5

Nuclear competition in an era of stalemate, 1963–1975

WILLIAM BURR AND DAVID ALAN ROSENBERG

During the years after the Cuban missile crisis, both superpowers treaded more warily to avoid direct confrontations, but traditional Cold War concerns kept them expanding their nuclear arsenals and preparing for the possibility of World War III. Motivated by fear and suspicion, but also by diplomatic and political purposes, both Moscow and Washington invested huge sums in thousands of nuclear weapons and intercontinental delivery systems. During the 1960s, the United States deployed over a thousand intercontinental ballistic missiles (ICBM), hundreds of submarine-launched ballistic missiles (SLBMs), and took the arms race in a new qualitative direction by developing accurate multiple independently targetable re-entry vehicles (MIRVs). The Soviets, determined never to be outmatched again in a crisis, began to field a formidable ICBM force. Before Moscow reached strategic parity with Washington, and ended US nuclear supremacy, however, a stalemate had emerged, where neither side could launch a preemptive strike to gain a military advantage without incurring horrific losses. While the leaders of the superpowers recognized that nuclear weapons were militarily unusable, except in the most extreme circumstances, they nevertheless wanted them for deterrence and for diplomatic leverage.

In Europe, the cockpit of Cold War rivalries, apprehensions about military force imbalances and fears of nuclear blackmail and first strikes gave nuclear weapons a central role in alliance policies and politics. To validate security guarantees and to deter political and military threats, both the Soviet Union and the United States stockpiled thousands of tactical nuclear weapons on European soil. In light of the terrible danger of a nuclear conflagration in Central Europe, both superpowers searched for "flexible response" options to raise the threshold for nuclear weapons use in a confrontation.

The emergence of strategic parity at the close of the 1960s provided the context for superpower détente. US and Soviet leaders wanted to moderate

Cold War rivalries and avoid confrontations, but those goals uneasily coexisted with commitments to preserving and developing strategic advantages. Despite efforts at strategic arms control, innovations such as MIRVs and cruise missiles provided new fields for the nuclear competition and renewed apprehension about the vulnerability of strategic forces. With Moscow and Washington relying on electronic systems to enhance warning of strategic attack, both governments headed toward risky launch-on-warning capabilities, which raised the chances of nuclear catastrophe. While the United States and the Soviet Union continued to avoid nuclear weapons use, the practice of nuclear deterrence and nuclear blackmail remained risk-laden enterprises.

The dilemmas of nuclear stalemate

On the morning of September 12, 1963, President John F. Kennedy directly confronted the reality of nuclear stalemate in the Cold War nuclear-arms competition between the United States and the Soviet Union. General Leon Johnson, director of the National Security Council's Net Evaluation Subcommittee (NESC), briefed the president and senior advisers on the NESC's 1963 report detailing the estimated future results of general war nuclear exchanges between the United States and the Soviet Union between 1964 and 1968 based on war game analyses conducted under various conditions of preemption and retaliation. The US war objective in all cases was to "limit damage to the U.S. and destroy the ability of the USSR and China to wage war." Yet, the report concluded that whichever side initiated an attack, "neither the U.S. nor the USSR can emerge from a full nuclear exchange without suffering very severe damage and high casualties." In the event of Soviet preemption in 1964, the NESC estimated US fatalities at 93 million, a number that rose to 134 million in 1968. If the United States preempted in 1964, NESC estimated that 63 million Americans would die; in 1968, more than 108 million would die. "There is no way," General Johnson told Kennedy, "no matter what we do, to avoid unacceptable damage in the U.S. if nuclear war breaks out."[1]

1 Summary record of the 517th Meeting of the National Security Council, September 12, 1963, US Department of State, *Foreign Relations of the United States, 1961–1963* (Washington, DC: US Government Printing Office, 1996), vol. VIII, 499–507; Net Evaluation Subcommittee, "Oral Report," August 27, 1963, copy at the National Security Archive, George Washington University, Washington, DC (hereafter, NSA).

Having contemplated preemptive options during the Berlin crisis, Kennedy now recognized that the strategic advantage the United States had long enjoyed – the ability to destroy much of the Soviet strategic nuclear arsenal in a preemptive strike – was gone. When asked how the United States might reestablish nuclear superiority, General Johnson thought it was impossible. The positive side, he noted, was that the Soviets were equally aware of "the unsatisfactory estimated results of an all-out nuclear war." If both countries recognized that a nuclear war would be a disaster, then "nuclear war is impossible if rational men control governments." That might be true, Secretary of State Dean Rusk observed, but he saw a danger that "one side or the other would be tempted to act in a way which would push the other side beyond its tolerance level." In addition, pressures could reach the point that one side or the other acted in a suicidal way, just "to get it over with." "We can't assume nuclear war won't happen," Rusk said. There was no certainty in "[t]his God Damn poker game."[2]

This briefing marked an unheralded milestone in the history of the arms competition between the United States and the Soviet Union, which now had such dangerous potential that challenges to each other's vital geopolitical interests, as in Europe or East Asia, could have unimaginably destructive results. A condition of nuclear stalemate between the two nuclear superpowers had long been forecast as coming. It had its origins in the pressures to expand the US nuclear arsenal, which derived from several major objectives: treaty guarantees for West European security and the need to stay ahead of the Soviets for military and diplomatic reasons after Moscow tested its first nuclear weapon. Confronted by a nuclear-capable USSR, the Joint Chiefs of Staff (JCS) identified destruction of the Soviet ability to deliver nuclear weapons against the United States and its allies as the highest priority for targeting. This essentially preemptive nuclear strategy, along with the need to ensure that a sufficient number of US forces would survive a Soviet surprise attack, became one of the key forces driving the expansion of the US strategic nuclear arsenal. A complex calculus of attack and counterattack, which blurred the distinction between war-fighting and deterrent capability, fueled the arms race of the 1950s. Although US officials now understood that nuclear

2 For Kennedy and preemption, see Lawrence Freedman, *Kennedy's Wars: Berlin, Cuba, Laos, and Vietnam* (New York: Oxford University Press, 2000), 97. See also Marc Trachtenberg, *A Constructed Peace: The Making of the European Settlement, 1945–1963* (Princeton, NJ: Princeton University Press, 1999), 183.

stalemate had emerged, the same dynamic continued to propel nuclear war planning and military budgets.[3]

Lyndon B. Johnson, who succeeded to the presidency in November, had not been present at the September 1963 briefing, and it is not clear whether he had been back-briefed. Nevertheless, early in his presidency, Johnson received a memorandum from Secretary of Defense Robert McNamara that included alarming details of the costs and consequences of nuclear exchanges with the Soviet Union that were consistent with the NESC briefing. Remarks made by Johnson during the 1964 campaign about the unique destructiveness of nuclear weapons and the horrific casualty levels of nuclear war strongly suggest that he drew the same lesson that Kennedy had: US nuclear superiority was fading and nuclear weapons could be used only for deterrence, not for preemption or war-fighting.[4]

That both superpowers were entering a period of stalemate showed the basic irrelevance of President Dwight D. Eisenhower's 1959 guidance that nuclear planning should ensure that the United States should "prevail and survive" after a war. The NESC exercise did, however, confirm the value of strategic theorist Bernard Brodie's observation that in the nuclear age the chief goal of military establishments was not to "win wars … but to avert them." After 1963, US policymakers, and later Soviet leaders, widely shared this perception, but that could not solve key problems: what force structures and plans would suffice for deterrence? Would military planners abandon preemptive options? Moreover, would deterrence itself make the superpowers secure?[5]

US nuclear posture and force levels

US presidents wanted to avoid nuclear war but nevertheless agreed that a robust nuclear posture, that is, a large nuclear arsenal backed by elaborate war plans, was the deeply implicit threat that Washington needed in order to play a central role in shaping world affairs. Since the late 1940s, US policymakers,

3 David A. Rosenberg, "The Origins of Overkill: Nuclear Weapons and American Strategy, 1945–1960," in Steven Miller (ed.), *Strategy and Nuclear Deterrence* (Princeton, NJ: Princeton University Press, 1984), 113–82.

