Transforming Military Forces

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The next president and his secretary of defense will want a short list of priority defense objectives. One item for that list will likely be "getting on with" the process of transforming U.S. forces for the needs of emerging military challenges. The principal defense legacy of most administrations is the set of capabilities available to future presidents and combatant commanders a number of years later. New capabilities do not come about naturally or overnight. Instead, they are the result of sustained and determined efforts—often undertaken against resistance, long before an immediate need is widely recognized. Historical examples include the development of aircraft carriers in the 1920s and 1930s, at a time when battleships reigned supreme, and the development in the early 1980s of the Rapid Deployment Joint Task Force, which became the U.S. Central Forces Command (CENTCOM) that was pivotal in the 1991 Gulf War. This essay is about transformation needs of the current era and strategies for bringing about the needed changes.

The new president and defense secretary will discover an abundance of ideas and technological potentials. They will find that good ground-laying—such as the creation of U.S. Joint Forces Command—has been accomplished organizationally and in broad guidance documents. However, they will also discover a shortage of coherent, hard-nosed, output-oriented management actions with near- to mid-term effects, and they will find many disconnects between ideas mentioned in briefings and changes actually taking place. As a result, they will have a remarkable opportunity to help make changes become real. They will have key military and civilian allies, but they will also face many obstacles. To succeed, they will need to reshape Department of Defense processes so as to encourage and demand transformation—starting now rather than "eventually."

Background

Why Transformation Is Needed

Military transformation is not an end in itself, but rather something needed for reasons of both opportunity and necessity. Figure 1 provides a useful framework

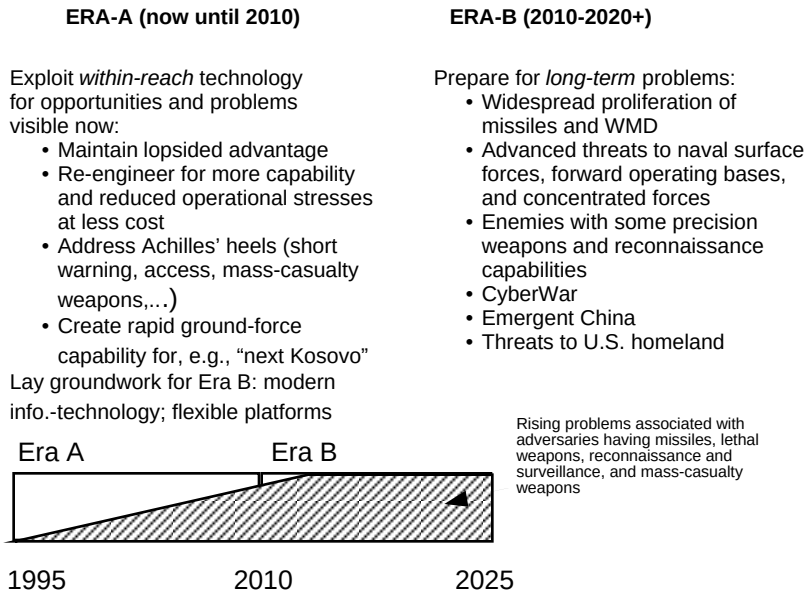

Figure 1—A Two-Era Framework for Discussing Change

for discussing these matters. It distinguishes between Era A (roughly until 2010) and Era B (after 2010).

Era A

Era A—an extended version of "near to mid term"—is largely an era of opportunity, but with certain classes of problems developing (the shaded portion of the figure). Within Era A, transformation should mean exploiting within-reach technology for several purposes: to maintain U.S. overmatching of opponents; to reengineer U.S. forces to achieve more capabilities and reduced operational stresses at a lower cost; and to deal with problems that might be called Achilles' heels because they involve second-rate but dangerous adversaries exploiting obvious U.S. weaknesses. Currently, the United States has difficulty responding to short-warning attacks, has delayed access to regional ports and airfields, is vulnerable to the use of mass-casualty weapons and missiles, and has difficulty undertaking urban operations. Such problems may be less imminent than they seemed even a year or so ago, but it is predictable—not just plausible—that this situation will change quickly at some point in the years to come. By Era B they may be widespread. Evident already is the current U.S. inability to deal quickly and effectively with actions of dispersed forces in complex environments. Had the United States had the capability and willingness to employ a joint task force

with appropriate ground-force capability within two to seven days of a decision, NATO would probably have been able to stop the ethnic cleansing in Kosovo quickly. But U.S. forces had no such capability. Developing a suitable joint strike force is a clear Era-A issue; studies indicate that it need not wait for next-decade technologies.

