
INTRODUCTION

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It is commonplace to say, but still easy to underestimate, how much the collapse of the Soviet Union and the end of the Cold War transformed the task of U.S. foreign and defense policymaking. And the terrorist attacks of September 11, 2001, have opened yet another era, one whose shape and dimensions are yet to be understood. This volume addresses the new challenges of this changed world, the difficulties for defense planning that these challenges engender, and new analytic techniques that have been developed at RAND and elsewhere for framing particular problems.

During the Cold War, the Soviet threat provided the benchmark for both foreign policy and defense: containing that threat was the overriding purpose of policy, and the threat provided the organizing principle for shaping U.S. military forces. If U.S. forces could deter or, if need be, defeat the Soviet military, they could handle other threats as “lesser included cases.”

In this context, defense planning was dominated by “force-on-force” comparisons of U.S. and Soviet forces. While the United States spent billions of dollars trying to learn the specific numbers and capabilities of Soviet weapons, overall the Soviet threat changed only gradually and fairly predictably. What Moscow would have tomorrow could generally be predicted to be bigger and slightly better than what it had today. The Soviet defense establishment might float on a sea of shoddiness in the rest of the Soviet economy, but the Soviets could be presumed willing and able to spend what it took to keep pace with the United States.

All of this changed with the end of the Cold War. In place of (albeit sometimes terrifying) predictability, the world became very unpredictable. In place of a single overriding threat that could be used as a benchmark for measuring everything else, a number of possible threats arose, some of them potentially very dangerous if not, ultimately, in a league with the Soviet threat. In place of the threat of force-on-force engagements with a strong foe, there were now “asymmetric” threats from potential U.S. foes much weaker than the United States. Such foes would not be foolish enough to take America on directly (as Saddam Hussein did), instead pursuing the ancient art of strategy long obscured by a bipolar U.S.-Soviet competition. They would look for U.S. vulnerabilities, ways not to defeat U.S. power but to render it irrelevant.

In one respect, defense decisionmaking has not changed. From hot war to cold, to a time of terrorism, the U.S. Department of Defense (DoD) has remained one of the world’s largest and most complex organizations. It employs upward of 2.4 million people (military and civilian) and contracts for the direct services of another 400,000. It runs a budget of \$400 billion and an accumulated capital stock (real property and equipment) of more than \$4 trillion. Managing an organization of this magnitude is a daunting job. Decisions affect multibillion-dollar programs, tens of thousands of people, and, most important, the security of the nation itself.

FROM OLD CHALLENGES TO NEW

During the long Cold War, from the 1950s into the 1980s, RAND, often working with other analytic organizations, played a key role in developing techniques to inform decisionmaking and guide the development of national strategy. Notable RAND contributions to techniques for defense decisionmaking include

- The marrying of blast physics, ballistics, and guidance technology to determine “how much is enough” to hold the Soviet economy and population at risk so as to deter the Soviets from launching a nuclear first strike.
- The application of game theory to determine the appropriate size and configuration of U.S. strategic nuclear forces.

- The application of “armored division equivalents” to clarify the strengths and weaknesses of NATO strategy to defend Western Europe.
- The development of the strategy-to-task methodology to provide a framework for weapon systems evaluation.

These and other techniques were disseminated widely and gained broad acceptance within the defense analysis community. They provided a common framework in which debates over budget allocations, investment strategy, and doctrine development could take place. Although far from perfect in predicting future requirements, these techniques, when broadly shared, managed to carry the debate beyond “strongly held opinion.” Positions now had to withstand the test of objective, systematic, and (where possible) quantitative analysis.

The practice of using analytic techniques to illuminate the options available and to provide a framework for such far-reaching decisions began in earnest with Robert McNamara, who served as U.S. secretary of defense from 1961 to 1967 under Presidents John Kennedy and Lyndon Johnson. McNamara brought together a cadre of analysts, led by several RAND researchers, to establish the Office of Systems Analysis as the focal point for changing the basis of DoD decisionmaking from “strongly held views” to objective, thorough analysis. This office had, as all new institutions do, its ups and downs, its supporters and detractors. But as it began to influence important decisions—affecting, for example, the number of U.S. intercontinental ballistic missiles (ICBMs) or the size and disposition of U.S. forces committed to the North Atlantic Treaty Organization (NATO)—the value of an analytic basis for debating decisions became clear. Before long, the Air Force and then other military services and the joint chiefs of staff (JCS) established their own enhanced analytic capability.

In the 1980s, as attention turned to serious arms control negotiations, analytic techniques were adapted to provide a strategic framework for U.S. negotiators in, successively, the Strategic Arms Limitations Talks (SALT) and Strategic Arms Reduction Treaty (START) negotiations over strategic nuclear forces. Similarly, when the United States and the Soviet Union, along with their respective allies, began

to discuss in earnest the size of conventional forces in Europe, U.S. negotiators were well informed about which Warsaw Pact forces posed the greatest threat and which NATO forces were most critical to maintaining a stalwart defense of NATO territory. The resulting treaties strengthened the U.S. position and enhanced strategic and conventional stability. Indeed, the START II and Conventional Forces in Europe (CFE) treaties remain, even today, important tools in U.S. national security policy.

These analytic techniques were developed for the specified Cold War requirement: face a large military capable of challenging the United States across the globe and throughout the escalation ladder—from local conflicts involving proxy forces to a strategic nuclear exchange. In this context, the techniques led to measures of military effectiveness (such as armored division equivalents), simulations of large conventional force-on-force engagements, probabilities of killing a missile silo, and simulations of a nuclear exchange.

