# Transforming Defense Capabilities: New Approaches for International Security

edited by
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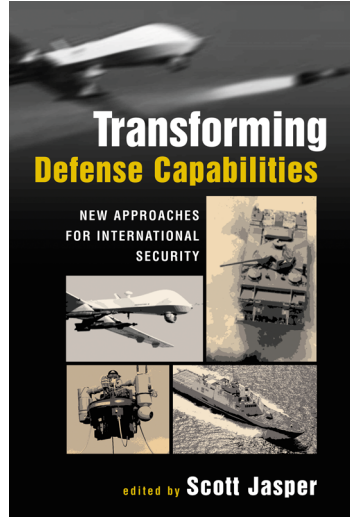
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# The Capabilities-Based Approach

## *Scott Jasper*

> We are all vulnerable. We're in this together. From the point of view of the Islamic terrorists, New York is a target and Washington, D.C., is a target, Los Angeles . . . London, Madrid, who knows where else, Rome, Paris.
>
> —*Former New York mayor Rudolph Giuliani*[1]

The terrorist attacks on New York City and Washington, D.C., on 11 September 2001 marked the entrance onto American soil of ruthless transnational terrorism. Devastating subsequent attacks against commuter networks in Madrid and London confirmed that this unanticipated threat extended to European societies as well. While the horrific attacks against tourist facilities in Bali (October 2002), Jordan (November 2005), and Egypt (October 2006) displayed the global influence of these unpredictable adversaries, they also galvanized world resolve to defend national populations and common values. At the Riga (Latvia) Summit in 2006, the North Atlantic Council reaffirmed that resolve in declaring that "we confront complex, sometimes inter-related threats, such as terrorism, increasingly global in scale and lethal in results, and the proliferation of Weapons of Mass Destruction and their means of delivery, as well as challenges from instability due to failed or failing states."[2] At the Bucharest (Romania) Summit in 2008, the North Atlantic Council declared its members will "ensure we have the right kind of capabilities to meet the evolving security challenges of the 21st century, and to do so, we will transform, adapt and reform as necessary. Transformation is a continual process and demands constant and active attention."[3]

The capabilities-based approach to defense readiness, used by the United States and the North Atlantic Treaty Organization (NATO), provides a deliberate and universally applicable means to turn transformational concepts and operational requirements into fielded capabilities that can meet current and future security concerns. It focuses more on how adversaries may challenge us than on who they might be or where we might face them. This planning approach identifies a broad set of capabilities that international military forces will need to deter and defeat adversaries who will rely on surprise, deception, and asymmetric warfare (the use of dissimilar means or methods to circumvent or negate an opponent's strengths while exploiting weaknesses to obtain a disproportionate result) to achieve their objectives.[4] The approach aims to determine capability requirements for preparing joint operating concepts and executing tasks across a broad range of scenarios and missions, and to suggest prototype solutions to be assessed through joint experimentation.

This chapter will begin by exploring the changing nature of warfare and crisis, defining the overarching need for international defense transformation, and describing the shifts in defense policy that are necessary to accommodate it. The chapter then offers examples of methodical, capabilities-based means to identify and field the assets needed to maintain a competitive advantage over adversaries. Finally, the chapter will propose a broad set of necessary capabilities worthy of consideration in international defense transformation plans.

## Compelling Need to Transform

> We must recognize that new asymmetrical threats call for different kinds of warfighters, mission systems and strategies. We need to be smarter, lighter, more agile, and more lethal. Only by applying our own asymmetric advantages—our people, intellect and technology—and by maintaining a force correctly shaped, sized, trained and equipped can we adequately defend the nation.
>
> *—Admiral M. G. Mullen,*
> *chairman of the United States Joint Chiefs of Staff* [5]

Defense transformation at its best uses forward-looking techniques that strive to anticipate future threats and create capabilities that will meet future conditions. *Transformation* is defined as a continuous process that shapes the nature of military competition and cooperation through new combinations of emerging technologies, streamlined organizational structures,

innovative processes, and adaptive personnel developments that exploit national advantages and protect against asymmetric vulnerabilities. By definition, transformation has no end state.