An even more certain near- and mid-term problem is economic. U.S. military commitments are even greater now than they were in the Cold War, and U.S. forces and personnel are stretched severely. However, even in the event of an increased defense budget, the Department of Defense will not be able to afford one-for-one replacement of current systems and personnel. The reasons are several. First, the program has been chronically underfunded and the bow-wave of block obsolescence is approaching for many systems. A recent report by the Congressional Budget Office (CBO) indicates that the level of underfunding is substantially higher than had previously been discussed. To make things worse, there are new claimants for any extra defense dollars, including higher salaries for personnel because of the need to compete better with private-sector opportunities; considerable expenditures to redress readiness problems, which have evolved over some years owing to the high tempo of operations; theater and perhaps national missile defense; the likelihood that at least some of the systems that continue to be given life extensions will be found to have serious flaws requiring replacement; and the increased environmental costs of doing business. Moreover, there are powerful pressures to channel such extra dollars as may materialize to various congressional regions for reasons other than high-priority investment.

In this context, Era A's opportunity for reengineering U.S. forces is immense. Again, reengineering is possible with concepts and systems that are already available or within reach. If accomplished, it will make U.S. forces substantially more effective than they are now, and—for some missions—it will do so with smaller units, fewer platforms, and a modern, flexible, support structure. That, in turn, will lead to reduced operational stresses. This is not a pie-in-the-sky prediction. To the contrary, it is clear from experience in the civilian world what such reengineering can accomplish.

Finally, Era A's reengineering is also essential for laying the groundwork for Era B. The essence of Era-A work should be the exploitation of information technology in all of its manifestations—including, particularly, rapidly adaptive command and control—and the procurement of new platforms with the flexibility to accommodate frequent changes of weapons, avionics, and operational doctrines. Platforms can last decades; systems no longer do.

Caveats on the Opportunity Theme. This said, there are distinct limits seldom mentioned by technology enthusiasts or cost cutters. In particular, many missions, such as combat or even peacekeeping in urbanized areas or forested areas, will continue to be very manpower-intensive: technology can help, but only on the margin. Moreover, while concentrated operations such as air strikes on high-value targets can be accomplished with dramatically fewer systems than was previously the case, sustained operations against a responsive and difficult enemy continue to demand sheer numbers. This was evident in Kosovo; it has also been apparent in long-term efforts to enforce quarantine zones.

It follows that transformation of U.S. forces presents great opportunities, but they should not be exaggerated or used to rationalize mindless cuts in force structure. The subtlety is that changes in force structure are badly needed, and in some cases smaller units will be able to accomplish more than current-day larger ones. But the number of major building-block formations needs to be as great as or greater than today's because the demands on U.S. forces are so great. And, for some purposes, there is still no substitute for large quantities of people and equipment.

Era B

In the short run, then, the case for transformation is largely about opportunity and coping with known problems. In the longer run of Era B, however, U.S. adversaries will also use aspects of the new technology. After all, much of the high-leverage technology—such as precision navigation, precision weapons, and internet-like communications—is available today commercially. Because very few nations have been investing heavily in armaments in recent years, this reality has not gotten much attention. Nonetheless, persuasive studies of the type that have been prescient in the past strongly suggest that the United States will in the future face major problems from even moderately competent adversaries—unless U.S. forces preemptively adapt to the new military realities.

