1 Army transformation: imperatives and innovations

In an uncertain and still dangerous world, a key challenge for Western states is to maintain their military edge. For the United States, the challenge is to stay ahead of rising state competitors and new non-state opponents. For the main European powers, the challenge is as much to catch up with the US military, as it is to meet a range of regional and global military commitments. These past two decades, Western militaries have been operating in an environment that has been characterized by profound strategic and socio-technological change, with the fall of the Soviet Union and the rise of networked computers, as well as continuous expeditionary operations. This, in turn, has produced powerful imperatives and opportunities for Western militaries to transform themselves.

The major Western states ended the Cold War with a surplus of military power. Armies, navies and air forces constructed to fight a global war against the Eastern bloc suddenly were left without peer competitors. Western policymakers and their publics soon found new things to worry about, including terrorism, nuclear proliferation, ethnic civil wars and failing states. These new challenges concern less the amount of military power, and more military agility; i.e. the ability of military forces to adapt to meet new risks and requirements.¹

Socio-technological change provided another macro-driver of Western military change. By the 1990s, it was becoming increasingly clear that new information and communication technologies (ICT), combined with precision strike technologies, had the potential to transform the conduct of warfare. Already a decade before Soviet military writers had begun to talk of a military-technical revolution. US analysts initially mistook this for a Soviet aspiration to leap ahead of America’s military through the exploitation of new technologies. In fact, the Soviet military were forecasting the (for them, unwelcome) trajectory of military development in

¹ For instance, this is emphasized in Britain’s new “adaptable strategic posture”: Securing Britain in An Age of Uncertainty: The Strategic Defence and Security Review, Cm 7948 (London: TSO, 2010), pp. 9–10.
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the West.2 The US military’s dramatic success in the 1991 Gulf War, when it ejected the Iraqi Army from Kuwait with a loss of only 148 Americans killed in action (as against over 20,000 Iraqi battle deaths), suggested that a revolution in military affairs (RMA) was underway.3 Just as in previous eras – the rise of industrialized warfare in the nineteenth century, mechanized warfare in the mid-twentieth century, and nuclear deterrence of the late twentieth century – new technology was driving this RMA.4 But also as in previous eras, technology alone would not produce revolutionary change in warfare. Like past RMAs, it would require social, organizational and doctrinal, as well as technological, change.5

Given the scale of strategic and socio-technological change in these past two decades, Western armies could hardly have stayed the same. Designed to stop the Red Army from rolling across Germany, the West’s armies were bulky and blunt instruments; thick with heavy artillery and heavily armored vehicles, their primary purpose was to generate massive firepower. How, then, did they change to meet new strategic imperatives and avail of new technologies? This is the central question of our book.

We examine the armies of the three main warfighting nations in the West – the United States, Britain and France. We seek to provide a comparative and authoritative study of how these three armies have transformed since 1991. To this end, the US Army case study draws on extensive archival research, and the British and French case studies are based on hundreds of interviews and unprecedented access to official

2 Dima Adamsky, The Culture of Military Innovation: The Impact of Cultural Factors on the Revolution in Military Affairs in Russia, the US, and Israel (Stanford, CA: Stanford University Press, 2010).
3 In an important critique, Stephen Biddle argued that the superior skill of US forces was as significant as superior technology in defeating Iraqi forces, and that it was the synergistic effect of the interaction of superior skill and technology that produced dramatic US victory in the 1991 Gulf War. This leads Biddle to conclude that: “Rather than a revolution through information dominance and precision strike, what the Gulf War really suggests is thus a new ability to exploit [enemy force] mistakes.” Biddle, “Victory Misunderstood: What the Gulf War Tells Us about the Future of Conflict,” International Security, vol. 21, no. 2 (1996), p. 176. Critics of Biddle countered that he lacked the data, given that US forces had gross technological and skill superiority, to falsify his theory. See “Symposium on the Gulf War and the Revolution in Military Affairs,” International Security, vol. 22, no. 2 (1997). In any case, as Keith L. Shimko reasonably concludes, “it strains credulity to argue that there was no evidence of a possible RMA” from the Gulf War. Shimko, The Iraq Wars and America’s Military Revolution (Cambridge: Cambridge University Press, 2010), p. 90.
documents. We are interested in both the process and the outcomes of army transformation. In terms of process, how did organizational interests and emerging ideas interact in shaping the direction of military change? What role did military and civilian leaders play in army transformation in each country? How did programs of army transformation change over time, as new technologies moved from research to development, and lessons from operations were absorbed? In framing these questions, we draw on scholarship on military innovation, and in answering them we seek to produce findings that have general relevance for the study of how militaries innovate.

