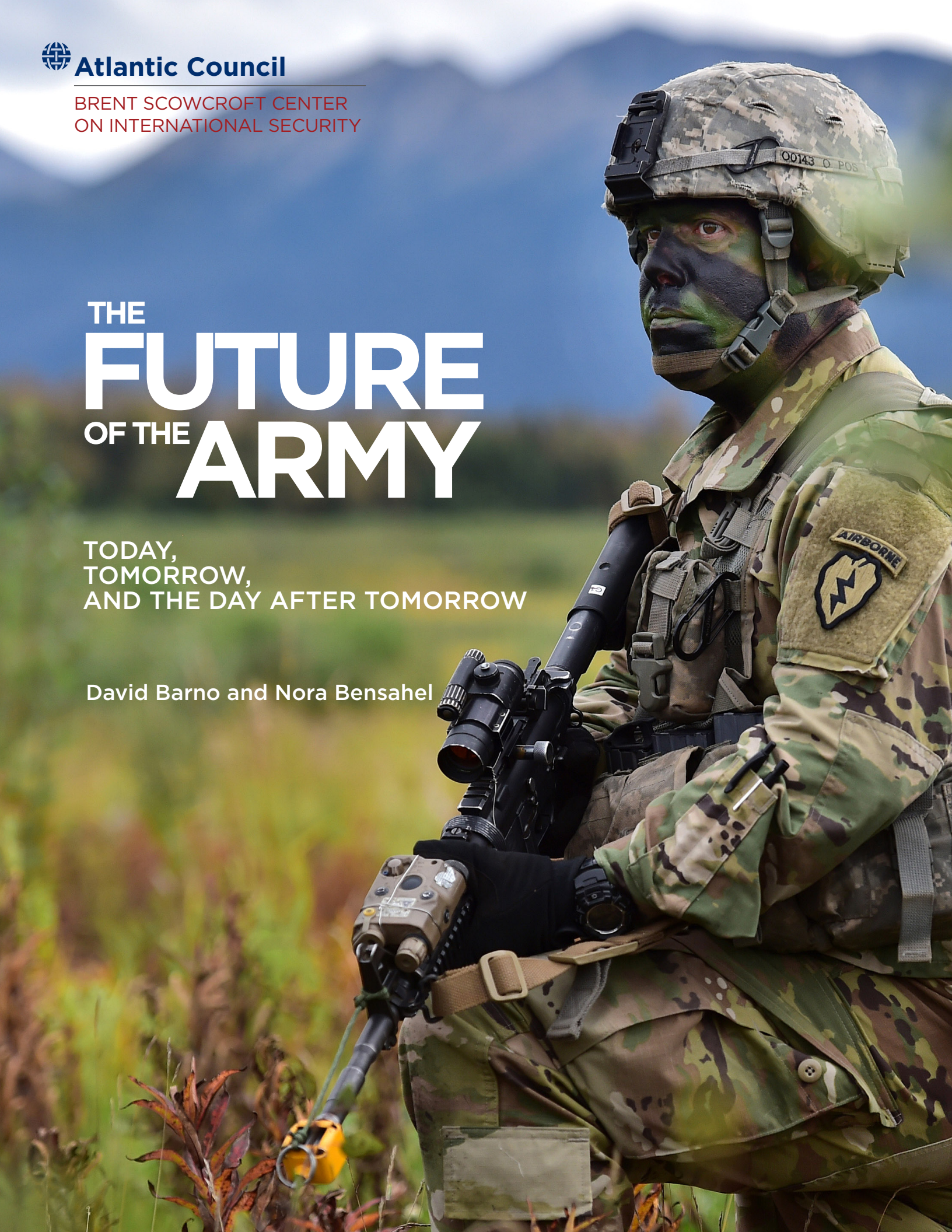


THE FUTURE OF THE ARMY

TODAY,
TOMORROW,
AND THE DAY AFTER TOMORROW

David Barno and Nora Bensahel



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Cover photo credit: Army Staff Sgt. Pedro Ortiz of the 1-501 Parachute Infantry Regiment provides security at Malamute Drop Zone, Alaska, August 2016. Department of Defense.

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EXECUTIVE SUMMARY

The US Army today is at a strategic crossroads. After fifteen years of intense warfare in Iraq and Afghanistan, it is managing the same type of budget and manpower reductions that occurred after World War II, the Korean War, the Vietnam War, and the end of the Cold War. Yet, the international environment today is far more dynamic and complex than after each of those conflicts, which is placing unprecedented demands on a force that is drawing down. Threats have burgeoned in the last five years as great power politics have reasserted themselves, global terrorism and extremism is on the rise, and turmoil in the Middle East has replaced the hopes of the Arab Spring. The world has become a much more dangerous place.

At the same time as global demands for the Army are on the rise, its budget is deeply constrained by the Budget Control Act of 2011. Yet, the strategic environment is more dangerous today than it was even just a couple of years ago. Today, thousands of Army troops remain at war in both Iraq and Afghanistan, and Army special operations forces (SOF) are busier than ever conducting counterterror operations around the world. Moreover, the Army faces growing requirements to provide forces for deterrence and presence, reassurance to friends and allies, peacekeeping and stability, and security force assistance around the world.

The pernicious combination of a shrinking force, declining resources, increasing global commitments, and the renewed possibility of major power conflict present the Army with momentous strategic challenges. It is facing inevitable tradeoffs between the need to fight today's wars while preparing for the possible wars of the future—and the need to pay for both in a declining budgetary environment. Army leaders must approach these challenges with imagination, creative solutions, and unrestrained thinking about both present and future wars. They must forge an Army that is up to all manner of tasks, staying faithful to the core values of their people and the profession of arms. In short, they must build the next US Army—a force that balances today's demands with those of tomorrow, which could require much more from the force and its people.

This report provides a range of recommendations to help Army leaders build the next Army successfully. For analytic reasons, we present recommendations for what the Army will need in three distinct time horizons: today (2016-2020); tomorrow (2020-2025);

and the day after tomorrow (2025-2040 and beyond). In practice, though, there are no clear divisions among these time periods, and they will inevitably overlap. However, the Army must start preparing now for *all* of these time periods. Our report is designed to offer fresh ideas that spark debate, challenge hoary assumptions, and animate the need for change. We have one overriding goal: to ensure that the US Army remains the preeminent fighting force in the world for the remainder of this century.

THE ARMY TODAY: 2016-2020

The Army must adapt in five major ways to be ready for the challenges of the next few years, most of which involve getting more capacity out of the currently planned force.

- **Adjust force structure to better meet operational requirements.** The Army needs more SOF, new heavy cavalry units, and security force assistance brigades to improve its capabilities for deterrence and crisis response.
- **Fully integrate the Army's Active and Reserve Components.** This involves creating hybrid brigade combat teams (BCTs), sourcing predictable rotational missions from the Reserve Component first, and increasing the Army's focus on homeland defense.
- **Rebuild joint and combined arms warfighting capabilities.** This includes increasing the number of armored BCTs (ABCTs) in the Active Component; improving mobility, firepower, and protection for infantry BCTs (IBCTs); rebuilding tactical air defense; reconstituting protection against chemical, biological, radiological, and nuclear threats; and training to operate in a degraded communications environment.
- **Transform Army headquarters and slash non-essential processes.** The Army should abolish the Army Service Component Commands in their current form; cull non-operational headquarters; eliminate the cultural divide between the institutional and operational Army; and reduce unneeded work and transform staff processes.
- **Reconstitute capabilities for rapid expansion.** This involves practicing standing up new units, reinvigorating the Individual Ready Reserve (IRR), and building an Army mobilization plan.

THE ARMY OF TOMORROW: 2020-2025

Over the next five to ten years, the Army must remain capable of deterring adversaries and dominating conflicts while simultaneously preparing to develop a much different force for the world beyond that timeframe.

- **Organize the total force by deployment timelines.** The Army should reorganize its operational forces around the single concept of likely deployment times. It should build a Rapid Response Force that can deploy within the first three to four months of a future conflict; an Operational Response Force that would deploy within four to ten months; and a Strategic Response Force that would deploy after ten months or longer.
- **Strengthen Army strategic mobility and presence.** Since the Army today is based almost entirely at home, it needs to reinvest in prepositioned overseas combat stocks; prepare to fight for overseas staging areas; improve strategic mobility exercises; and press to station more forces overseas.
- **Master urban operations.** More than half of the world's population already lives in urban areas, and that percentage will only increase in the coming decades. In order to prepare for this challenging operational environment, the Army should designate units to specialize in urban operations and improve training for large-scale urban combat.
- **Prepare for the next big war.** The Army needs to upgrade, access, and prepare to employ surplus weaponry; plan to control large areas and populations; rebuild resilience in the force; and plan for unit regeneration.
- **Modernize technology investments.** This involves accelerating the development of air mobility with operational reach; building mobile-protected firepower and a new infantry combat carrier; developing a mobile-protective umbrella; developing advanced protection systems; and investing in counter-drone systems.

- **Set the stage for another round of Base Realignment and Closure (BRAC).** The Department of Defense (DOD) estimates that a staggering 33 percent of the Army's base infrastructure is unnecessary. Despite continuing opposition, the Army must continue to press Congress to approve another round of base closings, so it no longer wastes money on bases it does not need.

THE ARMY OF THE DAY AFTER TOMORROW: 2025-2040+

The long-term future may well involve far greater threats and challenges than the world today, but their nature, size, and scope cannot possibly be predicted correctly. The Army must therefore build itself around the principle of *adaptability*, so that it can quickly adjust to whatever types of conflicts emerge. Doing so will affect almost all aspects of the Army as an institution.

- **Transform Army culture.** Effective adaptability will require the Army to accept more risk; reinstitute "power down;" decrease tolerance of bureaucracy; reduce excessive deference to rank and position; reject Army anti-intellectualism; and strengthen ethics and integrity.
- **Redesign the structures of the operational and institutional Army.** This involves pursuing modularity at the battalion level and building some independent companies.
- **Expand personnel reforms and definitions of service.** The Army should institutionalize permeability and lifelong service, shorten some active duty enlistments, and create an Army civilian volunteer auxiliary corps.
- **Embrace advanced technologies and experimentation.** This includes enabling greater experimentation in operational units; building training around virtual reality and its successors; integrating battlefield robotics and artificial intelligence into the close fight; building new battle staff processes around artificial intelligence; and investing in advanced technologies for power and munitions.

INTRODUCTION

The US Army today is at a strategic crossroads. After fifteen years of intense warfare in Iraq and Afghanistan, it is managing the same type of budget and manpower reductions that occurred after World War II, the Korean War, the Vietnam War, and the end of the Cold War. Yet, the international environment today is far more dynamic and complex than after each of those conflicts, and that is placing unprecedented demands on a force that is drawing down. Thousands of Army troops remain at war in both Iraq and Afghanistan, and Army special operations forces (SOF) are busier than ever conducting counterterror operations around the world. Its operational tempo also remains strikingly high as it faces growing requirements to provide forces for deterrence and presence, reassurance to friends and allies, peacekeeping and stability, and security force assistance around the world.

Today's world little resembles the world that shaped the 2011 defense budget constraints and the strategic guidance issued by the Department of Defense (DOD) in 2012 and early 2014.¹ That world was shaped by cautious optimism surrounding the Arab Spring, the withdrawal of all US troops from Iraq and many from Afghanistan, renewed hopes for broad international cooperation with Russia and China, and the death of Osama bin Laden with the ensuing diminishment of the al-Qaeda terrorist threat. The world of 2016, however, is a very different place—one in which strategic threats have returned and great power politics are once more at the fore. The unrestrained aggressiveness of a resurgent Russia and a rising China threaten US allies in both Europe and the Pacific. The emergence of the Islamic State of Iraq and al-Sham (ISIS) as a pressing international terror threat has eclipsed al-Qaeda in danger and lethal effectiveness. Turbulence in the broader Middle East has replaced hopes for an Arab renewal with an entrenched war in Syria and widespread regional instability. The world has become a much more dangerous place in just four short years.

The pernicious combination of a shrinking force, declining resources, increasing global commitments, and the renewed possibility of major power conflict present the Army with momentous strategic challenges.

The pernicious combination of a shrinking force, declining resources, increasing global commitments, and the renewed possibility of major power conflict present the Army with momentous strategic challenges. It is facing inevitable tradeoffs between the need to fight today's wars and preparing for the possible wars of the future—and the need to pay for both in a declining budgetary environment. Army leaders must approach these challenges with imagination, creative solutions, and unrestrained thinking about both present and future wars. They must forge an Army that is up to all manner of tasks, staying

faithful to the core values of their people and the profession of arms. In short, they must build the next US Army—a force that balances the demands of today's conflicts with those of future wars that could require much more from the force and its people.

This report provides a range of recommendations to help today's Army leaders build the next Army successfully. It is designed to offer fresh ideas that spark debate, challenge hoary assumptions, and animate the need for change. It has but one goal: to ensure that the US Army remains the pre-eminent fighting force in the world for the remainder of this century.

For analytic reasons, we present recommendations for what the Army will need in three time horizons: today (2016-2020); tomorrow (2020-2025); and the day after tomorrow (2025-2040 and beyond). In practice, though, there are no clear divisions among these time periods, and they will inevitably overlap. However, the Army must start preparing now for *all* of these time periods, even the most distant. The Army simply cannot afford to wait until the future to prepare for the future, especially since many of the recommended changes will take a long time to fully implement. And given the unpredictable global environment and unprecedented rates of change, many of the challenges that we project for the future may occur well before then. The Army must take action now in order to ensure that it is as prepared as possible for the very demanding challenges to come.

¹ The 2012 defense strategic guidance and 2014 Quadrennial Defense Review are discussed in the next chapter.

1. THE ARMY'S WORLD IN 2016

The Army today is navigating an unprecedented mix of complex currents. Its soldiers continue to fight in Iraq and Afghanistan against implacable, irregular adversaries that show few signs of quitting. At the same time, bold and aggressive behavior by resurgent and rising nation states has raised the specter once more of major and deadly conventional wars. Global instability is on the rise, and regional powers such as Iran and North Korea, whose interests are inimical to the United States, continue to demand the attention of the US military. Yet despite these growing threats, defense spending remains relatively flat, and Army end strength continues to shrink. Making the right strategic choices to steer the Army through this period of profound uncertainty while preparing for what may come next is a tremendous leadership challenge.

THE STRATEGIC AND BUDGETARY CONTEXT

The strategic environment in which the Army operates has changed dramatically during the past few years. For years after the 9/11 attacks, US strategic thinking was dominated by the wars in Iraq and Afghanistan, two of the longest wars in US history. But those wars reached their peak troop strength in 2007 and 2010 respectively;² by early 2011, the focus had shifted to withdrawing from those wars and preparing for the new security challenges that lay ahead. That shift was reflected in the 2012 defense strategic guidance, which explicitly stated that the US military would not size itself for long-term stability operations and emphasized the importance of rebalancing toward the Asia-Pacific.³

Yet even before that guidance was issued, the August 2011 Budget Control Act (BCA) and its sequestration mechanism limited the resources that would be available to DOD for the following decade. Somewhat ironically, however, the BCA did not result from any serious discussions about what the future strategic environment would require, or how much money

the nation should spend on its defense. Instead, it emerged from the completely unrelated dispute about raising the national debt—with a penalty that would be enacted if members of Congress could not reach a broader compromise about government spending and debt reduction.⁴ That agreement never came. The BCA's mandated budget caps and sequestration took effect on January 1, 2013, which required DOD to cut approximately \$500 billion from its planned base budget through the next ten years.⁵ Congress has increased the BCA's mandated spending caps twice, but the resulting budgets have still fallen short of planned levels.⁶

At first glance, these budget caps may not seem like they would pose severe problems for DOD. Defense budgets often shrink after major wars end, and even with the BCA, the current cuts to the defense budget are smaller than they were after Korea, Vietnam, and the Cold War.⁷ The major problem, however, is that growing internal costs mean that each defense dollar buys far less than it used to. Between 2000 and 2014, for example, DOD's acquisition costs grew by

2 171,000 US troops were deployed to Iraq in October 2007, and approximately 100,000 US troops were deployed to Afghanistan in August 2009 and March-May 2010. Michael E. O'Hanlon and Ian Livingston, "Iraq Index," The Brookings Institution, January 31, 2012, p. 13, <http://www.brookings.edu/-/media/Centers/saban/iraq-index/index20120131.PDF>; Ian S. Livingston and Michael O'Hanlon, "Afghanistan Index," The Brookings Institution, March 31, 2016, p. 4, <http://www.brookings.edu/-/media/Programs/foreign-policy/afghanistan-index/index20160330.pdf?la=en>.

3 Department of Defense, "Sustaining Global US Leadership: Priorities of 21st Century Defense," January 2012.

4 For more on the context surrounding the BCA defense spending caps, see Lieutenant General David W. Barno, USA (Ret.), Nora Bensahel, and Travis Sharp, *Hard Choices: Responsible Defense in an Age of Austerity*, Center for a New American Security, October 2011; David W. Barno, Nora Bensahel, Joel Smith, and Jacob Stokes, *Countdown to Sequestration: Why American Leaders Could Jump Off the Fiscal Cliff*, Center for a New American Security, November 2012.

5 For a comparison of the BCA caps compared to planned DOD spending, see Katherine Blakely, *Seven Areas to Watch in the FY17 Defense Budget*, Center for Strategic and Budgetary Assessments, February 2016, p. 2.

6 The Ryan-Murray budget deal of 2013, for example, restored less than half of the planned cuts for the fiscal year 2014 budget. The budget deal reached in December 2015 raised the spending caps for fiscal years 2016 and 2017 to levels that were close to the president's budget request, and then relied on Overseas Contingency Operations funds to make up the difference. Nora Bensahel, "The Budget Deal: Good, But Not Great, News for DOD," Center for a New American Security, December 11, 2013, <http://www.cnas.org/blog/budget-deal-good-not-great-news-dod#.V08wuZODFHw>; Cheryl Pellerin, "DOD Comptroller: Budget Deal Offers Relief, Uncertainty," DOD News, December 2, 2015, <http://www.defense.gov/News-Article-View/Article/632078/dod-comptroller-budget-deal-offers-relief-uncertainty>.

7 The BCA will cut the defense budget by 31 percent, whereas it was cut by 43 percent after Korea, 33 percent after Vietnam, and 36 percent after the Cold War. Clark A. Murdock, Kelley Saylor, and Ryan A. Crotty, "The Defense Budget's Double Whammy: Drawing Down While Hollowing Out from Within," Center for Strategic and International Studies, October 18, 2012, https://csis-prod.s3.amazonaws.com/s3fs-public/legacy_files/files/publication/121018_Murdoch_DefenseBudget_Commentary.pdf.

25 percent, operations and maintenance costs grew by 34 percent, and military personnel costs grew by a whopping 46 percent (all in constant dollars).⁸ The combination of a smaller budget top line and ever-escalating internal costs has put tremendous fiscal pressure on the Defense Department and the individual military services, forcing difficult constraints and tradeoffs. The depth of these fiscal challenges were emphasized in the 2014 Quadrennial Defense Review (QDR) and the subsequent National Defense Panel.⁹

As the QDR was published, however, the strategic environment was already changing in two important ways. First, Russia and China began aggressively pressuring neighboring states and seeking to extend their regional influence and power. Russia's surprise annexation of Crimea in March 2014 and promotion of separatist movements in eastern Ukraine posed an unexpected challenge to the United States and a direct threat to its NATO allies. Russia's resurgence and blatant aggression meant that the alliance needed to seriously prepare for the possibility of a Russian attack on one or more of its members for the first time since the end of the Cold War. At the same time, China has become increasingly aggressive in the South China Sea. Its many provocative actions have included landing military jets on newly created artificial islands and harassing ships with its maritime militia.¹⁰ Taken together, these developments in Russia and China seem to mark a return to an era of great power politics. After fifteen years of focusing primarily on the wars in Afghanistan and Iraq, the United States now has to consider significant strategic challenges in Europe and Asia as well.

Yet, any hopes of disengaging from the Middle East were soon dashed by the second major change: the rise of ISIS. Born as a successor of al-Qaeda in Iraq,¹¹ the group burst into Western consciousness in

August 2014 when it released an extremely graphic video of the beheading of James Foley, a US citizen whom it was holding hostage.¹² By that time, however, ISIS had already gained control of large swaths of territory in Syria and northern Iraq, and the group continued to gain momentum and conduct terrorist attacks throughout the Middle East, Europe, and North Africa.¹³ In response, the United States has deployed nearly 5,000 troops to Iraq and approximately 300 troops to Syria.¹⁴ Those deployments are extraordinary developments that demonstrate the seriousness of this new threat, since one of President Obama's highest priorities throughout his eight years in office has been to end the two wars that he inherited.¹⁵

Even if the United States defeats ISIS in Iraq and Syria, it is becoming increasingly clear that the threat posed by radical Islamist ideology will not disappear. The threat may change and adapt as it spreads around the world, but countering the underlying ideology will be a generational struggle.¹⁶ The increased globalization of technology and communications means that for the first time in history, terrorist groups and malevolent individuals can reach the United States from almost any part of the world—as was seen all too clearly on 9/11, and reinforced by the recent terror attacks in Paris, Brussels, San Bernardino, and Orlando. In many ways, the United States has entered an era of perpetual war,¹⁷ since it will have to continue addressing the various manifestations of this threat for years and probably decades to come. Demand for SOF will only increase as the United States faces an increasing number of conflicts in the gray zone, as discussed below, but conventional forces will also be required to address the complex challenges of perpetual war.