4 Draft memorandum for the President, "Recommended FY 1965–1969 Strategic Retaliatory Forces," December 6, 1963, NSA; Nina Tannenwald, *The Nuclear Taboo: The United States and the Non-Use of Nuclear Weapons since 1945* (Cambridge: Cambridge University Press, 2007), 206–07.

5 David A. Rosenberg, "Nuclear War Planning," in Michael Howard, George J. Andreopoulos, and Mark R. Shulman (eds.), *The Laws of War: Constraints on Warfare in the Western World* (New Haven, CT: Yale University Press, 1994), 173; Bernard Brodie (ed.), *The Absolute Weapon: Atomic Power and World Order* (New York: Harcourt Brace & Co., 1946), 76.

worried about shifts in the balance of power that could threaten US security and economic interests, believed that a capability to wield the worst possible threat would preserve US influence, discourage Moscow from using military power to coerce US allies, and otherwise deter an attack.

By stationing troops in Western Europe and offering security guarantees through the North Atlantic Treaty Organization (NATO), the United States established a tripwire that raised the stakes if an East–West confrontation turned violent. Even after conditions of nuclear stalemate emerged, key officials such as Secretary of Defense McNamara believed that US strategic forces were necessary not only to deter nuclear attacks against the United States, but also to discourage lesser military challenges to US interests, for example, probes against West Berlin or nuclear "blackmail" of NATO allies. This emphasis on deterrence and diplomatic advantage was inconsistent with the preemptive logic of US, as well as Soviet, nuclear war-planning, and threatened to weaken deterrence, but it was a risk that defense officials accepted.[6]

The eight years of the Eisenhower administration bequeathed the weapons technology programs and choices of the 1960s. Those weapons – subsonic manned bombers, land- and sea-based ballistic missiles with intercontinental reach – were key elements of US forces for the next three decades. Networks of military services, government scientists, and contractors made new weapons possible, but development and deployment depended on the support of top-level Pentagon officials as well as members of Congress. The Kennedy and Johnson administrations shaped the strategic landscape by eliminating cumbersome liquid-fueled Atlas ICBMs and setting force levels for new solid-fueled missiles, Polaris SLBMs and rapid-firing Minuteman ICBMs. Although the Air Force sought thousands of Minutemen, President Johnson eventually approved 1,000, a politically negotiated number representing McNamara's thinking on what the services would accept. Long-range weapons deployed later in the 1960s and the 1970s would largely be improved versions of existing delivery systems, such as B-52s, Poseidon and Trident SLBMs, and Minuteman II and III ICBMs.[7]

6 Melvyn P. Leffler, *A Preponderance of Power: National Security, the Truman Administration, and the Cold War* (Stanford, CA: Stanford University Press, 1992), 331; Rosenberg, "The Origins of Overkill"; William Kaufmann, *The McNamara Strategy* (New York: Harper & Row, 1964), 76, 130–32.

7 Desmond Ball, *Politics and Force Levels: The Strategic Missile Programs of the Kennedy Administration* (Berkeley, CA: University of California Press, 1980); Lawrence S. Kaplan, Ronald D. Landa, and Edward J. Drea, *History of the Office of the Secretary of Defense*, vol. V, *The McNamara Ascendancy 1961–1965* (Washington, DC: Historical Office,

Since the late Eisenhower years, Pentagon officials had supported the emerging mixture of forces with what became known as the "strategic triad" concept; each element of the mix of bombers, SLBMs, and hardened ICBMs would hypothetically provide a separate retaliatory capability in the event that the others were destroyed or otherwise failed. Defense officials routinely assumed that hardened Minutemen and relatively invulnerable SLBMs would have the greatest survivability compared to bombers on the ground. While the Strategic Air Command (SAC) kept nuclear-armed B-52s on airborne alert during 1960–68, this was a risky enterprise. Nuclear accidents over Spain (1966) and Greenland (1968) led the Pentagon to cancel the program, although SAC continued putting some 40 percent of its bombers on ground alert.[8]

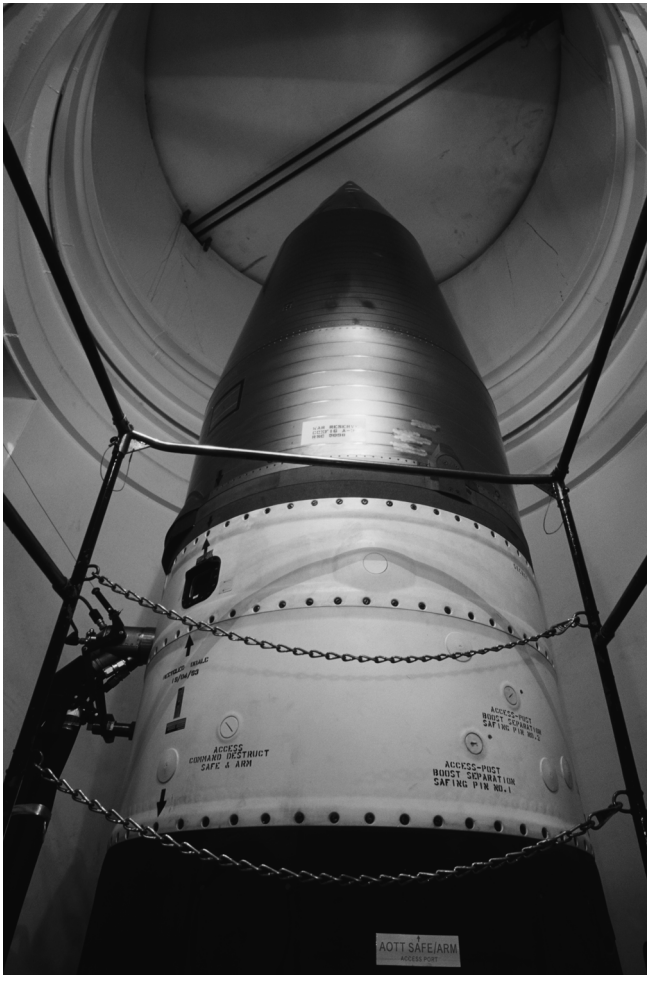
In 1962, McNamara and his advisers began using concepts of "assured destruction" and "damage limiting" to justify levels of strategic forces that would preserve a US edge. If the Soviets launched a first strike on the United States, SLBMs, surviving ICBMs, and alert bombers would provide a retaliatory force capable of the "assured destruction" of the Soviet Union: one-third of the population, 150 cities, the command-and-control system, and 50 percent of its industrial capability. McNamara saw the existence of such a capability as a basic deterrent. While rejecting the air force's demands for more Minutemen to permit a full first strike, McNamara supported enough forces for a "damage limiting" mission that could destroy Soviet nuclear threat targets in either retaliatory or preemptive strikes.[9]

A US decision in the mid-1960s to produce MIRVs for ballistic missile forces significantly changed the dynamics of the nuclear rivalry. Produced to penetrate Soviet missile defenses, but also to hit strategic nuclear targets more accurately, MIRVs greatly increased the capability of US missile forces, without changing their numbers. The air force and the navy respectively developed and deployed MIRVs, first on Minuteman III (1970) and then on Poseidon SLBMs (1972). While important military organizations and interests supported MIRVs and the inertial guidance systems that made them possible, few worried about the arms-control implications. With the US

Office of the Secretary of Defense, 2006), 57–67, 478–79, 490; Graham Spinardi, *From Polaris to Trident: The Development of Fleet Ballistic Missile Technology* (Cambridge: Cambridge University Press, 1994).

