As described by Kahn, catalytic warfare refers to the “notion that some third party or nation might for its own reasons deliberately start a war between the two major powers.” According to Kahn, “the widespread diffusion of nuclear weapons would make many nations able, and in some cases also create the pressure, to aggravate an on-going crisis, or even touch off a war between two other powers for purposes of their own.” See Herman Kahn, *On Thermonuclear War* (Princeton, NJ: Princeton University Press, 1960), 217, 231.
stability consequences of its actions. India’s rivalry with Pakistan fits this model, as
do Iran’s antagonism with Israel, China’s struggle against Taiwan, and the North
Korean conflict with South Korea. Where once nuclear weapons possession was
crucial to the idea of catalytic warfare, it no longer is as the development of new,
non-nuclear, strategic technologies and space and cyber warfare capabilities,
provides states and even non-state actors the capacity to generate strategic effects
by means of non-nuclear technologies, creating new dilemmas for escalation control
and management in a crisis. Along with new non-nuclear technologies or enablers
that could be used for precision and strategic effect, state and non-state actors have
access to systems that could disable command and control networks and crucial
critical infrastructure networks, using cyber or electronic warfare measures. As a
result, non-nuclear weapons options can put the onus for nuclear escalation
decisions on the defender, and with it, the need to find ways to de-escalate a crisis if
nuclear war is to be avoided. However, despite such technological opportunities,
there has been an inadequate focus both inside and outside government on how
nuclear and conventional escalatory options can be synchronized to shape and
control escalation management in a multinuclear world, or against an adversary
that may possess escalation dominance.

Reinforcing the requirement to think about escalation control strategies in the new
era are Russia’s and China’s nuclear modernization efforts, juxtaposed to reductions
in U.S. strategic force structure and the effects of sequestration, which, if current
FY2016 budget projections hold, will further curtail many U.S. military
modernization efforts, in order to pay rising manpower costs and to finance ongoing
operations (even if there is a separate contingency fund to cover the costs of some
overseas operations). Changes in the nuclear balance between the United States and
China, and in the U.S.- Russian strategic nuclear relationship, with Russia, for the
first time, surpassing the United States in numbers of deployed warheads, could
have consequences for the options that a U.S. leadership perceives it has in a crisis
where the use of force is a real possibility. While the U.S. strategic relationship with
Russia has been tested over time, there is still the prospect for overreach or
unintended escalation in a crisis ignited by an ally or partner having its own
interests in a particular situation. Eastern Europe or the “gray area” states, such as
Moldova, which are NATO partner states but have no formal Article 5 treaty
commitment from the Alliance, could be the focus of a future crisis over-reaction.
Moreover, as U.S. nuclear forces are reduced (either unilaterally or via a new arms
control accord), the resulting force levels may well result in a situation of nuclear
parity with China, whose own nuclear forces continue to multiply.

At a time when the Sino-American relationship is fraught with new challenges that
could easily result in a military confrontation, to include a crisis involving a U.S. ally
or partner, into which the United States is inevitably drawn, the consequences of
strategic parity could be profound both in terms of the political willingness of the
United States to intervene in a crisis and with respect to its tools for managing the
escalation and de-escalation chains. Against this backdrop, new thinking about
escalation management and escalation control looms as a top priority, as essential
today as it was at the beginning of the nuclear age. In fact, it may even be more important, as the risks of catalytic warfare increase and the dynamics of nuclear coalition management become more complex and less readily manageable than they were in the Cold War. Since last year, when the United States walked back from its “red line” commitment to use force against Syria if chemical weapons were used, the credibility of its security guarantees has been increasingly questioned, with some states even exploring alternative options—from “finlandization” or accommodation in the case of one or two states, to reported Saudi efforts to elicit an extended nuclear guarantee from Pakistan. In several regions of the world, nuclear powers have the potential to upend stability, and in a crisis to play a nuclear card to trump a non-nuclear-armed adversary, potentially drawing the United States into a regional confrontation that seemingly has little to do with vital U.S. strategic interests. The “lessons” that some may be drawing from Libya, Ukraine, and even Syria are that nuclear or other WMD capabilities provide an option that is unsurpassed by conventional forces in that they really can deter an enemy from attempting regime change or altering the status quo.