8 Congressional Budget Office, *Growth in DOD's Budget from 2000 to 2014*, November 2014, p. 2. See also David Barno, Nora Bensahel, Jacob Stokes, Joel Smith, and Katherine Kidder, *The Seven Deadly Sins of Defense Spending*, Center for a New American Security, June 2013.

9 Department of Defense, *2014 Quadrennial Defense Review*, March 2014; *Ensuring a Strong US Defense for the Future: The National Defense Panel Review of the 2014 Quadrennial Defense Review*, United States Institute of Peace, July 2014.

10 David Barno and Nora Bensahel, "Fortifying the Great Wall of Sand," *War on the Rocks*, June 16, 2015, <http://warontherocks.com/2015/06/fortifying-the-great-wall-of-sand/>; David Barno and Nora Bensahel, "A Guide to Stepping It Up in the South China Sea," *War on the Rocks*, June 14, 2016, <http://warontherocks.com/2016/06/a-guide-to-stepping-it-up-in-the-south-china-sea/>; Andrew S. Erickson and Conor M. Kennedy, "China's Maritime Militia," Center for Naval Analyses, March 2016.

11 Ian Fisher, "In Rise of ISIS, No Single Missed Key but Many Strands of Blame," *New York Times*, November 18, 2015.

12 Karen De Young and Adam Goldman, "Islamic State Claims It Executed American Photojournalist James Foley," *Washington Post*, August 20, 2014.

13 "How Many People Have Been Killed in ISIS Attacks Around the World," *New York Times*, updated July 16, 2016, <http://www.nytimes.com/interactive/2016/03/25/world/map-isis-attacks-around-the-world.html>.

14 The total number may well be higher, since these numbers would not include any classified special operations forces. Missy Ryan, "The US Military Has a Lot More People in Iraq Than It Has Been Saying," *Washington Post*, March 21, 2016; Gordon Lubold and Adam Entous, "US to Send 250 Additional Military Personnel to Syria," *Wall Street Journal*, April 24, 2016.

15 Jeffrey Goldberg, "The Obama Doctrine," *Atlantic*, April 2016; Greg Jaffe, "After Vowing to End Two Wars, Obama May Leave Three Behind," *Washington Post*, October 21, 2015.

16 President Obama used this phrase in a 2015 speech: "the larger battle for hearts and minds will be a generational struggle." The White House, "Remarks by the President on Progress in the Fight Against ISIL," July 6, 2015.

17 David Barno and Nora Bensahel, "The Price of Perpetual War," *War on the Rocks*, May 24, 2016, <http://warontherocks.com/2016/05/the-price-of-perpetual-war/>.

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This, then, is the challenging strategic environment that the Army faces today: it is involved in perpetual war in some parts of the world while great power politics returns in others, and its responses are limited by the tough resource constraints imposed by flat defense budgets, the threat of sequestration, and rising internal costs.

CURRENT CHALLENGES FACING THE ARMY

Shrinking End Strength

Budget pressures are forcing the Army to shrink while new threats emerge on top of current global commitments. The 2014 QDR directed the Army to cut its temporary wartime end strength by 13.5 percent: from 570,000 to 450,000 troops in the active Army; from 358,000 to 335,000 in the Army National Guard; and from 205,000 to 195,000 in the Army Reserve. It also warned, however, that deeper cuts would be needed if the full BCA budget cuts took effect, to 420,000 troops in the active Army, 315,000 in the Army National Guard, and 185,000 in the Army Reserve.¹⁸ The two recent budget deals described above seem to have staved off this possibility for now, but those only affect the budgets for fiscal years 2016 and 2017. Without additional Congressional relief, the Army might still have to cut additional end strength starting in fiscal year 2018.

Despite these cuts, the Army is busier than ever. It still must fight the perpetual war described above and prepare for the possibility of major conflict with increasingly assertive regional powers. It must simultaneously maintain its already numerous global commitments, for which 186,000 soldiers are currently deployed in 140 locations around the world.¹⁹ These include, but are not limited to, advisory and counterterrorism missions in Iraq and Afghanistan; deterrence missions in Korea, the Persian Gulf, and Europe; longstanding peacekeeping missions in the Balkans and the Sinai; and a plethora of overseas engagement requirements around the world aimed at strengthening US friends and allies.

18 Department of Defense, *2014 Quadrennial Defense Review*, op. cit., pp. ix and 29.

19 Jen Judson, "US Army Chief Sounds Alarm: Military at 'High Risk,'" *Defense News*, April 8, 2016.

Army Chief of Staff General Mark Milley recently testified to Congress that the total Army of 980,000 soldiers is operating at "high military risk," and that the Army would need around 1.2 million soldiers "in order to reduce to significant or moderate risk."²⁰

But as he noted in the very next sentence of his testimony, the Army simply does not have enough money needed to grow the Army to that size.²¹ The new administration that will take office in January 2017—regardless of which candidate wins the upcoming election—could reevaluate the size and funding of the Army. However, unless the composition of Congress changes dramatically, it seems highly unlikely that both the House and the Senate would reach a deal that would lift the 2011 budget caps and permit greater spending on both defense and domestic programs. And even if it did, the Army would still face huge modernization and readiness bills while its internal costs continue to escalate. The Army, therefore, has little choice but to figure out how to operate more efficiently and effectively—namely, to get "more Army" out of a force of nearly one million soldiers.

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The Legacy of Broken Modernization

From 2001 to 2010, the Army canceled nearly every major new weapons system designed to replace aging weaponry from the Reagan defense buildup, losing tens of billions of dollars for no gain. As a result, the Army will continue to operate its 1980s-era M1 tanks, M2/3 Bradley fighting vehicles, and numerous other aging weapons systems until nearly mid-century. Even with all the upgrades and improvements to these systems over the past decades, they are reaching the end of their effective service life and are losing their ability to overmatch ever-more capable adversary systems. Without a major change in modernization funding, the Army entering the next decade will gradually but inevitably see its most critical warfighting equipment becoming

20 See the transcript of Milley's testimony to the Senate Armed Services Committee in a hearing called "Posture of the Department of the Army," April 7, 2016, <http://www.armed-services.senate.gov/hearings/16-04-07-posture-of-the-department-of-the-army>.

21 Ibid. Milley pointed out that it costs \$1 billion to increase the Army by 10,000 personnel. That means it could cost \$22 billion to grow the Army from 980,000 to 1.2 million soldiers.



Army Chief of Staff General Mark Milley addresses US Army Reserve senior leaders at Fort Bragg, North Carolina, in April 2016. *Photo credit: US Department of Defense.*

obsolete. In the meantime, potential adversaries are fielding highly capable new systems and continuing to improve existing ones.²²

Today the Army faces a “triple whammy” in modernization.²³ The service’s recent modernization drawdown has been far deeper than previous postwar cuts. Worse yet, it comes atop a decade of failed major Army programs and parallels the sharpest decline in research, development, test, and evaluation (RDT&E) spending in decades. Taken together, these three factors spell a looming disaster for Army modernization. According to a recent report from the Center for Strategic and International Studies, without significant new resources for modernization—which are highly unlikely in the current constrained budget environment—the Army will be “unsuited to handle the future geostrategic environment.”²⁴ Current Army plans to modernize the force with new weaponry presently lag behind the service’s other top priorities, especially sustaining readiness.²⁵ In effect, the tight resource environment means that the Army’s intense

(if arguably necessary) focus on the very real demands of today is crowding out investments for tomorrow.

Integrating the Active and Reserve Components

In recent years, relations between the Army’s three components—the active Army, the Army National Guard, and the Army Reserve—can best be described as fratricidal. Even though the three components achieved nearly unprecedented levels of mutual respect and cooperation on the ground in Afghanistan and Iraq, old animosities reemerged as deployment requirements declined and the battles for budgetary resources increased. The disputes over proper roles and missions for each component came to a head in 2015, in an ugly dispute about how attack and lift helicopters should be allocated between the active Army and the Army National Guard.²⁶ To help resolve this impasse, Congress directed the formation of a National Commission on the Future of the Army.²⁷ The Commission report, which was issued in January 2016, included sixty-three specific recommendations. General Milley, who has prioritized improving relations with the Army National Guard since he took office in

22 We discuss Russia’s T-14 Armata tank in chapter four.

23 Rhys McCormick, “The Army Modernization Challenge: A Historical Perspective,” Defense 360, Center for Strategic and International Studies, <http://defense360.csis.org/army-modernization-challenge-historical-perspective-2/>.

24 Ibid.

25 Michelle Tan, “Readiness for Ground Combat is No. 1 Priority,” *Army Times*, August 28, 2015.

26 The controversial plan was called the Aviation Restructure Initiative. See National Commission on the Future of the Army, *Report to the President and the Congress of the United States*, January 28, 2016, pp. 3-4, 81-95.

27 Op. cit., pp. 107-109.

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August 2015,²⁸ started implementing most of them right away.²⁹

While the Commission helped resolve many of the immediate points of friction among the Army components, it also pointed out many barriers to integrating them into a true total force. The shrinking end strength pressures described above mean that the Army must find ways to overcome these barriers and get more combat capability out of the total force by better leveraging all three components. The Army National Guard and the Army Reserve comprise more than half of the Army's capability and can make even greater contributions than they do today. Yet overcoming these barriers—especially the balkanized cultures across the components—will take years of further effort.

A Force Based at Home

For the first time since World War II, the vast majority of the Army is permanently based at home.³⁰ During most of the Cold War, the Army deployed more than a third of its active duty forces around the world,³¹ especially in Europe and Asia, in order to deter adversaries, reassure allies, and respond rapidly to crises.³² But that successful long-standing model has been largely dismantled during the past twenty years. Today, only two BCTs are permanently stationed abroad—one based in Germany and the other based in Italy. Even the BCT in Korea is now based rotationally instead of permanently. Additionally, budget constraints mean that fewer dollars are available for expensive training and exercises abroad. The US Army has transitioned

from a forward deployed wartime force into a garrison force, where far fewer troops will have the opportunity to train, serve, and live abroad.

Being based primarily at home makes it far more challenging for the Army to deter aggression around the world, to engage with US friends and allies, and to rapidly respond to unexpected international crises. It places additional strains on the force, as units become part of an unending cycle of training, deploying, and resetting before getting ready to train and deploy again.

In effect, the Army is out of position for the current strategic environment, and that problem will only increase as global instability grows. Yet in recent years, Congress has insisted on closing bases abroad before even considering closing bases at home³³—even though DOD recently estimated that the Army's excess base capacity is an astounding 33 percent.³⁴ Permanently stationing more Army forces abroad makes a great deal of strategic sense, but given the scope of closures that have already occurred, it seems very unlikely that Congress will authorize or pay for new bases abroad any time soon.

Balancing the Wars of Today and Tomorrow

Throughout most of the nation's history, war and peace were binary conditions.³⁵ The United States went to war, in World War II or Korea or even Vietnam, and came home to relative peacetime once those wars reached a clear end. That is no longer true. After fifteen years, the wars in Afghanistan and Iraq are still continuing today (though in different forms and with fewer troops). There are also an increasing number of conflicts in the gray zone, whose primary characteristic is ambiguity—about their objectives, participants, and even outcomes, since they clearly lack defined end points.³⁶ Yet, the Army cannot focus solely on these types of conflicts. Given the changing strategic environment, the Army must also prepare for the unlikely, but not impossible, scenario that we've called "the next big war"—involving very capable

28 David Barno and Nora Bensahel, "Beyond the Army Commission: Unifying the Army's Components," *War on the Rocks*, February 9, 2016, <http://warontherocks.com/2016/02/beyond-the-army-commission-unifying-the-armys-components/>.

29 Milley started implementing approximately 50 of the recommendations right away, because they did not involve significant additional costs. He rejected one recommendation outright, and planned to examine implementation costs of the remaining recommendations. See the transcript of Milley's testimony to the Senate Armed Services Committee in a hearing called "Posture of the Department of the Army," op. cit.

30 This section draws heavily on David W. Barno and Nora Bensahel, "New Challenges for the US Army," in Joseph Da Silva, Hugh Liebert, and Isaiah Wilson III, eds., "American Grand Strategy and the Future of Land Power," US Army War College Strategic Studies Institute, December 2014, pp. 231-248.

31 The main exceptions were between 1972 and 1979, when the percentage dropped to between 29 and 32 percent. US Department of Defense, Directorate for Information Operations and Reports, Statistical Information Analysis Division, "Military Personnel Historical Reports: Active Duty Military Personnel by Regional Area and by Country," <http://web.archive.org/web/20060302214027/http://www.dior.whs.mil/mmid/military/history/309hist.htm>.

32 Stacie L. Pettyjohn, "US Global Defense Posture, 1783-2011," MG-1244-AF, RAND Corporation, 2012.

33 John Vandiver, "Congress' Message to DOD: No BRAC for Now, But Cut More in Europe," *Stars and Stripes*, March 31, 2012.

34 US Department of Defense, *Department of Defense Infrastructure Capacity*, March 2016, http://federalnewsradio.com/wp-content/uploads/2016/04/041816_dod_brac_parametric.pdf.

35 This section draws heavily on Barno and Bensahel, "The Price of Perpetual War."

36 David Barno and Nora Bensahel, "Fighting and Winning in the Gray Zone," *War on the Rocks*, May 19, 2015, <http://warontherocks.com/2015/05/fighting-and-winning-in-the-gray-zone/>.

adversaries, high levels of death and destruction, and perhaps hundreds of thousands of US troops.³⁷

In the past, the periods of relative peace that followed war gave the Army time and space to think deeply about possible future conflicts and to develop the doctrine, force structures, technologies, and capabilities to meet them. Even though the Army often did not predict the next war correctly, that period of time, reflection, and investment helped make it more ready to adapt to the next set of challenges it faced. The Army does not have that luxury today. It must continue to fight in open-ended conflicts abroad while simultaneously preparing for future wars that might be extremely different, and the inescapable tension between the two will likely continue for years if not decades. Beyond the stresses that this places on Army soldiers and leaders, it will also require the Army to continuously manage the hard tradeoffs between readiness and modernization—between investing in what is needed to fight today and the very

different investments and force capabilities that might be needed for tomorrow’s wars.

THE WAY AHEAD

In looking at its strategic environment in the coming years, the Army faces a serious mismatch among its ends, ways, and means. Save a major strategic shift after the presidential election, the United States will continue to be a global leader with major international security responsibilities. That means that US strategic ends, or objectives, would remain largely unchanged—defending US vital interests around the world and maintaining an open global order. The means, or resources, available to the Army to do so will also remain relatively fixed. Unless there is a massive international crisis or a direct attack on the United States, the defense budget will remain capped by the BCA with little prospect for substantial growth, which will continue to press Army end strengths and budgets ever downward. The Army is left with only a single lever to adjust. With fixed ends and unchanging means, the Army has no choice but to get more capability out of the force by adjusting the ways—how the Army is organized, equipped, and trained. The rest of this report provides recommendations for how to do so.

With fixed ends and unchanging means, the Army has no choice but to get more capability out of the force by adjusting the ways—how the Army is organized, equipped, and trained.

³⁷ David Barno and Nora Bensahel, “Preparing for the Next Big War,” *War on the Rocks*, January 26, 2016, <http://warontherocks.com/2016/01/preparing-for-the-next-big-war/>.

2. THE ARMY TODAY: 2016-2020

Army Chief of Staff General Mark Milley has just completed his first year in office and will likely serve for three more years before stepping down in August 2019. The decisions he makes during his term will not only guide the Army through the turbulent demands of the current world, but will also set the foundation for both the mid-term Army of the 2020s and the far-term Army stretching out to 2040 and beyond. While major changes take time, they must be started now to achieve longer-term effects.

The Army must adapt in five major ways to both meet current demands while preparing for the next conflicts—many of which involve finding innovative ways to get more capability out of a nearly million-soldier force. The Army must creatively adjust force structure to better meet operational requirements; fully integrate the Army's Active and Reserve Components; rebuild joint and combined arms warfighting capabilities; transform Army headquarters and slash non-essential processes; and reconstitute capabilities for rapid expansion.

ADJUST FORCE STRUCTURE TO BETTER MEET OPERATIONAL REQUIREMENTS

The Army needs to alter its current force structure and mix of conventional and special operations forces to provide more effective deterrence and crisis response capabilities. Realigning active and reserve units, slashing unnecessary headquarters, and restructuring selected infantry BCTs (IBCTs) will help provide the needed billets for these changes.

Increase Army Special Operations Forces

After fifteen years of irregular wars, the nation's demand for SOF is showing no signs of abating. The continued menace of global terrorism, the ongoing conflicts in Iraq, Syria, and Afghanistan, and the explosion of conflicts in the gray zone³⁸ demonstrate that US special operations capabilities will continue to be required across a range of missions and theaters. Between 2001 and 2016, the number of US SOF more than doubled, from 28,620 to 63,150.³⁹ Most of those were Army special operators—especially Special Forces (SF), Rangers, and special operations aviators.

Yet, despite continued demand for their skills, recent cutbacks have caused Army Special Forces to reduce and reorganize one SF battalion in each SF Group, and the Army Ranger Regiment had to inactivate one company in each Ranger battalion. As discussed earlier, demands for SOF will only continue to increase in the future. Therefore, reducing SOF—particularly the cutting-edge capabilities of these units—makes no sense. The Army needs to reverse those recent cutbacks and put US Army Special Operations Command (USASOC) on a modest continual growth trajectory once again.

Recreate Heavy Cavalry Units

The inactivation of the Army's last heavy armored cavalry regiment (ACR) in November 2011 eliminated one of the most versatile and capable formations from the Army's force structure.⁴⁰ ACRs integrated aviation, armor, and mechanized forces down to the company/troop level and provided both reconnaissance and security to protect larger formations. They conducted flank and forward screening missions to support a division or corps, and fought to gain vital battlefield intelligence about the enemy.⁴¹ They also provided security around the edges of the battlefield, providing important protection for other Army units. During the same period, the Army also eliminated all of its division cavalry squadrons.

These changes were made for two main reasons: the standardization of combat brigade units into Armored, Infantry, and Stryker⁴² BCTs across the force, and a perception that the new reconnaissance, surveillance, and target acquisition (RSTA) squadrons in each BCT could perform the heavy cavalry's traditional tactical missions. The unending demands for counterinsurgency forces in Iraq and Afghanistan also contributed to the decision to eliminate heavy cavalry units. However, these decisions led to significant gaps in providing reconnaissance and security that remain

40 The Third Armored Cavalry Regiment was converted to a Stryker unit. Heather Graham-Ashley, "3rd ACR Transitions to Strykers, Changes Name," November 30, 2011, https://www.army.mil/article/70060/3rd_ACR_transitions_to_Strykers_changes_name.

41 Each Army division was assigned an Armored Cavalry Squadron, roughly the size of a battalion, for this mission; each Army corps was assigned an Armored Cavalry Regiment, roughly the size of a brigade. Headquarters, Department of the Army, *FM 17-95: Cavalry*, April 20, 1981, <http://cgsc.contentdm.oclc.org/cdm/pageflip/collection/p4013coll9/id/596/type/compoundobject/show/590/cpdtype/monograph/pftype/pdf>.

42 Strykers are eight-wheeled armored vehicles.

38 Barno and Bensahel, "Fighting and Winning in the 'Gray Zone,'" op. cit.

39 International Institute of Strategic Studies, *The Military Balance 2001* (London: Routledge, 2001), p. 25; International Institute of Strategic Studies, *The Military Balance 2016* (London: Routledge, 2016), p. 48.



An M1 Abrams tank of 1-64 Armor fires a round during Exercise Saber Guardian 16, Cincu, Romania, July 2016.
Photo credit: US Department of Defense.

unfilled. Current cavalry squadrons in all three types of BCTs do not have enough of this capability, unable to fight for information and simultaneously conduct mounted and dismounted operations.⁴³ Moreover, there are no dedicated formations at division or corps level to perform these tasks.

The Army needs to recreate heavy cavalry units, both to address this gap and to provide high-end warfighting capability to meet demanding battlefield reconnaissance and security missions. Enough of these units should be rebuilt to provide a pool for both divisional and corps reconnaissance and security missions. The recent wars have demonstrated the limits of technological solutions for situational awareness; though they make important contributions, networked and unmanned capabilities can never fully replace the information that can be gained from Army cavalry units operating forward on the battlefield. Furthermore, the changing security environment described in the previous chapter means that the Army must, once again, prepare itself for high-intensity combat operations (as discussed below)—a forte of heavy cavalry formations.

⁴³ “White Paper: Cavalry Squadron Capability Review,” US Army Maneuver Center of Excellence, April 17, 2014, http://www.benning.army.mil/armor/content/PDF/White%20Paper_Cavalry%20Squadron%20Capability%20Review%20171800APR14.pdf.

Recreating heavy cavalry units would give division and corps commanders a scalable formation capable of screening and guard missions, as well as a myriad of long-range independent operations in support of other maneuver units. These new units could be built around the model of a World War II Cavalry Group, which were light mechanized units that were noted for their flexibility and were able to reorganize into battle groups of all arms tailored to emerging missions.⁴⁴ A future heavy cavalry formation would also be able to maneuver highly capable forces into position in a future crisis, to help prevent escalation and protect the force with its long-range fires, air defense, electronic warfare, and electronic and signals intelligence capabilities. A new heavy cavalry unit would also be the only element of the US Army where aviation and armor are fully and permanently integrated into a combined arms formation at the tactical level. This organization could serve as a pilot to test deeper air-mechanized integration of combat forces and offer more innovative solutions to tactical problems.