8 Peter J. Roman, *Eisenhower and the Missile Gap* (Ithaca, NY: Cornell University Press, 1995); Stephen Schwartz (ed.), *Atomic Audit: The Cost and Consequences of U.S. Nuclear Weapons since 1940* (Washington, DC: Brookings Institution, 1998), 189; Scott Sagan, *The Limits of Safety: Organizations, Accidents, and Nuclear Weapons* (Princeton, NJ: Princeton University Press, 1993).

9 Deborah Shapley, *Promise and Power: The Life and Times of Robert McNamara* (Boston, MA: Little, Brown, 1993), 193–201; Kaplan, Landa, and Drea, *The McNamara Ascendancy*, 322.



5. Minuteman III in silo. Introduced in 1970, the Minuteman III intercontinetal ballistic missile (ICBM) had three nuclear warheads and a range of more than 6,000 miles. It remained the mainstay of the US strategic nuclear arsenal for more than forty years.

MIRV decisions, the strategic rivalry moved from quantities of bombs and missiles to such qualitative and quantitative issues as the yield, accuracy, and numbers of warheads that could be mounted on each launcher.[10]

10 Ted Greenwood, *Making the MIRV: A Study of Defense Decision Making* (Cambridge, MA: Ballinger, 1975); Donald MacKenzie, *Inventing Accuracy: A Historical Sociology of Nuclear Missile Guidance* (Cambridge, MA: MIT Press, 1990).

Despite the innovations in strategic technologies, US war-planning, largely determined by the air force, did not stray from patterns set during the 1950s. War planners divided targets into nuclear, other military, and urban-industrial categories, with time-urgent nuclear targets – missile silos, bomber bases, command and control – driving increases in the US nuclear stockpile. Nuclear planners ignored the devastating fire effects of nuclear weapons, which may have kept estimates of weapons requirements unrealistically high. The US nuclear weapons stockpile deployed at bases throughout the United States and overseas stood at 29,000 in 1963 and peaked in 1966–67 at nearly 32,000. The decline in the following years, however, was irregular owing to the introduction of MIRVs, which, during 1969 to 1975, brought the total number of US ICBM and SLBM warheads from over 2,500 to over 7,000.[11]

US war plans posited huge nuclear strikes, but more options became available during the 1960s. When Secretary of Defense McNamara received his first briefing on the Single Integrated Operational Plan (SIOP), he was appalled by its "rigidity" and "overkill" because it posited a single massive nuclear strike involving thousands of weapons with high damage expectancy. While McNamara wanted more flexibility and more choices for the president, including a counter-force attack for limiting damage ("no cities"), the JCS made only marginal changes. They broke up the SIOP into five options, all of which involved massive strikes with high damage requirements, which could be launched either in retaliation or preemptively. Even if the NESC had shown that preemption was not feasible, war planners wanted the possibility of striking quickly if intelligence detected Soviet attack preparations. Other emerging options included attacks against Soviet nuclear capability, other military forces, and urban-industrial targets, as well as options to defer strikes on Warsaw Pact countries and the People's Republic of China (PRC) and even national capitals, like Moscow. Force levels and their composition changed, but the SIOP remained essentially the same until the mid-1970s.[12]

While senior US officials treated nuclear weapons as central to Western defense, since the late 1950s they had recognized that as nuclear stalemate emerged, threats to use them, except in response to a surprise attack, could

11 Schwartz (ed.), *Atomic Audit*, 85; Lynn Eden, *Whole World on Fire: Organizations, Knowledge, & Nuclear Weapons Devastation* (Ithaca, NY: Cornell University Press, 2004); Natural Resources Defense Council, "Archive of Nuclear Data From NRDC's Nuclear Program," www.nrdc.org.

12 Rosenberg, "Origins of Overkill," 177; William Burr, (ed.), "New Evidence on the Origins of Overkill," National Security Archive Electronic Briefing Book No. 236, November 22, 2007, www.nsarchive.org.

lack credibility. They (and the Europeans) questioned whether the United States would risk destruction by launching a nuclear strike if conflict broke out in Europe. In 1970, President Richard M. Nixon privately acknowledged that the "nuclear umbrella was no longer there." Although Nixon could not say this publicly, for fear that it would increase Soviet leverage, he and US defense officials continued to search for ways to buttress the credibility of nuclear threats. This concern shaped US nuclear strategy and planning throughout the period.[13]

Following patterns set during World War II, US nuclear planning occurred under conditions of deep secrecy; for example, the terms "Single Integrated Operational Plan" and "SIOP" were secret for years. As justifiable as some of the secrecy was, it was inconsistent with US political traditions of open government and raised enduring questions about accountability.[14]

Soviet nuclear posture and force levels

During the NESC briefing, General Johnson expressed his firm belief that the Soviets must have made the same calculations as the Americans and must have been equally convinced of the futility of nuclear war, but this conviction was based on "mirror imaging" rather than concrete intelligence. After the Cuban missile crisis, Soviet leaders wanted to avoid crises and risks of nuclear war, but they supported nuclear force buildups to minimize risks of exposure to political coercion and to be in a more advantageous position should superpower conflict break out. Indeed, to deter and thwart feared US aggression, military planners embraced a preemptive strategy which shaped Soviet war plans until the early 1970s.[15]

13 Robert Jervis, *The Meaning of the Nuclear Revolution: Statecraft and the Prospect of Armageddon* (Ithaca, NY: Cornell University Press, 1989), 38–39; Robert J. McMahon, "Credibility and World Power: Exploring the Psychological Dimension in Postwar American Diplomacy," *Diplomatic History*, 15 (1991), 469–70; "Notes on NSC Meeting 14 February 1969," box H-20, folder: NSC Meeting, Biafra Strategic Policy Issues, 2/14/69 (1 of 2), National Security Council (NSC) Institutional Files, Nixon Presidential Library, National Archives, College Park, Maryland (hereafter, NA) (materials will be moving to Yorba Linda, California), and memorandum of conversation, "NSC Meeting: NATO and MBFR," November 19, 1970, box 109, folder: NSC Minutes Originals 1970 (1 of 3), NSC Institutional Files, Nixon Presidential Library, NA.

14 Schwartz (ed.), *Atomic Audit*, 433–84.

15 Christoph Bluth, *Soviet Strategic Arms Policy Before SALT* (Cambridge: Cambridge University Press, 1992), 78, 157; Vladislav M. Zubok, *A Failed Empire: The Soviet Union in the Cold War from Stalin to Gorbachev* (Chapel Hill, NC: University of North Carolina Press, 2007), 193, 203.

