

Summary: This paper examined the transatlantic alliance's reliance on superior technology to meet defense challenges. Yet, this strategy and transatlantic security responsibilities are under threat due to domestic factors, like budget cuts, and the rise of strategic powers, such as China, which present a challenge to military and technological superiority.

New Technologies in Security and Defense

by Ashley J. Tellis

Ever since the beginning of the post-war period, the transatlantic alliance, and the United States in particular, have relied upon technological superiority to protect their security and their strategic interests. This emphasis put on preserving the technological edge has been a sensible extension of the comparative advantages enjoyed by the alliance: the Western community is, in relative terms, capital-rich, with small but highly productive and innovative populations. Consequently, it relies predominantly on superior technology to meet the challenges of defense remained a sensible strategy for the West.

This strategy, which served the alliance (and the United States in particular) well for most of the postwar period is however likely to be stressed in the years ahead for at least three reasons.

First, the economic slowdown resulting from the global financial crisis has continued to take its toll on defense budgets throughout the Western community. In Europe, with few exceptions, defense spending has either held steady or contracted. Today, only a few alliance partners meet the NATO target of spending 2 percent of their gross domestic product (GDP) on defense. With the Alliance's operations in Afghanistan

winding down and the pressures from the European Union to limit national budget deficits increasing, the proportion of European resources expended on defense is likely to stay stagnant, if not actually contract.

Although the United States has made up for this deficit by funding NATO's shortfalls — now contributing some three-quarters of NATO's military spending, up from 63 percent in 2001 — U.S. defense budgets are also facing serious pressures at home. After the peaks associated with the post-2001 global war on terror, defense expenditures have been slowly shrinking in the years of U.S. President Barack Obama. This is due to a combination of domestic pressures to cut budget deficits, a substantial diffidence to commit military forces — especially ground forces — to resolve crises abroad, and a general war weariness among the general population at a time when GDP and employment growth still remain shaky in the aftermath of the global economic crisis. Thus, relative to the post-Cold War low of 2000, when U.S. defense spending hovered at some 3.7 percent of GDP, Obama's budget anticipates that U.S. defense spending would taper to some 2.3 percent of GDP by 2024, which would make it the lowest

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allocation of GDP to defense spending in the post-World War II era.

Whether in Europe or in the United States, therefore, the larger trend line is clear: defense spending is contracting inexorably and, barring some unanticipated future shock, is likely to remain that way. Although the recent crises in Ukraine and the greater Middle East have highlighted the dangers of a secular contraction in defense spending, there still does not appear to be the political will to reverse the larger trend. Although the European partners closer to Russia have signaled their intention to increase their defense spending, the most capable alliance members outside of Great Britain — France, Germany, Italy, and the Netherlands — are on course to sustain significant cuts in their defense budgets.

Since 2012, military spending among Asian nations, in particular China, has exceeded that of their European counterparts and will have significant future consequences for the global balance of power. The reduction in defense budgets is corrosive to the core alliance strategy to preserve military advantage through the induction of superior technology. Concurrently, as noted in Jamie Shea's paper, the cost of advanced weapons, which represent the West's traditional war fighting advantage, has exponentially increased across generations. This trend is exacerbated by the diminishing size of total system buys, the persistent fragmentation of demand and certification, and the multiplicity of national manufacturers of competing weapons system

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For the first time in a long while, the unfavorable economics of defense threatens to undermine the foundations on which Western military superiority has been based during the post-war period. This trend will continue to gather steam if the alliance cannot find a solution to its fundamental predicament here: the inability to sustain effective demand through the steady maintenance, if not enlargement, of the required levels of defense spending at a time when the various competing national defense manufacturers cannot produce the powerful end-items required for operational superiority at lower costs.

Second, the economic burdens imposed on maintaining superiority through technology are only exacerbated by the fact that the contributions from technology — as a discrete factor in assuring success in war — are likely to remain uneven across the spectrum of conflict. If this spectrum is decomposed into four broad types of operations — counter-terrorism and low intensity conflict, major conventional operations, nuclear operations, and non-kinetic warfare — it becomes obvious that technology is critical for success in every one of these domains, but its utility is often constrained by a variety of operational and political factors even when it might otherwise have singular effects.