Accelerate the Development of Security Force Assistance Brigades (SFABs)

As discussed in the previous chapter, maintaining readiness amidst budget constraints poses a major challenge for the Army—but its force structure

⁴⁴ Gordon L. Rottman, *World War II US Cavalry Groups: European Theater* (Oxford, UK: Osprey Publications, 2012).

sometimes exacerbates that problem in ways that can be fixed. For example, the Army faces an ongoing and growing global demand to work with coalition partners and build partner capacity through security force assistance (SFA). These missions often include a wide range of requirements—from running basic training to building logistics systems to advising combat units readying for battle. Like many other smaller-scale missions, however, these efforts do not require the capabilities of a full BCT. Yet, the Army sources them by breaking one or more BCTs into smaller parts to retrain and deploy them in ad hoc packets for these diverse ongoing missions. This has a doubly adverse effect: it creates temporary makeshift organizations with limited skills for these vital and complex long-term missions, and it destroys the readiness of the entire BCT by breaking it apart, making it unavailable for other combat operations.

This problem can be solved by building some new force structure that is uniquely designed for the SFA mission. SFA does not require the usual mix of Army ranks and personnel; it requires mid-grade officers and equivalent non-commissioned officers (NCOs) with years of operational experience more than junior officers or enlisted personnel. New SFABs should be comprised mostly of officers and NCOs who would serve a tour in such a unit and then rotate back to a conventional force assignment, using a model similar to the 75th Ranger Regiment.⁴⁵ These new units would professionalize the force performing this mission, seed conventional units with this important experience, and prevent BCTs from being cannibalized for their parts. SFABs would also serve a second, equally important purpose: they would give the Army a substantial cadre of experienced leaders that would enable the force to expand rapidly if necessary (as discussed below).

In January 2016, General Milley announced that he was considering forming new Advise-and-Assist Brigades that would serve this function,⁴⁶ and more recently stated that the first pilot brigade would be ready in 2018 or 2019.⁴⁷ That timetable is far too conservative

given that these units are needed now, and that they address several challenging problems for the Army at once. The pilot program should be sped up, perhaps by forming two or three different SFABs at the same time in order to experiment with different organizational forms.

FULLY INTEGRATE THE ARMY'S ACTIVE AND RESERVE COMPONENTS

The total Army includes 980,000 soldiers in the active Army, the Army Reserve (USAR), and Army National Guard (ARNG), as General Milley has emphasized from his first days in office.⁴⁸ But the Army is not getting the full capability that these numbers suggest because of structural impediments, resource competition, and cultural barriers across the components. The recommendations issued by the National Commission on the Future of the Army are a good start,⁴⁹ but the Army needs to do more in order to get more Army out of the Army—to improve the capabilities and capacity of the entire service.

Create Hybrid BCTs

Units that blend active duty, Reserve, and National Guard units and soldiers can maximize Army capabilities by stretching force structure and improving readiness. Today, despite some small efforts,⁵⁰ the force remains strictly divided by components with readiness levels kept starkly different among active, Guard, and Reserve formations.⁵¹ This division reinforces reliance on active duty BCTs for nearly all operational missions,

in a Few Years," *Defense News*, June 23, 2016.

45 The 75th Ranger Regiment typically draws officers and NCOs from across the conventional force for one or more Ranger assignments and then returns them with experience that benefits the entire Army. New SFABs could replicate such a model with similar effects.

46 We proposed this idea several months earlier, in conversations with senior Army officials, and one of us discussed it publicly on October 12, 2015, on a panel at the annual meeting of the Association of the United States Army. The video of that panel is available at <http://tradocnews.org/ausa-2015-discussion-conventional-force-special-operations-forces-interdependence/>.

47 Jen Judson, "Army Chief Taking Hard Look at Building Advise-and-Assist Brigades," *Defense News*, January 21, 2016; Jen Judson, "Milley: Advise-and-Assist Brigade Pilot to Take Shape

48 This stands in stark contrast to his predecessor, General Raymond Odierno, who often referred to the size of the Army as 490,000—then the number of active Army soldiers. About a month after taking office, Milley clearly emphasized a new direction: "There is only one Army. ... We are not 10 divisions, we are 18 divisions. We're not 32 brigades; we're 60 brigades. And we're not 490,000 Soldiers; we are 980,000 Soldiers. Every time I hear the word ... '490,' I jump through the ceiling. If I hear the words '10 divisions,' I lose my mind. It is one Army, and we're not small - we're big." Sgt. 1st Class Jim Greenhill, "General Milley: 'There is Only One Army,'" September 22, 2015, https://www.army.mil/article/155850/General_Milley___There_is_only_one_Army_/.

49 National Commission on the Future of the Army, *Report to the President and the Congress of the United States*, op. cit.

50 The National Commission on the Future of the Army noted that there are currently thirty-seven multicomponent units, but these remain very limited in size and effect. It also recommended a new pilot program for multicomponent aviation units, but that would involve fewer than 2,000 soldiers and would not significantly affect BCTs, the Army's core fighting unit. Op. cit., pp. 67-68 and 92-93; David Barno and Nora Bensahel, "Beyond the Army Commission: Unifying the Army's Components," *War on the Rocks*, op. cit.

51 These include early deploying logistics units from the Army Reserve that are kept at high readiness, and National Guard BCTs at the peak of their readiness cycle (though those are limited in number).

prolongs an unsustainable operational tempo for the active force, and reinforces dysfunctional attitudes of superiority among the components. Relying too heavily on the Active Component also reduces the Army's ability to respond to unforeseen crises and contingencies.

Hybrid BCTs would allow more combat brigades to be kept at higher readiness by mixing active, guard, and reserve units and leaders in one organization. Hybrid BCTs would fully integrate units from all three components into a single combat brigade. As shown in figure 1, a hybrid BCT would include a mix of active and ARNG combat battalions (infantry, armor, cavalry, and field artillery), USAR combat support companies (intelligence, engineers, and others), and combat service support units from all three components. The headquarters of a hybrid BCT would be drawn from either current active or ARNG BCTs and would include officers and non-commissioned officers from all three components. These leaders would also be distributed throughout the BCT on staffs and in key unit leader positions such as company commanders and first sergeants. The unit's chain of command, from brigade commander down to squad leader, would have full rating authority and complete responsibilities for training and readiness of the unit as a whole, thus maintaining unity of command.

Hybrid BCTs would have more resources needed to maintain higher readiness than today's RC formations, and thus be able to respond to contingencies far more quickly—in weeks rather than months.⁵² Personnel from the Army Reserve and Army National Guard would have to volunteer to serve in hybrid BCTs, since they would inevitably require more than the standard thirty-nine training days each year,⁵³ but our research suggests that many reservists would be willing to make that commitment. Ideally, these units would be regionally based, and most of their force structure would be located within a single state to make it easier

Hybrid BCTs would allow more combat brigades to be kept at higher readiness by mixing active, guard, and reserve units and leaders in one organization.

for a state's governor to employ the brigade. This model would require some legislative changes to the current rules for Dual Status Command and Defense Support to Civil Authorities, which probably would not be a major obstacle if all three Army components support the idea.⁵⁴

The Army is currently piloting an initiative called Associated Units that seeks to better integrate all three components.⁵⁵ A National Guard BCT might be "associated" with an active Army division, or an active BCT might have a battalion from the Guard or Reserve as an associated unit. Associated units will train together, exchange some personnel, and would plan to deploy together. Yet, this pilot does not go nearly far enough. The associated units from the Army National Guard and Army Reserve will only receive fifteen additional training days per year,⁵⁶ which is not enough for them to become full partners. Furthermore, unlike the hybrid BCT model above, none of these units will be fully integrated—no active units will be replaced in organizational charts by Guard or Reserve counterparts, nor will a single chain of command exist for all entities regardless of component. In effect, this replicates the roundup/roundout model employed by the Army in the 1980s and early 1990s that proved less than successful (and highly controversial) during the 1991 Gulf War. No command relationships between associated units exist in this new model: senior leaders from the larger unit will not rate their subordinates or vice versa (if the reserve leader is senior). This lack of a formal chain of command breaks down responsibility for results

52 Hybrid BCTs would also be key elements of the Operational Response Force, which we discuss in the next chapter.

53 General Milley has already floated a version of this idea: "maybe I should take some of the Guard and significantly increase the number of training days they train in a given year—maybe 60 to 100 days a year to reduce the response time on the back end when they get alerted and mobilized." Matthew Cox, "Army Plans to Double Training Days for Guard Units, Chief Says," *Military.com*, December 14, 2015.

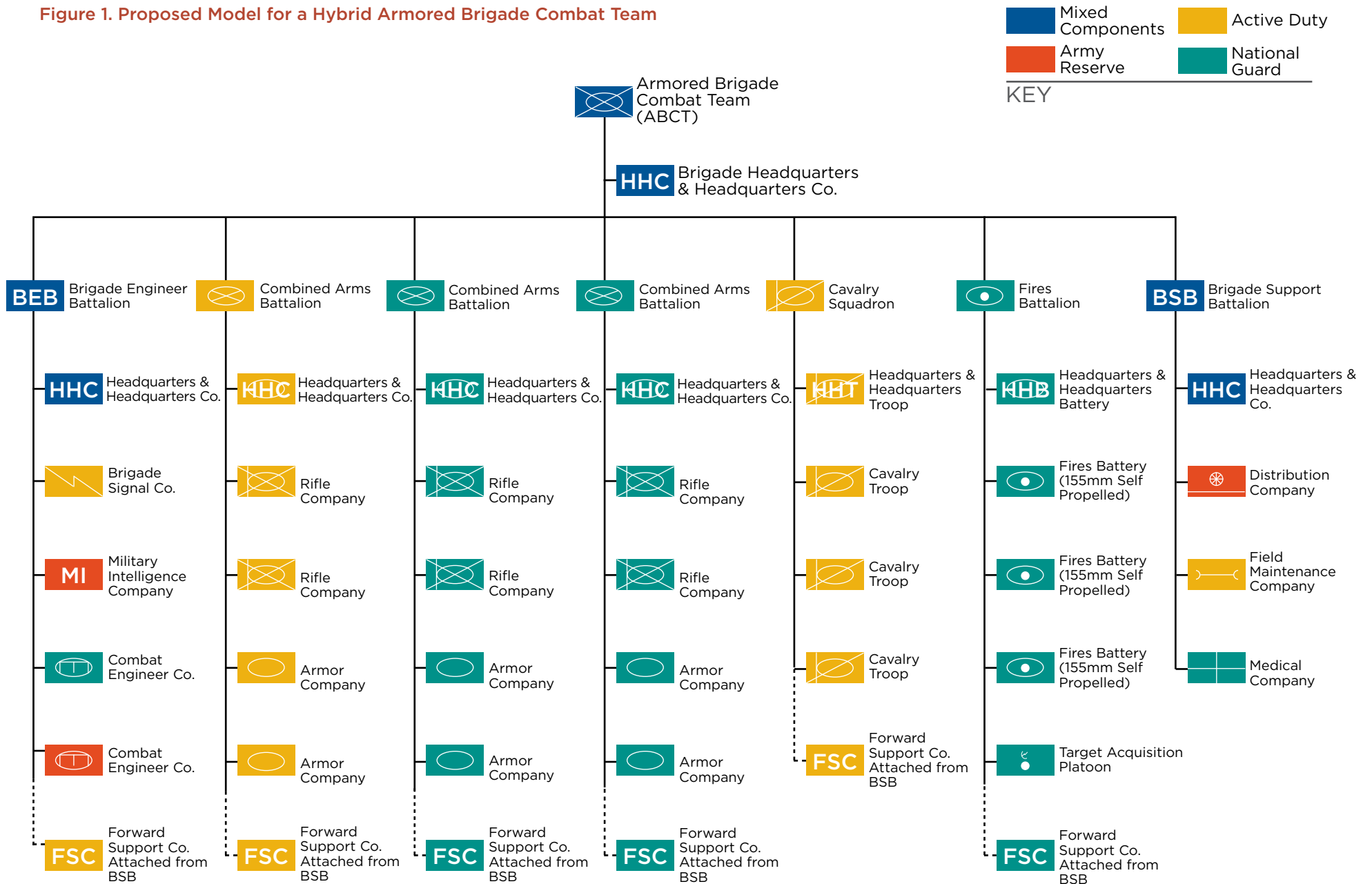
54 Under the current law, Dual Status Command authority is granted only during an emergency by the secretary of defense and upon the request of a state governor. It vests a single commander with both state and federal authorities, permitting him or her to command active or reserve forces from any component. Current law would have to be amended to allow commanders in hybrid BCTs to have day-to-day authority over soldiers from all three components separate from that emergency authority. Selected other statutory, regulatory, and policy changes for using Active Component or Army Reserve units for state support might also have to be revised and updated to give governors access to mixed component forces in a hybrid BCT.

55 This pilot will run through 2019 and includes fourteen pairings of twenty-seven units from all three Army components. David Vergun, "Pilot Program Links Reserve Components with Active Units for Training," March 23, 2016, https://www.army.mil/article/164792/Pilot_program_links_Reserve_components_with_active_units_for_training/.

56 Op. cit.

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Figure 1. Proposed Model for a Hybrid Armored Brigade Combat Team



Source: Adapted from Headquarters, Department of the Army, *FM 3-96: Brigade Combat Team*, October 2015, p. 1-11.

and blurs the lines of authority in ways that makes the relationship of very limited value.

Although the Associated Units concept is a step in the right direction, it is a very conservative experiment with an excessively long evaluation timeline that risks achieving little. Bolder steps toward a hybrid BCT are needed for the Army to become a truly integrated force where leaders and units of each component find it perfectly normal to work with each other every day. Until that occurs, shared trust will be absent and separate component cultures of mutual suspicion will continue.

Source Predictable Rotational Missions from the Reserve Component First

The Army has several ongoing overseas rotational requirements beyond the wartime missions in Afghanistan and Iraq. Army forces provide peacekeepers in the Sinai and Kosovo, ABCTs to buttress regional deterrence in Korea and Kuwait, and recently added additional deterrence forces in Eastern Europe. The combatant commands (COCOMs) also continue to clamor for Army units to provide peacetime engagement with friends and allies across the globe, from Africa to the western Pacific. Active Army BCTs at full readiness have been broken apart into small packets to support many of these COCOM requirements,⁵⁷ dissolving formations that could otherwise respond quickly to high-intensity conflicts. Many of these forward presence commitments are steady-state and predictable deployments, or regularly scheduled exercises.

The Army should fill these types of known requirements with units from the Reserve Component that are at full readiness before sourcing them from active units. Guard and Reserve formations that spend years preparing for a ready cycle can meet the same mission demands that active duty units currently fill.⁵⁸ Using them to source predictable requirements would increase the Army's available combat power by preserving the high readiness of active units for contingencies that require an immediate response. It would also reinforce the importance and relevance of serving in the Reserve Component, since failing to utilize those units once they have trained up to full

readiness poses real problems for their recruiting, retention, and morale. Additionally, if the mobilization policy for units from the Reserve Component were to change, for example, from one year available to deploy for every five at home (1:5) to one year available for every four at home (1:4), the number of National Guard units available to deploy would increase by approximately 15 percent.

Increase the Army's Focus on Homeland Defense

The US homeland and the American people are arguably more vulnerable to attack today than at any point since the Cold War. Homeland security is not, and should not be, the primary responsibility of the US military; that responsibility is properly vested in federal, state, and local civilian authorities. Yet, the military can and does provide vital support to these authorities. The US Army is especially well positioned for this mission, since its National Guard and Reserve units dot nearly every neighborhood in the United States, and can respond to everything from natural disasters to a debilitating cyberattack to a terrorist use of a nuclear or biological weapon. Yet, the Army needs to move beyond consequence management, and where appropriate, take proactive measures to help assess the risks and vulnerabilities of the civilian population.

The Army National Guard may be particularly well-suited to help the United States defend itself against serious cyber threats. National Guard units would be among the first called to respond to a physical disaster resulting from a massive cyberattack, but they can also help prevent those attacks in those first place. Unlike active Army forces, the ARNG has authorities and responsibilities that enable it to partner with state and local governments—whose networks are particularly vulnerable to attack because they often do not utilize advanced cybersecurity systems.⁵⁹ The Army National Guard is already planning to establish eleven Cyber Protection Teams (CPTs) spread across twenty-four states by 2019, which will help prevent and respond to cyber incidents on DOD and government networks.⁶⁰

57 For example, the 2nd BCT of the 1st Infantry Division, which was the first brigade to be regionally aligned with one of the COCOMs, conducted 128 activities in 28 different African countries during 2013. Nick Turse, "Why is the US Military Averaging More Than a Mission a Day in Africa?" *The Nation*, March 27, 2014.

58 Guard BCTs typically have a force generation cycle that involves four years of training, building up to a nine-month ready period when they can be mobilized and deployed.

59 According to the cybersecurity firm FireEye, almost 90 percent of state officials believe they are well protected from cyberattack. Yet in 2014, it took an average of 205 days for organizations to discover their systems had been breached, and almost 70 percent of those breached found out about it from an outside source (such as the FBI) rather than from their own cybersecurity protocols. Bret Brasso, "State and Local Governments Misperceive the Risk of Cyber Attacks," January 26, 2016, https://www.fireeye.com/blog/executive-perspective/2016/01/state_and_local_gove.html.

60 Sgt. 1st Class Jon Soucy, "National Guard Set to Activate Additional Cyber Units," December 9, 2015, https://www.army.mil/article/159759/National_Guard_set_to_activate_additional_cyber_units.

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These important efforts should continue to expand, and their capabilities should also be made available to the private sector (on a voluntary basis).

Beyond the cyber realm, the Army should undertake wargames and exercises to validate its ability to both respond to weapons of mass destruction and the breakdown of civil order in the United States for worst-case scenarios. It should also develop contingency plans to provide backup critical capabilities such as air traffic control, power, or water on a large scale in the event of a regional or national disaster. Army forces currently participate in these types of homeland security missions in two different ways: through the fifty-four Army National Guards of each US state, territory, and the District of Columbia; and through US Army North (ARNORTH), the Army component of US Northern Command (NORTHCOM). However, the scale and scope of a major catastrophe in the United States would rapidly exceed the limited capabilities of the state National Guards and ARNORTH. An extensive breakdown of utilities, the large-scale disruption of civil order, or mass civilian casualties would almost certainly engage much of the Army in providing extensive support to civil authorities throughout the country.

REBUILD JOINT AND COMBINED ARMS WARFIGHTING CAPABILITIES

Ongoing operations to defeat insurgents in Iraq, Syria, and Afghanistan will likely engage Army forces for years to come, but the Army must also remain ready to fight and win major conventional or hybrid wars on behalf of the nation. There is no backstop for the nation if the Army cannot successfully fight a major war when such a conflict erupts. In an increasingly dangerous and volatile world, the Army must ensure that it can fight and win on the most demanding high-end battlefields. These recommendations will also help it prepare the Army for the next big war (discussed in the next chapter).

Increase the Number of Armored BCTs in the Active Component

Today's Army is dramatically lighter than the Army of 2001, with far fewer armored and mechanized units.⁶¹ Yet, those are arguably the service's most survivable formations, combining mobility, firepower, and heavy armored protection. With the return of great power politics and the increasing possibility of a conventional force-on-force conflict, fielding nine ABCTs in the

Active Component and five in the Guard simply does not provide enough armored and protected mobile firepower. The armored force is about to be stretched by the new requirement for a continuous rotational ABCT presence in Eastern Europe, on top of the current rotational requirements in South Korea and Kuwait.⁶² That leaves precious little capability available for unexpected contingencies.

The Army should address this shortfall by converting at least three active IBCTs to ABCTs. To reduce costs, some or all of these could be newly formed hybrid BCTs, leveraging Army National Guard combat battalions to constitute part of the newly formed ABCTs. Some of the infantry billets from the inactivated IBCTs should also be reinvested in adding more mechanized infantry to existing active ABCTs, which have much less dismounted infantry capability than desirable.⁶³ Since heavy armored combat skills sets are among the most complex in the Army's inventory, more ABCTs should continue to reside in the Active Component (or convert to new hybrid brigades, as described above) rather than in the Reserve Component. Only a small number of traditional ABCTs should remain in the Army National Guard. These would be both a strategic hedge and a way to keep reservists with armored and mechanized skills in the force without requiring them all to commit to the additional training requirements of hybrid BCTs.

Improve Mobility, Firepower, and Protection for Infantry BCTs

The Army must accelerate efforts to restore survivability and mobility to its basic infantry formations after having optimized them for a decade and a half of counterinsurgency and stability operations. According to an Army source, IBCTs lack the ability to "defeat enemy prepared positions, destroy enemy armored vehicles, close with the enemy through fire and maneuver, and ensure freedom of maneuver and action in close contact with the enemy."⁶⁴ These problems are only exacerbated by operations in urban environments—which will inevitably involve battling

61 See International Institute of Strategic Studies, *The Military Balance 2001*, op. cit., p. 20; International Institute of Strategic Studies, *The Military Balance 2016*, op. cit., p. 39.

62 This burden would be eased—though not resolved—by implementing the earlier recommendation to source predictable rotational requirements from the Reserve Component first. Michelle Tan, "Back-to-back Rotations to Europe Could Stress the Army's Armored BCTs," *Army Times*, February 11, 2016.

63 As an example, combined arms battalions of ABCTs could each add one infantry company to return to a two tank, two infantry company balance that was the standard before the recent consolidation of BCTs.

64 "Information Paper: Mobile Protected Firepower," US Army Maneuver Center of Excellence, August 21, 2014, <http://www.benning.army.mil/mcoe/maneuverconference/ReadAhead/MRD/MPFinfoPaper21Aug14.pdf>.

roadside bombs in densely packed urban warrens and finding shadowy enemy combatants nested among civilians.