The principles of transformation originate from the proposal for a new revolution in Soviet military affairs, which first appeared in the writings of Marshal N. V. Ogarkov in the early 1980s. Ogarkov based the imperative for revolution on the inadmissibility of a limited nuclear war and the qualitatively new combat characteristics of precision conventional weapons and microcircuitry that the United States was beginning to field. Ogarkov wrote that the "creation of non-nuclear means of armed combat with great destructive force . . . is sharply changing the nature of war, the methods of unleashing it, and its possible consequences."[6] The realization of this forecast came quickly in Operation Desert Storm (1991), where the synergistic use of precision-guided weapons, global positioning systems, and the Internet codified what was being called the ongoing American revolution in military affairs (RMA).[7]

Skeptics questioned whether an actual change in the nature of war occurred in the 1991 Persian Gulf conflict or whether the swift victory was really caused by Iraqi tactical errors in cover, concealment, suppressive fire, and combined arms.[8] While the Gulf air campaign, by proving mechanized ground forces can be destroyed at long ranges from the air, met the criteria that an RMA should either render obsolete or create a core competency in some dimension of warfare, the German blitzkrieg of World War II, in which highly mobile armored forces rapidly broke through enemy lines to change the paradigm of static defense of prepared positions, might provide a more exact example of an RMA.[9] The blitzkrieg model also demonstrates how combinations of tactical concepts (offensive shock), organizations (combined arms), and technologies (radio communications and internal combustion engines) can be used to solve strategic problems.

The United States used cutting-edge technologies that seemed to presage an RMA to maintain air superiority in operations in Bosnia and Serbia (1992–1999), but ground failures in Somalia (1993) and Kosovo (1999) yielded the realization that Cold War structures did not fit emerging operations. Defense planning shifted from the "threat-based" model that had dominated past thinking to a "capabilities-based" model for the future. The less unsettling term *transformation* replaced *revolution in military affairs* to characterize the planned extension of asymmetric advantages well into the future.[10] Early advocates of twenty-first-century transformation pushed the notion that advances in information technology could create a new theory of war in which networked forces would predictably outperform forces that lack network capabilities.[11] The concept was undeniable, but its advocates

suffered from overzealous implementation of network centricity beyond its utility for fighting the predominant kinds of war.[12] Today, therefore, transformation is recognized to be more than just net-centric-type technologies; it must encompass combinations of operational, organizational, and personnel changes that exploit technological innovation. Transformation is intended to improve "the capability of units to conduct full spectrum operations" as evident in military service plans for "transforming to meet the challenges of the new security environment characterized by an era of persistent conflict with adaptive enemies in complex environments."[13] Simply stated, the overall goal of defense transformation is to shape the conduct and character of warfare and crisis resolution to sustain or create superiority across all defense operations.

Those operations take place in a world embroiled in continuous change and widespread instability. The fascist and communist states that were defeated in the twentieth century engaged in traditional forms of conventional military and, in some cases, nuclear competition. Today, the strategic environment is beset with violent political visions and extremist ideologies that generate a new array of challenges to national interests and power. Terrorist and insurgent opponents use increasingly sophisticated irregular methods of attack to erode national influence, patience, and will. Some of these hostile forces and problem states seek catastrophic means to produce calamitous effects that could paralyze national power.[14]

State competitors are trying to develop disruptive technical capabilities in key areas, such as biotechnology, cyber operations, space, and directed energy weapons, that could offset the advantages enjoyed by today's preeminent militaries.[15] Meanwhile, rogue states that sponsor acts of terrorism and undermine world order continue to obtain sophisticated conventional military capabilities.

States that have failed or are failing as a result of political disorder, resource corruption, ideologically centered mismanagement, economic collapse, and ineffective social infrastructure generate threats by their very instability.[16] Weak law enforcement institutions, lax financial regulations, and limited economic alternatives for citizens tend to foster transnational organized crime, such as illicit drug trading, trafficking in persons for prostitution and forced labor, intellectual-property counterfeiting, and money laundering.[17] Lack of effective governance in failed states also affects maritime security; violent piracy has soared in underpatrolled coastal waters, including attacks on merchant vessels, cruise line ships, and even supertankers.[18]

To compound the precarious security situation, devastating natural disasters and pandemic diseases can overwhelm fragile nations in the world's

most turbulent regions. Only an international response could cope with the enormous loss of life and shelter that followed the massive tsunami in the Indian Ocean in December 2004, the mammoth earthquake in South Asia in October 2005, and the cyclone that smashed Myanmar in May 2008. Entire societies are at risk of panic, disruption, and suffering by the global transmission of infectious diseases, such as a mutated avian influenza virus that acquires the ability to transmit rapidly from human to human and becomes a worldwide pandemic.[19] Although international partners might perceive the severity of these various threats differently, the enormity of these events becomes universally apparent when they converge in crises.

These challenges to national and collective security bring into stark relief the compelling need for international defense transformation. Modern adversaries threaten domestic security with kinetic strikes or even nuclear, chemical, and biological attacks, potentially delivered by ballistic missiles. Increased human mobility and porous international borders, the by-products of the interconnected effects of globalization, facilitate the movement of transnational factions; the transfer of sensitive technology, hazardous material, and advanced weapons; the conduct of illicit trade; and the spread of pandemics. Falling barriers to competition in the Information Age allow adversaries to equip themselves with advanced technologies that were previously unaffordable to all but the most advanced militaries. As of this writing, distributed (noncontiguous) enemies have access to key information domains through commercial innovations such as the Internet, cellular networks, global positioning systems, high-resolution imagery, and digital mapping technologies.