In either a peer competitor contingency involving either or both Russia and China, or a crisis with a nuclear Iran or North Korea, conflict escalation could take the form of a horizontal escalation, whereby the geographic scope of the crisis is expanded, or a vertical escalation, in which advanced non-nuclear or nuclear weapons are used to achieve a strategic effect. In either instance, the need would exist to control the escalation spectrum, protect and reassure allies and key partners, and implement options for de-escalation and/or to terminate the crisis on terms favorable to U.S. interests. This suggests that more so than in the past, the discussion of deterrence and escalation requires a focused and sustained dialogue between the strategic-military-political and the technology communities. The requisite capabilities for strategic stability cannot be developed in the absence of continuing informed interaction between these two communities as took place during the Cold War. Yet, the current discussion of political and strategic frameworks for deterrence stability, escalation, and crisis management, insofar as there is such a discussion in policy circles, has been largely devoid of inputs from the technical community, a situation that will only worsen as the technical expertise so essential to strategic weapons development continues to atrophy as a result both of the aging of the Cold War-era weapons community and the lure of engineering jobs in the commercial arena.

This is particularly worrisome in the context of future deterrence planning and against current trends that see a vast diffusion of military technologies and the intrusion of cyber operations into defense and deterrence planning in other countries and areas of the world. In the Asia-Pacific region, where China is emerging as a peer competitor to the United States and its allies, and in the context of Middle East and European stability planning, technological developments are overtaking outdated planning concepts, especially in the deterrence arena where there appears to be a dichotomy between Western views of minimum deterrence and mutual assured destruction (MAD) and the warfighting value of weapons of mass destruction and weapons of mass disruption, including nuclear weapons, which are
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viewed as actual warfighting tools and not existential systems. In this context, too, while our understanding of, say, China’s strategic forces is less than perfect, it is clear that the PRC is pursuing a range of strategic modernization programs, some nuclear, some non-nuclear, that will give it great flexibility in a crisis confrontation with the United States. Even so, relatively little thought has been devoted, for example, to the impact of Chinese nuclear modernization and space programs for nuclear stability and crisis management, the presumption being that the MAD framework would apply and that Chinese strategic programs had a long way to go before reaching a condition of strategic equivalence with the United States.

More recently, some analyses of Chinese strategic programs have suggested that the PRC may be approaching a situation of strategic parity with the United States, especially when taking into consideration its comprehensive efforts in space, electromagnetic pulse (EMP) weapons, and nuclear modernization, and the impact of sequestration on all U.S. military research and development programs. China’s ability to resort to cyber and space warfare increases its options in a crisis and could even undermine such advanced U.S. planning concepts as Air-Sea Battle, providing the basis for access denial and basing vulnerabilities. Above all else, it could impact thinking in allied or partner countries, including the need to pursue their own nuclear weapons option—Japan springs immediately to mind in this regard—to provide for their own national security, especially if they came to doubt the credibility of the American extended security guarantee. This, in turn, could lead South Korea to explore its own nuclear option, or provide another impetus for Taiwan to reconsider the nuclear path, if it had not already done so in response to further Chinese interference in Hong Kong’s governance.

Similarly, Russia is modernizing its nuclear arsenal, while putting into place a “de-escalatory doctrine,” based on tactical nuclear weapons use, announced in 1999 after the Kosovo war as a means of staving off conventional weapons defeat in a war or crisis confrontation. According to Moscow’s thinking, if Russia were to use a nuclear weapon in a conflict, its adversaries would stop fighting, presumably to avoid further escalation. Indeed, in 2009, Russia experimented with this concept in the Zapad exercise, which simulated a nuclear attack against Warsaw, Poland. From the Russian perspective, this exercise was a great success. However, from a Western perspective, Zapad ’09 was assessed to lower the nuclear threshold to a dangerously low level. Clearly, the events of the last year offer persuasive evidence that Vladimir Putin intends to restore Russia’s sphere of influence in Eastern and Central Europe.

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2 Because of the lack of transparency with respect to Chinese military projects and the likelihood of concealment and deception when it comes to systems and their deployments, the precise numbers and capabilities are “unknown knowns”, but based on information distributed by the Chinese government and from U.S. and Allied/partner intelligence, we have some idea of the dimension of the deterrence problem, though not its magnitude. Various assessments made by RAND, CSIS, and Dr. Andy Marshall’s Net Assessment Office at the Department of Defense suggest a far greater deterrence problem than is generally accepted by the U.S. government. For example, if reports of China’s deployment of a MIRVed, road-mobile DF-41 are correct, the number of deployed warheads in China’s ballistic missile inventory may be far larger than projected by various intelligence services.
Russia’s illegal land-grab in the Crimea, using so-called hybrid warfare and covert means, together with its invasion of Eastern Ukraine and its ongoing efforts to pressure the Baltic states and NATO’s East European members, supports this contention and calls into question the notion of partnership that was enshrined in U.S. and NATO approaches to stability planning on and for the continent since the break-up of the Soviet Union. Concerns exist that Russia is introducing tactical nuclear weapons deployments into Crimea, raising the stakes in any further confrontation over Ukraine or even freedom of navigation in the Black Sea. There are also concerns among Western strategic planners that Russia could present a fait accompli in the Baltics or Moldova that could go unchallenged by NATO since Moldova lacks NATO’s Article 5 protection. Consider, for example, recent statements by representatives of some NATO-member governments who disavowed support for Alliance deployments in Baltic countries and refused at the Wales summit to endorse more aggressive support for Ukraine.³

