Introduction

This book analyzes the challenges of managing major military transformation. It asks why and how some military organizations are more adept than others at reinventing themselves, not just introducing but sustaining and honing revolutionary changes in technologies, systems, doctrines, operations, and training. Why, for example, did the British Army have difficulty marshalling early enthusiasm and advancing initial innovations in tank warfare, while the German military leaped ahead with the truly revolutionary *Blitzkrieg* strategy that pushed the technological and operational frontiers for integrating tactical air power and mechanized warfare with devastating effectiveness on the battlefield? How did the U.S. Navy excel at sustaining the revolution at sea, steadily supplanting the "big gun" club that dominated the service and transforming the aircraft carrier from an auxiliary spotter to the capital ship by the end of World War II? By contrast, why did the U.S. Army resist new demands for counterinsurgency, and how did it actively sabotage efforts to alter the post-World War II bias towards a large-scale conventional warfare? This book seeks to explain the variable patterns to which military services succeed and fail at institutionalizing radically new approaches to warfare to inform efforts at managing military transformation today.

Understanding why and how military organizations sustain revolutionary change is especially important for both practical and theoretical reasons. Strangely, statesman at the dawning of the 21st Century have been thrust "back to the future" in grappling with international security. On the one hand, the hangover of the nuclear revolution and mounting globalization— encompassing the rapid movement of ideas, people, resources, services, and technologies across national borders— diminish the utility of capturing territory and significantly raise the costs of using force across the international system. The intertwining of national economies, societies, and security elevate, in particular, the salience of non-military and "soft" power dimensions to statecraft. As underscored by Joseph Nye, complex interdependence of the security, political, and economic realms opens unprecedented opportunities for states to wield power indirectly by enticing and attracting; getting what they want by setting political agendas and leading by example, rather than by relying on traditional means of intimidation and force.[1] Yet the broadening and deepening of interdependence simultaneously expose new vulnerabilities that while complicating the use of force underscore "hard power" as the currency for international security. Amid the proliferation of international institutions, growing reach of non-state

1 Joseph S. Nye, *The Paradox of American Power* (New York: Oxford University Press, 2002), pp. 4-12; and Richard Rosecrance, *The Rise of the Virtual State: Wealth and Power in the Coming Century* (New York: Basic Books, 1999).

actors, and rampant compromises to national sovereignty and domestic governance that profoundly affect international relations, states nonetheless continue to hew to military force as the ultimate instrument for arresting new threats. As demonstrated vividly by American military action in Afghanistan and Iraq, the asymmetrical impact of globalization bears ominous tidings that continue to compel states to redress international grievances by exercising force, albeit with radically new forms and purpose.

Yet without displacing hard power, the end of the Cold War and gathering momentum of globalization generate profound pressures for military change.[2] The newly independent states of the former Soviet Union, for example, face the monumental tasks of professionalizing and modernizing national armies amid protracted domestic political transition and fiscal austerity. Their former Eastern bloc allies confront challenges of qualitatively upgrading and reorienting national armies to meet the standards of new Western military partners. At the same time, superior Western militaries are pushed and pulled in different directions, saddled with new requirements for conducting high-intensity combat and asymmetrical warfare, as well as with an ever-expanding scope of operations "other than war." No longer consumed with containing a predictable peer competitor, the U.S. military confronts the formidable challenge of maintaining global preeminence along multiple fronts, assuming a panoply of new responsibilities that include peacekeeping, peace enforcement, humanitarian intervention, counter-terrorist operations, drug interdiction, coercive diplomacy, post-conflict policing, and nation-building. As many of these constitute "high frequency-low stakes" missions, in contrast to the "low frequency-high stakes" scenarios that were the preoccupation throughout the Cold War, defense planners are now called upon to manage multiple operations amid tight budgetary and personnel constraints, more restricted foreign access, and mounting political pressure to minimize casualties with each success. If not handled deftly, this confluence of pressures risks not only retarding military change but inflaming civil-military tensions over basic questions concerning the use of force.[3]

The maturation of the information age accentuates the strategic impetus for radical military change. Ongoing advances in computer processing, microelectronics, surveillance, and precision guided weapons technologies seemingly offer qualitatively new opportunities for robust communications links among sensors, command nodes, and "strikers" that necessitate a fundamental restructuring of U.S. military strategy, operations, tactics, logistics, and organization. New information technologies appear to augur well for a network-centric approach to warfare premised on the acquisition and exploitation of more and better information with revolutionary implications for synergies among platforms and for re-structuring U.S. command and control (ultimately to include command, control, communication, computer, intelligence, surveillance, and reconnaissance tasks- C4ISR). The digitization of information

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2 Theo Farrell and Terry Terriff, "The Sources of Military Change," in, Ibid., eds., *The Sources of Military Change: Culture, Politics, and Technology* (Boulder: Lynne Reinner Publishers, 2002), pp. 3-17.