Additionally, today's IBCTs lack firepower and protected mobility to be able to conduct offensive maneuvers off-road across a wide range of terrain. Their current vehicles are light-skinned transports with limited protection or cross-country mobility. The Joint Light Tactical Vehicle (JLTV) program will improve this mix somewhat, but it remains a limited solution that will only transport four to six troops and will not have any substantial onboard firepower. Without better capabilities, IBCTs will be ill-prepared for the demands of tough conventional fighting in the years ahead. The Army needs to develop a lightweight armored capability to carry infantry that integrates all available technology to provide advanced firepower (both lethal and non-lethal), mobility, and protection optimized for urban settings. IBCTs also need a light armored reconnaissance vehicle for protection as they move toward contact with an unseen enemy, and for additional mobile firepower once a battle ensues.

Rebuild Tactical Air Defense

The overwhelming success of the US Air Force in protecting US troops from air attack since the Korean War has eroded the Army's tactical or short-range air defense capabilities. Yet, the rapid emergence of adversary anti-access/area denial (A2/AD) capabilities means that the United States may not have unchallenged air superiority in future major wars. Enemy aircraft operating under an advanced air defense umbrella may be able to strike US troops with precision standoff weapons. Cruise missiles fired from distant naval and air platforms may be employed against friendly troop concentrations, command and control, and logistics nodes—as Russia did against terrorists in Syria in late 2015.⁶⁵

The Army must reinvigorate its Air Defense branch and improve its abilities to defend against rapidly evolving threats of attack from the air. Air defense must be

The Army must accelerate efforts to restore survivability and mobility to its basic infantry formations after having optimized them for a decade and a half of counterinsurgency and stability operations.

examined holistically and include both lethal and non-lethal capabilities—from counter-missile interceptors to electronic warfare. Defense against air attack must also be restored as a mission essential task for every Army unit and reinstated in all levels of tactical training (including the combat training centers). The Army also needs to revive its once-strong skills in camouflage, dispersion, signature reduction, and in employing all available unit weapons for short-range self-defense against these looming threats.⁶⁶

Reconstitute CBRN Protection

Chemical, biological, radiological, and nuclear (CBRN) threats present the most danger—and exploit a major force-wide vulnerability. Defensive measures against all of these capabilities atrophied after the fall of the Soviet Union and were worsened by a decade and a half of irregular warfare. The advent of chemical warfare in ongoing conflicts such as Syria, combined with nuclear proliferation and the increased dangers of nuclear use,⁶⁷ now require the Army to re-emphasize CBRN training and preparedness. All high-intensity training should include operating in a nuclear or chemical contaminated environment and the capability to decontaminate personnel and equipment must be improved.⁶⁸ These measures would provide far better protection for soldiers in these dangerous environments and would also help deter adversaries from using these weapons against US forces.

Train to Operate in a Degraded

C4I Environment

The low-technology wars in Iraq and Afghanistan have conditioned Army forces to expect nearly

65 Christopher P. Cavas, "Is Caspian Sea Fleet a Game-Changer?" *Defense News*, October 11, 2015; Christopher P. Cavas, "Russian Submarine Hits Targets in Syria," *Defense News*, December 9, 2015.

66 David Barno and Nora Bensahel, "The US Military's Protection Deficit Disorder," *War on the Rocks*, July 5, 2016, <http://warontherocks.com/2016/07/the-u-s-militarys-protection-deficit-disorder/>.

67 See, for example, William J. Perry, *My Journey at the Nuclear Brink* (Stanford, CA: Stanford University Press, 2015); and David Barno and Nora Bensahel, "The Pink Flamingo on the Subcontinent: Nuclear War Between India and Pakistan," *War on the Rocks*, November 3, 2015, <http://warontherocks.com/2015/11/the-pink-flamingo-on-the-subcontinent-nuclear-war-between-india-and-pakistan/>.

68 Barno and Bensahel, "The US Military's Protection Deficit Disorder," op. cit.

unchallenged C4I capabilities.⁶⁹ Moreover, the lack of an air threat has permitted the extensive use of friendly surveillance drones, yielding a cornucopia of overhead imagery and full motion video of nearly any enemy engagement. The ability to digitally “see” friendly formations through now ubiquitous devices such as Blue Force Tracking systems, along with Global Positioning System (GPS) navigation and position locating, have rendered traditional forms of unit reporting and navigation obsolete. The Army and the other services now rely almost entirely on space-based position, navigation, and timing (PNT) support for most essential battlefield tasks. The failure of adversaries in Iraq and Afghanistan to degrade any of these capabilities has only reinforced total confidence in and dependence upon digital means of command and control.

Any high-end war, however, will almost certainly involve more technologically sophisticated adversaries that will be able to disrupt or disable US C4I systems through computer network attack, electronic warfare, or by disrupting space-based PNT capabilities. Army units at all levels must regularly train to operate effectively with severely degraded communications, and the service must begin to build redundant capabilities through analog systems of command and control.⁷⁰ Basic leader courses must continue to emphasize navigating with maps and compasses, communicating by radio, and exercising command and control using pens, map overlays, and even messengers to backstop what could be debilitating technical reliance. The Army should also invest more in developing alternative technologies such as pseudolites that would be able to provide positioning, navigation, and timing information if GPS capabilities were catastrophically disrupted.⁷¹

TRANSFORM ARMY HEADQUARTERS AND SLASH NON-ESSENTIAL PROCESSES

The Army has too many headquarters that do not perform warfighting functions and contain staffs that

are too large and too bureaucratic. This profusion of large non-operational headquarters results in ever-more non-essential work and drains vitally needed manpower away from combat functions. The pressures of constrained budgets and end strength numbers require reassessing the purpose, structure, and staffing of all Army headquarters and processes, particularly those that do not have a deployable or operational purpose.

Abolish the Army Service Component Commands (ASCCs) In Their Current Form

The Army, like the other services, currently maintains a component command at each of the nine US combatant commands⁷² and at US Cyber Command.⁷³ These senior headquarters, which are led by two-, three-, and even four-star commanders, consume a great deal of overhead and high-level manpower without making substantial contributions to warfighting efforts. The Army should eliminate most of the current ASCCs and replace them with dual-hatted operational headquarters that also have warfighting capabilities. In Europe, for example, US Army Europe should be replaced by re-activating V Corps and making it the Army component of US European Command. In the Pacific, I Corps should replace US Army Pacific as the Army component of US Pacific Command, to which it is already assigned as an operational headquarters. These headquarters would need to add some additional staff members to cover these new responsibilities, but far more positions would be eliminated than transferred—thereby freeing up more Army personnel to serve in combat positions.

Cull Non-Operational Headquarters

Even though the size of the Army is shrinking, the Army continues to waste a great deal of expensive manpower by assigning active-duty personnel to headquarters and staffs with little if any connection to warfighting. These non-deployable organizations also include untold numbers of Army civilians and contractors, making them even more expensive. Today, the Army has thirteen division and corps headquarters devoted to operational warfighting tasks, but as many as sixty non-deployable commands, headquarters, and centers that are led by generals and are designed

69 C4I stands for command, control, communications, computers, and intelligence.

70 Other services face this problem as well. The US Naval Academy, for example, recently reinstated celestial navigation as a requirement for third-year students after dropping it from the curriculum in 2006. Andrea Peterson, “Why Naval Academy Students Are Learning to Sail by the Stars for the First Time in a Decade,” *Washington Post*, February 17, 2016.

71 Pseudolites are devices that perform the function of satellites without actually being a satellite. For how they could be used as an alternative to GPS in the civil realm, see Sherman Lo, “Pseudolite Alternatives for Alternate Positioning, Navigation, and Timing (APNT),” https://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/techops/navservices/gnss/library/documents/APNT/media/APNT_Pseudolite_WhitePaper_Final.pdf.

72 The nine combatant commands are US Africa Command, US Central Command, US European Command, US Northern Command, US Pacific Command, US Southern Command, US Special Operations Command, U.S Strategic Command, and US Transportation Command.

73 This section develops ideas discussed in builds on ideas first outlined in Lieutenant General David W. Barno, USA (Ret.), Nora Bensahel, Matthew Irvine, and Travis Sharp, “Sustainable Pre-eminence: Reforming the US Military at a Time of Strategic Change,” Center for a New American Security, May 2012, pp. 25-26.



Rangers from the 2nd Battalion, 75th Ranger Regiment prepare to board an MH-47G Chinook at Fort Hunter Liggett, California, January 2014. *Photo credit:* US Department of Defense.

for various institutional support tasks.⁷⁴ That means that almost 80 percent of Army headquarters do not contribute directly to wartime missions.⁷⁵ Consolidating or eliminating these headquarters would free up scarce billets and dollars that could be reinvested in preserving combat force structure.

Additionally, the Defense Business Board found that in 2010, almost 340,000 active-duty military personnel (from all four services, not just the Army) were performing commercial activities that were not inherently governmental, costing a total of \$54 billion a year.⁷⁶ This trades off far too much potential combat capability at a time when the size of the Army is shrinking and readiness remains a considerable

challenge.⁷⁷ These troops could be re-assigned to operational billets where the Army is struggling to keep deployable units at even 95 percent manning.⁷⁸

More long-term institutional support missions should be civilianized or contracted to free up both military and civil service manpower. For example, running scores of bases across the United States could be competitively outsourced to private contractors supervised by a small cadre of career civil servants. That would permit the disestablishment of the Army's sprawling Installation Management Command, with the resultant savings in military and civilian personnel rolled into warfighting functions—or removed entirely to generate cost savings. The Army should also consider ways to de-layer its complicated staff structures. It could eliminate, for example, the Combined Arms Center (CAC) at Fort Leavenworth by drawing its role into the Army's Training and Doctrine Command (TRADOC) headquarters. Its functions would then be shared among the TRADOC staff and

74 "2015-16 Green Book," *Army Magazine*, October 2015, pp. 216-229.

75 A similar pattern is found in the billets for Army general officers. One recent study found that approximately 60 percent of one-star billets, 80 percent of two-star billets, 82 percent of three-star billets, and 92 percent of four-star billets are non-operational enterprise management positions. David Barno, Nora Bensahel, Katherine Kidder, and Kelley Saylor, "Building Better Generals," Center for a New American Security, October 2013, p. 11; Michael J. Colarusso and David S. Lyle, "Senior Officer Talent Management: Fostering Institutional Adaptability," US Army War College Strategic Studies Institute, February 2014, pp. 37-38.

76 Defense Business Board, "Reducing Overhead and Improving Business Operations: Initial Observations," July 22, 2010, available at <http://www.govexec.com/pdfs/072210rb1.pdf>.

77 See, for example, "The Urgent Need to Reform and Reduce DOD's Overhead and Infrastructure," statement of Major General Arnold L. Punaro, USMC Ret. Before the Senate Armed Service Committee, November 17, 2015, http://www.ndia.org/Documents/Punaro_SASC_Written_Statement.pdf.

78 Authors' discussions at US Army Forces Command, June 2016.

its eight centers of excellence, which would eliminate an unnecessary bureaucratic layer between them.

Eliminate the Cultural Divide Between the Institutional and Operational Army

The core culture of the Army is and will always be centered on warfighting. The Army has traditionally embraced the attributes of agility, adaptability, and speed in decision making within its operational forces. It rightly devotes a lot of time and effort to making the warfighting part of the Army not only the finest battle force in the world, but one that embodies the best attributes of leadership and management. Yet partly because of this battlefield focus, the institutional Army—its leadership, management, and processes—have been allowed to stultify and become ever more rigid, more bureaucratic, and more outmoded. As a result, the institutional Army has been widely maligned within the service. Serving on the Army Staff or in TRADOC, for example, is often viewed by up and coming leaders as a fate to be avoided at all costs, largely because of the stifling bureaucratic processes that drive the behaviors of both organizations.

Army leaders must change this dynamic by insisting upon the same organizational attributes in high-level staffs that they expect in operational units. Agility, speed, flexibility, and organizational adaptability are equally important traits for leaders in the institutional Army as in the operational force.

Reduce Unneeded Work and Transform Staff Processes

The Army must “uninvent” work in order to both reduce staff overhead and lessen the administrative burdens on the operational force. Nearly all Army staffs are overworked, but they spend much of their time feeding a bloated, outdated, and highly bureaucratic set of staff processes that hinder their work rather than facilitating it. Some of the problems result from legal requirements, but the far greater majority are self-imposed by the Army. There are currently 529 Army Regulations that continue to expand and require staff oversight to monitor compliance across the force.⁷⁹

⁷⁹ All of the Army Regulations are available at <http://www.apd>.

The pernicious effects of this are hard to overstate, though one example proves the point decisively: an average company commander today has 451 days of required training to complete on an annual basis.⁸⁰ That is a sheer impossibility—and it also has increased more than 50 percent since 2002, which was already an impossible training standard to achieve.⁸¹

We have long argued that the Army needs to charter a Creative Destruction Task Force, which would empower service leaders to take on the ever-growing kudzu of growing administrative workload and shear away non-essential or outmoded requirements.⁸² The Army might build upon a previous US Navy effort that recognized this problem and created a task force to reduce administrative burdens on the fleet in order to focus more on warfighting tasks.⁸³ The Army must find ways to do so as well.

Beyond eliminating unnecessary work, the Army also needs to find ways to do its needed work more efficiently—which includes making far better use of technology. In many cases, the introduction of information technology into Army processes in the last several decades merely resulted in “automated manual processes” rather than achieving true savings in work and manpower. Many of these functions in the private sector are either fully automated through modern information technology or outsourced.⁸⁴ To take one example, DA Form 31, which all Army personnel must fill out in order to take leave, has remained virtually unchanged

We have long argued that the Army needs to charter a Creative Destruction Task Force, which would empower service leaders to take on the ever-growing kudzu of growing administrative workload and shear away non-essential or outmoded requirements.

army.mil/ProductMaps/Administrative/ArmyRegulation.aspx.

⁸⁰ Internal Army document, September 2015.

⁸¹ In 2002, company commanders had 297 mandatory days of training—even though there are only 256 training days in a calendar year. Leonard Wong and Stephen J. Gerras, “Lying to Ourselves: Dishonesty in the Army Profession,” US Army War College Strategic Studies Institute, February 2015, p. 4.

⁸² David Barno et al., “The Seven Deadly Sins of Defense Spending,” op. cit., p. 17; David Barno and Nora Bensahel, “From Carbon Paper to the Cloud: Fixing the Pentagon’s Back Office,” *War on the Rocks*, January 12, 2016, <http://warontherocks.com/2016/01/from-carbon-paper-to-the-cloud-fixing-the-pentagons-back-office/>.

⁸³ Terrina Weatherspoon, “Navy Looks to Relieve Administrative Burdens from Fleet,” June 7, 2013, http://www.navy.mil/submit/display.asp?story_id=74702.

⁸⁴ Barno et al., “The Seven Deadly Sins of Defense Spending,” op. cit.

in the past four decades. It can now be filled out online, but it remains the same form—it has not taken advantage of any automated processes. This may seem to be a trivial example, but the amount of manpower, energy, and effort it takes to manage that single form, multiplied by nearly one million soldiers taking leave one or more times per year, is simply astounding.⁸⁵ Managing such outdated processes and systems drains scarce resources and organizational energy away from critical warfighting and support functions.

RECONSTITUTE CAPABILITIES FOR RAPID EXPANSION

The prolonged wars in Iraq and Afghanistan required the Army to expand by just 16.3 percent, from approximately 478,000 troops in 2001 to 571,000 troops in 2012.⁸⁶ This recent experience makes it hard to imagine that the Army might need to expand rapidly in a future time of war, but these two extended but limited irregular conflicts are historical anomalies. To fight much larger wars in the past, the Army had to expand massively and rapidly to deal with threats deemed existential. A future major war against a great power competitor might once again threaten national survival and require the Army to grow by several orders of magnitude in order to prevail.

To fight and win the next big war,⁸⁷ the Army must be able to absorb an enormous influx of dollars and tens of thousands of conscripted recruits, and rapidly turn them into an effective fighting force. The Army dedicated substantial intellectual energy to this task in the 1930s, despite having no clearly understood threat nor any likely prospects for a global war.⁸⁸ It needs to do so again today to hedge against the threats of existential conflict. The Army must take several steps now to prepare for this hopefully unlikely but extremely consequential future contingency.

Practice Standing Up New Units

Creating a new unit from scratch is among the most difficult tasks required during a wartime expansion, but the Army has substantial experience doing so during past major wars (including the Civil War and both World Wars). It can also draw lessons from other elements of its history. During the 1980s, for example, the Army experimented with creating new COHORT

maneuver companies.⁸⁹ They were formed by joining a cadre of experienced NCOs and field grade officers who had trained together in advance with an arriving cohort of newly trained junior enlisted soldiers who had just completed basic and advanced individual training together. These units stayed together for thirty-six months—personnel were stabilized in the units for the duration and shielded from routine reassignment—and were then inactivated. COHORT units achieved an unprecedented level of unit cohesion and skill retention, since teams remained together for three years. The experiment reached eighty-two battalions at its peak,⁹⁰ and was widely seen as a success.⁹¹ Practicing this same model today would hone the skills and processes required to rapidly expand the Army when needed, and identify what new policies, training, and equipment would be needed to scale such an effort for a bigger mobilization.

The new security force assistance brigades (SFABs) discussed earlier will also provide an important additional capability to rapidly expand the force. If mobilized to do so, the members of these units would change roles to form an already existing unit chain of command as a cadre to join up with newly arriving soldiers and junior officers. The Army should plan to exercise capabilities for expansion by tasking the battalion cadre from one SFAB each year to implement a twelve-month training program to grow an entirely new infantry battalion. Such an annual exercise would produce a fully trained battalion at the end of each year that could then be integrated into an active duty or hybrid BCT, and would also yield significant lessons for future mobilizations.

85 Barno and Bensahel, “From Carbon Paper to the Cloud,” op. cit.

86 International Institute of Strategic Studies, *The Military Balance 2001*, op. cit., p. 20; International Institute of Strategic Studies, *The Military Balance 2012* (London: Routledge, 2012), p. 55.

87 We discuss preparing for the next big war in the next chapter.

88 See, for example, Henry G. Gole, *The Road to Rainbow: Army Planning for Global War, 1934-1940* (Annapolis, MD: Naval Institute Press, 2002).

89 COHORT stood for cohesion, operational readiness, and training. Pat Towell, “Forging the Sword: Unit-Manning in the US Army,” Center for Strategic and Budgetary Assessments, September 2004.

90 “Military Unit Cohesion: The Mechanics and Why Some Programs Evolve and Others Dissolve,” United States Marine Corps Command and Staff College, 1999, p. 26, <http://www.dtic.mil/dtic/tr/fulltext/u2/a524447.pdf>.

91 A subsequent experiment organized the 7th Infantry Division (Light) according to COHORT principles, but it largely failed for reasons that are eerily similar to some of the problems mentioned in the previous section. One author summarizes an assessment conducted by the Walter Reed Army Institute of Research (WRAIR) as follows: “For the division to have organized successfully on COHORT principles, WRAIR analysts concluded, commanding officers and NCOs at every level would have had to adopt an empowering, ‘power-down’ collegial style of leadership, as many initially did. But as more and more tasks were piled on the division, too many leaders, *under the stress of having to meet impossible demands*, reverted to the centralized, top-down, coercive style that was the Army norm.” Towell, “Forging the Sword,” op. cit., p. 57. Emphasis added.



California Army National Guard soldiers and their Bradley Fighting Vehicles maneuver during Exercise Saber Guardian 16 in Cincu, Romania, July 2016. *Photo credit:* US Department of Defense.

Reinvigorate the Individual Ready Reserve (IRR)

The Army maintains over 115,000 soldiers in the IRR, consisting principally of troops who have served on active duty and retain a service obligation after finishing their active service tours. These trained and experienced soldiers form a largely untapped pool of talent that can help expand the Army when needed. During the wars in Iraq and Afghanistan, for example, the Army and the Marine Corps mobilized almost 30,000 members of the IRR—but the Army still only activated four percent of its IRR members.⁹² The Marine Corps views its IRR differently than the other services view theirs, and places great emphasis on maintaining contact with its members. It activated almost 10 percent of its IRR members for the recent wars; regularly holds administrative musters to account for members; and also holds bigger “mega-musters” that provide services to IRR members including career training, medical screenings, and information on entitlements and benefits provided by the Department of Veterans Affairs.⁹³

92 See Information Memo for the Secretary of Defense, “Report of the Reserve Forces Policy Board on the Need for Improvements in the Individual Ready Reserve,” September 30, 2015, http://rfpb.defense.gov/Portals/67/Documents/Reports/Annual%20Report/RFPB%20IRR%20REC%2030SEP15_signed.pdf.

93 Ibid. The Marine Corps does face some challenges with its IRR, however, and commissioned a report by the Center for Naval Analyses to examine ways to better manage that part of its

Any rapid expansion of the Army would logically require filling new units with mobilized members of the IRR—who are all Army veterans—before utilizing newly trained personnel (though both would be required in any major mobilization). To better leverage the trained manpower in the IRR, however, the Army will need to overcome some of the management and access problems that currently plague this largely neglected component of the total force.⁹⁴ The Army needs to develop a strategy for how best to utilize the IRR in a time of mobilization, which should include periodic virtual and physical musters of IRR members to validate contact information and update personnel rosters; surveys of IRR soldiers to update health, skills, and family information; and building “battle rosters” of individual members leaving active duty, which align their skills with prospective billets in newly forming units.⁹⁵ The service has recently begun assigning departing active service members shifting into the IRR to specific reserve units for administrative tracking.⁹⁶

force.

94 “Report of the Reserve Forces Policy Board on the Need for Improvements in the Individual Ready Reserve,” op. cit.

95 For example, a staff sergeant who left active service as a rifle squad leader in the 10th Mountain Division could be assigned or “battle rostered” to the same role in a newly forming infantry battalion.