Even more worrisome, from an Alliance perspective, is the situation confronting some NATO allies. Both with respect to the Baltic states of Lithuania, Latvia, and Estonia, and Turkey, which anchors NATO’s southern flank, the credibility of the Alliance could be challenged by a Russian thrust into the Baltic or even a failure to agree on measures to defend Turkey in a crisis contingency—both options that are within the realm of the possible at present. Take, for example, the case of Turkey, which is a NATO ally and falls—as do the three Baltic states—under NATO’s Article 5 guarantee. Yet, because of Turkey’s recent unhelpful behavior in the Alliance and in light of the constraints that it continues to impose on U.S. and coalition use of Incirlik, for example, in combating the self-proclaimed Islamic State in the Levant (ISIL), it is a debatable proposition that NATO’s North Atlantic Council (NAC), that is, the Alliance’s key decision-making body, would vote to implement Article 5 should Turkey call for it as a result of an ISIL threat.⁴ Less clear, too, is what Alliance nations might put on offer to defend Turkey in this situation, although the United States should come to Turkey’s aid, given our historic relationship, from the time of the Korean War, and ongoing efforts to shape and influence decision-making in Europe’s one Muslim country. Given Vladimir Putin’s public pronouncements about defeating radical Islam in Chechnya and the Caucasus, this is one issue where

³ Poland’s change in government, after Donald Tusk’s departure to Brussels to assume a European Union portfolio, is headed now by Ewa Kopacz, who is revising Poland’s policies in relation to Russia, based on concerns that the country will become isolated in Europe. Following Germany’s lead, there is great reluctance to antagonize Putin, and as with the center-left governments of Hungary, Slovakia, and the Czech Republic, the new government of Poland appears unwilling to risk conflict with Russia over what they consider to be less than vital interests. What this says about NATO membership is interesting, raising questions about the purpose of the Alliance as viewed in some member-state capitals and, indeed, of the obligations assumed under its partnership construct.

⁴ The Alliance operates on the basis of consensus decision-making, which means that one or a handful of NATO allies can stymie specific decisions in the Alliance’s North Atlantic Council, or NAC. It is also noteworthy that the only time that the Alliance considered implementation of the Article 5 provision was after the 9/11 terrorist attacks against the United States. The Alliance voted to uphold its Article 5 commitment, but the United States did not act to exploit the NAC vote.
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Russian and U.S. interests ought to converge, but this may not happen if Russia continues to stir the pot in Eastern Europe, while doing everything possible to undermine U.S. room for maneuver in Syria and with respect to Iran’s illicit (under the Non-Proliferation Treaty) nuclear weapons-related programs. Putin’s use of covert forces and of unconventional means to annex Crimea and control the pro-Russian portions of Eastern Ukraine raise fundamental questions about escalation management and the tools that we have relied upon to shape the outcome of this crisis. Sanctions and political-diplomatic demarches have their roles to play, but at the end of the day, as Dr. Kissinger notes in his new book, *World Order*, reliance on the military tool to protect vital interests and to shape outcomes remains essential for a world power. The question that then emerges is how have these tools changed over time and is there a way of better exploiting the political shadow that is cast by military power in specific contingencies? How can this be done in the context of twenty-first-century security planning? To answer these questions we need to rethink our ideas about (1) new and emerging technology options for deterrence planning; (2) alliance and coalition management in a multinuclear world and the potential for catalytic warfare; and (3) the erosion of America’s strategic position vis-à-vis potential competitors and adversaries.