3 Peter D. Feaver and Christopher Gelpi, *Choosing Your Battles: American Civil-Military Relations and the Use of Force* (Princeton: Princeton University Press, 2004).

gathering, processing, and dissemination not only presents significant technological challenges but portends radical changes to the architecture for managing real-time translation of "dominant battle-space knowledge" into superior performance on the battlefield. These potentially unprecedented advances stand to render traditional qualitative-quantitative trade-offs obsolete, widening the gap between those militaries that effectively integrate new technologies and methods of warfare and those that do not.[4] Consequently, there is burgeoning consensus among contemporary defense intellectuals that the key to maintaining strategic preeminence and bolstering future combat effectiveness will be the ability of military organizations to keep pace with revolutionary changes in technology and strategic environments that make fielding "systems of systems" and network-centric warfare both increasingly feasible and necessary. Success will be contingent on organizational structures and processes that integrate non-linear interactions "created by the personalities, strivings, values, past experiences, history, visions, and cultures of the individuals and institutions involved."[5]

Are military organizations up to the challenge? A growing chorus of contemporary American and European military experts seems determined to answer in the affirmative. Enamored by the prospects for radical synergies between novel technologies, doctrine, and organization fostered by the RMA and emboldened by the preliminary "lessons learned" from wars fought since the 1991 Persian Gulf war, defense planners now challenge each military service to jettison decades old practices, technologies, planning assumptions, and bureaucratic parochialism that governed the linear, incremental approach to military change during the Cold War. Sweeping changes are demanded in the ways that each service envisions, procures, trains, plans, cooperates, and conducts warfare.[6] The staunchest proponents hold up

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4 Advocates of the contemporary RMA thesis include: Alvin and Heidi Toffler, *War and Anti-War: Survival at the Dawn of the 21st Century* (Boston: Little, Brown, 1993); James R. Blaker, *Understanding the Revolution in Military Affairs: A Guide to America's 21st Century* (Washington, DC: Progressive Policy Institute, 1997); Andrew F. Krepinevich, "Cavalry to Computer: The Pattern of Military Revolutions," *The National Interest* 37 (Fall 1994); Eliot A. Cohen, "A Revolution in Warfare?" *Foreign Affairs* 75 (March/April 1996), pp. 34-54; Joseph S. Nye Jr., and William A. Owens, "America's Information Edge," *Foreign Affairs* 75:2 (March/April 1996); John Arquilla and David Ronfeldt, eds., *In Athena's Camp* (Santa Monica, CA: RAND, 1997), and Michael Ignatieff, *Virtual War: Kosovo and Beyond* (New York: Metropolitan Books, 2000). For dissenting views see especially Stephen Biddle, *Military Power: Explaining Victory and Defeat in Modern Battle* (Ithaca: Cornell University Press, 2004).

5 Barry Watts and Williamson Murray, "Military Innovation in Peacetime," in Williamson Murray and Allan R. Millett, eds., *Military Innovation in the Interwar Period* (New York: Cambridge University Press, 1996), p. 375. For a seminal discussion of the critical importance of organizational innovation to the success of embracing the RMA, see especially Andrew F. Krepinevich, *The Military Technical Revolution: A Preliminary Assessment* (Washington, DC: Center for Strategic and Budgetary Assessments, 1999).