96 Andrew Tilghman, “Bringing the Individual Ready Reserve into the ‘Total Force,’” *Military Times*, October 26, 2015.

The Army should also consider providing additional participation incentives—such as those provided by the Marines—and encouraging Congress to allow some form of annual compensation⁹⁷ so IRR soldiers remain engaged and involved.

Build an Army Mobilization Plan

During the Cold War, DOD and the Army devoted substantial time and energy planning for mobilization in the event of a major war with the Soviet Union. In 1978, for example, DOD held an exercise called Nifty Nugget, which assessed “national capabilities to mobilize and deploy forces in times of crisis.”⁹⁸ It revealed severe shortfalls that eventually led to far better integrated joint deployment efforts.⁹⁹ The Army has not had to plan for mass mobilization since

the end of the Cold War, but the growing threats in today’s world mean that it must once again build a mobilization plan to rapidly grow the size of the Army to meet a national crisis of existential danger. The plan needs to address how to bring large numbers of new recruits into a growing force; energize the defense industrial base; track and improve the readiness levels of surplus materiel; and revitalize mothballed pieces of equipment and return them to service.

The Army should also identify what civilian talents and capabilities it might want to rapidly access if the Selective Service were to institute a draft. These might include computer coders, social media gurus, linguists, and financial experts, in addition to more traditional demands for soldiers to fill infantry, armor, or artillery units.¹⁰⁰ The plan should also provide options for building various new types of units and assign responsibilities for overseeing and exercising such an expansion of the force (as noted with SFABs above). Such a visible and substantial Army effort to plan and prepare the force to execute a major expansion would serve a very important practical purpose, but it would also signal resolve and preparedness to friends and potential adversaries alike.

97 IRR members attending physical musters today are only entitled to a per diem payment that covers travel and other subsistence costs. They do not receive other forms of compensation or credit toward retirement pay. “Report of the Reserve Forces Policy Board on the Need for Improvements in the Individual Ready Reserve,” op. cit.

98 William K. Brehm and Ernst Volgeneau, “Evaluation Plan: Exercise Nifty Nugget 1978,” October 23, 1978, <http://www.dtic.mil/dtic/tr/fulltext/u2/a061772.pdf>.

99 Analysts estimated that if the exercise had been a real conflict, there would have been more than 400,000 casualties, and that somewhere between 200,000 and 500,000 troops (and tons of supplies) would not have arrived on time. Participants described the results by saying “This was one war we would have lost,” and “The Army was simply attrited to death.” “Nifty Nugget,” Global Security.org, <http://www.globalsecurity.org/military/ops/nifty-nugget.htm>. Quotes from John J. Fialka, “The Grim Lessons of Nifty Nugget,” *Army*, April 1980, pp. 15 and 17.

100 David Barno and Nora Bensahel, “Why We Still Need the Draft,” *War on the Rocks*, February 23, 2016, <http://warontherocks.com/2016/02/why-we-still-need-the-draft/>; David Wood, “Uncle Sam Needs Coders. Here’s How the Military Could Draft Them,” *Huffington Post*, May 10, 2016, http://www.huffingtonpost.com/entry/military-draft-coders-tech-experts_us_572cddf7e4b0bc9cb046a2f9.

3. THE ARMY OF TOMORROW: 2020-2025

While the Army prepares for the challenges of today, it must also start sowing the seeds of the future Army. Despite the many constraints of the current environment, the Army must still invest time, leadership, and resources now in preparing for the challenges of tomorrow—to ensure that it can operate effectively in a rapidly changing and more unpredictable environment.

The world from 2020 to 2025 will have much in common with today's world. Army forces will still be required to fight irregular wars against terrorists and non-state actors; deter and prepare for large-scale interstate conflicts against regional aggressors or resurgent great powers; protect the homeland from ever-growing threats; and remain ready for the unlikely but daunting prospect of a major global war against a highly advanced adversary. Yet, the world of tomorrow will not simply be a linear extension of what we see today. Fast-changing events catalyzed by continuing upheavals in technology will continue to unpredictably shift that landscape.

Demographic trends are among the most predictable. The world population will probably reach more than eight billion people by 2025, with most of the growth coming from less developed regions of the world.¹⁰¹ Almost two-thirds of the world population will live in cities, making urban operations more common and even more important than they are today. Today's world of haves and have nots will be greatly magnified, with those fortunate enough to have employment and access to stunning technology living in stark contrast to the hundreds of millions struggling to survive in disrupted environments. Basic connectivity through widespread social media access will be common, which will enable organization for both good and ill. Although 80 percent of the world's population will own a smartphone by 2025,¹⁰² the digital divide within and across countries will separate those who can leverage modern technology from those who can only sample it.¹⁰³ That digital divide today is greater in the Middle

East, North Africa, and Pakistan than it is anywhere else in the world,¹⁰⁴ which will only hasten regional and global challenges resulting from instability, discontent, and radicalization.

The impacts of global climate change will accelerate during this time period, in ways both positive and negative. Regions once too cold or too remote for agriculture or settlement will start to open, and Arctic ice melt will open the northernmost part of the planet to commerce and the influx of settlers—but resource competition in these areas will inevitably follow. Some areas of the world will suffer from too much water, as rising sea levels make low-lying areas increasingly uninhabitable. Too little water will plague other parts of the world, as extreme droughts cause the possible collapse of agriculture and economies and create new refugee crises as well. Natural disasters of all kinds, from wildfires to floods to deadly heat waves, will only increase.

Some future developments can be predicted, but others will be unexpected and unforeseen. “Black swans”—unpredictable events with very serious consequences—will be as inevitable then as they have been in the past.¹⁰⁵ In 2000, for example, no analyst could have possibly foreseen all of today's disparate security challenges—the 9/11 attacks, the rise of al-Qaeda and ISIS, a resurgent Russia annexing Crimea and threatening neighbors with force, and China building artificial islands in the South China Sea from which to project power, among others. Unpredicted and unpredictable events will indubitably disrupt sober defense planning and could shift US defense priorities in an instant—especially if there were a nuclear exchange overseas or if a weapon of mass destruction were used against the homeland.

For the US Army, the world of tomorrow poses some problems and scenarios that are very different from the world it has grown accustomed to operating in—and organizing for—since the beginning of this century. It will be marked by the breakdown of order, widespread violent extremism and aggressive large states. The Army must take on substantially new priorities and

101 United Nations Department of Economic and Social Affairs, Population Division, *World Population Prospects, The 2015 Revision*, pp. 3-35, *Volume 1: Comprehensive Tables*, ST/ESA/SER.A/379, pp. 3-7.

102 “Planet of the Phones,” *The Economist*, February 28, 2015.

103 In 2015, 61 percent of the world's population was not connected to the internet, and networked readiness was highly correlated with income. World Economic Forum, “The Global Information Technology Report 2015: ICTs for Inclusive Growth,” pp. 3, 7.

104 Op. cit., p. 13.

105 Nassim Nicholas Taleb, *The Black Swan: The Impact of the Highly Improbable* (New York: Random House, 2007).

initiatives now in order to be able to operate effectively in this turbulent new environment, and will need to follow through with rapid, continuous adaptation as the next decade unfolds.

The Army must adapt in six significant ways to remain capable of deterring adversaries and dominating conflicts in this environment, while also setting the stage for the development of a much different force for the world of the 2030s and 2040s. It must organize the total force by deployment timelines; strengthen Army strategic mobility and presence; master urban operations; prepare for the next big war; modernize technology investments; and set the stage for another round of base closings.

ORGANIZE THE TOTAL FORCE BY DEPLOYMENT TIMELINES

Today’s Army remains starkly divided into three distinct and ever-separate components: the active Army, the Army Reserve, and the Army National Guard. The cultural divisions among them foster rigid thinking and often faulty assumptions about preparedness and abilities, which prevent the Army from getting the most capability out of a fully integrated total force.

While the components will undoubtedly remain intact as legal entities, the Army should operationally reorganize itself around a single concept: likely deployment timelines. Not all elements of the active Army will be able to deploy overnight into a future fight—if only because of strategic lift constraints—and so it makes little sense to pay the very high costs of keeping the entire active force at those levels of readiness. The Army should restructure itself around three categories of forces that each fully integrate soldiers from the Active and Reserve Components: the early deployers, the mid-term deployers, and those that would deploy later in a future war.

The Rapid Response Force

The Rapid Response Force (RRF) would be the portion of the total force designed to rapidly deploy and fight within the first three to four months of a future conflict. It would draw heavily from the active Army, but would also include individuals and small specialized units from the Army Reserve and National Guard. Forward-stationed or forward-deployed rotational forces would all fall into the RRF, as would some forces based in

the United States. All units assigned to the RRF would have very high readiness—whether they are from the Active Component or are hybrid or National Guard units at the peak of their readiness cycles—since they would have to be prepared to deploy rapidly with little to no strategic warning. Its exact size would be determined by operations and contingency plans and available strategic lift, but it would certainly require fewer BCTs than are currently part of the Active Component—perhaps only two-thirds or even half of the current number.

The Operational Response Force

The Operational Response Force (ORF) would be designed to deploy within four to ten months of the start of a future conflict. It would include the remaining active BCTs at lower levels of readiness and most of the hybrid BCTs discussed in the previous chapter. The hybrid units serving in the ORF would be resourced with substantially greater training days per year to maintain the readiness needed to deploy earlier in this time frame. Other National Guard brigades with higher readiness would also be found in the ORF, but would be among the later deployers. All of the National Guard units in the ORF would have substantial connections to active-duty units, including more active duty personnel in key billets, and would train more days a year than they do today.

By 2025, the Army might recruit some Reserve Component personnel directly into the ORF, making it mandatory for those personnel to train for somewhere between sixty and one hundred days each year—significantly more than the current requirement of thirty-nine annual training days.¹⁰⁶ Reservists who did not make a permanent commitment to this increased level of training would still be able to volunteer to serve in ORF units if they agreed to train at those higher levels for the duration of their assignment. Any BCTs assigned to experimental duties¹⁰⁷ would also be assigned to the ORF so that they have enough time to retrain before deploying into combat.

The Army should operationally reorganize itself around a single concept: likely deployment timelines.

¹⁰⁶ General Milley has suggested that this amount of training would enable Guard units to deploy more rapidly. Cox, “Army Plans to Double Training Days for Guard Units, Chief Says,” *op. cit.*

¹⁰⁷ We recommend establishing several experimental units later in this chapter and in the next chapter.

The Strategic Response Force

The Strategic Response Force (SRF) would be the strategic land power hedge for the nation. It would both enable the Army to bring all of its remaining forces to full readiness to fight and expand the force dramatically if needed. It would be designed to deploy ten months or more after a future conflict began, because units in the SRF would require significant post-mobilization training to achieve top combat readiness levels. It would include the remaining traditional Guard and Reserve units kept at lower levels of readiness. It would also include any newly constituted units built to expand the size of the Army to meet operational needs. As discussed earlier, the first new units would be structured around the leadership cadre of the security force assistance brigades discussed in the previous chapter, and members of the Individual Ready Reserve would be the first to start filling out the rank-and-file of the new formations. They would be expected to reach battalion-level combat readiness at twelve months after activation. Building larger units from scratch would take longer, but would proceed more rapidly and smoothly if the recommendations about expansibility in the previous chapter are fully implemented.

STRENGTHEN ARMY STRATEGIC MOBILITY AND PRESENCE

As discussed in chapter two, the Army today is based almost entirely in the United States. Since only a small number of BCTs are now stationed abroad or serving overseas on rotational presence missions, Army forces responding to a crisis must employ airlift and sealift to rapidly reinforce these limited forward forces (or those of US allies). The Army thus relies far more heavily on strategic mobility today than ever before. As A2/AD challenges continue to grow, however, threats to strategic mobility are increasing. The Army must take steps to ensure that it can rapidly deploy anywhere in the world to perform its mission despite these increasing challenges.

Reinvest in Prepositioned Overseas Combat Stocks

The Army needs to forward position more equipment in potential conflict zones and on ships afloat in order to rapidly reinforce US forces and partners overseas in a crisis. After the 1991 Gulf War, the Army developed a robust Army Pre-Positioned Stocks (APS) program.¹⁰⁸ It positioned equipment stocks in Europe,¹⁰⁹ the Middle

East, and the Pacific, providing unit sets of armored equipment for airlifted troops to marry up with and move forward into combat.¹¹⁰ Army maritime pre-positioned stocks were also located on ships anchored afloat at various points around the world, which could be moved quickly in the event of a crisis. However, many of these stocks were repeatedly drawn down or eliminated to support combat operations in Iraq and Afghanistan, greatly diminishing this capability. Yet, the value of prepositioning is greater than ever before, given how few Army units are now based overseas. Most Army equipment also resides in the United States today, greatly adding to what must be transported forward in a crisis.

These afloat and ashore stockpiles must be reconstituted, but rebuilt in ways that ensure they are fully protected against emerging threats. Land-based stocks near potential conflict areas must be protected with air and missile defenses, guarded by capable security forces to prevent sabotage or seizure by commandos, and have robust nuclear, biological, and chemical (NBC) protection. They should also be hardened against the effects of fires while ideally placed beyond the range of potential indirect fire attacks. Ships carrying prepositioned stocks are particularly vulnerable once they moor to be offloaded, so they require similar protective measures while in port. More of these cargo ships should be constructed with shallow draft keels so they can access ports in less developed theaters as well. Rebuilding and regularly exercising this capability will not only improve the Army's ability to respond to future crises, but it will also help deter potential aggressors and reassure US friends and allies.

Prepare to Fight for Overseas Staging Areas

Today's contested A2/AD environments will also make it much harder for forces deploying by air to link up with prepositioned equipment. In the past, it was assumed that arriving US forces would be able to fly into secure airfields outside the range of enemy strikes and marry up with undamaged forward-positioned stocks in well-protected assembly areas before starting to fight. None of those assumptions may hold true in a contested A2/AD setting. Arrival airfields, ports, troop assembly areas, and stockpiles of pre-positioned equipment may all be under attack from swarming drones, chemical weapons, commandos, or long-range precision missiles. Some staging areas may even be dominated by enemy aircraft operating under

¹⁰⁸ Dr. Derek Povah, "What Do You Know About APS-3?" *Army Logistician*, Vol. 32, No. 4, July-August 2000, pp. 8-11.

¹⁰⁹ Mark Stout, "(W)Archives: Prepositioning Combat Equipment in Europe? Been There, Done That," *War on the Rocks*, June 19, 2015, <http://warontherocks.com/2015/06/warchives-prepositioning-combat-equipment-in-europe-been-there-done-that/>.

¹¹⁰ Prepositioned stocks enable troops to be airlifted into nearby airfields to link up with already based weaponry, vehicles, and ammunition to minimize lift requirements.



Paratroopers of 25th Infantry Division's 4th BCT (Airborne) conduct a parachute assault during Exercise Spartan Agoge near Anchorage, Alaska, August 2016. *Photo credit:* US Department of Defense.

an umbrella of hostile long-range air defense missiles, effectively challenging presumed US air superiority.

The potential implications of such a scenario for Army forces are profound. Unlike in the past, Army formations from elsewhere in the region may have to fight their way on land into a strategic flash point, and then seize airfields and even ports in order to permit arrival of reinforcing US and allied forces. Army units may have to conduct ground attacks on long-range enemy air defenses that are denying airspace for strategic airlift and contesting US Air Force operations to establish air superiority. Protecting newly seized staging areas or lodgments from sustained enemy counterattack by air and land will also test Army protection capabilities.¹¹¹ Army units today are not adequately prepared to fight their way into a staging area. Ensuring that they can do so in the future will require serious preparation and possibly new doctrine and capabilities as well.

Improve Strategic Mobility Exercises

Because the Army now relies so heavily on strategic mobility to get to the fight, it must continually test and exercise its rapid response capabilities with the other military services. Such exercises have the additional

benefit of helping deter potential adversaries by demonstrating both capability and resolve. But many current exercises, such as NATO's Trident Juncture, are too cumbersome and require long planning times to demonstrate credible rapid response capabilities. Such deliberately planned exercises remain important, because they help reinforce deterrence. But they now must be augmented with more quick response exercises that test the ability of the strategic mobility system to respond quickly in the face of a potential crisis. The Army needs to be able to regularly exercise its ability to deploy and reinforce allies with various mixes of its light, medium, and heavy forces.

Some of these exercises should also test the ability to rapidly move Army forces by sea within theaters to permit surprise operational maneuver—such as landing forces to outflank an enemy from an unexpected direction. Moreover, the Army must improve its ability to move forces ashore in unimproved and shallow draft ports around the world, since A2/AD threats may make it impossible to access established offload ports and airfields. But the current approach to unimproved landing sites—the massive Joint Logistics Over The Shore (JLOTS) structure¹¹²—may

¹¹¹ Barno and Bensahel, "The US Military's Protection Deficit Disorder," *op. cit.*

¹¹² Joint Chiefs of Staff, *Joint Logistics Over the Shore (JLOTS)*, Joint Publication 4-01.6, August 5, 2005, [http://www.bits.de/NRANEU/others/jp-doctrine/jp4_01_6\(05\).pdf](http://www.bits.de/NRANEU/others/jp-doctrine/jp4_01_6(05).pdf).

be too slow to emplace and too vulnerable to attack in contested environments. Exercises should provide opportunities to experiment with new techniques to enable operations in the most challenging simulated A2/AD environments.

Press to Station More Forces Overseas

As discussed in chapter two, the Army is poorly positioned strategically for the demands of the next decade. Almost all of its forces are now based in the United States, and Congress remains unlikely to approve major changes to the US global force posture any time soon. However, the Army might be able to convince Congress to permanently station an armored BCT in Eastern Europe. This change has already been recommended by the National Commission on the Future of the Army and by General Phillip Breedlove while he served as the commander of US European Command.¹¹³ Stationing an armored BCT in Eastern Europe would do much to help deter Russian aggression and reassure the eastern NATO allies that the United States remains committed to their defense.

More broadly, however, Army leaders must start publicly making the case for why more Army units need to be permanently stationed overseas in places beyond Eastern Europe. Sustained overseas presence is the best way to ensure that the United States can respond quickly and effectively to global challenges given the increasing A2/AD threats to strategic mobility. US promises to reinforce friends and allies in future crises by moving forces forward from the United States may be far less credible in a world of proliferating long-range missiles, terrorists with shoulder-fired anti-aircraft missiles, and cheap drones. Building a supportive consensus on Capitol Hill for permanently stationing more Army units overseas will take a great deal of time and effort, but is worth the investment. Educating members of Congress and their staffs about the dangers of the current Army posture might also lay the foundation for rapid posture changes if the domestic political debate changes, or, more likely, if an aggressive act by an adversary requires a substantial Army response.

¹¹³ National Commission on the Future of the Army, *Report to the President and the Congress of the United States*, op. cit., p. 52; Andrew Tilghman, “The Pentagon Starts Planning to Base More Troops in Europe,” *Military Times*, March 6, 2016.

MASTER URBAN OPERATIONS

By 2030, over 60 percent of the world’s population will live in urban areas,¹¹⁴ and there will be approximately forty-one megacities that have populations that surpass ten million people.¹¹⁵ The Army has traditionally sought to avoid the intense demands of operating in urban areas wherever possible, preferring the less problematic challenges of open terrain, but this demographic reality means that urban operations will increasingly dominate land warfare. The Army must significantly improve its capabilities for urban offense, defense, mobility, and protection, so that it can operate effectively in densely packed metropolitan areas where civilian populations are a part of the battlefield. Urban operations in the twenty-first century are not just another type of operation; they will become this century’s signature form of warfare. Little in the Army’s recent operations or its long history of warfare in wooded, jungle, and open terrain has prepared it for the magnitude of this new challenge.

Urban operations in the twenty-first century are not just another type of operation; they will become this century’s signature form of warfare.

Designate Units to Specialize in Urban Operations

The Army should begin designating selected BCTs to focus on urban operations and tailor their mission essential task lists and organizational structures accordingly. This should be done as soon as possible, since urban operations are already an important requirement, and operational units currently do not focus much attention on their unique demands. These missions may often resemble the “three block war” that Marine General Charles Krulak famously described,¹¹⁶ where forces may fight, conduct peacekeeping, and provide humanitarian aid on adjacent city blocks—all under the scrutiny of international media, and now among a social-networked populace. These designated units could serve as first deployers into future urban operations, but they would also spur innovative thinking by identifying new requirements, testing new technologies, and evaluating potential doctrine. Such

¹¹⁴ The United Nations projects that the world population in 2030 will be 8.42 billion, and that 5.06 billion will live in urban areas. United Nations Department of Economic and Social Affairs, Population Division, *World Urbanization Prospects: The 2014 Revision*, ST/ESA/SER.A/366, 2015, p. 21.

¹¹⁵ By contrast, there were 10 megacities in 1990, and 28 in 2014. Op. cit., pp. 16, 93.

¹¹⁶ Gen. Charles C. Krulak, “The Strategic Corporal: Leadership in the Three Block War,” *Marine Corps Gazette*, Vol. 83, No. 1, January 1999, pp. 18-23.

units should develop new concepts by experimenting with different mixes of people and equipment—such as combining tanks with light infantry and drones, for example, or operating with special operators, attack helicopters, and Stryker battalions. Their soldiers and leaders should also receive cultural, language, and historical training focused on likely contingencies in major urban areas.