This need not seem abstract. It comes down to facts such as the extreme vulnerability of fixed targets and concentrations of forces or logistics. Just as machine guns forced changes in military organization and doctrine, so also are changes now mandated by the emergence of inexpensive, accurate missiles with area munitions, including weapons of mass destruction (WMD)] and inexpensive mechanisms for surveillance and communications. The era of massed armies in assembly areas, massed air forces on a few airfields, and massed ships is coming to an end—at least for the early phases of conflict. It is already at an end for

anyone confronting U.S. forces, but the mechanisms are available to others as well.

A sobering observation here is that U.S. power-projection forces will not be able to deploy massively into one or two ports and airfields, build up an enormous and concentrated logistics base, and then conduct deliberate massed operations as in Operation Desert Storm—much less hide the famous "left hook." To the contrary, any such concentrations near to the front will probably be quite vulnerable to attack. As a result, even U.S. ground forces must plan on dispersed operations with greatly reduced logistical footprints, and they must plan to defend themselves from missiles with area munitions and even WMD. Although some observers claim that such weapons can be dealt with because the active agents evaporate and protective suits can be worn, optimism seems imprudent—especially with regard to newer biological weapons and in light of U.S. casualty aversion. Even third-rate powers or terrorist groups could seriously damage concentrations of U.S. forces. Ground forces, then, will sometimes have to operate from distant staging bases and be superb at rapid concentration and subsequent dispersion. U.S. tactical air forces will sometimes need to operate from more distant and less developed regional air bases or aircraft carriers. The United States will likely need new long-range, stealthy, loitering bombers and new classes of unmanned aircraft for reconnaissance, surveillance, and weapon delivery. Satellites will also be needed for some of these functions.

In the longer run, it is not clear how the measure–countermeasure race will play out. Aircraft and ships will become stealthier, but remotely piloted aircraft and space-based surveillance will improve, as will missiles to attack those aircraft and ships. Surface ships may have difficulties. Active defenses will improve, but they will be subject to countermeasures and rather easily saturated. New forms of active defenses, such as beam weapons, will perhaps be less prone to saturation, but they will have their own shortcomings. The war in cyberspace will likely be increasingly important. And so on, with no end in sight.

Implications: Change is Required

With this combination of near-term opportunity and daunting longer-term challenges, there should be little question about the need for major changes. Interestingly, there is no conflict between Era-A and Era-B actions except, importantly, that the size of some Era-A platform purchases can be reduced to provide time and elbow room to refine developments for Era B as needs become clearer. The point of such reduced purchases, then, would be strategic adaptability rather than marginal dollar savings.

Relationship to the Revolution in Military Affairs

Some of these changes are often discussed in terms of the recent revolution in military affairs (RMA). There have been many RMAs over the millennia, including those associated with the crossbow, gunpowder, Napoleon's innovations, carrier aviation, blitzkrieg, and nuclear weapons. The challenges discussed above suggest that one or more RMAs are or will be occurring in the next several decades.

This said, the next administration should be cautious in relating transformation to RMAs. On the one hand, the language of revolutionary change is sometimes quite helpful: it excites imaginations, encourages "outside the box" thinking, and raises enthusiasm. However, it can also encourage hype and a certain degree of nonsense. Most important, it should be recalled that historical scientific, cultural, and even military revolutions have not been sharp events, but rather the result of multiyear periods of vigorous evolution—with many experiments, failures, and new starts. Seldom have people gotten it right initially. Moreover, overfocusing on the "revolution" can make the fuzzily imagined best become the mortal enemy of the clearly achievable better.

The second point is a serious practical matter, because some of the strongest congressional supporters of defense are suspicious and even negative about anything real enough to be given a name, program, and budget. Such systems may be declared dinosaurs, as in, "But that's just another ship, airplane, helicopter, or bomb." Other supporters, in contrast, will urge such large purchases of platforms as to leave no funds for major advancements in weapons, command and control, and new kinds of forces. Thus, the administration will need a nuanced and balanced strategy. After reviewing recent developments, this essay sketches such a two-track strategy.