As suggested above, the new strategic era in which we are living heightens the need for creative thinking about nuclear coalitions, taking into account the possibility that the United States may need to deal with additional, less predictable nuclear partners in the future, each with its own ideas about deterrence and escalation control. NATO’s Cold War experience is instructive in that it forced us to consider cooperative planning with a nuclear ally (namely, France) whose nuclear forces were not (and still are not) subject to Alliance targeting or policy planning decisions. Even with France’s re-entry into the Alliance’s integrated military command structure in 2009, its leadership has reserved the right to keep French nuclear weapons outside of NATO’s decision-making apparatus. There remains, therefore, an ongoing need to consider anew how different coalitions of nuclear powers might function together in the future, including against adversary coalitions composed as well of multiple nuclear powers. The possibility that the United States in a multinuclear world could also face enemy coalitions in which two or more members possessed nuclear weapons cannot be ignored, and this gives rise to even more complex issues relating to crisis escalation and escalation control. This points to the need to think about the issue of coping with new and emerging nuclear actors whose perspectives on nuclear weapons use and strategic and operational planning may differ fundamentally from those of the United States. Countries such as Iran or North Korea may not necessarily share our views that nuclear weapons use should be restricted to major contingencies in which only vital national interests are at

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5 According to Henry Kissinger, “American military power provided a security shield for the rest of the world, whether its beneficiaries asked for it or not. Under the umbrella of an essentially unilateral American security guarantee, much of the developed world rallied into a system of Alliances; the developing countries were protected against a threat they sometimes did not recognize, much less admit.” Henry A, Kissinger, *World Order* (New York: Penguin Press, 2014), 362.
The Cold War-era MAD framework (that envisaged nuclear weapons retaliation as a means of checkmating their use in the first instance) presumed a rationality of decision-making and a shared value in survival between adversaries. Arguably, this line of thinking might be applied to a state actor that possessed a handful of nuclear weapons, or one that shared Western conceptions about the horrors of nuclear weapons use. However, it might not be applicable to a country whose leadership embraced a different world-view, let alone an apocalyptical vision of nuclear weapons use. In the twenty-first-century security setting, the United States is more than likely to face multiple potential nuclear opponents, some having such views, as well as nuclear allies or partners who think very differently about nuclear weapons and their potential uses, making escalation control and alliance nuclear management issues all the more difficult.

Secondly, it also demands a new look at the advances in non-nuclear technologies and in cyber, space-based, and space-related capabilities that have created unprecedented opportunities for deterrence and escalation management. This need not rely exclusively or even largely on nuclear weapons. Hypersonic missiles carrying precision conventional munitions, for example, have the potential to deliver nuclear weapons-like effects. As a result, non-nuclear response options can put the onus for nuclear escalation decisions on an adversary, and with it, the need to find ways to de-escalate a crisis if nuclear war is to be avoided. New and emerging non-nuclear technologies enhance our ability to disable an opposing nuclear force (and eliminate or substantially downgrade the threat of nuclear retaliation) without necessarily resorting to nuclear weapons use. Such technological opportunities highlight the need to understand how nuclear and conventional escalatory options can be synchronized to shape and control escalation management in a multinuclear world, or how an adversary’s ability to leverage nuclear and advanced non-nuclear technologies together could significantly complicate efforts at escalation control and, by extension, coalition management. Even among current international relations theorists relatively little attention has been paid to the synergies and linkages between advanced strategic non-nuclear weapons and nuclear modernization in either U.S. strategic planning or for other nations. In today’s world, new and emerging non-nuclear weapons have strategic value, and attacks on critical infrastructure, population centers, and military forces can be accomplished using non-nuclear weapons, while still attaining strategic effects.

This is not to suggest the end of relevance of nuclear weapons to the American deterrence equation. Indeed, nuclear weapons remain critical to credible deterrence and their role in escalation management is essential, assuming their deployment is accompanied by operational planning that provides for their use in extreme situations—situations where the very existence of the United States is called into question. Absent such a perceived willingness to actually use nuclear weapons, the American deterrence posture—and by extension, the U.S. extended deterrence concept—will be ineffective in the face of an adversary who views nuclear weapons and their possible use very differently. One essential ingredient of American deterrence planning, therefore, is the deployment of weapons systems that are
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reliable, secure, and have the tested potential to operate as advertised. For the United States this means the implementation of a nuclear modernization program to replace aging systems that are facing the end of their service lives. Warhead replacement programs are likely to be extremely contentious and expensive, if the Reliable Replacement Warhead (RRW) program of past years is any guide. Moreover, debate is likely to focus on costs in a defense-constrained budget environment and the Obama administration’s vision of a world without nuclear weapons. Even without this latter consideration, the plan for recapitalizing the Triad is unaffordable under current budget constraints and in the context of other weapons modernization programs. Though nuclear spending is formally exempted from sequestration, the scale of the necessary modernization, including nuclear complexes and support systems, is such that the services are actively trying to find ways to defray costs and eliminate missions.6 (The Air Force, for example, is trying to shed its tactical nuclear weapons deployments/mission tasking in Europe.) To meet the country’s strategic needs and to reinforce allied reassurance (and hence undermine incentives for proliferation), the United States needs to consider carefully its future deterrence requirements, producing a comprehensive assessment of those needs based on the synergy of nuclear and non-nuclear strategic technologies, including cyber and missile defense capacities as part of the overall equation. This may cause us to reconsider the Triad, but it must be done carefully and with great attention to looming challenges, peer competitor threats, and the opportunities afforded by technological innovation.