Improve Training for Large-Scale Urban Combat

Current Army training for urban operations is grossly inadequate, since few virtual or physical training environments replicate the scale and complexity of modern urban warfare. The Army has built small mock cities for tactical training, such as Shughart-Gordon Village at the Joint Readiness Training Center, but these facilities are very limited—often only a few dozen buildings and limited numbers of civilian role players during exercises.¹¹⁷ Replicating even a part of a densely populated urban area would be both prohibitively expensive to build and challenging to populate with large numbers of mock civilians and enemy troops. As a result, the Army has no large-scale urban training sites, which means that Army units cannot realistically train in their most demanding and likely future combat environment. The Army must aggressively seek innovative ways to overcome this major shortfall, such as holding tactical exercises without troops for leaders in large urban areas,¹¹⁸ conducting map exercises overlaid on actual cities, and possibly even conducting full scale exercises in abandoned parts of big cities.

The Army must also invest more heavily in technological solutions to this problem, especially in virtual reality gaming that replicates the high stress demands of operating in densely populated areas. It should develop sophisticated urban simulations for full-scale unit training exercises to compensate for the inability to conduct large physical exercises. Artificial intelligence can also help replicate the behavior of leaders, factions, and the general population of a virtual city in order to better challenge units with the scope and complexity of large-scale urban operations.

117 The largest one is the Muscatatak Urban Training Center, located on 1,000 acres near Butlerville, Indiana and operated by the Indiana National Guard. It includes more than sixty-eight major training structures, but only has one building that is over five stories tall. See “MUTC Overview,” <http://www.atterburymuscatatuck.in.ng.mil/Ranges/MuscatatuckUrbanTrainingCenter/MUTCOverview.aspx>.

118 Tactical exercises without troops (TEWTs) were held in real cities during the Cold War. They helped Army leaders, who were often wearing civilian clothes, think through how large formations would conduct combat operations in such complex terrain. For more on TEWTs, see Headquarters, Department of the Army, *Field Manual 25-4: How to Conduct Training Exercises*, September 10, 1984, chapter three.

PREPARE FOR THE NEXT BIG WAR

The US military has not been sized, organized, or postured to fight a large-scale and bloody war since the end of the Cold War.¹¹⁹ Virtually no one serving on active duty today below the rank of colonel or master sergeant has confronted the real possibility of fighting a global war to protect vital US interests or assure the survival of the nation. The two recent wars remained relatively small in scope, despite their challenges. As noted in chapter one, at their peak, US military operations in Iraq and Afghanistan included no more than 171,000 troops and 100,000 troops respectively.¹²⁰ Compare that with the more than 537,000 US troops deployed at the height of the Vietnam War¹²¹—which was considered a small-scale, limited conflict at the time.

Furthermore, the characteristics of large, prolonged wars differ immensely from extended counterinsurgency campaigns—especially in their scale of operations, their global scope, the degree of destruction, and the potentially large numbers of casualties. The likelihood that the United States will have to fight a really big war—one that requires many hundreds of thousands of troops with high levels of destruction and fatalities—remains low, but the consequences would be enormous. And in the world of tomorrow, which will be increasingly threatened by disorder, violent extremism, and more aggressive large states, those odds may increase.

The Army must start preparing for the next big war by rebuilding its high-end warfighting capabilities, as discussed in the previous chapter. Yet, it should also take four additional steps to ensure that it is fully prepared to fight the next big war, no matter how unlikely that prospect may seem today.

Upgrade, Access, and Prepare to Employ Surplus Weaponry

Expanding the Army to fight a global war would require equipping many entirely new units with large numbers of weapons, vehicles, and aircraft. While new weaponry cannot be produced quickly, the Army owns hundreds of tanks, thousands of other armored vehicles, and scores of aircraft that are mothballed in depots and storage facilities across the United States

119 This section draws on Barno and Bensahel, “Preparing for the Next Big War,” *op. cit.*

120 Michael E. O’Hanlon and Ian Livingston, “The Iraq Index,” The Brookings Institution, January 31, 2011, p. 13; Ian S. Livingston and Michael E. O’Hanlon, “The Afghanistan Index,” The Brookings Institution, November 30, 2015, p. 4. See footnote 2.

121 Tim Kane, “Global US Troop Deployment, 1950-2003,” Center for Data Analysis Report #04-11, The Heritage Foundation, October 27, 2004.



A CH-47 Chinook sling loads an M777A2 howitzer into a live fire exercise at Fort Bragg, North Carolina, August 2016. Photo credit: US Department of Defense.

and around the world. Few of these older weapons systems or vehicles are included in any plans to fight a future major war, either by replacing massive equipment losses or to be utilized by any new units that have to be formed. The Army should build a refurbishment plan that details exactly what retired weapons and equipment it has on hand and how they would be returned to service. Such a plan would help the Army determine what types of newly generated units could be equipped most rapidly and what capabilities shortfalls would remain. The Army should also identify high-payoff, quick upgrades that could be applied to these older systems to rapidly increase their capabilities in the event of war, including adding GPS systems, modern digital radios, night vision and thermal weapon sights, and the most current version of C4I systems such as Blue Force Tracker.

Plan to Control Large Areas and Populations

Army operations in Iraq and Afghanistan have found it extremely challenging to protect populations of 37 million and 32.5 million people respectively, against an insurgent threat numbering in the tens of thousands.¹²² Neither mission succeeded in controlling relatively modest-size territories; Afghanistan is slightly smaller than Texas, for example, and Iraq is a bit larger than

California.¹²³ Future major wars may require the Army to occupy, control, or keep the peace in substantially larger areas—yet current Army doctrine, force structure, and training does not adequately address this challenge. Controlling large areas, especially with unfriendly populations, requires sizeable numbers of troops. The Army should reexamine its experiences from the World War II era, in order to identify what gaps exist in current doctrine and force planning that must be addressed in order to meet such requirements in the future. It should also seek to identify some realistic metrics for the number of troops required for such missions.

Rebuild Resilience in the Force

According to the Department of Defense, 5,366 US military personnel have been killed in action and 52,433 have been wounded in action in the wars in Iraq and Afghanistan.¹²⁴ Those numbers, while heart-rending, pale in comparison to the US losses taken just during the Battle of Normandy in World War II. On D-Day alone, 2,499 US military personnel were killed, and there were 125,847 American casualties (both

¹²² Population estimates as of July 2015. See Central Intelligence Agency, “The World Factbook,” <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2119rank.html>.

¹²³ Op. cit.; US Census Bureau, “State Area Measurements and Internal Point Coordinates,” <https://www.census.gov/geo/reference/state-area.html>.

¹²⁴ An additional 1,381 US military personnel died in what DOD calls “non-hostile” deaths. Data as of September 14, 2016. See <http://www.defense.gov/casualty.pdf>.

killed and wounded) during the ensuing three-month battle.¹²⁵ The Army's losses in Iraq and Afghanistan also stand in stark contrast to the Army's bloody experience in Korea and Vietnam.

The Army's remarkable recent success in preserving its troops has a downside, however. Its personnel have not been psychologically hardened by personal experience for the grim task of fighting through heavy losses to battlefield victory. No one would wish that the Army had taken more casualties to counterbalance this problem, of course. But it does mean that current Army leaders have little if any experience with the extreme battlefield stresses caused by overrun units and heavy casualties. These stresses were common during past US conflicts and could likely be so again during a future big war. Army combat units must include enough manpower to be able to continue to function after sustaining serious battlefield losses. The Army should also ensure that current units gain experience contending with high levels of simulated losses during their rotations at the combat training centers, emphasizing the requirement to fight on in the face of serious setbacks and casualties. It should also ensure its leaders at all levels learn techniques of personal resilience and tough-minded leadership to prepare them to continue the mission effectively when losses mount precipitately.

Plan for Unit Regeneration

The Cold War Army planned for the reconstitution of units after mass casualties of people and equipment—where hundreds or thousands of soldiers were wounded or killed in a single combat action.¹²⁶ World War II, the Korean War, and Vietnam all produced battles where entire battalions and even regiments were rendered combat ineffective due to heavy casualties.¹²⁷ Recent American wars have thankfully not produced mass casualties, and not even a platoon-size

US formation was overrun in Afghanistan or Iraq.¹²⁸ This unprecedented success will probably not be replicated in future conflicts, especially ones that involve a heavily armed, high-end adversary.

Unpleasant as it is to contemplate, the Army must improve its capacity to sustain large numbers of casualties and keep fighting. This requires not only depth of personnel within units, but also depth in the numbers and types of units to avoid single point failures if key units are wiped out. Its ongoing investments in individual resilience¹²⁹ must be matched with planning for rapid organizational recovery. Doctrine and training for this chilling eventuality must be revitalized, and leaders must be prepared to regroup and sustain operations and fighting spirit in the face of heavy losses. Training should expose units to mass rocket and artillery fires, chemical attacks, and even nuclear attacks in order to simulate the large-scale losses that would require reorganization to continue the mission. Rotations to the combat training centers should include assessments of leaders' ability to regroup after taking mass casualties and should instill effective techniques to improve leader and unit performance in the face of heavy battlefield losses.

MODERNIZE TECHNOLOGY INVESTMENTS¹³⁰

The Army's "Big Five" weapons systems were first fielded during the 1980s defense buildup.¹³¹ Upgraded versions of each of those weapons—the M1 tank, the Bradley Fighting Vehicle, the Apache and Blackhawk helicopters, and the Patriot air defense system—still constitute the core of the Army's combat capabilities today. And because of the Army's many modernization failures (discussed in chapter two), no replacements are currently programmed for any of these systems. That means that most or all of them will remain in service through 2030 and beyond. This will be a staggering capabilities gap in an age where technologies are growing and spreading exponentially. The Army desperately needs new systems that

125 D-Day Museum and Overlord Embroidery, "D-Day and the Battle of Normandy: Your Questions Answered," <http://www.ddaymuseum.co.uk/d-day/d-day-and-the-battle-of-normandy-your-questions-answered#casualties>.

126 For example, see Headquarters, Department of the Army, *FM 100-9: Reconstitution*, Washington, D.C., January 13, 1993; Mark A. Armstrong, MAJ, USA, "Reconstitution: Implications for a Force Projection Army," 1993, <http://www.dtic.mil/dtic/tr/fulltext/u2/a272977.pdf>.

127 See, for example, the 141st Infantry Regiment, 36th Division in January 1944 crossing the Rapido River in Italy; the 31st Regimental Combat Team in November 1950 at the Chosin Reservoir in Korea; and 2-7 Cavalry in November 1965 near Landing Zone Albany in the Ia Drang Valley, Vietnam. Martin Blumenson, *Salerno to Cassino* (Washington: Office of the Chief of Military History, US Army, 1969), pp. 322-351; Matthew J. Seelinger, "Nightmare at the Chosin Reservoir," <https://armyhistory.org/nightmare-at-the-chosin-reservoir/>; Harold Moore and Joseph Galloway, *We Were Soldiers Once—and Young* (New York: Harper Perennial, 1993), pp. 217-285.

128 The battles that came closest to threatening the loss of platoons over the last fifteen years were bitter fights in Wanat in 2008 (where nine US soldiers were killed in action) and at COP Keating in 2009 (where eight US soldiers were killed in action). The Taliban were repulsed with heavy losses in both fights. Mark Seavey, "The Battle for COP Keating," *Military.com*, May 1, 2013; "The Battle of Wanat," *Washington Post*, <http://www.washingtonpost.com/wp-srv/special/world/battle-of-wanat/>.

129 See, for example, "US Army Ready and Resilient," <https://www.army.mil/readyandresilient/>.

130 Several recommendations in this section are taken from Barno and Bensahel, "The US Military's Protection Deficit Disorder," op. cit.

131 COL David C. Trybula, USA, "'Big Five' Lessons for Today and Tomorrow," IDA Paper NSP-4889, Institute for Defense Analyses, May 2012.

leverage the latest information technology that can be readily upgraded with new software and improved subcomponents. Doing so will slow the process of obsolescence for systems that will have to last for decades and ensure the Army remains the best-equipped land force moving into the future. US technological advantages are already being eroded as potential adversaries develop more advanced systems than those found in today's force. By 2025, those advantages will be far smaller and might not even exist at all, as both state and non-state adversaries will increasingly field advanced technologies like precision weapons, inexpensive micro-drones, and sophisticated long-range air defense missiles.

Accelerate the Development of Air Mobility with Operational Reach

The next Army troop transport aircraft must be able to operate with the tactical agility of a helicopter, but also must be able to move forces over long distances at high speeds and without needing to refuel frequently. The V-22 Osprey, which is currently operated by the Marine Corps and special operations forces, is the first generation of this important capability, but it is limited by its cargo space and payload, not to mention its extraordinary expense.¹³² The next generation of advanced rotorcraft are currently being developed, such as the Bell V-280 Valor and variants of the Boeing-Sikorsky X2,¹³³ but cannot effectively protect themselves from direct fire and advanced missiles. Developing rotorcraft that can protect themselves from growing threats must become a top Army priority, since the Army's IBCTs and special operations forces rely upon them for much of their tactical mobility, logistics, and fire support in combat.

Build Mobile-Protected Firepower and a New Infantry Combat Carrier

By 2020, the Abrams tank and Bradley fighting vehicle are likely to be overmatched by a range of threats—including advanced anti-tank guided missiles, mass armor-killing cluster munitions, and hostile main battle tanks and infantry carriers—that will be fielded by high-end state adversaries and their clients. The Army needs to invest heavily in mobile-protected firepower and a new infantry combat carrier in order to restore its technological supremacy and to be

able to operate effectively in all future environments (including urban warfare). One of the Army's highest acquisition priorities should be providing relatively lightweight, all-terrain mobility and reliable protection for the soldiers in its vulnerable IBCTs.

Develop a Mobile-Protective Umbrella

US Army troops are deeply vulnerable to incoming artillery, rocket, and missile attacks, which are currently the deadliest conventional threats facing US forces. They need a mobile and dependable system that can detect these threats and then rapidly destroy them. The Israeli Defense Force has employed an early fixed-site version of this capability called Iron Dome, which is designed primarily to counter small, unguided rockets launched against Israeli population centers (though a new sea-based version was just successfully tested).¹³⁴ A different type of protective umbrella, called Counter-Rocket, Artillery, Mortar (C-RAM), has also been used by the Army in limited numbers to provide base defense in Iraq and Afghanistan. It employs a land version of the US Navy's Phalanx 20 mm cannon to destroy incoming projectiles.¹³⁵ The critical next step is making this type of capability small enough and sufficiently mobile to accompany all Army battle formations, to protect troops from the growing proliferation of deadly precision strikes, massed rockets, and other indirect fires. Speeding the Army's development of its new multi-mission launcher looks like a promising possible solution.¹³⁶

Develop Advanced Protection Systems

US armored vehicles and aircraft are highly vulnerable to advanced guided weapons that are now becoming commonplace on the battlefield. On the ground, Russia's T-14 Armata tank, which was first displayed in 2015 and is reportedly already in production, can launch onboard rockets to deflect or destroy incoming anti-tank guided missiles or rocket-propelled grenades.¹³⁷ No US armored vehicle today features

¹³² In fiscal year 2015, the unit flyaway cost for each MV-22 was \$71.92 million, compared to \$16.6 million for each UH-60M. Joakim Kasper Oestergaard Balle, "Bell-Boeing V-22 Osprey," Aeroweb, May 18, 2015; Joakim Kasper Oestergaard Balle, "Sikorsky UH-60 Blackhawk," Aeroweb, March 11, 2015.

¹³³ Dave Majumdar, "US Army Selects Bell and Sikorsky/Boeing to Build Prototypes for Next Generation Helicopter Program," *USNI News*, October 3, 2014.

¹³⁴ Michael Martinez and Josh Levs, "How Iron Dome Blocks Rockets from Gaza, Protects Israelis," *CNN.com*, July 9, 2014; Barbara Opall-Rome, "Israel Claims Intercept Success with Sea-Based Iron Dome," *Defense News*, May 18, 2016.

¹³⁵ US Army Acquisition Support Center, "Counter-Rocket, Artillery, Mortar (C-RAM) Intercept Land-Based Phalanx Weapon System (LWPS)," http://asc.army.mil/web/portfolio-item/ms-c-ram_lpws/.

¹³⁶ Boyd Collins, "Army Fires Mini Hit-To-Kill Missile from New Interceptor Launch Platform," *ECN*, <https://www.ecnmag.com/news/2016/04/army-fires-mini-hit-kill-missile-new-interceptor-launch-platform>.

¹³⁷ International Institute for Strategic Studies, *The Military Balance 2016*, op. cit., p. 167; Christian Beekman, "Why Russia's New Tanks Are a Wake-Up Call for the US," *Task and Purpose*, May 22, 2015, <http://taskandpurpose.com/why-russias-new-tanks-are-a-wake-up-call-for-the-us/>; Dave Majumdar,

similar protection. In the air, the Army will continue to depend on rotorcraft for vertical lift and assaults, logistics resupply, and close air support for troops in contact. These aircraft are immensely vulnerable to a wide range of air defense systems that are increasingly available to both advanced militaries and non-state actors alike.¹³⁸ The Army needs to develop active protection systems for all of its air and ground combat platforms, which can detect incoming threats and automatically destroy them with either directed energy or kinetic responses.¹³⁹

Invest in Counter-Drone Systems

The Army needs a reliable system that can counter the dangers of lethal swarming drones employed en masse against ground formations.¹⁴⁰ The threats posed by these weapons are both real and unprecedented. According to *New America*, eighty-six countries already have some sort of drone capability, and nineteen of those either already have or are developing armed drones.¹⁴¹ In the future, drones will be utilized not only by highly capable state adversaries but also by much smaller non-state actors that will be able to buy large quantities easily and cheaply. And even unarmed drones can have very deadly effects, since they can operate as surveillance platforms that cue mass fires on collections of troops, logistics, or command posts.¹⁴² To counter this growing threat, the Army needs to accelerate the development of various

counter-drone technologies, such as “search and destroy” drones, directed energy defense options, and electronic warfare (EW) countermeasures.¹⁴³

SET THE STAGE FOR ANOTHER ROUND OF BRAC

Although the reasoning may not be obvious, closing unneeded bases is an absolutely essential step in enabling the Army to maximize its combat capabilities. Every dollar spent maintaining unnecessary infrastructure is a dollar that could be far better spent on readiness, new equipment, and possibly even on increasing end strength. According to DOD estimates, a stunning 33 percent of the Army’s base infrastructure is unnecessary.¹⁴⁴ DOD has asked Congress several times in recent years to authorize another round of the BRAC process, but Congress has steadfastly refused to do so.¹⁴⁵ Closed bases and consolidated facilities mean that voters in those areas will lose jobs, and no member of Congress wants to risk that happening within their district.

Nevertheless, the Army (and the other services) needs to keep pressing Congress to approve another BRAC round as quickly as possible. Army senior leaders need to repeatedly and publicly argue that failing to approve another BRAC round directly contributes to a less capable Army.

“Surprise: Russia’s Lethal T-14 Armata Tank Is in Production,” *The National Interest*, March 13, 2016.

138 Joe Pappalardo, “Syrian Rebels Pose with Shoulder-Fired Missiles, and It’s Not Good News,” *Popular Mechanics*, May 31, 2013.

139 Kevin McCaney, “Army Moves Ahead with Laser-Based Aircraft Defense Missile,” *Defense Systems*, March 30, 2015; Jen Judson, “Army Testing Foreign Protection Systems for US Combat Vehicles,” *Defense News*, June 29, 2016.

140 Paul Scharre, “Robotics on the Battlefield Part II: The Coming Swarm,” Center for a New American Security, October 2014; Kelley Saylor, “A World of Proliferated Drones: A Technology Primer,” Center for a New American Security, June 2015.

141 “World of Drones: Military,” *New America*, <http://securitydata.newamerica.net/world-drones.html>.

142 Sydney J. Freedburg Jr., “Russian Drone Threat: Army Seeks Ukraine Lessons,” *Breaking Defense*, October 14, 2015.

143 Robert Wall, “Next Step for Drones: Defending Against Them,” *Wall Street Journal*, July 23, 2015; “Switchblade,” *AeroVironment*, <https://www.avinc.com/uas/view/switchblade>; Michael Peck, “High-Energy Laser Weapons Target UAVs,” *C4ISRNET*, February 19, 2016; Kelsey D. Atherton, “Boeing Unveils its Anti-Drone Laser Weapon,” *Popular Science*, August 28, 2015; Colin Clark, “New Weapons Spell Death for Drones; The Countermeasure Dance,” *Breaking Defense*, October 13, 2014.

144 Part of the reason why this figure is so high is that Army end strength has declined significantly from its temporary wartime high of 570,000 active personnel, but Army infrastructure has not been reduced since the last BRAC in 2005. Department of Defense, “Department of Defense Infrastructure Capacity,” March 2016, <http://defensecommunities.org/wp-content/uploads/2015/01/2016-4-Interim-Capacity-Report-for-Printing.pdf>.

145 Joe Gould and Aaron Mehta, “Pentagon to Congress: We Need Base Closures,” *Defense News*, April 15, 2016.

4. THE ARMY OF THE DAY AFTER TOMORROW: 2025-2040+

The world of 2040 and beyond will little resemble today's world and will differ substantially from the world of 2025. Making linear projections based on the current environment will be useless at best and dangerous at worst, since the world order may be dominated by major factors whose outlines are only faint glimmers now. US global power will almost certainly decline in relative terms, and perhaps also in absolute terms, as the last bits of the post-World War II *Pax Americana* recede into history. Yet, the United States will still play an essential role—and possibly an even more important role—in maintaining an open international system, especially given the increasing likelihood of more regional aggressors and spreading global disruption and disorder.

Projections for the world of 2040 are not all dark. Many positive trends will improve broad aspects of the human condition in unprecedented ways. Yet for the US military, the gloomier scenarios—which are equally plausible and may occur simultaneously—require planning for a wider range of threats and a world that could be dominated by varying levels of violence, fragmentation, and even chaos. Unpredictable “black swan” events, like those discussed in the previous chapter, could change the international environment instantly and profoundly. Yet even if no such dramatic events occur, the US Army must still prepare for a world characterized by unpredictable threats and as yet unanticipated hostile capabilities.