In a major open-source publication in 1962, senior Soviet officers headed by Marshal V. D. Sokolovskii showed how their apprehensions shaped preemptive thinking. Should conflict break out, it would be a "nuclear rocket war." Of "decisive importance" to the outcome of war would be the immediate destruction of the adversary's nuclear weapons complex, chief military installations, and military-industrial resources. Sensitive to the danger of first strikes because of the German attack in June 1941, Sokolovskii and his colleagues feared that Washington was preparing for a "sudden nuclear attack against the Soviet Union." Recognizing the devastating potential of a single nuclear strike, they underscored the need to repel a surprise attack with the "timely infliction of a shattering attack upon [the adversary]." While the massive destruction of nuclear war would be catastrophic, allegedly the Soviet Union would prevail to the extent that its counterattack destroyed the "aggressor."[16]

Secrecy, even more pervasive than on the US side, makes it impossible to know how Soviet war planners targeted their nuclear capabilities in the Plan of Operation of the Strategic Nuclear Forces. But they were determined to frustrate the enemy's "aggressive designs" and, just like SIOP planners, most likely gave priority to strikes on their adversary's nuclear forces. Nevertheless, they also recognized that the limited accuracy of their forces and the dangers of a US retaliatory strike made preemption a perilous choice. In fact, the civilian leadership never supported it.[17]

The "aggressive definition of deterrence" assumed by Soviet strategy required, first of all, continued rapid expansion of the Soviet nuclear stockpile and the production and deployment of nuclear delivery systems. This stockpile had increased rapidly during the late 1950s, but not quickly enough to overcome the US lead; between 1956 and 1961, the Soviet stockpile of warheads increased from about 400 to 2,450 (compared to 3,620 and 23,200 respectively for the United States). Moscow especially lagged in the production of intercontinental delivery systems. In 1960, the newly organized Soviet

16 V. D. Sokolovkii, *Soviet Military Strategy: Soviet Doctrine and Concepts* (Englewood Cliffs, NJ: Prentice-Hall, 1963); R. Craig Nation, *Black Earth, Red Star: A History of Soviet Security Policy, 1917–1991* (Ithaca, NY: Cornell University Press, 1992), 214–17; Matthias Uhl, "Storming on to Paris: The 1961 Buria Exercise and the Planned Solution of the Berlin Crisis," in Vojtech Mastny, Sven S. Holtsmark, and Andreas Wenger (eds.), *War Plans and Alliances in the Cold War: Threat Perceptions in the East and West* (London: Routledge, 2006), 46–52.

17 Steven Zaloga, *The Kremlin's Nuclear Sword: The Rise and Fall of Russia's Strategic Nuclear Forces* (Washington, DC: Smithsonian Institution Press, 2002), 79–80 and 137. For targeting, see Bruce Blair, *The Logic of Accidental Nuclear War* (Washington, DC: Brookings Institution, 1993), 61.

Strategic Rocket Forces (SRF) had hundreds of medium-range ballistic missiles (MRBMs) capable of striking NATO Europe but, despite three years of testing and Nikita S. Khrushchev's missile rattling, the Soviets probably had only four ICBMs capable of reaching the United States. The Kremlin's strategic bomber force remained small compared to Washington's because missiles were its chief priority.[18]

US plans to build and deploy hundreds of Minutemen ICBMs, along with lessons drawn from the Cuban missile crisis, motivated Khrushchev and the high command to develop a missile force rivaling that of the United States. Determined never again to be caught in a strategically vulnerable position, Soviet leaders decided to deploy large numbers of ICBMs, including the huge SS-9s, designed to match the US Titan, and the relatively cheap SS-11, designed to be produced in large numbers so that Moscow could reach parity quickly and end US nuclear preponderance. The Soviets aimed some SS-11s east to counter Beijing's developing nuclear capabilities. While the Soviets were building formidable numbers of missiles, unlike US ICBMS, theirs had short service lives, making it necessary to build new generations on a regular basis. Moreover, Moscow's SLBM program was underfunded and Soviet submarines were vulnerable to detection.

Alliances and nuclear weapons

As a central front in the Cold War, Europe became a focal point for superpower nuclear rivalries. Both Washington and Moscow deployed thousands of nuclear weapons in Europe and their allies played integral roles in operating systems to deliver them. Both superpowers kept tight control over the weapons themselves, but Moscow's nuclear policies toward European allies were top-down, while US policy involved the construction of a shaky NATO consensus on nuclear planning. Both superpowers came to support "flexible response" strategies to avoid use of nuclear weapons, although by the early 1970s the Soviets eventually supported "no first use," which Washington consistently rejected.

US nuclear weapons policies in NATO Europe reflected military, security, and political priorities. Unease about the size of Soviet conventional forces served as an enduring justification for fielding US nuclear weapons in Europe,

18 This and the following paragraph draw on Nation, *Black Earth, Red Star*, 217; Zaloga, *The Kremlin's Nuclear Sword*, 61–66, 75–76, 80; Pavel Podvig (ed.), *Russian Strategic Nuclear Forces* (Cambridge, MA: MIT Press, 2001), 121–26, 145–47, and 196–205.

even though tactical nuclear deployments was one area where the United States retained an edge over the Soviets. Although US nuclear deployments were often controversial in Western Europe, US leaders assumed that their presence was necessary to reinforce security guarantees and maintain the confidence of allies. According to McNamara, a strong US military posture was important not only for maintaining NATO cohesion, but also to check "Soviet political pressure and blackmail" and avert changes in West German policy – either a militaristic revival or the negotiation of special security arrangements with Moscow – that could disrupt the Western security system.[19]

The Pentagon fielded growing numbers of theater and tactical nuclear weapons during the 1960s to support security guarantees and reinforce deterrence. In 1960, the United States had deployed only a few hundred weapons in NATO Europe; by 1967, it had stockpiled over 7,000. They were designed for a variety of missions, including anti-submarine, air defense, battlefield use, and strikes on Soviet bases and command posts. In part, the deployments flowed from the decisions of the Kennedy and Johnson administrations to continue Eisenhower's NATO nuclear stockpile program by negotiating nuclear-sharing agreements with European allies. To prevent unauthorized use of the weapons, Kennedy's advisers tightened up control of the weapons by installing Permissive Action Locks (PALs) on weapons deployed in Europe.[20]

The danger of nuclear weapons use in a Central European confrontation shaped Washington's search for non-nuclear options that raised the threshold for nuclear weapons use. NATO's General Strike Plan (later known as the Nuclear Options Plan) included a wide array of "package" nuclear options for clashes with Warsaw Pact forces as well as for strikes against fixed targets. Nevertheless, during the 1960s and 1970s, senior Pentagon officials found it difficult to visualize plausible scenarios for using tactical weapons that did not involve risks of escalation and nuclear conflagration. Those dangers made the Kennedy and Johnson administrations want to strengthen the credibility of nuclear threats with a NATO capability for "flexible," nonnuclear, responses

19 Matthew Evangelista, *Innovation and the Arms Race* (Ithaca, NY: Cornell University Press, 1988); R. McNamara to President Johnson, "NATO Strategy and Force Structure," September 21, 1966, copy at NSC. Francis J. Gavin, "The Myth of Flexible Response: United States Strategy in Europe during the 1960s," *International History Review*, 23 (December 2001), 858.