Recent Moves to Transform the Force

History

The Department of Defense emphasis on transformation began -with the Quadrennial Defense Review (QDR) and Joint Vision 2010. It was further encouraged by the National Defense Panel commissioned by Congress. The department's initial treatment was essentially rhetorical, with no immediate influence on programs or budgets, but much of the groundwork has subsequently been laid for turning that rhetoric into substance. Depending on choices made early in the next administration, events of the next three to ten years may indeed prove transformative.

Creation of the U.S. Joint Forces Command

The jury is still out on transformation, but a good deal of groundwork has been laid in the last two years. Most important, what was previously U.S. Atlantic Command has been redesignated as the U.S. Joint Forces Command (USJFCOM) and has been reoriented heavily toward transformation.

USJFCOM has the roles of joint trainer, integrator, and provider. Perhaps most relevant, it has been given primary responsibility for "joint experimentation," an umbrella rubric used for many transformation-related activities. Many important details are still evolving and many issues remain, such as how much funding USJFCOM should have, and for what purposes. Even with today's responsibilities and authorities, however, the commander in chief of USJFCOM (CINC USJFCOM) has a great deal of opportunity to move the transformation effort forward. His success depends on the strong support of the chairman of the Joint Chiefs of Staff and the secretary of defense, but the first CINC USJFCOM, Adm. Harold Gehman, had that support. Admiral Gehman retired in September 2000 and was replaced by Gen. William Kernan, previously commander of the Army's XVIII Corps, which includes the 82nd airborne and 101st air mobile and air assault divisions.

USJFCOM's work on joint experimentation is now gaining momentum after a fairly lengthy period of startup during which it was ill-staffed for its new mission and deluged by *a mountainous miscellany of expressed needs,* such as the Pentagon's lists of Desired Operational Capabilities (DOCs). It has now focused its work considerably and organized accordingly. Its focus areas include theater air and missile defense; command and control; intelligence, surveillance, and reconnaissance; attack operations against critical mobile targets; and deep strike and battlefield interdiction.

The focus areas are all quintessentially joint. Moreover, they relate to relatively high-level functions. This is not accidental, because the first commander of JFCOM was careful to focus his energies on these matters, rather than define his tasks at too low a level or attack problems already being pursued by the individual services. There are many reasons to believe that the greatest leverage in increased jointness, as well as exploitation of modern technology, is in the higher-level functions of particular concern to CINCs, joint task force commanders, and their immediate subordinate commanders.

In a welcome development, USJFCOM's joint experimentation work is now organized around what amount to two large integrating concepts, which draw on work from all of the focus areas. The two integrating concepts are the need for

rapid decisive operations, which is closely related to the joint strike force concept, and attack operations against critical mobile targets. Closely associated with these are such subordinate subjects as rapidly adaptive joint command and control; assuring that commanders have a common relevant operational picture; information operations; focused logistics; forcible entry operations; and strategic deployment.

In summary, USJFCOM has been established, funded, and anointed to lead the transformation effort. This effort is now well under way and significant accomplishments may be seen over the next few years. But much depends on how the new administration decides to use USJFCOM.

The Crucial Role of the Services

Although transformation is often seen as a joint matter, and thereby tied to USJFCOM, the vast majority of changes in a successful transformation will in fact be accomplished within the separate services. The U.S. military system is built around the services, and it is in the services that one finds not only long traditions but also depth of expertise in matters ranging from research and development on systems to current doctrine and potential innovations. Moreover, the services have been vigorous in recent years. The Navy's emphasis on network-centric operations, the Air Force's moves toward becoming an expeditionary air force, the Marines' continuing experiments with new doctrinal concepts such as Desert Warrior and Urban Warrior, and, most recently, the Army's announced effort to develop medium-sized brigades with increased responsiveness and flexibility are all important activities that will be at the core of transformation—if these efforts bear fruit as intended. Although there is basis for skepticism, and although many initiatives over the years have petered out, such as the Navy's arsenal ship and the Army's strike force, guarded optimism is reasonable: Not only are there many talented, vigorous, and forward-looking people at work in the services, but the great accomplishments in private industry—driven by transformational strategies—are a constant motivator. Two things have been missing, however: an appropriate framework for requiring, developing, and acquiring future joint capabilities, and a management system in which service chiefs and the commander in chief of USJFCOM work together as a team, rather than existing in separate fiefdoms.