By 2040, the world population will be continuing its inexorable march toward ten billion people.¹⁴⁶ Virtually all of that growth will occur in the less developed regions of the world, as shown in figure 2, which will continue to suffer from poor economic performance and high unemployment levels. Conflict for resources—including water, arable land, and habitable living space—may impact the world of 2040 in unforeseeable and destabilizing ways. Population movements, refugee flows, and the resulting societal and economic disruptions will be recurrent features of this world. The effects of global climate change will be profound, prompting refugee flows away from parched

regions that are no longer able to support agriculture. Millions of urban dwellers packed in the world's littorals will be threatened by rising sea levels that will place entire cities below adjacent water levels. All of these developments will have considerable national security implications.¹⁴⁷ Wars to *prevent* mass influxes of unwanted refugees may erupt, and there will be never-ending global requirements to house untold numbers of those displaced by a growing spectrum of natural and manmade crises.

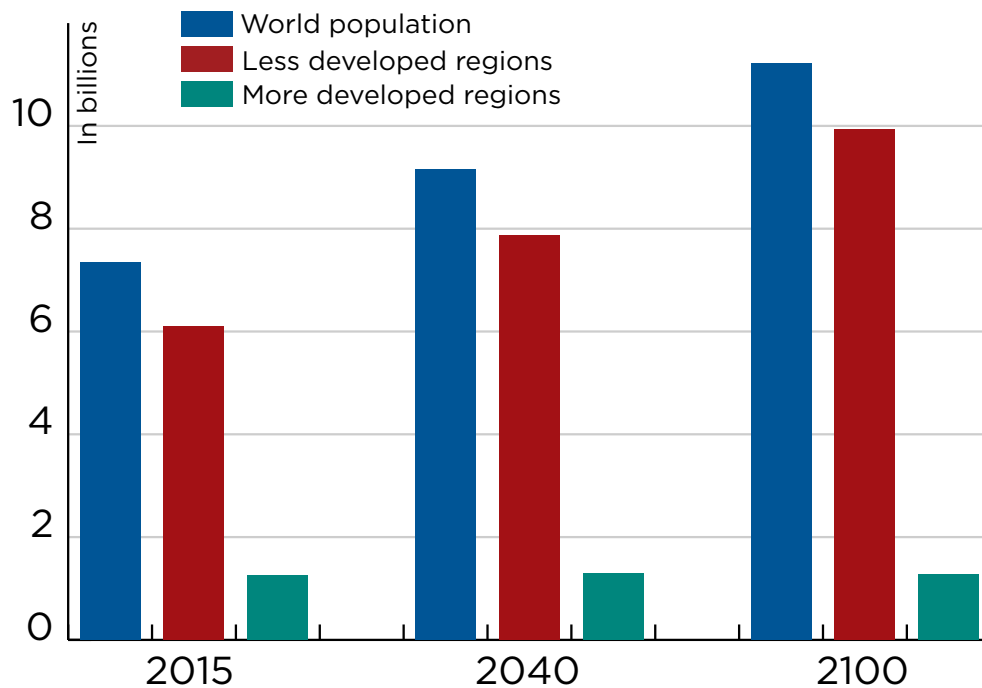
Technology's role in shaping the world of 2040 and beyond cannot be overstated. The vast explosion of human knowledge and its accessibility to billions will create an environment of unprecedented human cognitive growth whose effects are simply unfathomable. Products will increasingly be created locally rather than centrally. Advanced additive manufacturing (also known as 3D printing) will be able to make everything from drones to automobiles—which could dramatically alter global trade relationships and the nature of international commerce.¹⁴⁸ Crowdsourcing and advanced artificial intelligence (AI) will combine in powerful ways to solve even the most intractable problems. Yet, these technologies also pose far deeper challenges. There may be far less need for people to work, for example, since many tasks that formerly required a human being may be replaced with the advent of AI-empowered machines, proliferated robotics, and a ubiquitous Internet of Things in many parts of the world. That shift could have profound and problematic implications for advanced societies as well as potentially darker impacts on parts of the world where populations are growing fastest, outpacing both education and employment opportunities. The invisible integration of AI into many aspects of human life will continue to pose ethical challenges and may—in the hands of

¹⁴⁷ See, for example, The White House, “Findings from Select Federal Reports: The National Security Implications of a Changing Climate,” May 2015, https://www.whitehouse.gov/sites/default/files/docs/National_Security_Implications_of_Changing_Climate_Final_051915.pdf.

¹⁴⁸ John Manners-Bell and Ken Lyon, “The Implications of 3D Printing for the Global Logistics Industry,” *Supply Chain* 24/7, January 23, 2014, http://www.supplychain247.com/article/the_implications_of_3d_printing_for_the_global_logistics_industry; Chris Dupin, “Press Print; Delete Ship?” *American Shipper*, August 22, 2015, http://www.americanshipper.com/Main/News/Press_print_delete_ship_61299.aspx#hide.

¹⁴⁶ The United Nations estimates that the world population will be over 9.1 billion in 2040, and 11.2 billion by 2100. United Nations Department of Economic and Social Affairs, Population Division, *World Population Prospects, The 2015 Revision, Volume 1: Comprehensive Tables*, op. cit., p. 3.

Figure 2. World Population, 2015-2100



Source: United Nations Department of Economic and Social Affairs, Population Division, *World Population Prospects, The 2015 Revision, Volume 1: Comprehensive Tables*, pp. 2-3. The list of countries that are categorized as more developed and less developed is available on pp. xiv-xvii.

malevolent actors—become a highly dangerous threat, rivaling some of the existential dangers posed by nuclear weapons in the late twentieth century.

The world order of 2040 may well be deeply disordered, where competing regional blocs and coalitions of states battle for power and influence. The United States will no longer be a global hegemon, but will likely become a coalition builder and manager of disparate crises that is forced by its own resource constraints to make careful choices about where to commit its power and prestige. The US role in this period may resemble that of Great Britain in the 1930s—exerting influence from a declining global position amidst the rise of other powerful states.¹⁴⁹ China, India, Iran, Brazil, and other regional actors may play outsize roles in their regions, but without any assuming a dominant world leadership role. Nationalism and sectarianism will continue to promote local fragmentation rather than global integration. Illiberal states may grow in number and influence, while the world’s democracies continue to struggle with the domestic challenges posed by aging, declining, and dissatisfied populations.

For the US military, the world of 2040 will involve far greater threats and challenges than the world of 2016—but their nature, scale, and scope cannot possibly be predicted correctly. The only way that the Army can continue to dominate land warfare in such an uncertain era is build the entire force around the core principle of *adaptability*, so that it can quickly adjust to whatever types of conflicts emerge. Doing so will require building a much different Army—one that is far more flexible, nimbler, and innovative than it is today. Yet, the Army must also maintain continuity with its past. It must build a future force that remains rooted in its storied history and its deep-rooted foundations that have stood the test of time, such as the Army Values and the warrior ethos of its troops.¹⁵⁰

Building the Army around the principle of adaptability and embracing the necessity of continuous change will affect nearly all aspects of the Army as an institution. The Army will need to transform its culture; redesign the structures of the operational and institutional Army; expand personnel reforms and definitions of

¹⁴⁹ Mathew Burrows, *The Future, Declassified* (New York: Palgrave Macmillan, 2014), p. 157.

¹⁵⁰ The seven Army Values are loyalty, duty, respect, selfless service, honor, integrity, and personal courage. The Warrior Ethos states, “I will always place the mission first. I will never accept defeat. I will never quit. I will never leave a fallen comrade.” See <https://www.army.mil/values/> and <https://www.army.mil/values/warrior.html>.

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service; and deeply embrace advanced technologies and experimentation.

TRANSFORM ARMY CULTURE

Although there are many strongly positive aspects of the Army culture, other aspects will significantly hinder the Army's embrace of adaptability. Cultural norms that prioritize process over substance, stifle the voices of junior personnel, and denigrate learning and critical thinking must be eliminated and replaced with new norms that prize and reward willingness to innovate and change.

Accept More Risk

Land warfare is inherently dangerous. Yet, the Army's laudable goal of managing those risks has devolved into a deep service-wide culture of near total risk aversion. Leaders at all levels are held to impossible standards in a misguided, centralized attempt to limit every imaginable accident or error, whether on duty or off. One need only to review the recent Army messages cautioning soldiers on the dangers of crossing streets while playing Pokémon Go¹⁵¹ or plow through the safety paperwork required to take a weekend pass¹⁵² to understand how the service has lost its moorings on the appropriate concerns for risk tolerance and safety.

The inability to manage risk prudently while underwriting smart risk-taking by subordinate leaders deeply corrodes the trust that enables mission command¹⁵³—the Army's warfighting philosophy built around decentralized command and control. The service's ever-growing aversion to risk destroys mutual trust, stifles innovation and initiative, and erodes vertical unit cohesion. Left unchecked, the Army's camouflaged form of helicopter parenting will inexorably destroy the initiative and development of judgment by its junior leaders and ultimately debilitate the way the Army fights. Senior leaders need to seek feedback from their subordinates to identify the worst of these practices and enact common sense approaches that treat soldiers like the professionals that they are.

151 See "Military Base Issues 'Pokémon GO' Warning," Foxnews.com, July 19, 2016, <http://www.foxnews.com/tech/2016/07/19/military-base-issues-pokemon-go-warning.html>; Derek Gean, "Pokémon Go? Keep Safety in Mind," August 4, 2016, <https://www.army.mil/article/172800>.

152 See "TRiPS: Travel Risk Planning System," <https://trips.safety.army.mil/Default.aspx?alias=trips.safety.army.mil/army&>.

153 Col. (Ret.) James D. Sharpe Jr. and Lt. Col. (Ret.) Thomas E. Creviston, "Understanding Mission Command," July 10, 2013, <https://www.army.mil/article/106872>; David W. Barno, "The Army's Next Enemy? Peace." *Washington Post*, July 10, 2014.

Reinstitute "Power Down"

The initiative of junior leaders is also being threatened by technology that increasingly enables senior leaders to micromanage even small unit actions, from peacetime gunnery qualifications to combat assaults on enemy compounds. For example, generals who can now watch squad level actions on live video from orbiting drones can choose to direct actions in close combat¹⁵⁴—even though doing so further erodes the authority and trust placed in junior leaders. Micromanagement in garrison is also rampant, undermining the very principles of mission command that the Army then expects its soldiers to practice when fighting. A 2014 Army study, for example, found that 41 percent of junior NCOs did not believe that they were empowered to make decisions, and only 59 percent were satisfied with the amount of freedom they had to perform their jobs.¹⁵⁵

To right this balance, the Army should reenergize the concept of "power down," which was pioneered by Lt. Gen. Walter Ulmer in the late 1970s as a reaction to widespread disaffection with micromanagement during and after the Vietnam War.¹⁵⁶ Its principles involve decentralized leadership based upon trust in subordinates and greater autonomy of junior leaders in garrison as well as combat. Virtually none of today's garrison procedures from auto safety checklists¹⁵⁷ to high-level directed wear of reflective belts¹⁵⁸ are consistent with this philosophy. Expecting audacity among junior leaders in combat while micromanaging them in garrison is a recipe for battlefield failure. This leadership discontinuity must be resolved by Army leaders. Junior leaders will play an even more important role in adapting to future conflicts than they do today, especially if C4I networks are degraded as expected on the future battlefield.¹⁵⁹ These young men and women may not be able to communicate with higher headquarters and will need to make quick decisions on their own. In order to do so, they must

154 Peter W. Singer, "Tactical Generals: Leaders, Technology, and the Perils," The Brookings Institution, July 7, 2009, <https://www.brookings.edu/articles/tactical-generals-leaders-technology-and-the-perils/>.

155 Dr. Leonard Wong, "Strategic Insights: Letting the Millennials Drive," US Army War College Strategic Studies Institute, May 2, 2016.

156 Ulmer did much to institute these concepts as the commander of 3rd Armored Division and later III Corps.

157 The Army's auto safety checklist is available at http://www.lewis-mcchord.army.mil/safety/Publications/Mcycle/0049-FL_POV_Insp_Checklist.pdf.

158 See the article written under the pseudonym Angry Staff Officer, "The Reflective Belt: An Icon of the Global War on Terror," *Task and Purpose*, October 26, 2015, <http://taskandpurpose.com/the-reflective-belt-an-icon-of-the-global-war-on-terror/>.

159 Chapter three discusses degraded C4I capabilities in more detail.



Defense Secretary Robert M. Gates addresses students at the US Army War College, Carlisle Barracks, Pennsylvania, April 2009. *Photo credit: US Department of Defense.*

be used to thinking and acting independently. The Army must restore its commitment to decentralized leadership and front line authority, and practice what it preaches in garrison as well as during operations.

Decrease Tolerance of Bureaucracy

Perhaps more than any other service, the US Army operates within a dense thicket of rules, regulations, and processes that collectively cripple innovative ideas, retard creative thought, and slow decision making to a snail-like pace. This proclivity is most pronounced within the institutional Army, where the overwhelming density of processes and layers of review constipate even the most straightforward decisions and then further delay implementation.¹⁶⁰ By 2040, and probably far sooner, effective organizations will need to make decisions almost instantaneously in response to data that flows at the speed of light. The Army simply cannot continue to accept a culture that tolerates such excessive levels of bureaucracy and process as inevitable if it is to have any chance of

adapting effectively in the future. Senior Army leaders must start by implementing the recommendations about headquarters and process reform in chapter three and then move to remove layers of bureaucratic oversight. They must also demand streamlined and truly automated processes to realize the promise of information technology. These efforts must be led from the top, but must also engage junior soldiers and leaders to identify roadblocks to reform and generate solutions.

Reduce Excessive Deference to Rank and Position

Dissent, disagreement, and even divergent views tend to be deeply discouraged within the Army's culture, ranging all the way from its smallest units up to the highest levels of the Army staff. Out loud disagreements in meetings, generating "outside the box" options, and unapproved courses of action are rarely encouraged. This culture grows out of the understandable need to limit disagreements in tactical units; no one wants privates or lieutenants to argue with their commanders about how to carry out a night attack, or to debate orders during a firefight. But what makes sense during intense combat situations can become deeply dysfunctional when it extends to the entire Army, especially in its planning and staff processes. It prevents Army leaders at all levels from hearing different points of view and being able

¹⁶⁰ As noted in chapter two, there are currently 529 Army Regulations, totaling thousands of pages, that govern every aspect of Army life. Some date as far back as the Cold War. Each one has a proponent within the service headquarters that is responsible for reviewing and updating that regulation. All of the Army Regulations are available at <http://www.apd.army.mil/ProductMaps/Administrative/ArmyRegulation.aspx>.

to consider the widest range of options, which are absolutely vital to good decision making in general and adaptability in particular.¹⁶¹ The Army must find ways to promote open discussions and stress that entertaining legitimate disagreement is a part of good leadership, because quickly adapting to unforeseen circumstances requires a full range of fresh ideas and perspectives.

Reject Army Anti-Intellectualism

Sustained duty with troops has always been the most coveted and prized duty for Army officers and NCOs alike. But the general rejection of other assignments as unworthy for warriors has distorted the service's culture in ways that have greatly diminished the value placed on education, thinking, and reflection. This enduring strain of anti-intellectualism within the Army culture reduces the chances that it will have the bright, educated, and innovative leaders that it will need in the future. Anti-intellectualism in the service is not new,¹⁶² but it has grown as an unintended consequence of the recent wars.¹⁶³ Since 2001, repeated combat deployments to Iraq or Afghanistan became the only valued duty assignment. Spending time earning a civilian graduate degree or teaching at West Point or at a service school, was quietly denigrated as “taking a knee”—and inevitably harmed the career prospects of those who had done so. Not that long ago, the

Civilian graduate degrees will be far more valuable than military ones, because they expose members of the military to a far broader range of ideas, perspectives, and critical thinking skills than can possibly come from a classroom where all of the students have essentially the same background.

early careers of many senior Army generals included a tour teaching at West Point. But that will not be true in the future, because many of the officers who chose to do so during the recent wars were almost uniformly rendered uncompetitive for advancement within the combat arms or other operational career fields. That makes it far less likely that the future Army will be led by innovative and creative warrior-scholars like retired General David Petraeus or Lieutenant General H.R. McMaster, who both earned PhDs while serving on active duty.

Making the Army more adaptable will require leaders who are well-educated at both civilian and military schools, and who spend time reading and thinking deeply about war and warfare. Civilian graduate degrees will be far more valuable than military ones, because they expose members of the military to a far broader range of ideas, perspectives, and critical thinking skills than can possibly come from a classroom where all of the students have essentially the same background. Yet, the Army has moved in the opposite direction; it has slashed the number of officers that it fully funds to enroll in civilian graduate school programs from as many as 7,000 each year in the 1980s to only approximately 600 to 700 in 2014.¹⁶⁴ Even after accounting for the fact that the Army is much smaller today, the number of opportunities for civilian graduate education has declined by a factor of six. Yet pursuing a civilian graduate degree is often seen as a diversion from the “warrior

path.”¹⁶⁵ Some junior officers report that they feel they must choose between attending graduate school and career advancement because the Army culture does not sufficiently value civilian education.¹⁶⁶

Army senior leaders must reverse this trend by expanding and rewarding civilian graduate school opportunities. This would not necessarily require investing additional resources; most soldiers would

161 There is a large literature about how diversity of all kinds—in background and experience as well as demographic diversity—promotes better decisions. Former Treasury Secretary Timothy Geithner summarizes why this is particularly important for the military: “Make sure you surround yourself with people who will disagree with you. Make sure you have competition in diagnosis around you all the time. Make that an ongoing, relentless effort...It’s really important to make people feel they can disagree with you. Most people in positions in government or the military exist in very hierarchical institutions. You need to do a huge amount to lean against the forces of excessive deference.” David Wessel, “Timothy Geithner: After the Financial Crisis,” *Wall Street Journal*, June 4, 2014.

162 Lloyd J. Matthews, “Anti-Intellectualism in the Army Profession,” in Don M. Snider and Lloyd J. Matthews, eds., *The Future of the Army Profession*, 2nd ed., (New York: McGraw-Hill, 2005), pp. 61-92.

163 Dr. Don M. Snider, “Strategic Insights: Whiskey over Books, Again? Anti-Intellectualism and the Future Effectiveness of Army 2025,” US Army War College Strategic Studies Institute, February 23, 2016.

164 Everett S.P. Spain, J.D. Mohundro, and Bernard B. Banks, “Intellectual Capital: A Case for Cultural Change,” *Parameters*, Vol. 45 No. 2 (Summer 2015), p. 88.

165 Tami Davis Biddle, “Making Sense of the ‘Long Wars’—Advice to the US Army,” *Parameters*, Vol. 46 No. 1 (Spring 2016), p. 11.

166 Authors’ discussions, spring and summer 2016.

be able to utilize the generous educational benefits provided by the Post-9/11 GI Bill, which would allow them to pay for much, if not all, of their education.¹⁶⁷ However, the Army leadership would have to ensure that soldiers who took advantage of such opportunities remain competitive for promotion and command, especially within the operational career field.

Army leaders should also restore the dual-specialty requirement for officers that was abolished in the 1990s.¹⁶⁸ Before that decision, officers were required to maintain proficiency and education in two different career fields (such as infantry and comptroller, or field artillery and personnel). In most cases, this gave the officer both an operational and an institutional specialty. But since it was abolished, most officers in the operations career field—including the battalion and brigade commanders who are most likely to be promoted to general officer—spend the vast majority of their careers in tactical units. They face strong disincentives to seek out broadening assignments, since those duties take them away from troops and thereby often harm their competitiveness on the command track. As a result, fewer and fewer Army senior leaders—and especially its generals—have either the top tier academic credentials or the diversity of assignments that would help them think creatively about the wide range of challenges facing the Army and contribute effectively at the strategic level within DOD or the wider interagency arena.

The Army should once again require every career officer to develop skills in two specialties, rather than to focus narrowly on one. This change would provide the service a much-broadened core of officers who would be educated and then employed effectively across more than one skill. Army senior leaders also need to mentor the service's rising stars to invest in and value educational and broadening pursuits—and, even more importantly, ensure that promotion and command boards recognize, incentivize, and reward these choices as vital contributions to the future of the service.

Strengthen Ethics and Integrity

The cornerstone of the Army as a profession rests upon the uncompromising ethical standards and integrity of its members. Yet, an explosion of bureaucratic

requirements¹⁶⁹ combined with the unremitting demands of recent prolonged conflicts have eroded the Army's ethical foundations. Today, Army leaders at all levels are often forced to sacrifice their integrity in order to meet an impossible list of demands. A 2015 study by two highly respected Army War College professors found that it was "literally impossible" for Army officers to meet all the requirements imposed on them by higher headquarters, yet also found that failing to meet those same requirements was professionally unacceptable.¹⁷⁰ The result is a pattern of pervasive dishonesty, false reporting, and widespread rationalization of cheating in order to meet unachievable service requirements.

This situation is unacceptable in a professional force that holds itself to the highest standards of conduct and accountability. It shatters trust between seniors and subordinates by condoning an environment of fundamental dishonesty. We have noted above the requirement to reform bureaucratic requirements to align them both with realistic expectations and the actual priorities of senior Army leaders. Beyond that necessary change, the Army's leadership must take on the more difficult task of recognizing and fixing the service's widespread erosion of standards of truthfulness and integrity. Senior Army leaders must publicly reemphasize both honor and integrity—two of the seven Army Values¹⁷¹—in order to restore trust and accountability across the force. They must actively seek input from their subordinates on systemic demands that promote unethical reporting and decision making across the force, and move aggressively to alter those requirements. Reestablishing an unwavering climate of ethical behavior and integrity is essential so leaders at all levels are held to the highest standards of the profession.