20 Trachtenberg, *A Constructed Peace*, 193–200, 304–09; Ivo Daalder, *The Nature and Practice of Flexible Response: NATO Strategy and Theater Nuclear Forces since 1967* (New York: Columbia University Press, 1991), 108–11.

to less than all-out Soviet conventional attacks. While US defense officials rejected a "no-first-use" nuclear policy, they hoped that "flexible response" would make it possible to avoid early, or even any, use of nuclear weapons in a European conflict. This was a difficult objective, complicated by balance-of-payments pressures, French withdrawal from NATO forces, and opposition from European partners, who refused to expand conventional forces.[21]

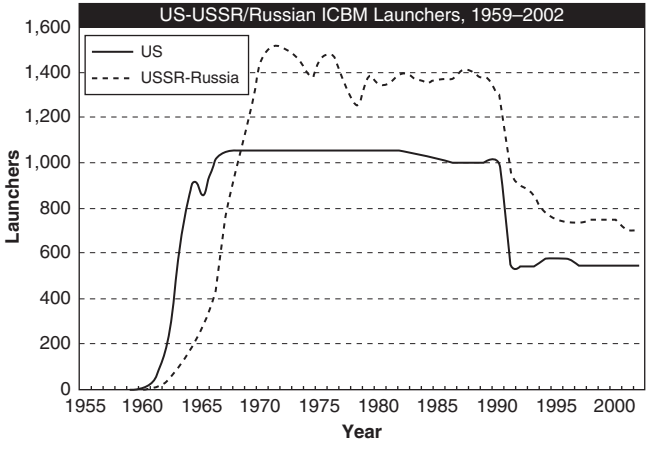
A growing belief that the threat of general war had receded and US–European agreement that NATO needed conventional capabilities to deal with limited nonnuclear attacks created conditions for the formal revision of NATO strategy along "flexible response" lines. In October 1967, NATO approved MC-14/7, which emphasized the need for both conventional and nuclear options so that NATO could react "appropriately" to any level of attack. Thus, MC-14/7 straddled US support for nonnuclear approaches and British and German beliefs that deterrence required a commitment to early nuclear use. It did not, however, resolve a question that would be an enduring dilemma for military planners: just how long could alliance forces hold against Soviet attack before resorting to nuclear weapons.

The growing stockpile of US nuclear weapons in Europe raised another basic problem: how to give NATO allies a voice in nuclear use and war planning, especially so that some, such as West Germany, did not become motivated to acquire their own nuclear forces. While NATO guidelines gave "special weight" to the views of governments, and Washington made loose consultative arrangements with Bonn and London on nuclear weapons use, the United States retained final control over the weapons. NATO's Nuclear Planning Group (NPG), created in the mid-1960s, was a significant US-led effort to ensure alliance participation in the complexities of nuclear use. The NPG focused on such problems as consultation and preliminary guidelines for firing tactical nuclear weapons. That it would take the NPG nearly two decades to agree on a full statement of political guidelines on nuclear use suggests the depths of controversy over this sensitive problem.[22]

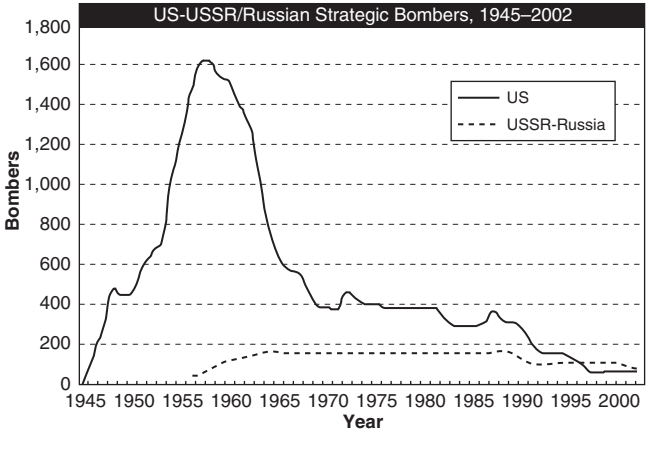
The Soviets saw their large conventional forces in Eastern Europe as a necessary counter to US strategic forces as well as valuable for local political

21 The following paragraphs draw on Kaplan, Landa, and Drea, *The McNamara Ascendancy*, 313; Trachtenberg, *A Constructed Peace*, 188–89, 289; John S. Duffield, *Power Rules: The Evolution of NATO's Conventional Forces Posture* (Stanford, CA: Stanford University Press, 1995); and Helga Haftendorn, *NATO and the Nuclear Revolution: A Crisis of Credibility, 1966–1967* (New York: Oxford University, 1996).

22 Paul Buteux, *The Politics of Nuclear Consultation in NATO 1965–1980* (Cambridge: Cambridge University Press, 1983); Daalder, *Nature and Practice of Flexible Response*, 80–84, 90–93.



Graph 1. US–USSR/Russian ICBM Launchers, 1959–2002



Graph 2. US–USSR/Russian Strategic Bombers, 1945–2002

control. US deployments of theater nuclear forces in NATO Europe stimulated the Soviets to field tactical nuclear weapons in Eastern Europe, but their stockpile was half the size of NATO's, and most of the weapons were high-yield and not suited for battlefield use. Using storage sites in several Warsaw Pact countries, Moscow kept tight control of its weapons. Local Warsaw Pact forces received training from the Soviets in using them for their role in the war plan, but they would not gain possession of them until war broke out. In spite of these plans and deployments, by the 1970s, Warsaw

Pact leaders understood that even though they had advantages in numbers of troops and heavy armor, NATO had a "qualitative edge" in nuclear weapons and aircraft.[23]

While little is known about Soviet nuclear plans, archival releases from the former Eastern bloc show how concern about escalation also led them to raise the nuclear threshold. A Warsaw Pact Command Post exercise held during the 1961 Berlin crisis showed the Soviet bloc striking NATO Europe with a massive nuclear attack of over 1,000 weapons in response to warning of impending US and allied airstrikes. General nuclear war was expected to quickly ensue. Similar assumptions informed Pact war plans in 1964. Beginning in the mid-1960s, however, the Soviets began to change their doctrine because they recognized the nuclear stalemate and saw the emergence of US flexible response strategies. The high command no longer assumed that war in Europe would be automatically nuclear and Soviet/Pact planning anticipated fighting a conventional war first, with nuclear weapons introduced only if the Western powers used them first or threatened to do so. That the NATO powers would use nuclear weapons first remained a Warsaw Pact planning assumption.[24]

Intelligence, war plans, and warning

To improve their strategic position and to secure early warning of hostile moves, Moscow and Washington tried to perfect intelligence capabilities. On the US side, reconnaissance satellites transformed nuclear planning by settling the missile gap controversy in 1961 and then discovering in 1966 that the Soviets were heading towards parity. More accurate knowledge of Soviet force levels would help defense planners forecast nuclear weapons requirements and configure US strategic forces, while satellite technology made it possible to target Soviet installations with high levels of precision.[25]

23 Evangelista, *Innovation*, 215; Daalder, *Nature and Practice of Flexible Response*, 119; Uhl, "Storming on to Paris," 59–62; Christoph Bluth, "The Warsaw Pact and Military Security in Central Europe During the Cold War," *Journal of Slavic Military Studies*, 17 (2004), 299–311.