Such an assessment will also entail the need to explore in greater depth how coalition management can affect nuclear planning, as described. With the potential for catalytic warfare rising as the number of nuclear actors increases, the consequences for the United States become more profound, particularly if Iran gets the bomb and if the Chinese achieve a form of strategic equivalence with the United States, based on their vast nuclear and non-nuclear weapons modernization programs. In both contingencies, the ability of the United States to control the escalation chain is questionable, particularly if U.S. military modernization programs are undermined by continuation of sequestration and if its principal allies decide to operate independently, without consulting the United States. If, for

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6 As explained recently by Ron Haskins and Michael O’Hanlon, service equipment stocks have not been refurbished since the Reagan era, and already in fiscal 2015, we are nearly back to sequestration-level defense cuts, beyond the $50 billion cuts contained in the Budget Control Act and beyond the ongoing reduction in overseas contingency operations funding. Despite a small respite in 2014, with the addition of $30 billion back to the budget from what would have been sequester levels, for 2015, the relief was only $9 billion, as a result of the Ryan-Murray compromise. According to the authors, waiting until 2017 (after the congressional and presidential elections) will take too long for meaningful relief. This will mean “having to make further cuts in force structure and readiness and further delays to a healthy level of procurement.” See Haskins and O’Hanlon, “Commentary: Stop Sequestering Defense: Congress, President Must Strike Budget Deal,” Defense News, October 13, 2014, www.defensenews.com/article/2014/DEFFEAT05/310130020/Commentary-Stop-Sequestering-Defense,
example, Israel struck Iran’s nuclear infrastructure, Iran might retaliate against Israel and the United States. Even if it were not directly attacked, the United States could be drawn into an Iran-Israel conflict in order to prevent Israel’s destruction. In both examples, the escalatory process would not be easily controlled, and de-escalation would become an imperative if only to avoid the potential for a full-blown regional conflict. At a time in which America’s position in the world is perceived as changing and U.S. allies and partners are seeking options to reinforce or even to replace U.S. extended security guarantees that are increasingly viewed as being less credible, more nations are exploring their own advanced weapons options, to include nuclear weapons in some cases. Others, such as France and Israel, both of which are already nuclear powers, may be defining their national interests in ways that enhance and complicate the requirements for managing coalitions in a multinuclear world. Hence, the growing importance for the United States of having credible and immediately available escalation and escalation management options as a crucial aspect of twenty-first-century deterrence and defense planning.

Finally, coalition management and escalation control require a concerted political and military effort to reassure and dissuade. Allied/partner reassurance is a lynchpin of contemporary non-proliferation policy, and dissuading an adversary from attack is the essence of deterrence planning. The missile defense concept goes to the heart of both considerations, and with the advances in defensive technologies, it holds even greater potential to shape and impact enemy and allied perceptions in a crisis confrontation, but only if we are serious about exploiting its technological promise and if we are open to new concepts for its operationalization, such as boost-phase technologies. In addition to declaratory policy and strategic communications, missile defense development remains an important operational, political, and psychological option for influencing adversary calculations about proliferation as well as with respect to strategic-operational planning. Operationally, missile defense technologies have the important potential to influence enemy calculations, for example, about the effectiveness of missile-based attacks, especially in the context of a small strategic force structure. A larger nuclear force could exploit the offensive-defensive missile equation and threaten to saturate current missile defense architectures, but again, thinking out of the box, other options—space-based systems and boost-phase interceptors, while taking into account political and strategic arguments to the contrary—offer the potential to degrade larger adversary missile threats, when considered in conjunction with new non-nuclear strategic conventional options and prompt-response strategic missile deployments. Politically, missile defenses they can contribute to crisis management and enhance the potential for escalation control in a regional scenario.

Psychologically, by their deployment, missile defenses may influence enemy thinking about offensive operations and the end-game with respect to nuclear escalation and the ultimate destruction of national territory, peoples, and culture. Even in irregular-warfare settings, the deployment of missile defenses, either on board U.S. Navy Aegis platforms in Persian Gulf or Mediterranean waters or more advanced capabilities, could profoundly influence the deterrence dynamics between the United States and adversary leaderships.