If the international community fails to transform defense capabilities, we risk the loss of competitive advantage over complex and adaptive adversaries employing the full range of traditional, irregular, catastrophic, and disruptive methods in an unstable world. This creative and continuously evolving threat to security is dispersed and unpredictable in nature. An effective response to how adversaries may challenge us demands a capabilities-based force that is integrated seamlessly across joint, multinational, and interagency partners.

## Defense Policy Shifts

> Future NATO forces must be agile, joint and expeditionary in character and design. They must be capable of integrating operations across the spectrum of conflict.
>
> *—Admiral Sir Mark Stanhope, British Royal Navy,*
> *former deputy Supreme Allied Commander Transformation*[20]

Most of the methods that adversaries are likely to use threaten national and collective security interests. Ideological targets include domestic security, democratic development, human dignity, rule of law, economic liberty, and energy security. In order to secure its country's vital interests, a nation's defense policy must set priorities for defense transformation agendas. Appropriate defense objectives might be to

1. Guarantee territorial integrity, sovereignty, and political independence.
2. Provide capacity for crisis response across the spectrum of operations.
3. Secure strategic access and freedom of action in the global commons (space, international waters and airspace, and cyberspace).
4. Strengthen integration into international collective security structures.
5. Promote international order, peace, stability, and security.

A capabilities-based force is the means to achieve defense objectives. To ensure forces are optimally sized, shaped, and postured to support national and collective operations, defense policy must shift its emphases across the following broad areas:[21]

1. From single-focused deliberate threats to complex crisis response;
2. From solely nation-state threats to those including decentralized nonstate network threats;
3. From conducting war against nations to conducting war in safe havens;
4. From major conventional combat to multiple irregular, asymmetric operations; and
5. From static-defense, garrison forces to mobile, expeditionary operations.

The capabilities-based force must have the ability to defeat any adversary or control any situation across the range of military operations. The spectrum extends from collective defense to counterterrorism and consequence management, from counteraggression and peace enforcement to humanitarian and military support operations. Future forces must be able to conduct operations whenever and wherever they occur, even in complex urban settings, congested littorals, or remote, austere locations. To ensure operational effectiveness, the conduct of joint warfare and crisis resolution must undergo the following changes:[22]

1. The customary process of top-down sequential planning and controlled execution shifts to top-down guidance with bottom-up collaborative planning and execution, where multiple networked

components apply decentralized initiative to react faster than the enemy's decision process or faster than crisis conditions deteriorate.

2. Sequential and pulsating pressure against an enemy force or objective shifts to simultaneous and continuous pressure in nonlinear and distributed operations, by which interdependent forces dispersed throughout the battle space attack directly and concurrently at enemy centers of gravity from multiple directions.

3. Deconflicted operations by multinational or service forces employed in their own dimensional area shift to self-synchronized operations guided by commander's intent, so that interoperable tactical-level units integrate activities based on shared information and a common operating picture.

4. Service-platform-centric operations shift to fully integrated network-enabled operations, whereby networked sensors, decision-makers, and shooters are able to increase combat power through improved speed of command, lethality, and survivability.

5. Massed forces shift to massed effects, by which instruments of national power (political, economic, military, and civil) apply a common focus and a holistic understanding of the operational environment to collaborate on actions that influence or change adversary behavior.

## Examples of the Capabilities-Based Approach

> Transformation, irrespective of the level it occurs at, can be carried out only if it is understood and accepted in terms of necessity, opportunity and effective commitment of all who are in charge with implementing it.
> —*General Eugen Badalan, Ph.D.,*
> *chief of the Romanian Armed Forces General Staff*[23]

A *capability* can be defined as "the ability to generate a desired effect" in a military operation, under a set of conditions, and to a specific standard. A methodical capabilities-based approach will enable planners to identify and field broad capabilities that counter adversary methods. Following are two examples of ongoing collaborative processes.

### Capability Development Process: The NATO Approach

Allied Command Transformation (ACT), NATO's agent to force change, formulated a systematic methodology for moving from threat-based to capability-based planning it calls the Capability Development Process, shown in Figure 1.1.