After Moscow abandoned superpower competition with the United States and the Cold War ended, the requirement that dominated U.S. defense planning changed: to prevail in two nearly simultaneous major theater wars (MTWs). Planning documents typically cited aggression by Iraq or North Korea against its neighbors, attacks that have been the subject of considerable analysis, modeling and simulation, intelligence research, and war gaming. Because such operations would entail large formations of classical military forces, analyses of them have drawn heavily on techniques developed during the Cold War. But even this application of Cold War analytic techniques is losing its utility. Iraq's armed forces suffered from obsolescence as a decade of economic sanctions and lack of access to modern military equipment took its toll. The armed forces of North Korea fared even worse.

As it is, the global security environment is profoundly changed. Preoccupation with the daunting though well-ordered Cold War threat has been replaced by the far different set of challenges cited by recent defense secretaries, challenges driven home by the tragedy of September 11:

- Countering terrorism
- Countering the spread of weapons of mass destruction (WMD)

- Peace enforcement
- Crisis response
- Enforcement of economic and military sanctions
- Combating narcotics trafficking

The task of meeting these challenges is critical to maintaining the economic prosperity and free exercise of democratic governance valued by the United States and its allies. This task is not advanced by naïvely applying analytic and planning techniques developed and refined in the Cold War and appropriate to dealing only with large-scale, cross-border aggression. Planners require different tools. To be sure, even conventional adversaries can inflict serious damage on U.S. and allied forces and interests, but adversaries are likely to turn to other means of challenging us—employing WMD or terrorism. This poses a dilemma for decisionmakers: the analytic tools at their disposal credibly address a problem of declining probability, even as they do little to illuminate the challenges U.S. forces are increasingly being called on to respond to.

During the dozen years since the dissolution of the Soviet Union, the research staff at RAND has worked intensively to adapt traditional defense analysis techniques to today's security environment and to develop new techniques as necessary. These techniques address today's key questions:

- How can the United States set requirements in the face of an uncertain future?
- How can the nation plan for flexibility and program it into our forces?
- How might rapid advances in commercial technologies help the armed forces?
- How has the profile of skills needed by the armed forces changed? And what needs to be done to recruit, train, and retain the required cadre of skilled personnel?

Taken together, the chapters in this volume provide a new portfolio of tools to frame decisions, to solve problems, and to analyze alternatives.

HOW THIS VOLUME IS ORGANIZED

This book comprises thirteen chapters organized into three parts:

- I. New Challenges for Defense
- II. Coping with Uncertainty
- III. New Tools for Defense Decisionmaking

Part I begins with a chapter describing the questions that any nation must answer about its defense—how much, what, and how?—and provides an overview of the structures, especially inside the Pentagon, that the United States has developed to answer them. Chapter Two assesses the challenge of chemical and biological weapons as one class of “asymmetric” strategies a U.S. adversary might employ. The logic of that approach translates to terrorism, in many respects the ultimate asymmetric strategy of the weak against the strong. The subject of the third chapter is the “information architecture” needed for U.S. defense. The rise of the information age coincided with, indeed probably hastened, the collapse of the Soviet Union, and the United States now confronts the challenge of how to structure itself to best take advantage of the continuing revolution in information technology.

Part II of this book takes up the driving challenge of uncertainty. The first chapter is based on the premise that while the future is unknowable, it is not a complete mystery. Broad trends are discernible, one being the continuous improvement in information technology, which suggests that future warfare will be information based, with huge amounts of information from various sensors integrated to build a picture of the battlespace. The second chapter here describes “uncertainty-sensitive planning.” Cold War planning may have been based on threats, but the future cannot be, for there is simply too much uncertainty, too many diverse threats. Planning needs to aim at building a portfolio of capabilities designed not just to confront future threats but also to hedge against them and to shape the environment so they do not develop.

The next two chapters in Part II are on planning the human resources for tomorrow’s defense. RAND research was the analytic basis for the U.S. shift from conscription to an all-volunteer force in the 1970s and has contributed to the great success that force has

been. These chapters outline visions of the future soldier, specify the factors critical to attracting and retaining the talent needed for a volunteer force, and describe a planning mechanism for shaping the force. The final chapter looks at the challenge of adopting best commercial practices from the business world into the apparently similar but actually quite different world of defense planning and management.

Part III begins with a chapter on exploratory modeling, a tool growing out of new techniques in modeling and the computer power that now exists. The technique fits well with capabilities-based planning in that it permits analysts to move far beyond a few canonical scenarios to examine a wide array of variables, looking for key uncertainties and key drivers across a wide range of possibilities. The second chapter in Part III is a more concrete illustration of how exploratory modeling can be employed. The third chapter chronicles the long effort to assess how much information systems contribute to effectiveness in conducting military missions—a quest, needless to say, that has been reshaped by the Cold War’s demise and the diversity of future missions.

The penultimate chapter’s subject is the “Day After” gaming technique that RAND developed to examine strategic issues. Essentially, this technique entails playing out a scenario and then working backward to see how better decisions at an earlier stage might have improved the outcome by mitigating threats or providing more options. The chapter explains and illustrates the technique. The final chapter then describes another tool, electronic meeting systems, and elaborates with an example of its use—the U.S. Navy preparing for the 1997 Quadrennial Defense Review—that led to interesting, perhaps unconventional results.

An Afterword concludes the book. It suggests some of the implications of the current war on terrorism and homeland security for the challenges that lie ahead. These challenges will require RAND and its fellow organizations to reshape, once again, analytic approaches that improve defense and the national security decisionmaking.