A Next-Phase Strategy for Transformation

U.S. difficulties in mounting and executing a successful transformation strategy are considerable. The Department of Defense lacks such "advantages," in this

context, as an imminent threat or bankruptcy, a recent debacle, or operational and budgetary slack. Wisely, the department has come to focus on a great strength that it does possess: the professionalism of its officer corps. Members of the U.S. military know well from their daily lives how dramatic the influence of modern information technology can be. Moreover, they consciously see themselves in learning organizations, and as examples of lifelong personal learning. The Department of Defense also benefits from having many change-oriented organizations to help stimulate innovation. As a result, there is no shortage of good ideas, initiatives, and motivations for change. The obstacles lie elsewhere. Despite these obstacles, transformation is quite feasible with the right leadership. As demonstrated by industry, even large and ponderous organizations can change.

Keys to Transformation Strategy

There are several keys to a successful transformation strategy, which shall be discussed in more detail below. For one thing, appropriate top-down visions must be embraced throughout the defense establishment and endorsed strongly by the president himself. Moreover, the strategy must have "teeth" in the form of more specific joint objectives and joint requirements, but with maximal room for bottom-up and distributed problem-solving. A third and fourth key are the existence of suitable organizational responsibilities and authorities and of incentive structures that reward the individual and organizational innovators. Furthermore, there must be funding for innovative research, including experiments, with an eye to both the mid- and long term, and in the midterm, there must be results in the mainstream military—both for their own sake and to assure that change processes are real and have momentum. Finally, transformation-related modifications—that is, changes in program categories, measures of effectiveness, incentives, and competition—must be made to the department's routinized planning, programming, and budgeting system (PPBS).

This effort is still a work in progress. A priority for the new secretary of defense will be to identify where his personal leadership and department oversight are necessary, where presidential clout is needed, and where what is needed is instead encouragement of more distributed and bottom-up efforts throughout the services and joint organizations. Some suggestions follow.

The Need for a Two-Track Approach

The two-era model of Figure 1 suggests a two-track approach, as suggested in Table 1. The reason is that the kind of planning, activity, and management

needed for Era-A and Era-B work are significantly different. Indeed, the efforts can even be in opposition unless carefully protected from each other.

Era-A Needs. Era-A work lends itself to "revolution by vigorous evolution" driven by well-defined and relatively tightly managed programs that can be organized around discrete "operational challenges" that are particularly important, enduring, stressful enough to demand use of new technology and a rethinking of doctrine and organization, and unequivocally output oriented. Two examples of challenges from the secretary of defense might be to develop the capability to halt an armored invasion within days, thus rendering obsolete the classic 20th-century route to conquest, and to develop the capability for rapid and decisive interventions in relatively small-scale conflicts, using only the small forces that could realistically be made available within the first two to seven days, followed by reinforcements in subsequent weeks.

Such missions or operational challenges are very useful, as illustrated by the recent emphasis by USJFCOM on rapid decisive operations and attacks on critical mobile targets.

Table 1

Differences Between Planning for Era A and Era B

Planning for Era A and the start of Era B (2000-2010)	Planning for the Longer Run in Era B (2011–2020 and beyond)
Although surprises are likely, • outcomes and outputs can be "reasonably" visualized; • operational challenges can be sharply posed and decomposed; • responsibilities can be assigned and success assessed; • valuable mid-term measures can set stage for longer term; and • mainstream organizations can and should make them work.	The nature of long-run changes is such that • fresh, outside-the-box thinking is essential; • much "discovery" is needed; • outcomes are at best dimly understood; • highly structured management is counterproductive; • major surprises and changes of technology and concept are likely; and • mainstream organizations are likely to actively oppose them.