24 See Uhl, "Storming on to Paris," Petr Luňák, "War Plans from Stalin to Brezhnev: The Czechoslovak Pivot," and Frede P. Jensen, "The Warsaw Pact's Special Target," in Mastny, Holtsmark, and Wenger (eds.), *War Plans and Alliances in the Cold War*, 52–56, 81–84, and 105–08; Raymond Garthoff, *Deterrence and the Revolution in Soviet Military Doctrine* (Washington, DC: Brookings Institution, 1990), 52–69.

25 Eden, *Whole World on Fire*, 99–107, 225–26; Dwayne A. Day, John M. Logsdon, and Brian Latell (eds.), *Eye in the Sky: The Story of the Corona Spy Satellites* (Washington, DC:

Acquiring "real-time" warning of a strategic missile attack became a high-priority goal of the intelligence services. Unless detected in time, a surprise attack would not give SAC bombers enough warning to take off or US political authorities time to respond. By the late 1960s, Defense Support System satellites provided at best a twenty-seven minutes warning. That could give time for bombers to launch and the president to authorize a retaliatory strike, but US military experts still worried about the vulnerability of the US command-and-control system to disruption by a paralyzing attack. While US presidents, beginning with Eisenhower, had approved "predelegation" arrangements (depicted in *Dr. Strangelove* as "Plan R") authorizing top commanders to launch strikes in the event that an attack had incapacitated the president, the Pentagon kept searching for methods to improve command-and-control and communications. Such innovations as ARPANET, the forerunner of the Internet, emerged in that context.[26]

The problem of inadequate warning time provided the context for the launch-on-warning capability. By the late 1950s and early 1960s, White House advisers recognized that warning systems could make it possible to launch quick-reaction Minutemen almost automatically, although the possibility of a false alarm made that option perilous. With the Defense Support System, launch-on-warning became technically feasible; some analysts argue that the "U.S. strategic posture gravitated to [that] option" by the early 1970s. Later in the decade, the closely related launch-under-attack option became part of the SIOP in order to facilitate a quick Minuteman strike of a foe's targets. That both the US and the Soviet deterrence postures rested on such a potentially catastrophic basis was one of the most worrisome secrets of the Cold War.[27]

The Nixon administration, like its Democratic predecessors, recognized that under conditions of stalemate first strikes and preemption were not workable. Nevertheless, seeking more freedom of action, Nixon and Henry Kissinger wanted to find ways to make nuclear weapons useful for political coercion. Based on his interpretation of Eisenhower's conduct during the 1950s crises, Nixon's "madman theory" – the "principle of a threat of excessive force" to coerce Moscow or a Soviet ally – informed a number of his actions.

Smithsonian Institution Press, 1998), 26, 184, 204–06, 209; Lawrence Freedman, "The CIA and the Soviet Threat: The Politicization of Estimates," *Intelligence and National Security* (1997), 124–26.

26 Leonard Wainstein, C. D. Cremeans, J. K. Moriarty, and J. Ponturo, *The Evolution of U.S. Strategic Command and Control and Warning, 1945–1972*, Study S-467, Institute for Defense Analyses, June 1975, Top Secret (declassified 1992); Jeffrey Richelson, *America's Space Sentinels: DSP Satellites and National Security* (Lawrence, KS: University Press of Kansas, 1999); Schwartz (ed.), *Atomic Audit*, 218.

27 *Ibid*., 216–17; Blair, *Logic of Accidental Nuclear War*, 186–87.

Thus, in October 1969, Nixon ordered a secret alert of US nuclear and conventional forces to "jar" the Soviets into cooperating with his Vietnam War diplomacy. Nixon and Kissinger continued to employ the "madman" strategy, e.g., raising alert levels of Mediterranean forces during the Jordan crisis (1970) and going to a DEFCON 3 alert during the October War (1973), but Kissinger eventually recognized that nuclear threats in diplomatic risk-taking had become too dangerous to use.[28]

Ironically, "madman" tactics, with their risks of unintended consequences, went hand in hand with US efforts to reform the SIOP to give more options to the president and minimize risks of escalation to all-out nuclear war. Feeling "horror" over the SIOP's massive destructiveness and believing that more limited nuclear options would make deterrence and nuclear threats more credible, a persistent Kissinger induced the Pentagon to undertake major studies of strategic targeting policy during 1972 and 1973. Secretary of Defense James Schlesinger also favored changing the SIOP. By 1974, in response to Nixon's instructions, defense planners began creating a range of attack options for a variety of possible confrontations with the Soviet Union (as well as China), with preemption remaining an option. Change was slow and some questioned whether escalation could be controlled once nuclear weapons had been used, even on a "limited" basis. Moreover, the war plan produced under the new guidance, SIOP-5, had few limited options. It shifted some emphasis from military targets by stressing the importance of destroying "military forces" and "critical industries" that would be needed for Soviet postwar recovery. While secretaries of defense had publicly declared that "we do not … target civilian population *per se*," nuclear planners were, in effect, treating urban workers as high-priority targets.[29]

The Soviets also began to recognize that preemption was unfeasible, although later than US leaders. Even if Minutemen ICBMs were vulnerable to attack, secure US missile-launching submarines put the Soviets at risk, and the constant training and retraining for successive generations of ICBMs

28 "Notes on NSC Meeting February 14, 1969" and Minutes, MBFR Verification Panel meeting, July 30, 1970, box 109, NSC Institutional Files, Nixon Presidential Library. For the October 1969 alert, see William Burr and Jeffrey Kimball, "Nixon's Secret Nuclear Alert: Vietnam War Diplomacy and the Joint Chiefs of Staff Readiness Test, October 1969," *Cold War History*, 3 (January 2003), 113–56; Brzezinski to Carter, "Weekly National Security Report #8," 9 April 1977, Jimmy Carter Presidential Library, Atlanta, Georgia.

29 Terry Terriff, *The Nixon Administration and the Making of U.S. Nuclear Strategy* (Ithaca, NY: Cornell University Press, 1995); William Burr, "The Nixon Administration, the 'Horror Strategy,' and the Search for Limited Nuclear Options, 1969–1972," *Journal of Cold War Studies*, 7 (2005): 34–78.

caused "turmoil" in Soviet rocket forces. Those problems greatly complicated the possibility of a successful preemptive strike. Instead of preemption, the Soviet military headed toward reliance on a launch-on-warning concept, which new warning systems supposedly made conceivable. During the late 1960s and the 1970s, the Dnestr-M radar system provided a ten-minute warning, but it may have been unreliable, and a satellite warning system was not available until the 1980s. The warning gap continued to make launch-on-warning problematic, especially when US submarines could launch missiles with little warning to Soviet command and control.[30]

Much about Soviet strategic intelligence and targeting remains secret. The Soviet spy satellite, the Zenit, was deployed in August 1962, with a more precise system deployed a year later. Soviet military intelligence sought such precision to help create the accurate maps needed for targeting. Later in the 1960s, the Soviets deployed Sfera geodetic satellites that collected information on gravitational and magnetic fields needed to make trans-polar ICBM flights more accurate. Although the satellites were designed to enhance targeting and facilitate an attack, they eased the problem of verifying arms-control agreements. "National means of verification" ensured that each side could monitor the other's force deployments.

