CHAPTER 24

Cyberpower from the Presidential Perspective

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THIS CHAPTER makes two fundamental points. First, cyberpower is an attribute not just of military strength, but of the strength and vitality of our society as a whole. An approach to national policy that dealt with cyberpower mainly as an element in the struggle for physical safety and survival would completely miss the point that the dynamism of our economy is also a manifestation of cyberpower. It would also neglect the extent to which the cyber age is influencing how we live, how we view the world, and what kind of people we are. The White House—and ultimately the mind and the office of the President—are where that kind of panoramic view must exist.

The second point is that cyberpower is an example of a new order of "wicked" public issues that reflect the axioms and postulates of complexity theory.[1] Such issues involve ceaseless interaction of systems within systems, the constant possibility of surprise, and the primacy of the law of unintended consequences. The design and management of policy for this class of issues is a new type of challenge for American governance and in particular for the President.

The experts who wrote this book have aimed to present cyberpower from the many perspectives offered by their specializations. My knowledge of this subject is general and derivative, but my experience as national security advisor to Vice President Al Gore allows me to speak with some authority about how cyberpower presents itself to national leaders. And since the ultimate objective of all those who have contributed to this book is sound national policy, that gives me an opportunity to add value to the discussion.

Cyber Society and Cyberpower

Cybernetics is the study and creation of machines that regulate themselves. Initially, this was accomplished by means of feedback through internal mechanical linkages, but now it is done by means of computer-mediated data that is sometimes generated by on-board systems but increasingly by globally networked systems. Cybernetic control makes possible electronic and mechanical devices that operate at speeds exceeding human capacity by orders of magnitude, rapidly narrowing the gap between machine and human intelligence. Cybernetics is the means by which every layer of our civilization is able to regulate itself and synchronize its relations with all other layers. States that make the most intense use of cybernetics for military or civilian applications have important competitive advantages over their peers, but they are also profoundly vulnerable to failures of these systems, whether caused by flaws of design or by malice.

Classical economics identified three basic sources of national power: land, labor, and capital. In our time, the list has been expanded to include information, which in many ways trumps the other categories. We have already become a cyber society, wherein cybernetic technology is the key driver of progress, expanding collective and individual wealth, but may also be its Achilles' heel. In the final years of the 20th century, the Y2K scare alerted us to the extent of our dependence on the performance of networked cybernetic systems. That dependency continues to grow as cyber systems become ubiquitous and indispensable in every aspect of our daily lives as individuals and as a society.

People are increasingly living within the cyber world and developing a cyber culture. Our

civilization's vital processes would be unstable and inoperable without the intervention of cybernetic systems. At the leading edge of this process in our social lives, systems for human socialization that are exclusively based in cyberspace are being developed. Virtual reality begins to compete with reality as we have known it, evident in the burgeoning growth of phenomena ranging from e-commerce to social networking sites. To remain at the forefront of the cyber age requires an unprecedented readiness not just to embrace but to promote deep, societal change.

Cyberpower arises from the ability of individual nations to develop, apply, and benefit from cybernetics, in the form of increasingly sophisticated economic, social, political, and military behavior. Any nation that fell behind in the capacity to develop cyberpower would cede enormous competitive advantage to its rivals, and any nation or entity that could deny the use of cyberpower to others, or to force others to pay monopoly rates for its use, could occupy a position of dominance.

Policymaking for Complex Priorities

Cyberpower thus reflects the sum of our ability to make use of information of all kinds. It cannot be understood as a fixed condition but rather as the ongoing consequence of an interplay of forces at the scientific, economic, and cultural levels of society. Thus, any governmental organization that aims to create and manage policy for complex priorities of this type must be able to deal with the whole of the system, not just its parts. This supposition points straight to the need for a national policy orchestrated from the White House—which, in turn, points to the need for innovations in the policy process itself. The creation and management of national policy require investments of scarce intellectual, political, and, ultimately, material resources. From the White House perspective, there are many claimants for this kind of investment, and they are often in competition with each other. The odds of survival are steep in part because of the structure and mindset of the White House itself: in an age of specialists, the White House is a redoubt of generalists. In a policy field such as cyberpower, there will a short supply of policymakers who have the requisite blend of technical and political acuity.