We focus on armies because land power has been central to the wars that the West has fought since the turn of the new millennium. This is not to deny the importance of air power, especially to the successful invasion of Afghanistan and Iraq. But it has fallen to Western armies, working alongside local land forces, to attempt to secure these countries. This imperative was foreshadowed by the humanitarian wars of the 1990s in the Balkans and Africa. The presence or absence of capable and well-led land forces was key to the success of these ventures. Thus, air power alone failed to protect civilians in Bosnia and Kosovo; the North Atlantic Treaty Organization (NATO) had to send in large stabilization forces to secure both.\(^6\)

In broad terms, the British, French and US armies changed along similar lines between the early 1990s and late 2000s. All three, which had spent the Cold War preparing for major continental warfare, began to restructure for expeditionary warfare.\(^7\) All adopted more medium-weight and modular force structures – swapping main battle tanks for lighter armored vehicles, and moving from divisions to brigade- and battalion-sized task-force configurations. And all began to invest heavily in ICT, and especially in “networking the force,” in the hope of achieving a step-change in performance. In addition, the British and French armies developed new doctrine to enable forces to operate in more dispersed, holistic and less lethal ways to achieve strategic effects.

In the United States, these organizational and technological changes were grouped under a program of self-styled “military transformation.” The vision was of a very high-tech American military, far more able to globally project power in a discriminate and agile way to overpower


\(^7\) During the Cold War, expeditionary missions had been assigned to specialized units – the 82nd and 101st Airborne Divisions in the US Army, the Parachute Regiment in the British Army, and the Foreign Legion in the French Army.
conventional opponents. By the late 2000s, however, America found itself bogged down in two unconventional wars, in Iraq and Afghanistan. The US Army had shown far more agility in getting to these theaters than to overseas wars of the past, but was struggling to effectively project power within the operational battlespace. This suggested that even more agility was required. The transformation program had itself to adapt, to shift its focus from the high-tech “clean” interstate wars of the future to the low-tech, messy civil wars of the present.

As the dominant military power in the world, America’s military transformation was sure to attract the interest of militaries the world over. America’s allies within NATO have a particular and long-standing interest in following US military development, because they have to operate alongside the Americans and so they are concerned not to fall too far behind. Whilst the British and French defense establishments were cautious about the US transformation program as a whole, they were fairly quick to pick up and experiment with American ideas about future military capabilities and operations.

The military transformation program has fallen into disfavor in the United States. Where previously the word “transformation” littered US defense publications, now it is far less mentioned. As suggested, transformation is associated with a vision of future warfare that is out of kilter with the wars that America has been waging since 2001. For the US Army in particular, Afghanistan and Iraq have revealed the limitations of military technology in fighting insurgents and rebuilding fragile states. The change in language has been less pronounced in Britain and France because, as noted above, the British and French armies did not make such a big deal of “transforming.” However, what we show in this book is that, language aside, all three armies have in a real sense transformed themselves.

New imperatives for land power

Transformation as a coherent agenda for military reform took considerable time to mature, even if it was readily apparent to observers of the 1991 Gulf War that major military change was coming. The underlying question was whether the 1991 Gulf War was an exemplar of the future or an exception to it. History tended to underscore the exceptional character of
sending more than 750,000 Western troops overseas to war.\textsuperscript{9} Even though the Persian Gulf had become a geopolitical focal point through the 1970s, following the Yom Kippur war and later the Iranian revolution, the United States and allies had managed it with a combination of diplomacy and mostly naval force. President Carter’s Rapid Deployment Force, which came into being in the early 1980s in response to the Soviet invasion of Afghanistan, contained land forces, for sure, but it was generally designed as a composite joint force that could lend credibility to US policy without distracting the US Army from its primary Cold War mission of defending Western Europe. Indeed, the development of new technologies for precision strike and supporting new doctrine were focused on the principal task of providing a more dynamic counter-attack against potential invasion by echelons of Warsaw Pact forces.\textsuperscript{10}