Such operational challenges can be understood by the organization as a whole and can be used pragmatically by senior military leaders, who can decompose the challenges into subordinate requirements for building-block capabilities and the rapidly adaptive command and control to integrate those capabilities as needed (Figure 2). Responsibilities, authorities, and technical requirements can be established, and tests can be accomplished as the capabilities emerge after

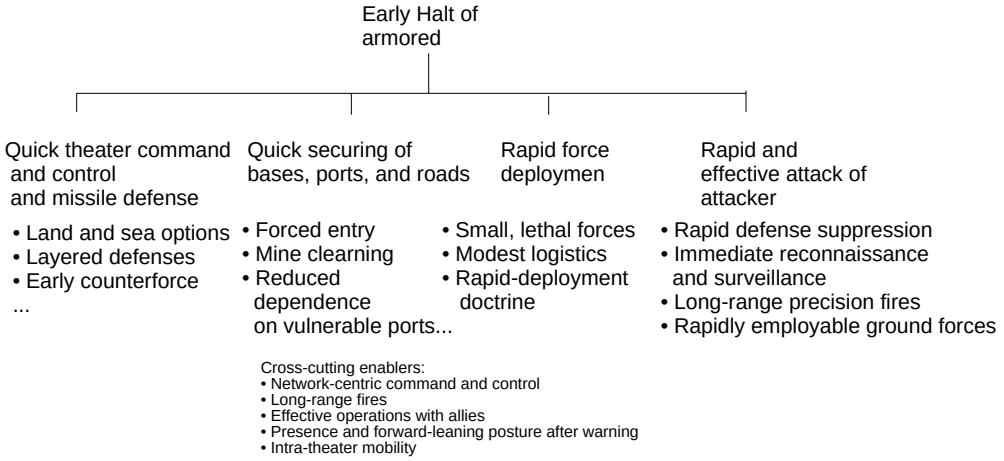

Figure 2—Decomposing an Operational Challenge to Define the Elements of System Capability

research, experiments, and iteration. Today, however, no individual is in charge of overseeing progress on the "system" capabilities for operational challenges.

Of particular importance is the fact that Era-A activities are well-suited for the enthusiasms and talents of mainstream organizations and their leaders, who consciously seek ways to "make a difference" to the nation during their relatively brief tours in senior positions. Again, the U.S. officer corps is the key to change, not the obstacle.

In connection with this, a remarkable feature of the landscape highlighted in the two-era-with-building-threat model (Figure 1) is that because the beginnings of Era B problems are already visible and troublesome in their theaters, current regional commanders in chief, such as those in the Pacific and in Europe, can be expected to support—and even demand—changes that might otherwise not occur for many years. That is, such regional commanders can be engines of change. This is historically unusual, and defense planners have often believed with some reason that such commanders were so occupied with current-day problems as to be disinterested in or opposed to changes in technology and doctrine. That is precisely the wrong view for the current challenge.

With proper organization and top-level leadership to set direction and reward doers appropriately, then, the Department of Defense can reasonably hope to have the services and joint organizations working together vigorously on Era-A developments. If this vigorous evolution-to-revolution succeeds, it will be quite a tribute to the department.

In recent years, the department has indeed identified operational challenges and exhorted innovation. However, these efforts have suffered from several problems. First, the guidance provided has been too vague to bring about organizational change. This has been partly because the guidance has been written from the strategy side of the department rather than from the force-building side, and because the force-building side has not yet gotten into the spirit of transformation. It has continued to use old-fashioned analysis methods and planning cases that are better designed for protecting programs than for serving as well conceived "forcing functions" of change. As a result, good high-level guidance has sometimes been undercut in practice by business-as-usual in large studies and program reviews.

A second problem has been that challenges by the Office of the Secretary of Defense (OSD) have sometimes come across as "this year's fad," rather than as identifying fundamental challenges to guide multiyear activities. Yet a third problem has been a vacuum of military and civilian leadership at the level where broad challenges should be translated and decomposed into operationally meaningful requirements that are the basis for developing and honing new joint capabilities. Moreover, the system has suffered from an often dysfunctional relationship between the services and the joint organizations. Service chiefs of staff need to be at the core of efforts to develop future joint capabilities, along with CINC USJFCOM, and Department of Defense leaders. Finally, responsibility and authority for transformation-related matters need to be more explicitly delegated to CINC USJFCOM, in large part to move things outside of the Pentagon, as Pentagon staffs are not noted for their ability actually to build capabilities and systems.