Although specialized scientific and technical knowledge is on call within the White House, it generally is not part of the personal background of the highest tier of officials. There is, to be sure, the Office of the Science Advisor to the President, but it has only nominal equivalence to other senior positions, and its domain is normally restricted, with the management of the societal consequences of science and technology left to others. They, however, are already struggling to keep pace with identified priorities relating to problems of every imaginable kind, and often enough with challenges that were unimaginable before they thrust themselves forward in the form of a crisis.

The White House Principals' and Deputies' Committees are critical for the integration of issues and policies at the national level. However, these bodies are struggling to deal with multiple, concurrent, and interacting issues of major consequence. Each of these bodies comprises only as many people as can be seated comfortably around a conference table of modest size, and all of these individuals carry an extraordinary burden of executive responsibility in their respective agencies. Out of necessity, this system will give priority to what is important and imminent at the expense of what is important but long-range. There is a partial exception to this rule in the first year of most administrations, when it is customary to do a kind of "open-season" review of existing policy. Even during that short period, however, priority will usually be assigned to situations that are imminent, if not already ongoing. There

is also a bias in favor of attending to situations involving the threat of conspicuous loss, rather than to situations involving the prospect of longer term gain.

National policymaking tends to suffer from not only myopia but also tunnel vision.[2] It is unable to recognize interactions among subjects, especially once these have been assigned to or claimed by specific constituencies in the bureaucracy. In theory, the interagency system is an answer to this problem, but too often, it functions as a kind of appellate process within which executive agencies litigate their interests at successively higher levels, using tactics that are collectively zero-sum rather than win-win. This tendency works against comprehensive vision in the formation and execution of policy. It is reinforced by the symbiosis between executive branch agencies and the Congress, with its own multiple, overlapping committee jurisdictions.

In the White House, like the general bureaucracy, organizational firewalls separate what are thought to be substantively distinct domains of policy: economics from defense, for example, or domestic policy from international. There are both formal and informal systems designed to alleviate the resulting shortcomings, but they are relatively ineffective because they are ad hoc rather than systemic.

In particular, the White House has not yet recognized, and therefore has not responded to, a fundamental change that is occurring in the very nature of the challenges it faces. The issues that the White House handles are no longer merely complicated; it must now deal with issues and priorities that are complex. Merely complicated problems may be disentangled and successfully resolved by linear processes; models of these problems can be formed and used with some degree of confidence. In these models, changes of input produce proportionate changes of output; operations may be executed sequentially according to a program; issues, properly handled, will tend toward equilibrium solutions.

Complex problems, on the other hand, are not linear. Minor changes of input can produce drastic levels of surprise. Solutions generate new problems. Policies interact with each other across conventionally accepted firebreaks. Events occur spontaneously and can overwhelm sequential operations.

These are the problems we call *wicked*, meaning that they have "incomplete, contradictory, and changing requirements." Moreover, their "solutions are often difficult to recognize as such because of complex inter-dependencies."[3]

Wickedness in the White House

The White House is where wicked issues come to roost, but it is no better organized than the rest of the executive branch for dealing with wicked problems. It lacks systems for long-range assessment of issues at the stage of early visibility. It does not have mechanisms to grapple with issues that involve dissimilar yet interactive components, especially where these cut across customary organizational boundaries. It lacks systems to identify and track interactions. It is, therefore, at a disadvantage when trying to establish a sense of the shape and momentum of complex issues. Neither does the White House have the means to track the consequences of policy decisions as these are interpreted and set into motion by the bureaucracy. It is particularly ill suited for problems that lack definitive solutions but are instead both permanent and always changing.

The first impulse may be to focus responsibility for such issues in yet another "czar" at the White House level. Paradoxically, however, wicked issues will require White House arrangements that disperse authority rather than concentrating it. Wicked issues do not lend themselves to

centralized management. What they require, rather, is broad strategic guidance—what the military calls "commanders' intent"—applied to a flattened network of stakeholding organizations designed to permit rapid adaptation to circumstances, with the capacity to learn from error before it becomes calamity and to exploit opportunity while it is there for the taking. Upgrading the capability of government to handle wickedness depends on innovative use of principles of networked organization, which we have already seen applied in the private sector and in the uniformed military. It is the civilian sector of government that lags behind in recognizing the need for deep change.