**Figure 1.1 NATO Capability Development Process**
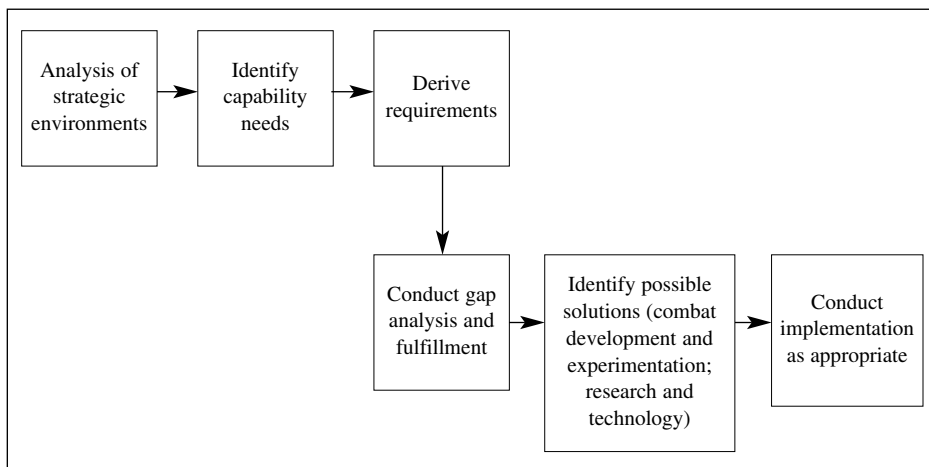
The first step in capabilities development is an analysis of the strategic environment, which includes a description of the predicted security environment and identifies potential types of military missions. The next step is to identify capability needs; these are generalized descriptions of known or desired capabilities necessary to accomplish particular missions. This step applies transformation concepts that offer an idea of how to solve a problem or create a certain effect. They elucidate a set of key attributes that shape desired capabilities, such as agile, joint, expeditionary, interoperable, networked, collaborative.

The third step, to derive requirements, refines capability needs to produce tangible capability requirements, expressed in Doctrine, Organization, Training, Material, Leadership and Education, Personnel, and Facilities (DOTMLPF). A systematic assessment of needs will produce requirement details such as how much, how far, how fast, and how many. The determination of requirements starts with the development of "planning situations" that capture all aspects of NATO mission types.[24] Planning situations are examples of various collective defense and crisis response operations that could occur within the planning period, and within the possible geographical areas. The planning situations are selected to ensure that there is a mix of mission types, terrain, and climates, at suitable distances from alliance nations. These are used to identify the minimum military requirement to

satisfy the alliance's level of ambition.[25] Planners perform a mission-to-task assessment, using the projected situations to determine operational objectives and key tasks and thus identify qualitative and quantitative capability requirements.

In the fourth step, which is to conduct a gap analysis and fulfillment study, overall requirements are translated into generic forces and units that can be compared to national inventories and armaments programs. The outcome of this assessment is a clear understanding of fulfilled capability requirements, shortfalls to be addressed, or recommendations for excess inventories reduction. The penultimate step, to identify possible solutions, uses approaches such as the assessment of prototype military utility in realistic experimental settings, for instance in operational exercises or on the battlefield itself. Finally, the implementation of DOTMLPF configurations, the last step, can be conducted with tools such as Force Proposals for national contributions or Capability Packages for NATO common funding.
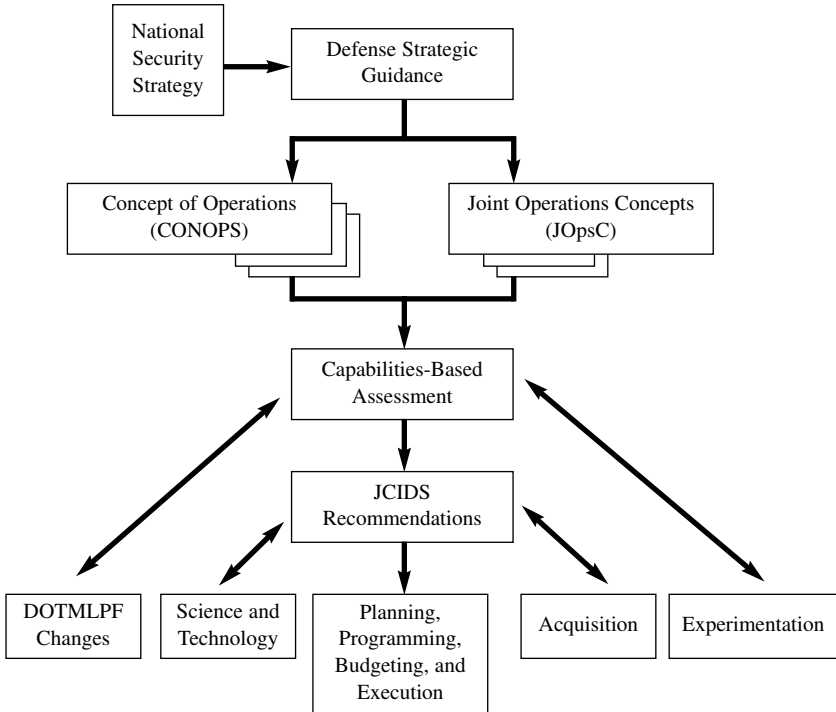
### Joint Capabilities Integration and Development System: The US Approach

The US Joint Staff developed a concept-centric capabilities identification process that will allow joint forces to meet the full range of military operations and challenges of the future: the Joint Capabilities Integration and Development System (JCIDS). Within the Top-Down Capability Need Identification Process, depicted in Figure 1.2, the Capabilites-Based Assessment (CBA) identifies capabilities, gaps, and redundancies as well as potential means to solve problems.