REDESIGN THE STRUCTURES OF THE OPERATIONAL AND INSTITUTIONAL ARMY

The Army of 2040 will need to redesign the operational and institutional pieces of the force, to make them both more agile and adaptable to a fast-changing world. The operational force must redesign its deployable formations so that they are smaller and can better survive on an increasingly lethal battlefield. The institutional Army needs to utilize fewer active duty personnel in order to maximize the number of

167 See "Post-9/11 GI Bill," U.S. Department of Veterans Affairs, http://www.benefits.va.gov/gibill/post911_gibill.asp.

168 The dual-specialty requirement was abolished as part of the reforms recommended by the Officer Personnel Management System XXI Task Force in 1997. See "OPMS XXI Final Report," July 9, 1997, <http://usacac.army.mil/CAC2/cgsc/carl/docs/OPMSXXI.pdf>.

169 Barno, "The Army's Next Enemy? Peace," op. cit.

170 Wong and Gerras, *Lying to Ourselves*, op. cit., p. 2. See also David Barno and Nora Bensahel, "Lying to Ourselves: The Demise of Military Integrity," *War on the Rocks*, March 10, 2015, <http://warontherocks.com/2015/03/lying-to-ourselves-the-demise-of-military-integrity/>.

171 The Army Values are listed in footnote 151.

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soldiers in the operational force and to take better advantage of the Army's highly professional corps of civilians.

Pursue Modularity at the Battalion Level

Fighting effectively in the middle of the twenty-first century will require the Army to entrust even more of its combat and maneuver capability to smaller, more agile units that can mass and disperse rapidly, and can be quickly tailored to the mission at hand. Much like the Army of the early twenty-first century shifted its primary fighting formation from the division to the BCT, the Army of 2040 will need to devolve from BCTs to battalions. With more than 4,000 soldiers each, today's BCTs will simply be too cumbersome for many operations and their large footprint will be too difficult to protect. Instead, the Army will need to build smaller formations around tailored battalion-size task forces that may include infantry, special operations, aviation, and mobile protected firepower.¹⁷² These units will be semi-autonomous and much smaller than today's BCTs, with perhaps 1,000-1,200 soldiers. BCTs will continue to serve as a "bank" of capabilities and formations from which a range of units and people can be pulled together into battalion task forces. Building such task forces quickly and effectively will require well-understood doctrine, extensive exercise and practice, and extraordinarily high quality people.

Build Some Independent Companies

In addition to modular battalions, some number of independent company-size combined arms units will be needed as well. Whereas only battalion task forces possess the mix of capabilities needed to truly operate independently today, smaller formations will need to have these capabilities on the future battlefield. Larger combat formations such as brigades, and possibly even battalions, will be vulnerable to detection and destruction by precision strikes or massed fires.¹⁷³ Smaller units with reduced electronic and physical signatures and that can move rapidly from place to place will be better able to avoid detection and destruction. By 2040, selected Army company-size combat units must be able to operate independently with organic C4I, embedded (and reachback) staff support, tactical mobility, and attached operational lift. These forces could be employed for quick raids

or strikes. They could also be aggregated together as a battalion or larger force to achieve mass effects, or disperse into even smaller formations to avoid being targeted and then re-form many miles away. Independent companies with such capabilities will not only require a high degree of mobility and situational awareness, but will need to be led by highly experienced officers and NCOs capable of acting autonomously under extreme conditions of battlefield stress and uncertainty.

EXPAND PERSONNEL REFORMS AND DEFINITIONS OF SERVICE

The current stovepiped models of service—active, Guard or Reserve; civilian, military, or contractor—will be far too rigid for the world of 2040. The lines between military and civilian, active and reserves, volunteers and retirees need to become far more blurred. Workplace trends are already emerging that suggest most individuals over the next three decades will hold dozens of jobs and several careers in their lifetime.¹⁷⁴ The Army must navigate these changing dynamics by adapting its personnel system to bring in as many talented Americans as possible, and creatively leverage their skills through a lifetime of different modes of service.

Institutionalize Permeability and Lifelong Service

DOD's ongoing Force of the Future initiative is piloting a number of programs to support greater permeability—continued career-long lateral movement—among jobs in the Active and Reserve Components, the civil service, and even the private sector.¹⁷⁵ By 2040, Army personnel should be able to step in and out of the force at different times in their careers or personal lives. A computer coder, for example, might choose to serve on active duty for three years after college, revert to the IRR during the next few years while gaining valuable experience among the private sector, and later shift to active drill status to serve as a military cyber-warrior several nights a week while building a new technology startup. Multiple

¹⁷² In many ways, this structure will resemble today's Marine Expeditionary Unit (MEU), which is built around an augmented infantry battalion, an aviation component, and a modest logistics group.

¹⁷³ The ever-increasing connectivity offered by mobile devices, social media, and inexpensive drones will make it immensely more difficult to conceal the location of units of any size on a battlefield than it has been in the past.

¹⁷⁴ In 2014, the median number of years that US workers had been with their employer was 4.6 years, but that number was only 3.0 years for workers aged 25-34. See US Department of Labor, Bureau of Labor Statistics, "Employee Tenure in 2014," September 18, 2014, <http://www.bls.gov/news.release/pdf/tenure.pdf>.

¹⁷⁵ Secretary of Defense Ash Carter, "Building the First Link to the Force of the Future," speech delivered at George Washington University, November 18, 2015, <http://www.defense.gov/News/Speeches/Speech-View/Article/630415/remarks-on-building-the-first-link-to-the-force-of-the-future-george-washington>; Department of Defense, "Fact Sheet: Building the First Link to the Force of the Future," November 18, 2015, http://www.defense.gov/Portals/1/features/2015/0315_force-of-the-future/documents/FotF_Fact_Sheet_-_FINAL_11.18.pdf.



Staff Sgt. Vanessa Carrillo of the 21st Theater Sustainment Command prepares to call for fire at Grafenwöhr, Germany, August 2016. *Photo credit:* US Department of Defense.

combinations of military, government, and private jobs and careers should not only be achievable, but highly sought after as a means to share diverse experience by all the affected private and public parties.

For this to work effectively, however, mandatory retirement timelines must be adjusted, or even eliminated entirely. In today's world of longer, healthier lifespans, it no longer makes sense for someone to be forced to retire at a single preset age or calendar date; many of those who are required to leave the Army today are at the peak of their careers and with extraordinarily prized skills and attributes. Increased permeability would help extend Army careers while still supporting greater upward mobility for junior personnel rising into higher ranks. The Army should also find ways to continue utilizing the skills of willing alumni who have reached whatever will be considered the normal retirement age in 2040 (which will certainly be older than 65), perhaps in volunteer advisory or mentoring roles.¹⁷⁶

¹⁷⁶ P.W. Singer and August Cole provide one very interesting model in their recent novel, where retired Navy personnel volunteer to serve in Mentor Crew during the next world war. See P.W. Singer and August Cole, *Ghost Fleet* (Boston: Houghton Mifflin Harcourt, 2015).

Shorten Some Active Duty Enlistments

Most of the people serving in today's Army enlist for the same standard period of active duty, usually between three and four years. Yet, there is no compelling reason why all members of the Army must continue to share the same enlistment terms. Certain specialties that require long training periods, such as aviation mechanic or explosive ordnance technician, should still require a three- to four-year enlistment period. But for other, hard-to-find skills, shorter enlistments might enable the Army to draw upon a wider range of talent for the service. Cyber-warriors, media specialists, or space operations technicians might be attracted to a one- or two-year active duty enlistment. They might also be interested in a multicomponent enlistment, spending just weeks or months on active duty and then spending multiple years in the reserves. Infantry soldiers, tankers, and cavalry troopers could also have a range of enlistment options—especially to attract college-educated men and women to these demanding fields. A mix of serving on active duty for two years followed by eight years in the reserves (IRR or troop units) might prove an appealing mix for citizens who want to serve but who will not or cannot make an initial three- or four-year commitment—even though some will undoubtedly choose to reenlist despite their initial reluctance. This would have the additional benefit of improving expansibility, by growing the pool

of citizens with some Army experience who could be called upon in times of need.

Create an Army Civilian Volunteer Auxiliary Corps

Many Americans wish to serve their country in some form, but an increasing number of them cannot meet the military's entrance requirements. In 2014, only 29 percent of men and women between the ages of 17 and 24 were eligible to serve in the military because they lacked a high school degree or had issues related to health, obesity, mental acuity, drug use, or criminal records.¹⁷⁷ Some of the disqualifying characteristics should rightfully preclude military service, such as felony convictions. However, many individuals with some of the other disqualifications might still be able to provide valuable service to the Army in a different role. The Army could establish, for example, an Army Civilian Volunteer Auxiliary Corps, modeled along the lines of the Civil Air Patrol,¹⁷⁸ whose personnel could assist the Army in various enterprise functions, such as information technology, library services, or general administrative support. More skilled (and certified) volunteers could assist with child care, health care, or legal services. Volunteers would provide valuable services and would maintain a visible affiliation with the Army. Such an effort could widen the scope of those citizens who are exposed to the US military and could help shrink, even slightly, the ever-growing divide between the US military and the population it serves.¹⁷⁹

EMBRACE ADVANCED TECHNOLOGIES AND EXPERIMENTATION

The Army is and always will be about people. As former Chief of Staff of the Army General Creighton Abrams once said, "People aren't in the Army. People *are* the Army."¹⁸⁰ While that is undoubtedly true, the Army's

rightful focus on people often seems to generate a parallel distrust of advanced technology. Army senior leaders often rail against the siren song of high technology replacing the verities of war,¹⁸¹ and many in the service feel that the emphasis in the late 1990s on rapid decisive operations and Army Transformation led the US military down the wrong track—as the bloody close-fighting wars of Iraq and Afghanistan subsequently proved. Nevertheless, rapidly changing and evolving technology will permeate every aspect of life in the twenty-first century. The Army must therefore find new ways of leveraging and investing in advanced technologies—not to replace its people, but to enable its people to perform far more effectively.

Enable Greater Experimentation in Operational Units

In the 1980s, the Army designated the 9th Infantry Division as the "High Technology Test Bed" division.¹⁸² It served as both an operational division and one that could undertake bold and innovative experiments with all manner of new technologies and innovative tactics. Much of this experimentation was decentralized, enabling junior officers and NCOs to explore, experiment, and test new ideas. The division's commanders were chosen for their reputation as innovators and for an ability to be forward thinking. Not all of the experiments worked, of course, but this was accepted as the inevitable price of discovery and eventual progress. This model produced numerous new concepts based on unorthodox tactics, equipment, and organizations that generated extensive discussion and promoted intellectual ferment throughout the force.

The Army must therefore find new ways of leveraging and investing in advanced technologies—not to replace its people, but to enable its people to perform far more effectively.

177 Miriam Jordan, "Recruits' Ineligibility Tests the Military," *Wall Street Journal*, June 27, 2014.

178 Richard Mulanax, "Civil Air Patrol: 75 Years of Service," *CAP National Historic Journal*, Vol. 3, No. 1, January-March 2016, <http://history.cap.gov/files/original/f6a1bb617d7650f767d2043a7dc8f4b2.pdf>.

179 David Barno and Nora Bensahel, "When the Yellow Ribbons Fade: Reconnecting Our Soldiers and Citizens," *War on the Rocks*, July 14, 2015, <http://warontherocks.com/2015/07/when-the-yellow-ribbons-fade-reconnecting-our-soldiers-and-citizens/>.

180 Quoted in Secretary of the Army Pete Geren, speech delivered

at the Army Management Staff College, January 29, 2009, https://www.army.mil/article/16369/Remarks_by_Secretary_Pete_Geren_to_Army_Management_Staff_College_Jan_29_2009.

181 Lieutenant General H.R. McMaster has been particularly outspoken on this point. See "The Pipe Dream of Easy War," *New York Times*, July 20, 2013; "Thinking Clearly About War and the Future of Warfare—The US Army Operating Concept," International Institute for Strategic Studies, *Military Balance Blog*, October 23, 2014, <https://www.iiss.org/en/militarybalanceblog/blogsections/2014-3bea/october-831b/thinking-clearly-about-war-and-the-future-of-warfare-6183>.

182 "Sixty Years of Reorganizing for Combat: A Historical Trend Analysis," CSI Report No. 14, Combat Studies Institute, US Army Command and Staff College, December 1999, pp. 45-50, <http://usacac.army.mil/cac2/cgsc/car1/download/csipubs/sixty.pdf>.

Today, such experimentation rarely occurs in the field level among operational units. Instead, it is nearly always centrally dictated and often carefully controlled by Training and Doctrine Command, Army Materiel Command, or the Army staff in the Pentagon. The Army should authorize more operational units to conduct decentralized experiments, in order to test the bounds of the possible with rapidly evolving civilian technology and emerging military equipment.¹⁸³ It should designate up to three BCTs as experimental units, assigned to innovate, experiment, and try out new ideas of fighting in likely future environments—from urban megacities to high-end unrestricted conflicts. These units could be either active or hybrid formations, and ideally would include infantry, armored, and Stryker units that could mix and match capabilities and begin to stretch the boundaries of today's organizational structures. Each of these experimental BCTs should be assigned to the ORF (described above) with later deployment timelines. Centralized testing will still be required to validate new designs and apply scientific rigor to assess promising technologies, but bright ideas from junior officers and NCOs must be given space to grow and offer the value of younger minds thinking about technology and its application to tactical problems.¹⁸⁴ Since future combat will require innovation and adaptability at the lowest levels, at least some portions of Army peacetime experimentation should follow suit.

Build Training Around Virtual Reality and Its Successors

The gaming revolution has created a multi-billion-dollar commercial industry, but has hardly affected the Army at all. Nearly every new soldier arrives in the Army experienced in online gaming, yet the Army uses little of this technology today to train soldiers in the most difficult tasks. Over the next decade and beyond, the Army must overhaul its training so that it occurs primarily through virtual reality (VR). Equipping all soldiers with VR goggles with interactive training programs would enable soldiers to train far more continuously and frequently than they do today. It would also give them the opportunity

to train in teams while participating in intense and highly realistic simulated battlefield environments (e.g., urban operations)—experiences that may not be available by any other means short of actual combat. The Army should invest in building this technology as the backbone of its individual, unit, and staff training models as soon as practicable, and explore ways to utilize VR capabilities to aid soldiers and leaders during actual operations. Initial procurement costs may be quite high, but such an investment would likely save money over time and thus enable the Army to focus its costly live training on the shrinking set of skills that cannot be learned virtually. It will require some ongoing investments, however. VR technologies and their inevitable successors will undoubtedly evolve rapidly, and the Army must commit to incorporating updated technologies on a continuing basis to provide the best possible immersive training experiences for its soldiers.

Integrate Battlefield Robotics and Artificial Intelligence into the Close Fight

The infantry close fight—the “last one hundred yards” of intense face-to-face combat—is arguably the part of today's battlefield that has been the least transformed by advanced technologies. In the next decade and beyond, however, smart robots empowered by AI will be able to serve as capable partners to soldiers engaged in the dangerous close fight. They could provide robotic fire support for infantry squads and crew small, unmanned fighting and reconnaissance vehicles alongside vehicles manned by their human teammates. By 2040, smart robots might also be able to operate independently on the battlefield, supporting soldiers in the close fight by performing high-risk casualty evacuations, providing close-in fire support, or perhaps even conducting some assault or breaching tasks in this deadly killing zone to better shield soldiers from harm.

Build New Battle Staff Processes Around Artificial Intelligence

AI can also speed battle staff work and leader decision making by supporting commanders and their overworked staff officers. Entirely new battle staff processes could be designed around AI capabilities, removing people and time from analysis and course of action formulation. These AI capabilities should be able to perform functions like rapid mission analysis, near-instantaneous synthesis of all available battlefield-related data, and—following human decisions—quick dissemination and implementation of new orders throughout the C4I system. AI should also be able to vastly streamline many other Army processes,

¹⁸³ Elements of the Pacific Pathways program, an initiative of US Army Pacific, are designed to achieve some of these outcomes. See Army Sgt. 1st Class Tyrone C. Marshall Jr., “Pacific Pathways Increases Readiness Through Partnership,” October 15, 2014, <http://archive.defense.gov/news/newsarticle.aspx?id=123421>.

¹⁸⁴ The newly designed Army Warfighting Assessments (AWAs) include some of these bottom-up characteristics. However, AWAs remain centrally controlled by Training and Doctrine Command, and they only assess operational concepts approved by that command. AWAs also do not include full-time experimental units that could independently develop and test new and potentially radical ideas.

to include those clogging the institutional Army, if outmoded processes and layers of staff oversight are eliminated as well.

Invest in Advanced Technologies for Power and Munitions

New technologies for power and munitions should enable the Army to reduce its massive logistics dependency, which continues to be one of its key vulnerabilities. An armored Brigade Combat Team equipped with gas-guzzling internal combustion engines consumes a staggering amount of fuel each day,¹⁸⁵ which requires long and vulnerable supply lines. Since the majority of combat vehicles in today's ABCT will still remain in the force by 2040, the Army must place a high priority on finding ways to offset or replace their massive fuel consumption. Power and ammunition also require a massive logistics effort. Sources of electrical power—either generators or batteries—literally weigh down every part of the force from light infantry companies to brigade command

posts.¹⁸⁶ Improved battery technologies and solar-powered devices could dramatically reduce this burden on combat units and their logistics support. Similarly, resupplying field artillery and air defense units with ballistic munitions and expensive rockets and missiles during a high-end conventional conflict also creates a staggering logistics tail. Directed energy (DE) weapons, by contrast, would provide a nearly inexhaustible source of ammunition and so would slash resupply requirements. The Army is currently deploying limited numbers of DE weapons to defend against drones and incoming rockets, artillery, and mortars.¹⁸⁷ By 2040, however, these weapons could be far more prevalent and used for offensive as well as defensive purposes.¹⁸⁸

¹⁸⁵ An armored BCT today would consume approximately 57,300 gallons of fuel during twenty-four hours of offensive operations. Endy M. Daehner, "Integrating Operational Energy Implications into System-Level Combat Effects Modeling," RR-879-OSD, RAND Corporation, 2015, http://www.rand.org/pubs/research_reports/RR879.html.

¹⁸⁶ For example, in 2011, an average Army soldier carried 70 individual batteries on a typical 72-hour mission in Afghanistan. T'Jae Gibson, "Army Unburdens soldiers through battery innovations," March 15, 2011, https://www.army.mil/article/53283/Army_unburdens_Soldiers_through_battery_innovations/.

¹⁸⁷ Barno and Bensahel, "The US Military's Protection Deficit Disorder," *op. cit.*

¹⁸⁸ Jason D. Ellis, "Directed-Energy Weapons: Promise and Prospects," 20YY Series, Center for a New American Security, April 2015.

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APPENDIX: SUMMARY OF RECOMMENDATIONS

The Army Today: 2016-2020	
Adjust force structure to better meet operational requirements	Increase Army Special Operations Forces
	Recreate heavy cavalry units
	Accelerate the development of Security Force Assistance Brigades
Fully integrate the Army's Active and Reserve Components	Create hybrid BCTs
	Source predictable rotational missions from the Reserve Component first
	Increase the Army's focus on homeland defense
Rebuild joint and combined arms warfighting capabilities	Increase the number of armored BCTs in the Active Component
	Improve mobility, firepower, and protection for infantry BCTs
	Rebuild tactical air defense
	Reconstitute CBRN protection
	Train to operate in a degraded C4I environment
Transform Army headquarters and slash non-essential processes	Abolish the Army Service Component Commands (ASCCs) in their current form
	Cull non-operational headquarters
	Eliminate the cultural divide between the institutional and operational Army
	Reduce unneeded work and transform staff processes
Reconstitute capabilities for rapid expansion	Practice standing up new units
	Reinvigorate the Individual Ready Reserve (IRR)
	Build an Army Mobilization Plan
The Army of Tomorrow: 2020-2025	
Organize the total force by deployment timelines	Designate a Rapid Response Force, an Operational Response Force, and a Strategic Response Force
Strengthen Army strategic mobility and presence	Reinvest in prepositioned overseas combat stocks
	Prepare to fight for overseas staging areas
	Improve strategic mobility exercises
Master urban operations	Press to station more forces overseas
	Designate units to specialize in urban operations
Prepare for the next big war	Improve training for large-scale urban combat
	Upgrade, access, and prepare to employ surplus weaponry
	Plan to control large areas and populations
	Rebuild resilience in the force
Modernize technology investments	Plan for unit regeneration
	Accelerate the development of air mobility with operational reach
	Build mobile-protected firepower and a new infantry combat carrier
	Develop a mobile-protected umbrella
	Develop advanced protection systems
Set the stage for another round of BRAC	Invest in counter-drone systems

The Army of the Day After Tomorrow: 2025-2040+	
Transform Army culture	Accept more risk
	Reinstitute “power down”
	Decrease tolerance of bureaucracy
	Reduce excessive deference to rank and position
	Reject Army anti-intellectualism
	Strengthen ethics and integrity
Redesign the structures of the operational and institutional Army	Pursue modularity at the battalion level
	Build some independent companies
Expand personnel reforms and definitions of service	Institutionalize permeability and lifelong service
	Shorten some active duty enlistments
	Create an Army Civilian Volunteer Auxiliary Corps
Embrace advanced technologies and experimentation	Enable greater experimentation in operational units
	Build training around virtual reality and its successors
	Integrate battlefield robotics and artificial intelligence into the close fight
	Build new battle staff processes around artificial intelligence
	Invest in advanced technologies for power and munitions

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