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1994 CJCS STRATEGY ESSAY WRITING COMPETITION ENTRY

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EXPANDING OUR VISION OF JOINTNESS: PURSUING JOINT FORCE DEVELOPMENTAL STRATEGIES

by

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ABSTRACT

TITLE: Expanding Our Vision of Jointness: Pursuing Joint Force Developmental Strategies AUTHOR: Bradley L. Moffett, Lieutenant Colonel, USAF

Amidst the tumultuous environment of the last decade, the U.S. military has made significant progress towards jointness following the impetus from operational experiences in Vietnam, Desert I, and Grenada and Congressional prodding via the 1986 Goldwater-Nichols Act. However, that progress has primarily occurred in the force employment component of military strategy and at the operational art level and below. By comparison, little attention or emphasis has been placed on jointness in the force developmental component of military strategy. This paper will examine some of the reasons for that nearsightedness, explore the resulting national security implications, and pose broad, conceptual approaches to extend jointness across the full spectrum of national security and military strategy considerations. Specifically, the paper will advocate a broader application of joint strategy to enable planners to manage uncertainty, integrate diverse capabilities and better retain military power with decidedly smaller forces. The gist of these proposed practices is a greater, reinvigorated commitment to an axiom of "strategy guiding planning, leading action."

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"To prepare for war demands, then, exercise of the imagination. We shall glance at wars of the past long enough to retrace their essential features; we shall ask of the present what it is in preparing for the future; and finally we shall try to decide what modification will be made in the character of war by the causes at work today." -- Douhet

The only thing harder than getting a new idea into the military mind, is getting an old one out. -- B. H. Liddell Hart SECTION I

INTRODUCTION

Long-standing U.S. national security and military strategies are under tremendous pressure from the convergence of significant political, social, environmental and economic forces, both here and abroad. Perhaps the most significant of these forces has been the collapse of the Soviet Union that ended the Cold War and greatly reduced the primary military threat. Other significant forces acting on the nature and execution of U.S. defense strategy include: the large U.S. and allied military drawdowns; the growing access to weapons of mass destruction (WMD) technology by aggressive regional powers; U.S. national interests that are more ambiguous than during the Cold War; an increasingly active United Nations involvement in peacekeeping operations; world-wide television coverage of international hot spots; greater U.S. public interest on the domestic agenda; and an expanding and evolving military commitment towards jointness.

These forces are stressing the fabric of national security policy and are calling into question traditional U.S. Cold War defense strategies and practices. Former President Bush affirmed the feelings of many when he noted, "We are entering a new era. The defense strategy and military structure needed to ensure peace can and must be different....Our task today is to shape our defense capabilities to the changing strategic circumstances."¹ Thoughtful defense professionals, as well as battalions of critics, are debating just how to do that and to what degree a transformed defense strategy would imply new roles, missions, and responsibilities, or alternatively, offer relief to a U.S. military already facing a rapidly declining force structure.

Amidst the tumultuous environment of the last decade, the U.S. military has made significant progress towards jointness following the impetus from operational experiences in Vietnam, Desert I, and Grenada and Congressional prodding via the 1986 Goldwater-Nichols Act. However, that progress has primarily occurred in the force employment component of military strategy and at the operational art level and below. By comparison, little attention or emphasis has been placed on jointness in the force developmental compo-

¹ Dick Cheney, Annual Report to the President and Congress, Washington, DC: U.S. Government Printing Office, 1991, p. 131.

nent of military strategy.² This paper will examine some of the reasons for that nearsightedness, explore the resulting national security implications, and pose broad, conceptual approaches to extend jointness across the full spectrum of national security and military strategy considerations. Specifically, the paper will advocate a broader application of joint strategy to enable planners to manage uncertainty, integrate diverse capabilities and better retain military power with decidedly smaller forces. The gist of these proposed practices is a greater, reinvigorated commitment to an axiom of "strategy guiding planning, leading action."

A precept of U.S military preparation for combat is that we should train like we intend to fight. With the growth of joint operations, this has led to increasing numbers of joint exercises, the first joint employment doctrines, and improved integration and employment of joint command structures. If we are willing to accept the premise that joint training improves the performance of Service forces in joint operations, instead of accepting the current Service-oriented approaches, why does the military not want joint development, acquisition, and deployment of military forces and capabilities? For the U.S. military still views future conflicts and defines, develops, and acquires military capability from distinctly Service-based, rather than joint, perspectives. These Service perspectives can significant impact joint force capabilities because the Services commonly have differing visions of future requirements, priorities, strategies, and essential capabilities.