The humanitarian crisis of the early 1990s did not challenge this existing mix of a largely static main force (to preserve Europe’s conventional balance) and deployable auxiliary forces (for crisis management). The Gulf War blended into a humanitarian intervention in Kurdish Iraq in 1991, which was not war but crisis management with a military component. The same went for the Balkan unrest that flared up soon thereafter and which drew in first the European Union and the United Nations (UN), and finally NATO. These ambiguous “Chapter 6.5” missions – following the UN Charter’s distinction between peaceful dispute settlement (Chapter 6) and action with respect to aggression (Chapter 7) – highlighted evolution more than revolution. Most Western countries thus did step up the effort to develop reaction forces that were both deployable and sustainable, but these were kept distinct from the main defense forces that, as in the past, were slower to mobilize and more difficult to deploy.\textsuperscript{11}

However, it was gradually becoming clear in the mid-to-late 1990s that military change was not merely about modernization of existing military platforms. Satellite imagery and communication hooked up to new “over the horizon” weapons, and portable communication gear promised a new “networked” or “smart” war. Some defense visionaries began to argue that platform connectivity was more important than the platforms

\textsuperscript{9} For a military history of the 1991 Gulf War from the Western perspective, see Michael Gordon and Bernard Trainor, \textit{The General’s War: The Inside Story of the Gulf War} (Boston, MA: Little Brown, 1995).


\textsuperscript{11} On the rise of European deployable forces, see Anthony King, \textit{The Transformation of Europe’s Armed Forces: From the Rhine to Afghanistan} (Cambridge: Cambridge University Press, 2011).
themselves. Armed forces could acquire these alluring new capabilities but only if they changed their mindsets and imagined new ways of working together – among services within a nation (jointness) and among allies (combined). Once they had imagined new war, they would have to write it into doctrine and reconfigure their organization. It was sure to break traditions and cost money, therefore. This helps account for the enthusiasm with which new war was debated among those liberated from organizational responsibility and charged with strategic foresight – who nurtured the idea of a Revolution in Military Affairs (RMA) – and the more modest reception the various ideas received inside the armed services.\(^{12}\)

The lack of enthusiasm for big change may also be attributed to an ambiguous security environment. The Kosovo air war of 1999 provided unequivocal lessons regarding Europe’s need to “modernize” – but it was an air war and not a joint operation, and it did not fundamentally question the presumption that expeditionary war could be managed with auxiliary forces. Besides, in reinventing itself as a global security organization, NATO was more focused on the Eastwards expansion of the Alliance, and on the challenges presented by the proliferation of missile technology and weapons of mass destruction. Collectively speaking, NATO governments busied themselves with the diplomacy of organizing command options, which implied NATO’s Europeanization, the ongoing revival of the Western European Union, and the slow maturing of the EU’s defense option.\(^{13}\) This was reflective of a complacent decision-making environment where governments felt they could afford the luxury of rearranging the deckchairs of their ship.

The attacks on September 11, 2001 changed the dynamics. Expeditionary war beckoned, at first in Afghanistan, then in Iraq. This invigorated the “transformation” agenda launched in the United States when President George W. Bush came to office in January 2001.\(^{14}\) A new alliance consensus soon formed that forces should be ready to operate

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14 Before the 9/11 attacks, Defense Secretary Donald Rumsfeld had been struggling to advance the transformation agenda endorsed by President Bush. Elliot A. Cohen, “A Tale of Two Secretaries,” Foreign Affairs (May/June 2002).
where necessary. Thus the “out-of-area” controversy that had so bedeviled allies in the early 1990s was put to an end. And thus began a collective effort to think about transformation in a systematic and long-term fashion. It led to NATO’s first serious bid to produce a long-term defense planning guidance in two decades, resulting in the 2006 Comprehensive Political Guidance (CPG).15

Transformation evolved in a distinctively more pluralist age for NATO, though. The Iraq war of 2003 is a case in point. The war was deeply divisive and prevented allies from agreeing on the political purpose of transformation;16 yet they wanted transformation, and so NATO was able to agree on the 2006 CPG. Even as the impact of the Iraq war faded, pluralism continued to erode a unified view of transformation.17 The allies are of different sizes, as are their means; traditions and recent experiences in terms of expeditionary warfare vary widely; and some live in volatile and dangerous neighborhoods that nourish distinct views of what transformation should be about.18 The malleable character of transformation itself likewise nourishes pluralism. Transformation has no definable end point; it is all about process. Transformation as a process is therefore both an ideal undergirding force planning and a reality of shades of gray in which multiple military innovations connect in disparate ways.