The mandate for the CBA is guidance on the country's defense interests, objectives, and priorities, as provided in national strategy documents. The guidance is further refined at the operational battle space level by Joint Operations Concepts (JOpsC), which provide a common vision of how forces would like to operate in the future, along with their desired attributes.[26] For example, the Capstone Concept for Joint Operations describes the key attributes of joint forces: knowledge empowered, networked, interoperable, expeditionary, adaptable or tailorable, enduring, precise, fast, resilient, agile, and lethal.[27] A CBA may also be based on a joint, service, or agency Concept of Operations (CONOPS) that covers the problem, the mission, and intended effects.

The CBA methodology starts with a Functional Area Analysis (FAA) that identifies the operational tasks, conditions, and standards needed to achieve military objectives for joint, coalition, and allied operations. Sample scenarios that depict a wide range of relevant military situations provide

**Figure 1.2 US Top-Down Capability Need Identification Process**



*Source:* Office of the Joint Chiefs of Staff, "Joint Capabilities Integration and Development System," Chairman of the Joint Chiefs of Staff Instruction 3170.01F, 1 May 2007: A1–A10.

a means to assess capabilities and attributes. The scenarios represent defense strategy guidance and portray the spectrum of anticipated conditions, such as enemies, environments, and access challenges. The military objectives of the scenarios are used to develop a list of desired capabilities using the common lexicon established in the Department of Defense Joint Capability Areas. Tasks that describe doctrinal approaches for providing these capabilities are drawn from the Universal Joint Task List (UJTL) to create an overarching task structure. Standards for these tasks can be used to assess capabilities. Standards are a quantitative or qualitative measure to specify the acceptable level of performance of a task. Relevant attributes in the concepts are used to develop an appropriate set of measures with criteria for determining adequate mission performance.[28]

The next CBA step is a Functional Needs Analysis (FNA) that assesses the ability of current and planned force and system capabilities to meet the military objectives of the scenarios. Using designated tasks, conditions, and standards, the FNA evaluates whether there are capability gaps or redundancies, and assesses the risk any capability gaps might pose to the mission and to the force. Performance data are analyzed to see how well force elements and systems operate within the scenarios and why some outcomes might not be acceptable according to criteria specified in the FAA measures. Capability gaps could simply reflect a lack of needed assets, but they might also be due to limitations in proficiency, sufficiency, or policy. The output of the FNA is a prioritized list of pressing gaps that are linked to force priorities identified in the strategic guidance.

The final step is a Functional Solutions Analysis (FSA) that assesses potential approaches to solving or mitigating the capability gaps. The scope of approaches encompasses changes in existing DOTMLPF, policy, or CONOPS alternatives. Proposals must meet the criteria of being strategically responsive (deliverable when needed), feasible (with respect to policy, sustainability, personnel limitations, and technological risk), and realizable (affordable within the required timeframe). Various alternatives can be grouped into sets of options portfolios related by a common theme, such as total solution cost, strategic risk guidance, or employment domain. The portfolios for each framework can then be analyzed within the scenarios for effectiveness and risks using designated measures. The outputs of the FSA are JCIDS recommendations, which can be converted to acquisition programs or treated as candidates for joint experimentation assessment.

## Future Character of Warfare and Crisis

> In the face of US superiority in conventional, high-technology warfare, potential adversaries are developing strategies designed to counter or circumvent vital US operational capabilities and to undermine strategic political and public support for military action.
> —*Dr. Mathew J. Burrows, National Intelligence Council*[29]

Asymmetric warfare by smart and adaptive enemies is the hallmark of how adversaries may challenge us in the early twenty-first century. With such an approach, the adversary avoids direct force-on-force tactical engagements. Instead, he employs an oblique strategy that uses unconventional equalizers to achieve disproportionate effects. A low-end example is the use of shoulder-fired, heat-seeking missiles to shoot down a low-flying tactical helicopter or a cargo aircraft on takeoff. A more technologically advanced

example would be the use of a shore-based surface-to-surface missile to destroy a high-value unit such as an aircraft carrier. Cross-domain asymmetric approaches could include cyber attacks aimed at networks critical to military or commercial information systems, or space attacks on satellites by kinetic kill vehicles launched aboard ballistic missiles.