This paper suggests that if we truly believe that "we should train like we intend to fight," then that precept needs to be extended to the front end of the military preparedness process. Smaller forces and more frequent joint operations will increase demands for fully interoperable forces. Congressional activism and a probably inevitable consolidation of currently separate roles and missions will further challenge existing Service autonomy. To preserve a significant voice in the evolution and control of force developmental strategy, the military should begin now to explore viable, cost effective, and productive *joint* alternatives to the generally independent Service force developmental strategies of the past.

² While joint acquisition programs exist and much progress has been made in certain specialized areas like intelligence, weather and technical training, the research and development, acquisition, readiness, sustainment, and deployment efforts are separately

"The new world order is more new than orderly." - Les Aspin, 1993³ SECTION II

BACKGROUND

Since the time of the ancient Greeks, "strategy" has been inextricably associated with the conduct of military affairs. The term "strategy" conjures up Hollywood images of generals standing around a map covered table with brows furrowed like chess grandmasters, advancing unit markers in time to a well-crafted plot. Yet military strategy is far more complex, difficult, and broader in scope than such images imply. In simple terms, strategy represents the development and execution of actions to link desired objectives with the available means. Because military strategy is so central to the outcome of military initiatives, it has received significant attention by military historians and analysts seeking to better understand its role in conflict and military success. In such analyses, strategy is frequently broken apart and examined under different historical, cultural, and technological "macroscopes," as well as through the more precise lenses of influential personalities.

Strategy has also been analyzed from quite a number of other perspectives: hierarchically (from grand strategy to tactics); geographically (theater strategies); by who is addressed (coalition, combined, joint, and Service strategies); by what it addresses (i.e. nuclear deterrence, counterproliferation, and investment strategies); and even the environment where the strategy applies (as in a *space* strategy or in an *air* campaign). Among the least used perspectives is the interrelationship between the employment and force developmental components of military strategy.⁴ Force employment strategies are generally focused on the war winning aspects of military strategy, whereas force developmental strategy is concerned with the conception, acquisition, deployment, preparation and sustainment of military forces and capabilities.

managed with considerable autonomy by the Services.

³ Les Aspin, "Four Challenges to the New World Order," Defense Issues, no. 8, February 1, 1993, p. 2.

⁴ For a discussion of the components of military strategy and their relationship to other aspects of military strategy, see Dr. William P. Snyder, "Strategy: Defining It, Understanding It, and Making It," reprinted in *Military Studies Course -- MS 610: Book 1*, Maxwell AFB, AL, Air War College, June 1993, pp. 61-65. Also, Dr. Donald M. Snow and Lt. Col Dennis M. Drew, *Introduction to Strategy*, Maxwell AFB, AL, Air Command and Staff College, 1983, pp. 47-59. Some authors break up force development strategy into force development and force deployment components. This paper combines both into force development unless otherwise noted.

From revolutionary times until the National Security Act of 1947 and its Title IV amendments in 1949, the Army and Navy were separately responsible for their budgets and force structure.⁵ Even after Title IV established the basis for uniform budgeting, fiscal procedures, and financial organizations, additional reorganizations and legislation were still necessary to integrate Service strategic and budgetary decisions under the Office of the Secretary of Defense (OSD).⁶ Though the Services' requirements were eventually combined into a common DoD budget, each Service retained considerable autonomy to determine its strategies and desired weapon systems. Consequently, the Services' visions of the nature of future conflict occasionally diverged greatly as during the early fifties. Then, for example, the Air Force pursued strategic nuclear bombers because it felt ground force weapons were outmoded, the Army believed that future wars would model W.W. II ground combat, and the Navy saw the future in a fleet of supercarriers.⁷

Though the divergence has diminished both with time and increasing oversight by OSD, Congress, and now the Joint Staff, the Services still retain considerable latitude to adjust their forces and pursue Service-desired capabilities, even if it might create U.S. military-wide capability excesses or shortfalls.⁸ As defense economics analyst Murray Weidenbaum details, the Goldwater-Nichols reforms that created the Joint Re-quirements Oversight Committee (JROC) and other warfighting CINC inroads into the Services' system acquisition and budgeting processes, have really done little to limit existing Service autonomy.⁹

During the latter years of World War II and at other times when military resources were plentiful in the United States, this Service-oriented approach worked arguably well. Then, the military-industrial complex could generate the enormous resources necessary to allow the Navy, Army, and Air Corps to prosecute sepa-

⁵ See Amos A. Jordan, et al., American National Security: Policy and Process, 3rd Ed., Baltimore and London, The John Hopkins University Press, 1989, pp. 184-186.

⁶ Ibid., p. 185.

⁷ Ibid., p. 187.

⁸ For example, the Air Force is rapidly getting rid of air-to-ground assets like the A-10 at a time the Navy is short of strike aircraft and the Army wants more close air support. Desert Storm clearly identified a serious and worsening corporate problem in tactical reconnasaince that each Service is reluctant to fund at the expense of other systems more dear to them.