Unfortunately for the Western alliance, the challenges associated with counter-terrorism (CT) and low intensity conflict (LIC) will remain the most likely dangers that the transatlantic community will have to confront for some time to come. This is certainly true for both the European partners as well as the United States, though the geographic scope of these challenges may vary. While technology will play a critical role in enabling the West to master these twin challenges, the evidence suggests that its contributions have indeed been dramatic when engaging discrete targets through standoff means is concerned. Although information technology has made spectacular contributions in aiding Western security establishments to fuse data in ways that give their armed forces the edge in both CT and LIC operations, the “business end” of war-fighting technology has displayed a spectacular effectiveness in the former in contrast to the latter.

Thus, for example, the Predator UAV operations conducted by the U.S. military against distant targets in CT operations have yielded dramatic gains, painting a stark contrast with the ways technology per se has been unable to replicate for the neutralization of armed opposition forces engaged in irregular combat against Western armies. The experi-

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ence of Afghanistan and Iraq corroborate the proposition that no matter how technologically sophisticated alliance combat forces may be, defeating an armed opposition force engaged in guerilla warfare still requires those elements that Western nations are most loath to commit: “boots on the ground,” time, and financial and material resources. The fact is that these, the most highly constrained assets, are necessary for success in what could very well be the most likely challenges facing the West for some time to come. Low-intensity conflicts arising from state failure, among others, on the wider European periphery, suggest that technology, the West’s greatest asset, will be stressed when the quest for quick victories is at issue. The threats posed by low-intensity conflicts to organized armies will undoubtedly require superior technology for success, but they are unlikely to be susceptible to pure technological fixes.

The contributions that technology makes to preserving Western, and particularly U.S., military superiority in major conventional operations (MCOs) are indispensable; however, significant threats to U.S. superiority in these operations still persist and may in fact be growing thanks to a combination of serious budgetary pressures and poor programmatic choices. The United States, especially, relies on its asymmetric advantages in technology for the success of its power projection operations globally. The fact of the matter is that its most effective components — those elements that possess extraordinary stealth, long range and persistence, and high lethality — namely, the stealth bomber contingent and the nuclear submarine force, are too small in number relative to the need for them, are

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rising in unit costs, and could face increased operational risk in many scenarios involving combat against regional adversaries.

The existing restrictions on access by U.S. and allied expeditionary forces in different parts of the world, but especially in East Asia, are only complicating matters, and they will only continue to grow. The irony, however, is that existent U.S. technological superiority cannot be brought to bear in its fullest except under conditions of unrestricted conventional warfare. In such circumstances, technology will bestow on U.S. warfighters an extraordinary operational edge, but the likelihood of unrestricted conventional warfare against major regional adversaries is relatively low and could in some circumstances be constrained by the threat of escalation to nuclear warfare, especially in contingencies involving China.

The challenges of investing in technology to resolve U.S. conventional predicaments (especially in Asia) are exacerbated both by the resurgence of problem-areas in Eurasia that were previously thought to be resolved — witness Russia and Ukraine — and by contingencies in the greater Middle East that U.S. policymakers would prefer to stay out of — the crises in Syria and Iraq being good examples. The current and prospective size of the U.S. military has not been metered to manage such recidivism, a reality made most painfully obvious by the contracting land forces, the general reduction of preparatory standards from the ability to conduct two major conventional campaigns “simultaneously” to something closer to one at the moment, and the continuing weak investments in integration with allied national capabilities, which only exacerbates the problem. Despite these shortcomings, technology still makes the most potent difference to success where MCOs are concerned. But it can play this role only if political choices, as expressed through adequate defense budgets, and if service choices, as expressed through sensible procurement decisions, are satisfactory.

Technology has always had a central role in protecting U.S. nuclear superiority during the Cold War as well. U.S. policymakers have traditionally emphasized the importance of maintaining the nation’s nuclear superiority not merely because of its role in protecting the country’s physical security but because both the security of the United States’ more vulnerable allies and its freedom to project power intimately depended on the possession of a nuclear arsenal that was second to none.

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Unfortunately for the United States and for the transatlantic alliance more widely, the risks to U.S. nuclear superiority are rising because of the actions of its nuclear peers, such as Russia and China, and the wider dangers of continuing nuclear proliferation. In these circumstances, the challenges to U.S. nuclear superiority are posed less by new technology and more by problematic political choices. The profound ambivalence about the utility of nuclear weaponry, even though post-Cold War U.S. nuclear superiority helps preserve U.S. freedom of action, is disconcerting because it contributes to a delegitimization of nuclear weaponry at a time when it is not at all obvious that global nuclear disarmament is a viable possibility.