6 Immediately following the 2003 war in Iraq, for example, the Pentagon launched an initiative to centralize procurement, dramatically stripping each military service of the power to establish their technical needs, as well as submitted a revised procurement plan that placed a premium on the acquisition of next generation systems.

the vision of a quickly fought, technologically-driven, jointly-performed, low-risk military operation (beyond what was achieved by *Operation Iraqi Freedom* in 2003) as the model for re-shaping the future of the American military. Service leaders also are expected to take full advantage of new information technologies by developing administrative structures to mesh centralized control with adaptive, joint, and flexible planning "down echelon." Convinced of the necessity to advance military transformation, defense planners now take aim at reconfiguring service cultures and organizational practices that are regarded as the greatest obstruction to the diffusion and assimilation of these fundamentally new ways of war.[7]

Notwithstanding new strategic, technological, and political impulses for change that grip the defense planning community, scholars of military organizations are more circumspect about the prospects for transformation. Mainstream theories invoked to explain military innovation do not provide a clear-cut answer. On the one hand, it is difficult not to be pessimistic, as the imperative to harmonize decisionmaking mechanisms with advances in digital information processing presents military planners with the problem of reconciling the dynamism of technological change with the stasis that besets organizations. Traditional studies of organizational behavior warn us that military institutions are designed explicitly to maximize consistency and to regularize coordination among functionally specialized sub-units in order to reduce the high uncertainty of task environments and to preserve the service's autonomy and health.[8] Internal relations are hierarchical, redundant, rigid, and routinized; narrowly attuned to achieving specific and predictable organizational outputs. Because peacetime and wartime conditions buffer military organizations from common threats of bureaucratic extinction and political accountability experienced by other government agencies, these attributes impose especially binding constraints on information flows within services that render decisionmaking highly resistant to change absent external shocks, such as defeat in war or forceful intervention by political "outsiders." At best, military change is expected to be *ad hoc*, informal, and ephemeral, marred by tradeoffs between efforts to improve managerial efficiency at performing traditional missions and adapting to new task environments. The old efficiency-versus-flexible formula for incremental change, however, no longer suffices because the latest RMA places a premium on military organizations doing both simultaneously. Thus, organizational inertia is assumed to be the "Achilles

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7 For a succinct discussion of the organizational change that is warranted for reaping the full benefits of the RMA, see especially discussion in Admiral William A. Owens (U.S. Navy, ret.), "Creating a U.S. Military Revolution," in Theo Farrell and Terry Terriff, *The Sources of Military Change: Culture, Politics, and Technology* (Boulder: Lynne Reinner Publishers, 2002), pp. 205-219; Andrew F. Krepinevich, Jr, *The Military-Technical Revolution: A Preliminary Assessment* (Washington, DC: Center for Strategic and Budgetary Assessments, 1993), available at www.csba.org; and Christopher J. Bowie, Robert Haffa, and Robert E. Mullins, *Future War: What Trends in America's Post-Cold War Military Conflicts Tell Us About Early 21st Century Warfare* (Washington, DC: Northrup Grumman Analytical Center Paper, 2003).

8 Morton H. Halperin, *Bureaucratic Politics and Foreign Policy* (Washington, DC: Brooking Institution, 1974); and Barry R. Posen, *The Sources of Military Doctrine: France, Britain, and Germany Between the World Wars* (Ithaca: Cornell University Press, 1984).

heel" of transitioning from traditional "sunset" systems and platforms, to flexible, complex, network-centric command and control architectures made possible by dramatic advances in communications and information technologies.

On the other hand, recent empirical and analytical research challenges this prognosis to warrant cautious optimism. The 1920s and 1930s, in particular, were replete with examples of internally driven military change that current planners strive to emulate.[9] The inter-war period demonstrated that military organizations do not behave uniformly, as some undergo major innovations in the manners that they exploit technological possibilities and carry out new combat missions with different degrees of success. Notwithstanding the functional predisposition towards inertia, some military organizations and services are more effective than others at internally initiating and then institutionalizing radical changes to warfighting or command and control even in the absence of catastrophic failures, outside intervention, or maverick leaders. Some attribute success at diffusing new forms of warfare to shifts among intra-agency coalitions and the creation of new career pathways.[10] Alternatively, "new wave" organizational learning and culture theories posit that many of the material, structural and political incentives presumed to bias military services against flexibility and improvisation and that make them prone to solving the wrong problems, can be overcome by fundamental changes to how they think about and prepare for war. Causal weight here is assigned to mental frames and norms within service communities that shape collective understandings of the legitimacy of new ways of war.[11] Yet for all of the attention to the salience of changing material incentives and culture within a military organization, we still lack systematic understanding of how the process unfolds or can be managed. Although sophisticated interest-based and ideational approaches identify necessary conditions for the introduction, direction, and appeal of change for a military service, each by itself is not sufficient for explaining the timing and range of organizational responses to nebulous and unproven forms of warfare, nor offers a sound predictor of subsequent success at nurturing and honing change.