Preparing for Era B. As Table 1 suggests, Era-B work requires a different style of work and a different style of management and financial support. It needs to be more exploratory with multiple paths, multiple knowledge-building experiments, and more "failures" than in Era-A work. The time scale must necessarily be greater than the tours of typical military leaders or even defense secretaries. Work for Era B will require supporting and protecting certain people—so-called worriers and conceivers—perhaps in a number of "skunk works" devoted to exploration and advanced development and given unusual latitude and independence. As illustrated by the way in which carrier aviation was developed, path-breaking work must go beyond studies to include experiments and prototypes with which to discover and learn—not just to demonstrate or verify

Conventional wisdom has it that the Department of Defense invests lavishly in advanced concepts and systems and that its research and development is broad-

based and immensely rich. This is true in many respects. At the same time, it is a cause for concern that the routinization and tight management of defense planning over the last several decades has dramatically reduced the number of advanced concepts developed to the point of prototypes or other field experiments. As a result, although technology is driving drastic changes in military affairs, it is by no means clear that the United States will have the appropriate range of innovative concepts from which to choose.

One factor in a revitalization of advanced-concept work should probably be a strengthening of the OSD's Director of Research and Engineering, so as to ensure that innovations by the services are facilitated and not limited to those that are organizationally nonthreatening. Examples of subjects that deserve much more vigorous exploration than would likely occur naturally are (1) submarine alternatives to surface-ship capital groups, (2) unmanned platforms for both surveillance and weapon delivery, (3)robotic operations on the battlefield, (4) applications of nanotechnology to surveillance and reconnaissance, (5) significantly new approaches to missile defense, and (6) applications of biotechnology

All of these are under study, but the vigor of their exploration is questionable. Moreover, study is not sufficient. The history of the development and fielding of carrier aviation, among other programs, suggests that for new concepts to emerge in the force, an unusual and vigorous partnership of institutions is needed, one involving a fairly lengthy but dynamic partnership between conceivers and experimenters, operators, developers, and acquirers. This type of partnership is familiar to private-sector innovators concerned not just with technology and new ideas, but with actually bringing to market such products as will prove appropriate and attractive. U.S. Joint Forces Command has a major role to play here, but it may be that it should be partnered with technology organizations such as the Defense Advanced Research Products Agency (DARPA) and premier service-supported laboratories, study houses, and businesses.

Next Steps for the United States

The U.S. administration taking office in January 2001 will have a historic opportunity. If "getting on with" military transformation is on the administration's short-list, and if the many stars in the heavens are properly aligned, then significant progress can be made within three to ten years. The secretary of defense may wish to work with Congress in reviewing the Goldwater–Nichols legislation to ensure that all the necessary legislative powers

exist for conceiving, developing, and fielding future joint capabilities that are more than the stitching together of what the services provide on their own. However, waiting for conclusions on these matters appears unnecessary, given that the secretary has great power for change under existing legislation—if he chooses to be an activist in this regard, and if he has presidential interest and support.

One priority, mostly for Era-A progress, should be to reverse the tendency for transformation due dates to slip substantially from year to year. The secretary should insist on near- and mid-term progress in the "real force," not just briefing charts about the future. This should include solving major problems faced by the combatant commanders in chief related to interoperability and fielding and iterating provisional forces. Another priority should be to review and refine a core set of multiyear operational challenges to focus transformation efforts, building on the rapid-decisive-operation and attack-of-critical-mobile-target initiatives at JFCOM, and on related joint strike force guidance from OSD.

The secretary should also sharpen defense planning guidance and the less-formal guidance used to drive Department of Defense studies and other aspects of the PPBS and acquisition processes. This guidance should ensure that options are evaluated with appropriate emphasis placed on transformational objectives and, related to that, planning for adaptiveness, flexibility, and robustness, rather than on "optimization" for organizationally convenient case scenarios.