Nuclear taboos and arms control

Despite Dean Rusk's fears of suicidal conduct, during the period between the missile crisis and the Helsinki summit, the superpowers avoided direct confrontations where nuclear use was a possibility. During the tense October War, Leonid Brezhnev acted with more restraint than Kissinger by eschewing nuclear readiness measures. During the Vietnam War, when some US officials and scientists studied the possibility of nuclear use, no one saw any military advantage in such action. Some analysts have argued that in the United States a deep-rooted predisposition emerged, a "nuclear taboo" against the military use of nuclear weapons, except in retaliatory circumstances, based on such concerns as adverse international reaction and the disproportionate effects of the weapons. McNamara's private understandings with Presidents Kennedy and Johnson that the United States would not use

30 This and the next paragraph draw on Zaloga, *The Kremlin's Nuclear Sword*, 123, 127, 163–166, 177; Podvig, *Russian Strategic Nuclear Forces*, 420–32; Peter Gorin, "Zenit: The Soviet Response to CORONA," Day, Logsdon, and Latell (eds.), *Eye in the Sky*, 157–72.

nuclear weapons first reflected that inclination. That the Soviet leadership had similar concerns is suggested by the Politburo's early 1970s decision that military plans should reflect a "no-first-use" doctrine. Although the civilian leaders of the superpowers believed that nuclear weapons were valuable politically and diplomatically, they found them virtually unusable militarily, except for the most unlikely circumstance (response to a first strike). This may have been one of the biggest secrets of the Cold War.[31]

Widespread public anxiety about nuclear testing led Kennedy and Khrushchev to reach agreement on the Limited Nuclear Test-Ban Treaty (1963). Stopping atmospheric testing by the superpowers, the treaty left them free to test nuclear weapons underground, thus facilitating the development of new weapons, such as MIRVs. While the superpowers negotiated an agreement to ban nuclear weapons from space (1966) and sponsored the Nuclear Non-Proliferation Treaty (1968), arms-control achievements were scarce during the 1960s. Nuclear taboos did not discourage either side from fielding new weapons systems or from searching for nuclear options.[32]

ABMs and SALT

The fear of surprise attack created significant pressure for anti-ballistic missile (ABM) systems, which were highly controversial. Both sides spent huge sums for research and development, but even the ABM system that was developed to defend Moscow could stop only a few missiles. Realizing that "absolute protection" was impossible, top political leaders, such as Brezhnev and Aleksei Kosygin favored negotiations to limit ABMs, but the Defense Ministry and military-industrial complex wanted to work on a national missile defense sytem. McNamara opposed missile defense, not only because of technological uncertainties, but also because both sides could defeat it by building more missiles and MIRVs. Nevertheless, the Joint Chiefs of Staff strongly favored an ABM deployment, and President Johnson would not oppose it unless the Soviets agreed to discuss mutual limitations. The Soviets, however, were not yet interested in talks on freezing strategic force levels. Therefore, in a September 1967 speech, McNamara reluctantly announced that Washington

31 Tannenwald, *Nuclear Taboo*, 1–25, 190–240; Garthoff, *Deterrence and the Revolution in Soviet Military Doctrine*, 80–89; Kaplan, Landa, and Drea *The McNamara Ascendancy*, 322.

32 Kendrick Oliver, *Kennedy, Macmillan, and the Nuclear Test-Ban Debate, 1961–63* (New York: St. Martin's Press, 1998); Lawrence Wittner, *Resisting the Bomb: A History of the World Nuclear Disarmament Movement, 1954–1970* (Stanford, CA: Stanford University Press, 1997), 414–41. For non-proliferation, see Francis M.Gavin's chapter in this volume.

would deploy Sentinel, a "thin" ABM system, mainly aimed at an alleged Chinese missile threat in the 1970s.[33]

Progress in arms control partly depended on Moscow's attaining strategic parity with Washington. By 1968–69, Soviet ICBM forces were close to matching those of the United States in size, the Soviet leadership was more worried about a ruinous ABM competition, and interested in limiting US forward-based systems (aircraft and SLBMs) in Europe and the Mediterranean. What gave compelling stimulus to Brezhnev's support for Strategic Arms Limitation Treaty (SALT) negotiations and détente policies was his personal commitment, formed by his World War II experience, to avoiding war and to promoting peaceful relations between the superpowers. That, however, did not rule out pursuing an ICBM buildup to maintain Soviet strength.[34]

The Soviet invasion of Czechoslovakia derailed initial plans for SALT talks, and internal problems on both sides led to delays until November 1969. Nixon supported SALT in part because he wanted a reputation as a peacemaker to offset public apprehension about Vietnam. Worried about the erosion of US power signaled by parity and determined to preserve a central US position in world affairs, he and Kissinger also pursued arms control and détente as a subtle form of anti-Soviet containment. At first, they wanted to delay negotiations by trying to "link" SALT to progress on Vietnam War and Middle East settlements. That failed, but Nixon gave the go-ahead to a limited, but highly controversial, ABM deployment plan to strengthen his leverage in the SALT talks.[35]

A central issue in the negotiations was the status of MIRVs, where the United States enjoyed a temporary advantage. For State Department and Arms Control and Disarmament Agency (ACDA) officials, banning multiple warheads could prevent a spiraling arms race, but the Joint Chiefs saw strategic advantages in deploying the MIRVed Minuteman III, and neither Nixon nor Kissinger wanted to oppose them. To protect Pentagon interests, the White House instructed negotiators to make an offer that Moscow would have to refuse, because it would have left the US Air Force with a stockpile of already-tested MIRVs, while the Soviets would have to freeze

33 Victor Gobarev, "The Early Development of Russia's Ballistic Missile Defense System," *Journal of Slavic Military Studies*, 14 (June 2001), 29–48; Podvig (ed.), *Russian Strategic Nuclear Forces*, 412–20; Shapley, *Promise and Power*, 389–95.

34 Zaloga, *Kremlin's Nuclear Sword*, 141–43; Gobarev, "The Early Development of Russia's Ballistic Missile Defense System," 40–43; Zubok, *Failed Empire*, 201–05.

35 Raymond Garthoff, *Détente and Confrontation: American–Soviet Relations From Nixon to Reagan*, rev. ed. (Washington, DC: Brookings Institution, 1994), 28–68, 78, 146–50; also see Robert Schulzinger's chapter in this volume.

their development work. Whether an effective MIRV ban could have been negotiated or not, Kissinger suggested an opportunity had been missed when he later observed that he should have "thought through the implications of a MIRVed world more thoughtfully in 1969 and 1970."[36]

The complex SALT negotiations produced agreements, signed at the Moscow summit (May 1972), which confirmed each side's strategic advantages. An "Interim Agreement" had less consequence; it froze US and Soviet ICBMs at 1054 and 1618 respectively, but the Soviet lead in missiles was offset by the US advantage in MIRVs. Reflecting Kissinger's oversight in excluding SLBMs from his original back-channel freeze proposal, the final agreement froze US SLBM levels at 656 and 44 submarines, while allowing the Soviets to build up to 950 SLBMs and 62 submarines, as long as they retired over 200 old ICBMs. The "Interim Agreement" left untouched strategic bomber forces, preserving SAC's three to one advantage, as well as US forward-based systems (FBS) in NATO Europe. The most significant achievement, however, was the ABM Treaty, which sharply checked an arms race in this area by barring national missile defense systems altogether.[37]