In the spirit of cautious optimism, this book offers an alternative perspective on intra-organizational politics that identifies conditions conducive for managing revolutionary military change. We argue that a full accounting of the "missing link" between the initial impetus for military change and sustained organizational responses requires systematic understanding of the synergies among functional and normative factors and their impact on the management strategies within organizations that are the prime developers, consumers, and practioners of military innovation. The central analytical concern here is not what precipitates the introduction of military

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9 See especially collection of case studies on military innovation in Murray and Millett (1996).

10 Stephen Peter Rosen, *Winning the Next War* (Ithaca: Cornell University Press, 1991).

11 Jeffrey Legro, *Cooperation Under Fire: Anglo-American Restraint During World War II* (Ithaca: Cornell University Press, 1995); Craig M. Cameron*, American Samurai: Myth, Imagination, and the Conduct of Battle in the First Marine Division, 1941-1951* (Cambridge: Cambridge University Press, 1998); and Lynn Eden, *Whole World on Fire: Organizations, Knowledge, and Nuclear Devastation* (Ithaca: Cornell University Press, 2004).

technologies, doctrines, and procedures between states or organizations, but what enhances or impedes their diffusion and institutionalization as a radically new way of war within a service. Therefore, we take up the managerial dilemmas confronting defense planners as the primary point of departure from the extant literature. Focus is placed squarely on exploring how authority is delegated within an organization, how different responsibilities foster rival incentives for change within an organization, and how these differences can be managed via alternative procedural and normative solutions with different consequences for nurturing military change. Drawing on insights from a modified principal-agent framework, we argue that the ability to manage military transformation is critically determined by the intra-organizational mechanisms that service entrepreneurs put in place to delegate, monitor, and enforce new responsibilities, as well as to tap into core service competencies and administrative norms to communicate and guide subordinates along a consistent path. The beauty of a properly aligned managerial strategy is that it promotes interests, responsibility, and common knowledge needed to unite commanders and sub-units for contending with the nebulous and unproven dynamics of sustaining transformation.

By examining the intra-organizational dynamics of managing change, this study addresses a conspicuous void in the extant literature on military innovation. In the name of parsimony, theories of military change tend to privilege alternative structural variables situated at the international, state, organizational, and individual levels, respectively. The direction that military organizations or entrepreneurs receive often is prescribed by external or internal conditions and/or mental templates that either constrain or hardwire the proclivity for change. New interests or ideas emerge and presumably translate smoothly into organizational change. Yet, there is little attention to the conditions that affect how new technologies and ideas take hold within a service beyond their introduction or imposition. Why, for example, are some military organizations more adroit than others at sustaining a change of course, institutionalizing new ways of war under otherwise static material and normative conditions? Why do some efforts at managing change during peacetime succeed rapidly, while others only gather momentum over time, and still others become either sidetracked or even subverted? How in the process of nurturing change are defense planners able to coordinate different interests and preferences that cut across divisions within a service? This book seeks to redress these oversights by illuminating the microfoundational sources of organizational change. This entails specifying relevant actors within a military organization that both promote and impede change, their immediate institutional environment, and the causal chain linking these actors and their environment to success and failure at sustaining and honing military change.

This focus complements recent studies on the microfoundations of national security and defense policymaking. Though the principal-agent framework has been applied to understanding military change, it has been used primarily to generate a theory of civilian control over the U.S. military that feature the idiosyncrasies of the hierarchical relationship between the political drivers of innovation and the propensity of respective services to accommodate pressures for change.[12] Others

12 Deborah D. Avant, *Political Institutions and Military Change: Lessons from Peripheral Wars* (Ithaca: Cornell University Press, 1994). For an agency theory of general U.S.

have used it to explain how design features and the constellation of political interests rendered the U.S. Joint Chiefs of Staff system especially resistant to change.[13] We build on these developments by applying the principal-agent framework to strategic interaction among different levels of hierarchy *within* a military organization. From this we explain how internal supervisory mechanisms affect incentives and inclinations for change within a service that can account for variations in transformational performance beyond the stale success/failure dichotomy, and that cut across strategic, technological, national, and service environments.