"Fourth generation" warfare uses primarily asymmetric methods to achieve political outcomes. The first generation of modern warfare encompassed massed manpower and the line and column tactics of the Napoleonic Wars, the second was dominated by massed firepower in the heavy artillery barrages of World War I, and the third was characterized by nonlinear maneuver starting with the German blitzkrieg in World War II. Fourth generation war focuses on the use of all available networks—political, economic, social, and military—to convince enemy decisionmakers that their strategic goals are either unachievable or too costly for the perceived benefit.[30]

Fourth generation warfare seeks to collapse the enemy from within by destroying public support and political will. The whole of the enemy's society becomes a target. Small groups of combatants operate flexibly to carry out mission orders based on their commander's intent, using methods that differ substantially from an opponent's usual mode of operations.[31] Fourth generation warfare looks like an evolved form of insurgency, a type of conflict not necessarily new to global societies, given that over 200 insurgent-state dyads have occurred in the past sixty years.[32] While insurgency strives to defeat or displace the state, however, fourth generation warfare directly targets the will of the enemy (and its allies) to continue the war.

One distinctive characteristic of fourth generation adversaries is the manipulation of modern media to erode the support of the enemy's public for their government and policies. The media have become a powerful mechanism to conduct psychological operations through intimidation and instilling a sense of futility, intended to discourage rivals from committing combat forces. Digital cameras or camera phones provide vivid images of atrocious acts or perceived injustices that are instantaneously broadcast by twenty-four-hour news outlets. Media-produced propaganda scenes amplify the horrors of war and influence domestic and world perceptions. For example, the Al-Qaida-affiliated television station Al-Zawraa promoted violence against the United States in Iraq by broadcasting images of destroyed mosques and dead children to the Islamic community.[33]

### Cataclysmic Terrorism

Islamic extremists seek to impose a radical ideology and political tyranny on the world through terrorist methods that reflect fourth generation warfare

tenets. Al-Qaida-affiliated or -inspired terrorist networks have conducted dramatically destructive acts against innocent people across the world, using fear of unpredictable violence as a means to change political or social positions. Although terrorism is certainly not unique to the modern era, the global ascension of liberal democracies has provided a vast new array of largely indefensible targets. Localized cellular terrorist networks exploit those vulnerabilities inherent in free societies to attack from within by the ultimate asymmetric weapon, the suicide bomber. Rigorous adherence to legal due process and zealous guarding of civil liberties inadvertently obscure the embedded terrorists' identities and intents. Democratic demands for open society and trade, fair multiethnic treatment, porous borders, and unfettered access to information and technology leave infrastructures and populations open to sensational attack by human-transported bombs, worn in explosive vests, driven in cars, or hidden and detonated by timers or remote control.[34]

In Madrid on 11 March 2004, for example, an Islamic extremist faction called the Moroccan Islamic Combatant Group attacked four commuter trains during the morning rush hour. They used ten mobile phones to detonate explosive devices hidden in rucksacks, killing 191 people. Two days later a videotape by a purported Al-Qaida spokesperson in Europe linked the attacks to revenge for Spain's "collaboration with the criminal Bush and his allies." On 14 March, Spain's Socialist Party, which pledged to bring home troops from Iraq, scored an upset in the general election over the Popular Party, which backed the Iraq War and had been stung by charges of government mishandling of the bombing investigation.[35] The brutal nature of these politically charged attacks supports the assertion that radicalized terrorist factions do not appear to possess empathy for the suffering of others and therefore would not hesitate to use weapons of mass destruction to achieve ideological objectives. In fact, Al-Qaida's leader in Iraq called for nuclear scientists to join the jihad and test unconventional weapons against American bases.[36]

### Cross-Cultural Conflicts

The deterioration of the situation in Iraq after the conclusion of US-led combat operations was the result of sectarian violence superimposed on a tenacious insurgency.[37] Sunni Arab insurgents seek to restore Sunni control, and Al-Qaida fighters want to defeat Western forces so they can spread their radical version of Islam throughout the Middle East. The insurgents employ guerrilla tactics (bombings, assassinations, kidnappings, and infiltrations) to disrupt the establishment of effective governance and the reconstruction

of economic independence. Acts of seemingly indiscriminate violence contributed to an astonishing death toll of more than 34,000 Iraqi civilians during 2006, further undermining attempts to establish centralized democratic governance.[38] To complicate matters, rogue Shiite militiamen from the Mahdi Army joined the fight against US and Iraqi troops,[39] while, in contrast, some Iraqi Sunnis turned against the mostly foreign-composed Al-Qaida in Iraq because of its extreme tactics and attempts to impose restrictive Islamic law.[40] To limit Al-Qaida's influence, they created "Awakening Council" movements or became "Concerned Local Citizen" fighters to protect their communities, and in turn suffered heinous reprisal attacks by jihadists.[41]