The insistence on nuclear reductions driven more by politics than by operational requirements only exacerbates the dangers further. Undoubtedly, nuclear force modernization is costly, but budgetary pressures combined with utopian politics could result in the United States being unable to keep pace with near-peer denial strategies, developing a clear roadmap for strategic missile defense in the future, and imperfect offense-defense integration in the nuclear realm. Despite the uncertainties ensuing from the impact of cyber activities on nuclear operations, the fact remains that technology retains a preeminent role in the success of nuclear deterrence — but that reality could be undermined far more by strategic neglect and uncertainty within the alliance than by what Western challengers do to counteract it.

The dangers associated with non-kinetic threats, especially to space and cyber systems, are increasing at a time when vulnerability to both military systems and societal infrastructure is rising rapidly. If unchecked, these threats to space and cyber systems could undermine the fundamental U.S. advantages in networked warfare. Technology is certain to play a fundamental role here, as are the associated procedural systems, but the solution cannot consist of trying to ensure the invulnerability of every component or node. Such a goal would be incredibly costly and incredibly impractical; accordingly, the objective of defense in the space and cyber realm must be to ensure resiliency such that the defenders can continue to carry out both mission-essential and societal functions even when under concerted attack. Unfortunately for the transatlantic community, both the vulnerability assessments and the remedial actions required to ensure resiliency are at an early stage. Thus, although technology can make the vital difference to the

success of defense in this instance, the West is still far from being able to protect itself with confidence.

The bottom line, therefore, seems clear: the contributions that technology can make to secure advantages for the West vary, depending on the war-fighting realm in question. In some arenas, technology offers the promise of disproportionate benefits, in other arenas, less so. But even in those arenas where technology can make a difference, the larger budgetary constraints, not to mention the sometime failure of purpose, can end up depriving the alliance of the benefits of new technology for the enhancement of its security.

Third and finally, a significant challenge to protecting the West's erstwhile advantages in utilizing technology for procuring operational superiority is the rampant technology diffusion that accompanies globalization. The essence of the problem is simple to comprehend: although Western states need to maintain their technological advantages vis-à-vis their national competitors because of the pressures of rivalrous inter-state politics, these advantages — which derive from the innovations occurring within their societies — are potentially dissipated because the trading activities that engulf private actors across national boundaries end up distributing many strategic technologies to a country's geopolitical rivals through commercial transactions in the international market.

Thanks to this process, both U.S. and European enterprises often end up contributing to enhancing the military power of their countries' national competitors, such as Russia and China. What appears necessary for the success of Western business thus ends up subverting the security of their national parents — a process rendered all the more treacherous by the fact that differences in national technology

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controls, divergences in national enforcement regimes, and variations in commercial incentives across the market enable different recipient states to exploit the resulting “arbitrage” to secure the militarily critical technologies they might have been unable to produce domestically.

The challenge posed by the diffusion of advanced military technologies to Western rivals, then, raises a series of difficult questions for transatlantic cooperation. At the strategic level, it highlights the core issue of whether promoting the preservation of U.S. military superiority specifically, and Western military superiority more generally, is a transatlantic goal worthy of pursuit. Do the European and U.S. partners share a common vision of world order that can sustain such a goal? And if so, is there a common understanding of the collective benefits to the West of preserving their extant military advantages? And, finally, perhaps the hardest point, is there a willingness to bear the costs that would be necessary to develop and implement a coordinated strategy of denying critical technologies to the West’s rivals?

At the economic level, other questions present themselves. For starters, can the economic foundations of transatlantic defense be restructured to serve alliance interests (instead of narrow national purposes)? Addressing this question entails engaging multiple issues, such as, whether there is a willingness to accept the defense burdens essential to protecting common security, procure defense goods intra-alliance according to principles of comparative advantage, and procure defense goods intra-alliance in a way that avoids duplication and exploits economies of scale.

Finally, there are operational questions as well. Can a schematic transatlantic division of security responsibilities — both in regional and functional terms — be devised to advance common interests? Specifically, in this context, can Europe free the United States to deal with a rising China and a resurgent Asia? Can Europe and/or NATO increase its capacity for stability operations so that the United States can focus on peer competitors and the global commons?

At the end of the day, the real question pertaining to the challenge of preserving Western military superiority through technology in a globalized world is political: Is transatlantic solidarity a substantively meaningful concept where security in the post-Cold War period is concerned? Is it substantively meaningful enough to ensure adequate defense budgets, to protect and improve Western advan-

tages in the relevant war-fighting domains through wise investments wherever necessary, and to cooperate actively to deny emerging rivals the fruits of Western technological excellence?

The views expressed in GMF publications and commentary are the views of the author alone.

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