How armies innovate

At the core of our book is a comparative study of military innovation. Coinciding with the RMA debate of the 1990s was a growing interest among social scientists in explaining how militaries innovate. As Adam Grissom notes in his review of this literature, whilst there is no agreed-upon definition in the field, a tacit definition may be discerned that encompasses three elements. Military innovation: (1) “changes the manner in which the military functions in the field”; (2) “is significant in scope and impact”; and (3) is “equated with greater military effectiveness.”19 Of

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course, the third characteristic is open to question; it is entirely possible that a military innovation may make a military less effective. We see army transformation as involving three distinct military innovations that do affect how forces operate in the field, promise very significant change, and aspire to improve military effectiveness:

- modular force structures and new medium-weight vehicles for expeditionary missions;
- more holistic, effects-based approaches to operations; and
- networking of forces.

In all three cases under study, the armies set out to transform themselves by developing forces that are modular, medium-weight and networked. The British and French armies also develop an effects-based approach to operations; this is inspired by new US military thinking that is promoted in US Air Force doctrine but not adopted by the US Army.

Unlike most books on military innovation, we do not propose or test “a theory” of military innovation. Instead, we focus on telling the story of army transformation in each case, capturing all of the contingencies and complexities, and politics and personalities involved. Theory by its very nature seeks to reduce such complexities in order to focus on those factors that are essential to explaining what happened. However, theory can obscure more than it illuminates. Often, essential elements of the story get excluded, especially when they are inconsistent with a preferred theory. Thus, whilst we draw on the theoretical insights from military innovation studies to highlight key themes for our case study analysis, our study is not theory-driven.20

First a word about relative scales of innovation. Distinction has recently been drawn in military innovation studies between “sustaining innovation” and “disruptive innovation.” The former is innovation that seeks to improve on traditionally valued ways of war. The latter is innovation that seeks to improve undervalued ways of war, or to develop wholly new ways of war.21 Disruptive innovation is far harder for militaries than sustaining innovation, because it requires a military to change in a way that challenges vested organizational interests and dominant organizational ideas.

about war. Ultimately, disruptive innovation involves acts of organizational destruction.

Organizational interests and cultural preferences will incline militaries toward sustaining innovation. The new modular and medium-weight force that all three armies have sought to develop has this character. The US military’s transformation program has also centered on two additional innovations – Network-Centric Warfare (NCW) and Effects Based Operations (EBO) – that were designed to completely change America’s approach to warfare. In other words, these were intended to be disruptive innovations. The US Army adopted the former of these, rejecting EBO as an Air-Force-centric doctrine. The Europeans showed considerable interest in both NCW and EBO, and thus both innovations held the potential to profoundly reshape the British and French armies.

Military change on this scale, across multiple armies, is remarkable. All the more so when one considers that militaries are not made for innovation. In his seminal study of military innovation, Stephen Rosen observes that “Almost everything we know about large bureaucracies suggests not only that they are hard to change, but that they are designed not to change.” Bureaucracies develop to produce routine, repetitive and orderly action, and accordingly have a built-in preference for continuity and not change. This inclination is likely to be pronounced in military bureaucracies as they are more conservative and cut off from host societies than most Western organizations. And yet, history shows that militaries do innovate. This raises the questions of why and how?

The military innovation literature identifies four key factors – fit with organizational interests, new ideas and military culture, the role of civilian and military leaders, and feedback from operational experience. As suggested above, organizational interests are generally a brake on innovation, and certainly on disruptive innovation. This finding is reinforced by the large literature on weapons procurement, which shows that militaries will oppose or subvert innovations that threaten to take resources or missions

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25 This was noted by Samuel Huntington in his classic study, The Soldier and the State: The Theory and Politics of Civil–Military Relations (Cambridge, MA: Harvard University Press, 1957).
away from dominant organizational interests. Thus, the US Air Force was slow to embrace cruise missiles in the 1970s, since they appeared to challenge manned bombers. Against this, of course, is the national interest in ensuring the military is effective in war, and cost-effective in peace. This should be an overriding interest, but often is not. In his major study of military doctrine, Barry Posen found that military organizational interests are indeed a major impediment to innovation, but that this could be overcome by civilian intervention motivated by supreme national interest (i.e. the threat of defeat in war).

Most of the studies on military innovation are based on historical case studies. A significant difference between the past and the present is the rise of “jointness” – that is, organizational structures and practices span the military services. Joint institutions are intended to counteract single-service pathologies, including opposition to necessary change. Joint institutions are manned by personnel from the services, and so a question has remained over the extent to which they are able to develop truly joint perspectives. As yet, the military innovation literature has not examined the impact of joint institutions on military innovation. We do so in this book.

Interests alone do not tell us the whole story. Ideas about the utility of certain forms of military power, and about national and military self-identity, also drive lines of military development.