Insurgents and militants defeat Western coalition conventional superiority by exploiting force vulnerabilities, preferring to operate in congested urban terrain where overhead sensors, long-range precision weapons, and rules of engagement have limited value against an elusive and embedded enemy. The insurgents' asymmetric weapons of choice against coalition forces are the dreaded roadside improvised explosive device (best known by its acronym, IED) and the more sophisticated explosively formed penetrator (EFP), which have caused over half of the American combat casualties in Iraq. Persistent media reporting of the mounting death toll and extended military commitment contributed to the erosion of American public support for the war, first evident in the Republican Party's loss of Senate control in the November 2006 elections, in which Democratic Party candidates seeking to change the administration's Iraq policy defeated six incumbents to gain a majority.[42]

### High-Technology Warfare

Nation-state competitors realize that the use of asymmetric tactics, including anti-access measures, could create opportunities to exploit the weaknesses of a militarily superior opponent. An anti-access measure is any action to slow deployment of forces or to compel opponents to operate from distances greater than normally preferred. Hostile regimes could use modern weapon systems to strike quickly, even preemptively, and inflict large numbers of casualties, creating a traumatic experience that undermines the friendly population's will to continue in the conflict. Asymmetric attacks could occur upon aircraft carriers, information systems, space-based assets, logistics systems, air bases, and ports, blurring the location of the combat zones and logistics staging areas.[43]

Key point strikes by the adversary are not necessarily designed to achieve a total military victory but to accomplish limited political goals in

a local war. This high-technology version of fourth generation warfare aims to attain the desired political outcome by convincing decisionmakers in the friendly population that the risks and costs of the war are too great. Even if the conflict continues into total war, unbearable economic and social pain inflicted from loss of trade in consumer goods or natural resources could mean loss of the war "on the empty shelves of Wal-Mart," as business lobbyists clamor for the government to negotiate a compromise to end the conflict.[44] The United States recognized this challenge to security in the 2001 Quadrennial Defense Review Report, which identified "defeating anti-access and area-denial threats" as one of six critical operational goals for focusing transformation efforts.[45] Thus, the improvement of high-intensity conventional capabilities is an important aspect of transformation. This type of scenario has justified production of advanced weapon systems, such as the US Air Force F-22A Raptor for long-range air defense, heralded as key to defeating future air-to-air and surface-to-air threats.[46]

## Most Dangerous Adversaries

> We have to confront not single, easily identifiable threats but flows: that is to say terrorism allied to drug profits or cyberspace; or small arms allied to militias and to illicit diamond trading; or organized crime networks allied to nuclear proliferation.
> —*Jaap de Hoop Scheffer, NATO secretary-general*[47]

Nearly half of global terrorist networks are tied to narcotics trafficking, including the terrorists behind the 2004 Madrid train attacks, who dealt hashish and ecstasy to pay for explosives.[48] Jihadist cells in Europe have become racketeering syndicates that engage in low-level fraud. Lucrative scams include credit card fraud, identity theft, sham life insurance claims, and pirated multimedia sales. In North Africa, radical Islamists and Al-Qaida affiliates partner with criminal organizations to profit from human smuggling into Europe. In Asia the Al-Qaida affiliate Jemaah Islamiyah engages in bank robbery, and the latter used profits from jewelry store robberies to finance the 2002 Bali nightclub bombings that killed primarily Australians.[49] Insurgents in Iraq also have used the criminal playbook to become financially self-sufficient, raising tens of millions of dollars a year from oil smuggling, kidnapping ransoms, counterfeiting, and corrupt Islamic charities.[50] Insurgents have additionally financed their war effort by extorting from Iraqi contractors cash payments in exchange for safe passage of supply convoys.[51]

The goal of modern adversaries, no matter whether terrorist, insurgent, or hostile regimes, is to dissuade, delay, disrupt, or make ineffective military

intervention in their activities. In designing a capabilities-based force that can achieve competitive advantage over these enemies, it is imperative to understand succinctly how adversaries may challenge us in twenty-first-century operational battle space. Among many options, the most likely adversarial strategies for using the full range of traditional, irregular, catastrophic, and disruptive methods are

1. Terrorism, atrocities, and asymmetrical strikes that have shattering effects and surprise opponents' intelligence, like liquid explosives or biological agents on airliners, or long-range ballistic missile systems.
2. Protracted conflict campaigns that exploit misinformation and produce calamitous human suffering, like indiscriminate bombings on marketplaces, religious sites, workplaces, bus stations, or police recruiting centers.
3. Infrastructure attacks that disrupt financial, information, and transportation networks or energy, food, and water sources, such as kinetic destruction of gasoline distribution facilities or electrical power stations.
4. Counterairpower superiority methods that deny precision targeting and attack, like hardened underground facilities, concealment and deception tactics, advanced surface-to-air missiles, and counterspace weapons.
5. Anti-access capabilities that deny force embarkation, like multiple warhead ballistic and antiship cruise missiles, high-speed torpedoes, swarm missile boats, diesel submarines, and rocket-propelled mines.