In the first chapter of this book, Franklin Kramer called for the establishment of a "Cyber Policy Council along the lines of the Council of Economic Advisors," to "integrate or at least coordinate and review key issues."[4] This would be a very important institutional means by which a President—and the government as a whole—could attain full situational awareness concerning the scope and importance of cyberpower as a factor in the continued growth and security of the United States.

As Kramer points out, however, this proposal represents only a tentative first step toward a form of organization within the White House that could do justice to the subject. Cyberpower, as a wicked issue, has complex causes and effects that will exceed the capacity of a single advisory body. The management of this class of challenge requires a fully networked framework for the development and execution of many policies, which would be dealt with as systems operating within larger systems; the most extensive system involves the economic well-being and the physical security of the United States.

To meet this kind of challenge, there are calls for a broad reorganization of the national security function in government, picking up where the Goldwater- Nichols Department of Defense Reorganization Act of 1986 left off and extending well beyond the concept of security as synonym for defense. It is a daunting proposition that could take years to bring to fruition. Meanwhile, the speed and force of wicked problems represent a growing threat to the capacity of governance to respond with the requisite agility and effectiveness. Here again, therefore, the focus shifts to the President, who can jump-start this process at the top by instituting networked processes within the White House itself.

I have addressed this question by suggesting that a President can establish in the White House "a networked, small, flexible, task-oriented managerial 'supra- structure' designed to be retrofitted to the existing system."[5] I recommended that a President could use the existing advisory and management system of the White House for this purpose and could employ the Cabinet itself in different configurations to provide overall executive management of complex policy from the top.

Addressing this question in detail, my students coined the very useful term "complex priorities" to suggest the possibility of organizing to encircle and embrace wicked issues.[6] They proposed the establishment of specific White House machinery for this purpose, to operate at the principals' and deputies' levels as complements to the existing system. They point out that:

> [d]ue to the increasing pace and impact of technological change, we have entered a time of unprecedented uncertainty and possibility. These changes have significantly expanded the range of issues and trends with the potential to impact the very core of our nation, and have necessitated that we move beyond the traditional understanding of national security as a function of national defense. To serve and protect U.S. interests going

forward the federal government must become more adaptive and flexible, and better capable of anticipating and responding to complex and inter-related realities. The Executive Branch must take the lead in transforming the U.S. government to meet the challenges—and exploit the opportunities—of the 21st century.

It is to that end that I have offered the recommendations of this chapter.

Conclusion

Cyberpower cannot be appreciated as an aggregate of its properties. It transcends its components to become a thing in itself, demanding conceptualization as a whole. Such a conceptualization must be captured in the form of a broad, formal statement of national policy. That national policy should be centered on the promotion and rapid incorporation of cyber culture, defined as the total capacity of the United States to develop and exploit cyber technology. National defense is a component of this challenge, but so too are the economic and societal dimensions. It will be necessary to have a policy and management system dedicated to cyberpower, but it must also be fully integrated into all other systems that exist for the purpose of sustaining the power of the United States and the wellbeing of its citizens. The management system needed for cyberpower must demonstrate what is called *requisite complexity*, or it will fail. In short, cyberpower is a wicked problem and should be handled as a complex priority.

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[1] "Wicked problem," *Wikipedia*, available at <http://en.wikipedia.org/wiki/Wicked_problem>.
[2] See Leon Fuerth, "Strategic Myopia: The Case for Forward Engagement," *The National Interest*, no. 83 (Spring 2006), 58–63.
[3] "Wicked problem."
[4] See chapter 1 in this volume, "Cyberpower and National Security: Policy Recommendations for a Strategic Framework."
[5] Fuerth, 58–63.
[6] "Management and Decision-Making in an Age of Complexity," accessed at <www.forwardengagement.org>.