With the SALT I Interim Agreement permitting modernization and replacement of old ICBMs, the Soviets moved ahead on the third generation of ICBMs that they had begun planning in 1969. In this way, the Soviets hoped to match US qualitative improvements but also compensate for FBS, British, French, and Chinese nuclear forces. After major controversy between design bureaus, defense industry leaders, and technologically conservative military officers over the degree of innovation, Brezhnev and the Politburo approved the development of three new MIRV-capable ICBMs: the SS-17, the SS-18, which would replace the SS-9, and the SS-19, slated to replace the SS-11. With these decisions, the defense industry sector, which was becoming a decisive player in setting force levels, secured more work, but the Strategic Rocket Forces became "saddled with three entirely different missile systems … with entirely different infrastructure, training requirements and maintenance demands."[38]

By the mid-1970s, the Soviets had begun to offset the US advantage in MIRVs. The SS-17 and SS-18 were especially formidable, with hardened silos, significant accuracy, and improved fuel storage and command-and-control

36 Garthoff, *Détente and Confrontation*, 153–61; Jussi Hanhimäki, *The Flawed Architect: Henry Kissinger and American Foreign Policy* (New York: Oxford University Press, 2004), 51, 83.

37 The following paragraphs draw on Podvig (ed.), *Russian Strategic Nuclear Forces*, 8–9, 130–32; Zaloga, *Kremlin's Nuclear Sword*, 135–53; Garthoff, *Détente and Confrontation*, 180–97; Hanhimäki, *Flawed Architect*, 220–24, Zubok, *Failed Empire*, 243.

38 Zaloga, *Kremlin's Nuclear Shield*, 135–41.

systems. US intelligence was well aware of these developments, having detected testing activity in 1972 and 1973. While the deployments would eventually fuel alarmist rhetoric in the United States about a "window of vulnerability," they did not threaten parity or give the Soviets a first-strike capability. Brezhnev saw them as legitimate moves wholly compatible with détente.

The protracted SALT II negotiations reflected a more complex political context for arms control, especially in Washington. Kissinger's secretive negotiating style antagonized the Pentagon and his position further weakened when Nixon purged ACDA in early 1973 in response to pressure from SALT critic Senator Henry Jackson (D-Washington). Removing moderate arms controllers from the internal debate strengthened hardliners like Secretary of Defense James Schlesinger and limited Kissinger's maneuverability. Kissinger himself complicated SALT II by pressing for the development of nuclear-tipped cruise missiles to increase US negotiating leverage. While Brezhnev remained strongly committed to the SALT process, his top commanders were highly suspicious of the negotiations.[39]

After two years of difficult negotiations, at the November 1974 Vladivostok summit, Brezhnev and Gerald Ford, Nixon's successor, reached an understanding that sought to limit the drive for strategic advantage. Based on the principle of equal aggregates, the agreement allowed each side up to 2,400 launch vehicles, bombers, and missiles, with a 1,320 sub-limit of MIRVed missiles. Both sides could improve strategic systems qualitatively. For senior US officials, the understanding reduced concern that the Soviets could get a numerical edge that would improve their political and diplomatic position. The agreement included no compensation to the Soviets for US forward-based systems; the Soviet high command thought this concession was unjustifiable, but Brezhnev forced them to accept it.[40]

Negotiations to fill in the details of the Vladivostok agreement bogged down during 1975 and 1976. Washington sought broad freedom of action to deploy cruise missiles, but the Soviets wanted limits on US deployments. Even more controversial was whether to count the Soviet Backfire bomber as a strategic system. Despite the disagreements, by late 1975, Kissinger and Soviet

39 Garthoff, *Détente and Confrontation*, 369–71, 467–73, 493–505; Zubok, *Failed Empire*, 221, 245.

40 Podvig (ed.), *Russian Strategic Nuclear Forces*, 14; Garthoff, *Détente and Confrontation*, 369–71, 467–73, 494–505; Minutes, National Security Council, January 29, 1975, Gerald Ford Presidential Library website, www.fordlibrarymuseum.gov/library/document/nscmin/750129.pdf.

negotiators were heading toward an understanding, but the Ford administration, facing re-election in 1976 and political challenges to détente and controversies over Angola and CIA estimates of Soviet forces, was losing its freedom of action. Kissinger's position was now weaker, and opposition from Secretary of Defense Donald Rumsfeld's Pentagon made completing a worthwhile agreement impossible in 1976.[41]

The SALT II stalemate dovetailed with other emerging US–Soviet controversies generated by routine pressures to improve weapons systems. Soviet decisions to replace obsolete MRBMs with up-to-date MIRVed SS-20 mobile missiles, and thereby preserve a full range of nuclear systems to meet all military needs, triggered questions in the West about the impact of the SS-20 on the nuclear balance. Senior Defense Department and West German officials, already supporting modernization of NATO nuclear forces, and misconceiving the SS-20 as a force for blackmailing NATO, wanted to find ways to counter the new missile. Moreover, in late 1976, Secretary of Defense Rumsfeld pushed for accelerated development of the highly accurate MX ICBM, as well as a more accurate Minuteman MIRV, which could destabilize US–Soviet strategic relations because of their counterforce and preemptive potential. All of these developments foreshadowed some of the US–Soviet tensions that emerged later in the decade.[42]

The nuclear Cold War

The US–Soviet nuclear competition of the 1960s and early 1970s saw the end of US nuclear superiority and the emergence of the strategic parity that would characterize the remainder of the Cold War. Driven by fear, credibility concerns, and organizational interests, both sides made massive investments in weapons systems whose use would have horrible consequences. Preemption came to be understood by both sides as highly dangerous and highly difficult technically. Indeed, US defense officials, and possibly their Soviet counterparts, were not sure how tactical nuclear weapons could be used without inviting catastrophe. As the nuclear danger increased and as

41 Garthoff, *Détente and Confrontation*, 502, 517, 596–601; Anne Hessing Cahn, *Killing Détente: The Right Attacks the CIA* (University Park, PA: Pennsylvania State University Press, 1998); Podvig (ed.), *Russian Strategic Nuclear Forces*, 13–14, 390–94; Zaloga, *Kremlin's Nuclear Sword*, 175.

42 Garthoff, *Détente and Confrontation*, 872, 958–74; Christoph Bluth, *Britain, Germany, and Western Nuclear Strategy* (Oxford: Clarendon Press, 1995), 114–21; John Edwards, *Superweapon: The Making of MX* (New York: W. W. Norton, 1982), 95–121.

taboos against the use of nuclear weapons strengthened, US and Soviet leaders sought to avoid high-stakes nuclear "poker games." They moved toward military strategies that postponed nuclear weapons use (flexible response), but also engaged in strategic arms control.

Even while détente and SALT were unfolding during the early 1970s, Cold War concerns continued to shape strategic policy. Both sides prepared for the worst by developing high-tech warning systems and heading toward launch-on-warning capabilities. Also making deterrence hazardous and uncertain, both sides developed new weapons systems, cruise missiles on the one hand, and MIRVed missiles on the other, that raised apprehensions about vulnerabilities to attack. By the mid-1970s, the prospects for an end to the Cold War were hard to imagine as arms control faltered and arms builders on both sides continued to develop and deploy new strategic weapons. US and Soviet leaders knew that it was insane to use nuclear weapons, but they wanted to keep them because of their fears and pursuit of national advantage.