In addition, our modified framework for intra-organizational behavior is intended as an analytical bridge between contending schools of thought on military change. As discussed in the next chapter, theorists have been preoccupied mostly with developing and testing rival explanations for organizational innovation that give priority either to material-functional interests or to cognitive-cultural biases as the main source of change. Yet, this has come at the expense of both fleshing out increasingly common findings that interests *and* norms matter for spurring or obstructing military change, and for exploring how the two types of variables interact to shape the course of transformation.[14] Conversely, military historians and policy practitioners have grown frustrated with arcane debates that compartmentalize the role of interests and ideas, and that seem out of touch with mounting evidence that attitudes for change vary among core elements within military organizations.[15] This approach, however, has circumscribed systematic understanding of the general conditions ripe for prodding change from within different military organizations. As a result, defense planners tend to focus on idiosyncratic factors that correlate with historical innovation at risk of inflating their causal significance in crafting action plans for administering organizational change. The net effect of these trends has been to widen the gulf between policy and theoretical approaches to grappling with similar issues of military change. Part of our ambition with specifying the microfoundations of strategic interaction between different levels of hierarchy within

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civil-military relations, see especially Peter D. Feaver, *Armed Servants: Agency, Oversight, and Civil-Military Relations* (Cambridge: Harvard University Press, 2003).

13 Amy B. Zegart, *Flawed By Design* (Stanford: Stanford University Press, 1999). For a related application of the principal-agent framework to explain the success of the Goldwater-Nichols reforms, see especially Sharon Weiner, "Resource Allocation in the Post-Cold War Pentagon," *Security Studies* 5:4 (1996), pp. 125-142.

14 Barry Watts and Williamson Murray, "Military Innovation in Peacetime," in Murray and Millett (1996), pp. 369-417; and Williamson Murray and MacGregor Knox, "The Future Behind Us," in MacGregor Knox and Williamson Murray, eds., *The Dynamics of Military Innovation* (Cambridge: Cambridge University Press, 2001), pp. 175-194; and Terry Terriff and Theo Farrell, "Military Change in the New Millenium," in Farrell and Terriff (2002), pp. 271-276.

15 For a discussion of the different attitudes towards military innovation and new missions among the cohort of middle level officers in the contemporary U.S. military, see especially Deborah D. Avant and James H. Lebovic, "U.S. Military Responses to Post-Cold War Missions," in Farrell and Terriff (2002), pp. 139-160. On the complaints about the policy relevance of the theoretical literature on military innovation, see especially Watts and Murray (1996), p. 381.

military organizations and discerning fungible dimensions to administrative culture, therefore, is to provide an analytical framework for integrating material and non-material sources of change, while simultaneously generating logically consistent implications upon which to base practical planning assumptions.

Part I of the book identifies the paradoxes of military transformation, and develops a theory to explain why some efforts at managing change might be expected to succeed. Chapter 1 specifies the problem and reviews the extant literature on organizational change that relates directly to our investigation of military transformation. The focus is on illuminating systematic pitfalls at explaining synergies between new ideas and material incentives that we intend to redress in this book. In addition, we define more precisely how our research contributes to understanding the importance of the managerial dimension to service change.

Chapter 2 presents our alternative argument. It begins by specifying our assumptions and the limitations to applying traditional principal-agent models to issues of military change. Attention then turns to identifying the central causal logic linking specific incentive schemes and managerial norms associated with reducing agency costs of supervising change, and then to the propensity for service organizations to nurture and sustain transformation in methods and forms of warfare. We address the following questions: What are the different incentives for exploring and exploiting new forms of warfare within a service? Why do they differ among various levels of hierarchy? How and under which conditions can service champions of change supervise successfully without knowing exactly where they are headed? Under which conditions do sub-units readily comply to sustain or advance change, as opposed to resist or even sabotage transformational directives? The chapter concludes by presenting a method for "process-tracing" the argument in comparative case studies that vary across strategic, technological, historical, national, and service settings.[16]

