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**PART II. COPING WITH UNCERTAINTY**

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## INTRODUCTION TO PART II

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Defense planning involves a host of factors that interact with each other over a time period often measured in decades. The first M-1 tanks and the first F-16 aircraft entered the force more than 20 years ago, and most of the Navy's capital ships stay in the force for 30 years or more. The longer the time horizon, the harder it is to know the parameters of a decision with any precision. At any point, there are "knowns"—things people know they know; "known unknowns"—things people know they do not know; and "unknown unknowns"—things people do not know they do not know. The deeper the reach into the future, the more the unknown unknowns dominate.

Like all humans, defense planners exercise what is called "bounded rationality."<sup>1</sup> In other words, they lack complete knowledge and anticipation of the consequences of their choices and can think through only a few alternative courses of action on their own. They cannot anticipate future consequences without actively using their imagination, and the imagination of any individual is limited. Faced with complexity and uncertainty, individual planners risk becoming comfortable with familiar mind-sets or illusions. Group decision-making, in turn, risks producing "safe" decisions as members march down the path of "groupthink" to shore up their positions.

No one denies that uncertainty is important and that planners should deal with it as best they can, but the full extent of the problem of uncertainty is not often appreciated—even by planners themselves. Like most of us, planners seldom go back to compare as-

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<sup>1</sup>A term associated most notably with Nobel-prizewinning economist Herbert Simon.

sumptions they made years ago with what actually happened. Instead, they just go on, vaguely aware of having adapted to circumstances but not at all aware of the extent of their adaptation. Large organizations may be even less aware of adaptations that have proven necessary and even less humble when laying plans for the future. This failure to look uncertainty in the face is perhaps less evident now because of the shock September 11's events brought to U.S. foreign policy and defense planning. Everyone is well aware of uncertainty at this point. In the longer run, however, the tendency to sweep it under the rug will reappear. It is, after all, a natural human tendency.

Moreover, rarely will any one defense planner or decisionmaker possess all the kinds of knowledge and experience needed to face uncertainty and still make good choices. The quest for good decisions thus drives planners and decisionmakers to find tools that can help them cope with the many conditions of uncertainty.<sup>2</sup> Fortunately, there are techniques that can help test the robustness of the knowns, put some bounds on the known unknowns, and discover and even illuminate the unknown unknowns.

The first chapter in Part II, Martin Libicki's "Incorporating Information Technology in Defense Planning," starts with the premise that while the future is not knowable, neither is it a complete mystery; a few educated guesses about the future can go a long way to help planners. Even though many decisions, such as those about force levels, can be reversed in the short term, the future matters precisely because of the long shadows cast by decisions about weaponry or research and development (R&D) or precedents that might be set by policy. One good starting point for the analysis is broad trends that *are* discernible, such as demographics and the continuous improvement in information technology. Libicki works through what this trend in technology means for future conventional combat and information warfare. Improvements in information technology, for instance, suggest that high-intensity conventional warfare could entail

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<sup>2</sup>For more detail, see Aaron Wildavsky, "The Self-Evaluating Organization," *Public Administration Review*, No. 32, September/October, 1972, pp. 295–365. Also see Paul R. Kleindorfer, Howard C. Kunreuther, and Paul J.H. Schoemaker, *Decision Sciences: An Integrative Perspective*, especially Chapter Six, "Group Decision Making," Cambridge University Press, New York, 1993.

feeding copious amounts of sensor-derived information to a common picture, which, in turn, would be used to determine what to shoot at. Moreover, increasing dependence on information technology does not necessarily make information warfare more attractive for an adversary. Indeed, the very multiplication of information sources makes users less vulnerable to attacks on any one source.

Chapter Five, “Uncertainty-Sensitive Planning,” by Paul Davis, begins with a method first developed a decade ago for going well beyond conventional wisdom in contemplating the future. It identifies not only a “no-surprises future,” but also various types of possible uncertainties, and then develops plans to cover some contingencies explicitly and to hedge against others. The method also emphasizes environment shaping, based on the argument that the future can be shaped to some degree by U.S. actions. Davis combines this idea with the handling of multiple objectives to define a portfolio-management framework for high-level defense planning. He then applies this framework to the problem of developing capabilities for a wide range of political-military scenarios and operational circumstances.

The post-Cold War focus on one or two illustrative planning scenarios for defense decisionmaking is no longer consistent with today’s goals of flexibility, adaptiveness, and robustness. Moving toward such goals requires that alternative force postures be evaluated in an explicit “scenario-space framework” wherein their value can be measured by the variety of circumstances in which they would be effective. This approach to capabilities-based planning is sharpened by the discipline of working within a budget. It thus forces choice. The last part of the chapter describes an analytic framework for combining the portfolio-management construct of overall defense planning with the results of capabilities-based analysis and economics.

In Chapter Six, “Planning the Future Military Workforce,” Harry Thie addresses manpower, personnel, and training issues. How are personnel managed—directly, through assignments, or indirectly, through incentives (such as compensation)? How are skills to be transmitted and behaviors to be inculcated? How large a force should be raised? What should its grade, skill, and experience composition be? What are the best ways to procure, enter, train, develop, assign, advance, compensate, and remove people? The key manpower issues

have shifted with America's changing security circumstances. As America entered World War II, the issue was how to procure a large force immediately. During the Cold War, it was how to manage a large inventory of people with military experience. External events, societal concerns, missions, organization, technology, budget, and demographics, in turn, shape particular subissues: recruiting, training, retaining, promoting, compensating, and retiring. Against this background, Thie inquires about the personnel and training policies that might best achieve a force that is big enough, qualified, stable, experienced, and motivated. Some policy choices can be applied servicewide; others apply to military units or to individuals. The chapter illustrates how both controllable and uncontrollable variables give rise to complexity and conflicts among competing objectives, as well as to potentially unwanted outcomes.

In Chapter Seven, James Hosek describes how during the past 30 years, the experience of an all-volunteer force has led to a remarkable accumulation of knowledge about the importance of personnel quality for military capability, and about the policies for getting, keeping, and managing such a force—what Hosek calls “the soldier of the 21st century.” The U.S. military has been at the forefront in recognizing the value of human capital, and RAND has systematically explored alternative policies for efficiently managing human resources. In the future, the value of people and of the knowledge and skills they possess will become even greater. The story of the 21st century soldier is thus not only about understanding why high-quality personnel are vital to the U.S. defense capability and what can be learned from the history of the volunteer force, but also about what considerations are key in the seemingly mundane, yet fundamentally crucial, task of setting personnel management and compensation policies.

The last chapter here is Frank Camm's “Adapting Best Commercial Practices for Defense.” Best commercial practices are those that lead to better, faster, and cheaper products in the companies where they exist. DoD can turn to these practices in determining requirements, designing processes, selecting and making use of external sources, and managing ongoing performance. But to identify those practices with potential for DoD use, DoD personnel must systematically compare the department's performance with that of exemplar organizations of all kinds. As DoD thinks about adapting a specific prac-

tice, it must remember that the differences between the commercial setting where the practice was observed and the DoD setting where the practice may be used are crucial. Differences in organizational culture, priorities of stakeholders, and the structure of major management systems affect outcomes. Once DoD understands these differences, it can examine the barriers they present and adapt the practice to overcome them for the DoD setting. DoD should then approach the adaptation of a best commercial practice as a variation on organizational change, addressing all issues likely to arise when any new practice enters an organization. From this perspective, DoD will find that *how* it pursues a best commercial practice is often more important to success than *which* practice it pursues.