In this connection, the new administration should place special emphasis on achieving and integrating quick-response capability—assuming that strategic warning will be obtained and used intelligently, but that usable tactical warning will sometimes come late. Figure 3 illustrates an expression of the approach. It notes, on the left side, that unless threats are small or there is plenty of time to deploy, the U.S. capability to intervene effectively in many scenarios is quite poor. The challenge is to develop new capabilities, such as a joint strike force, that could make short-warning actions feasible and effective—at least in cases in which the United States gets some favorable breaks. This depiction of capabilities-based planning stands in contrast to planning improvements in the ability to cope with some very specific scenario involving a well-defined threat, ample warning time and so forth. This depiction of challenge would be a forcing function for change..

To continue with the priorities, the secretary should ensure that clear lines of responsibility and authority exist for addressing operational challenges. He should focus on outputs—military capability to accomplish missions—rather than on bean counts. He should also insist that the services refine the building-

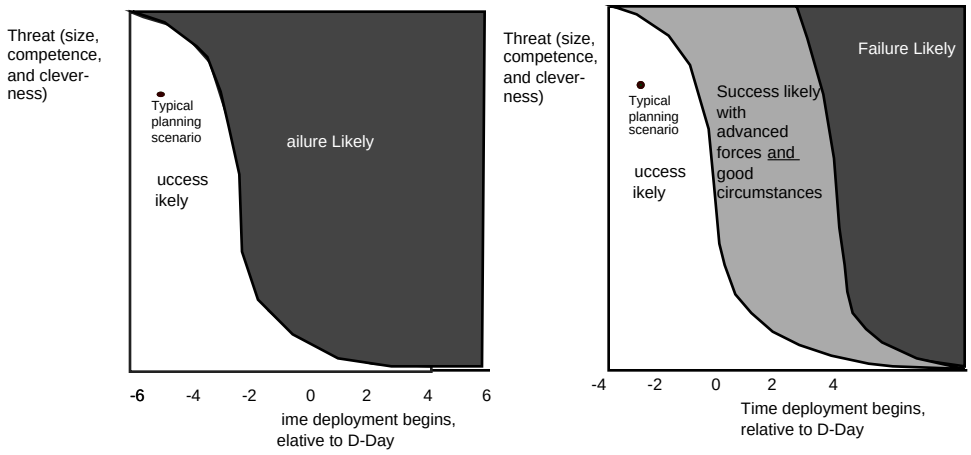

Figure 3—Measuring Capability for a Range of Cases Rather than a Scenario

block forces—the "tokens"—that determine U.S. and coalitional military capabilities. For example, the Army should probably move from a division-centric to a more brigade-centric structure with resized brigades that are substantially smaller but more capable—for most missions—than are current brigades.

Consistent with the above items, the new administration should impose a "mission-system view" in conceiving, evaluating, and implementing programs. This will require substantial changes in how the planning, programming, and budgeting system (PPBS) is conducted. As suggested by Figure 2, missions can fail even if one has most of the requisite capabilities; having most is not good enough. System thinking, which cuts across platforms, services, and tasks, is essential.

A further priority would be to require all services to field initial versions of new building-block forces in the mid-term and begin the lengthy process of perfecting them and transitioning the force structure, personnel systems, and doctrine. In addition to several initiatives already underway, which need secretarial encouragement, one example of what is needed here is a joint strike force.

Additional recommendations include the following: implement network-focused operations, with all the implications that has for rapidly adaptive command and control and for the acquisition processes of defense planning; consider fast-track authority and funding to permit USJFCOM to develop and acquire certain high-priority capabilities related primarily to joint command and control software; and, finally, develop and implement a management strategy to assure a robust set of activities in preparation for Era B. This will likely involve partnership

arrangements involving, for example, USJFCOM, the services, and premier research-and-development organizations, plus arrangements for funding sufficient to permit vigorous "day-to-day" experimentation, as distinct from occasional demonstrations. The Department of the Navy's structures and processes in the development of carrier aviation during the 1920s and 1930s may be a good model for what is needed here.

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