The hypotheses generated in chapter 2 are put to empirical test in classic cross-national, cross-service cases of successful and unsuccessful military transformation in Part 2. The emphasis of each chapter is primarily on illustrating the strengths and weaknesses of contending arguments, as opposed to providing rich historical description. Chapters 3 and 4 explicate two alternative patterns of transformational success. Chapter 3 addresses the question of *how* interwar German defense planners managed to capitalize readily on revolutionary innovations in combined armored warfare. It begins by recounting the ironies of the German Army's success, given the internationally imposed restrictions on rearmament, comparative technological and industrial advantages of its future adversaries, initial dominance of "traditionalists" within the High Command, and formation of a separate air force. This is followed by a critical review of the administrative consequences of the complementary material incentives and managerial norms. We examine how the proponents of armored warfare adroitly forged an administrative strategy that aligned promotional incentives, information flows, and the service's technical evidentiary standards that

16 Alexander L. George and Timothy J. McKeown, "Case Studies and Theories of Organizational Decision Making," in Robert Coulam and Richard Smith, eds., *Advances in Information Processing in Organizations* (Greenwich, CT: JAI Press, 1985), pp. 43-68.

were derived from a collectively accepted scientific approach to problem-solving. Chapter 4 explores the distinct form of protracted transformation to offensive carrier warfare spearheaded by the U.S. Navy during the interwar period. The chapter begins by assessing prominent strategic, functional, and ideational explanations for the American navy's carrier revolution. We then apply the modified principal-agent framework to illustrate how service entrepreneurs gradually introduced low cost mechanisms of delegation and oversight, as well as tapped into prevailing managerial norms to steadily increase incentives for and confidence in carrier-based operations up and down the naval hierarchy, notwithstanding the prevailing balance of power and orthodoxy that favored the traditional Battle Fleet throughout the period.

The ensuing two chapters examine opposing patterns of aborted or failed military transformation. Chapter 5 analyzes the factors that led the British Army to abandon success at introducing massed armored warfare (reverting to traditional infantry support and cavalry-oriented missions), notwithstanding the global lead in tank technology and doctrine coming out of World War I. We begin by demonstrating how the Royal Army's recalcitrance challenges dominant theories of international relations and organizational behavior. The chapter then turns to exploring the transformation-stifling consequences of successive reorganizations of mobile and armor divisions. We find that even when entrepreneurial commanders were ceded command authority over armored formations, divergent promotional pathways, divided responsibilities and reporting requirements, coupled with the lack of staff support, diminished their ability to supervise well-integrated combined arms doctrine and operations. Furthermore, within the British Army, there were long-standing traditions of top-down command, low error tolerance, and regimental specialization and fragmentation that militated against common knowledge and operational/tactical flexibility, ultimately suppressing the diffusion of innovation across the service. Together these elements significantly exacerbated the agency costs of managing change that derailed the British Army's effective exploitation of mechanized warfare, notwithstanding the strategic imperatives and burgeoning enthusiasm and advances in operational and tactical doctrine. Chapter 6 identifies the sources of the U.S. Army's doctrinal rigidity and protracted resistance to embracing counterinsurgency as a core mission. The chapter opens by distinguishing the Army's behavior at not only shirking new forms of warfare, but actively sabotaging the policy goals imposed by different political administrations and strategic and technological contexts. It then turns to explicating the perverse incentives and inclinations for innovation generated by successive intra-service administrative reforms. This includes a review of how assigned supervisory directors lacked discrete authority, were ill served by the division of command authority, and were orphaned institutionally both within the Vietnam theater command and the Special Forces Offices at the Pentagon. There also is discussion of how the managerial challenges were compounded by *ad hoc* executive and legislative oversight, and the failure to frame counterinsurgency operations in terms that made sense to the Army. The latter, in particular, contributed directly to the absence of a service-wide affinity for "pacification" or collectively accepted quantitative standards for assessing the performance of counterinsurgency operations. Unlike the case for air mobility, the low-intensity character of counter-

insurgency was not presented either as an adjunct to the Army's traditional mid-to-high intensity operations or with potential application to the European theater.

The Conclusion recaps the main empirical and analytical findings from the case studies. It teases out implications for theories of organizational change, international relations, and security studies, as well as for policy debates over the meaning and prospects for realizing the fruits of the contemporary RMA. In doing so, we distill practical lessons from our analytical and historical case studies, offering a set of contemporary guidelines for managing transformation into the future.