

Pentagon R&D boss: The challenge of our time

Mike Griffin

Nov. 9 marked the 30th anniversary of the fall of the Berlin Wall, an event followed within a couple of years by the reunification of Germany, the dissolution of the Soviet Union and the freeing of the Eastern European vassal states. Francis Fukuyama thought we had reached “the end of history,” that global great power conflict was at its end and that the ascendancy of the Western liberal concept was the permanent future. “We won the Cold War” — it says so in all the history books.

Winning is great, except for the part where the losers retreat, rethink, retrain and try again; while the winner thinks the race is won once and for all — which is why the United States now finds itself [running from behind](#) in certain aspects of today’s great power rivalry. How did we get here, and what should we do about it?

It turned out that Fukuyama was optimistic; Russia and China never accepted Western ideals as future standards. Their adherence to and promulgation of authoritarian values and behaviors was, at most, slowed by the ascendancy of the Western alliance after World War II. Russia’s resurgence and China’s rise offer the sobering reminder that individual freedom, property rights, free trade in open markets, transparency and accountability in government, the rule of law, and the sovereignty of nations are not universally accepted as foundational principles for human society. They are privileges to be purchased by every generation, at a high price in blood and treasure.

Where possible, the United States has paid with treasure rather than with blood. This principle guided our Cold War policies. Knowing that we could not outnumber our adversaries, we invested to prevail technologically and sustained that discipline through eight presidential administrations. President Ronald Reagan won the Cold War by doubling down on the policies of the seven presidents who preceded him. Premier Mikhail Gorbachev lost because the Soviet Union could not keep up.

What did we buy with those investments? First was the [nuclear triad](#): our land-based intercontinental missiles, fleet ballistic missile submarines and strategic bombers. That force left no option for an adversary to surprise the U.S. and its allies with a decapitating first strike because the certainty of complete annihilation following such a strike was always there.

Equally critical was the ability to prevail against a larger force in a conventional fight. The U.S. seized the advantage with precision, with a precise conventional strike, enabled by pattern-matching seekers. With a global positioning system to guide force projection to the right place, [stealth technology](#) to hide our aircraft from enemy radar, encrypted high-rate communications to enable superior command and control, electronic warfare to deny that advantage to our enemies, [unmanned aerial vehicles](#) for both reconnaissance and force projection, and the uncontested dominance of the space domain to tie it all together, we prevailed.

These capabilities were transformational when first deployed, beyond the reach of any other society on Earth. But many are now available commercially, and others, such as electronic warfare and stealth, are now widely understood. Some

potentially transformative technologies such as artificial intelligence and machine learning, [5G](#), and microelectronics are driven not by defense but by commercial interests, and not solely by our domestic industrial base. In certain areas with no present commercial applications, [such as hypersonic flight](#), we are simply behind. And in space — once the uncontested linchpin of the U.S. war-fighting advantage — we are [challenged by Russian and Chinese determination](#), and capability, to deny that advantage. In brief, the United States no longer possesses the unquestioned technical superiority to dominate a future fight.

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At this juncture, we have not undertaken concerted defense modernization in more than a generation, and therefore have made marginal improvements to existing capabilities. These will not affect the outcome of a conflict for which our adversaries, knowing how we fight, have been preparing for a generation.

We know what we need to do. The National Defense Strategy outlines the investments we must pursue: a revitalized nuclear triad, microelectronics, cybersecurity, biotechnology, 5G, space, hypersonics, artificial intelligence, directed energy, autonomous systems, networked communications, missile defense and quantum science, among others. Superiority in these technologies, woven into a war-fighting architecture that challenges our adversaries rather than reacting to them, is the key to deterring or winning future conflicts.

The taxpayers have been generous with the defense budget, but it is insufficient to purchase more legacy systems while also creating the future force. So we must decide: What near-term risks are we willing to take, and what current systems are [we willing to let go](#), so that we can invest in capabilities that will impose costs on our adversaries and deter them from starting a fight because they know they cannot win? This is the critical national security challenge of our time.

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