## A Broad Set of Capability Needs

> Australia cannot and will not abandon Afghanistan. We need to remain committed to supporting this fledging democracy. The struggle against extremism continues.
> —*John Howard, former Australian prime minister*[52]

In military operations, capabilities allow forces to set the conditions (ensure access and freedom of action), control the situation (stop the killing, suffering, or dying), and achieve decisive resolution (dispose of regimes, establish a secure environment, or restore vital services). Australian reconstruction teams working in southern Afghanistan are an example of how combat engineering and security capabilities can assist the nation to achieve a stable future, despite persistent opposition from the Taliban-led extremist insurgency.[53] Given the need to sustain preeminence over twenty-first-century

threats, and the wide range of probable scenarios and mission types that may emerge, the capabilties-based force must have the ability to

1. Express a compelling set of goals for military, interagency, and multinational partners, and define comprehensive effects that will achieve the desired outcome;
2. Share a complete understanding of the full dimensions of the operational environment and of all partners' equity or influence in the conflict;
3. Establish an accessible and user-friendly common operational picture, and a collaborative strategic-to-tactical environment supported by standing operating procedures;
4. Deploy persistent, enduring, and stealthy intelligence, surveillance, and reconnaissance systems and other appropriate means to identify hostile elements;
5. Field compatible, culturally aware forces, with the greatest practicable interoperability and standardization, that can effectively conduct operations in demanding geographical and climatic environments;
6. Project joint forces directly to the objective, in a position of advantage, from intertheater and intratheater distances;
7. Employ adaptive, modular, and mission-oriented expeditionary forces throughout the battle space;
8. Develop procedures and systems to generate lethal and nonlethal effects through fully integrated combat fires, maneuver of forces, and information operations, while limiting collateral damage;
9. Provide layered security for populations, territory, forces, and systems, including critical infrastructure, information, and space assets;
10. Sense, detect, identify, defend against, and recover from chemical, biological, radiological, nuclear, and high-yield explosive attack;
11. Establish and operate an adaptive, timely, distribution-based support system with improved commonality, reliability, maintainability, and survivability;
12. Integrate military support with government, nongovernment, and civilian capabilities in stabilization operations, reconstruction efforts, and humanitarian relief operations.[54]

## Conclusion: An Adaptive Enemy

> This year [2007] will prove to be the bloodiest for the foreign troops. It is not just a threat, we will prove it.
> —*Mullah Dadullah, senior Afghan Taliban commander*[55]

I'm not convinced we're winning it in Afghanistan [in 2008]. . . . The Taliban and al Qaeda have grown bolder in launching ever more sophisticated—even infantry-like—attacks against fixed coalition positions.
        *—Admiral M. G. Mullen, chairman of the US Joint Chiefs of Staff*[56]

Our adversaries are tenaciously devoted to their cause. They are smart, adaptive, and constantly seeking new ways to challenge us. For example, the Taliban in Afghanistan have adopted Al-Qaida-style tactics, such as suicide bombers who achieve spectacular effects; one such attack during a diplomatic visit by the US vice president made a dramatic geopolitical statement.[57] The insurgents in Iraq implement new tactics in a campaign to provoke fear, such as combining tanks of toxic chlorine gas with explosives to make chemical weapons.[58] This menacing actualization of fourth generation, or irregular, warfare has garnered tacit international cooperation to improve collective defense capabilities. At the other end of the spectrum, potential international military competitors are fielding advanced systems for attacking asymmetric vulnerabilities—systems such as long-range ballistic missiles,[59] anti-access cruise missiles,[60] and counterspace antisatellite missiles.[61]

As disruptive technologies become cheaper and more readily available, enemies could exploit coalition force, site, and system protection vulnerabilities with directed energy weapons, multimedia information operations, electromagnetic pulses or high-power microwaves, or other "weapons of mass effect." A shift in capability portfolios must replace comfortable legacy programs focused on traditional threats with capabilities packages that are relevant to current and future challenges. Capabilities-based planning addresses the ramifications of how adversaries may challenge us in the twenty-first-century complex security environment. This systematic approach is ideal to identify required capabilities, analyze gaps, and determine excesses as well as potential solutions to mitigate capability shortfalls.

In the capabilities-based process, innovative thinking results in prototypes derived from concept development and experimentation, and embodying desired shifts in the conduct of joint warfare and crisis resolution. Creative combinations of transformational elements, like networked sensor-to-shooter packages, knowledge fusion centers, joint interagency coordination groups, and humanitarian relief support packages, are examples of force multipliers. As the enemy adapts to challenge the world's societies through asymmetric techniques, so must international military forces adapt if they are to prevail in conflict and crisis resolution. The capabilities-based approach provides a deliberate means for turning transformational

concepts and operational requirements into fielded capabilities that can sustain a competitive advantage over twenty-first-century threats.

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