⁹ See Murray Weidenbaum, "Small Wars, Big Defense: Paying for the Military After the Cold War," Oxford University Press, Oxford, 1992, pp 1-19, 151-166, and 195-206.

rate, parallel, and nearly simultaneous Service campaigns in the Pacific.¹⁰ Even as late as Vietnam, abundant Cold War resources allowed the Services to fight almost separate wars within the same theater.¹¹ By contrast, Desert Shield and Desert Storm demonstrated the devastating potential and operational efficiencies of joint operations, as well as the existence of continuing problems in Service interoperability, common doctrine, and shortages of critical combat capabilities despite the huge investments of the 1980s.¹² Today's senior leaders should therefore be asking themselves whether the resources exist, or will continue to exist, to allow separate Service-oriented force developmental strategies. If not, has the time come for a change and what are the alternatives?

In recent years a couple of proposals have been advanced to address this issue. One proposal to retains separate Service strategies, but requires improved coordination and consolidation of the Service Program Objective Memorandums (POMs). This proposal advocates integrating Service budgets, programs, and priorities earlier and at the working level within the Services, rather than at the senior analyst level in OSD. However, based on the difficult Joint Staff coordination experiences of the recent past, such a proposal would probably quickly collapse under the weight of traditional Service positions, interservice competition, and an inability to resolve tough issues in a timely manner.

The other proposal would transfer force development decision making from the Services to the warfighting and supporting CINCs. However, this proposal ignores several shortcomings of current CINC staffs that would probably be showstoppers. First, the theater CINCs do not currently have either the staff, organization, or the experienced acquisition personnel to accept such responsibility. Second, because of their mission, CINCs and their staffs are clearly more oriented towards day-to-day and near-term operational issues than with the very long-term perspectives needed for planning research and development (R&D) and major

¹⁰ In the Pacific, the lack of a common strategy and integrated commitment of resources between the of the Army and Navy and later the Air Corps led to largely separate strategies and campaigns led by Nimitz, MacArthur, and Kenney-Lemay.

¹¹ See Col. Alan L. Gropman, "The Air War in Vietnam, 1961-1973," reprinted in *Military Studies Course -- MS 610: Book 2,* Maxwell AFB, AL, Air War College, June 1993, p. 271-281.

¹² Interoperability problems limited rapid ATO transmission, resulted in some friendly fire casualties, and necessitated often complex rules of engagement. Additionally, across the Services there were shortages of reconnaissance and lift assets.

weapon system acquisition. Third, the geographic separation of the theater headquarters from the Beltway would complicate and probably compromise program and capability advocacy. Finally, because each CINC faces different problems, timetables, and solutions, this proposal might merely replace the Services strategies with equally divergent theater strategies and offers little improvement in force interoperability or economies of scale.

Neither of these proposals offer much hope for creating a better, more joint, force developmental component of military strategy. Therefore, let's explore other approaches to improve jointness in this critical component of military strategy. Specifically, we'll examine concepts for creating joint military strategists, joint force developmental strategies, and a more joint national security strategy architecture.

6

"You might not be interested in strategy, but strategy is interested in you" - Anonymous "The paradox of the end of the Cold War is that there is less threat, but also less peace." -- Manfred Wörner¹³

SECTION III

OBSERVATION: CREATING JOINT STRATEGISTS

In few human endeavors are the risks as high or the tasks as complex as in defense planning and military operations. Successful defense planning requires a careful balancing of thousands of technical factors in a highly political process to develop, acquire, deploy and employ an effective and synchronized military force. To create the necessary strategies, the U.S. needs strategists prepared for a complicated, "less peace-ful" world, who can look forward, not through post-Cold War lenses, but through the lenses of a pre-war period and speculate on the nature of future U.S. conflicts.¹⁴

These strategists are likely to face increasingly ambiguous, complex, and often subtle threats that make the process of developing and defending appropriate long range national security and military strategies very difficult. Nonetheless, the primary purpose of such strategies should be to enable decision makers to make logically consistent, informed, and rational decisions *today* regarding current and *future* national security requirements, across the spectrum of military capabilities and potential conflicts. Observation is the departure point in the process to make such decisions. Critical and knowledgeable observation is essential to create a vision of where events and the environment are heading and to characterize likely responses. Observation is also crucial to produce the judgment necessary to distinguish the important from the unim-

¹³ Manfred Wörner, "Less Threat, but Also Less Peace," ROA National Security Report, November 1993, pp. 46-50.

¹⁴ Strategists considering "modern warfare" should also carefully consider the implications of the most important lessons learned from the Gulf War - those learned by potential adversaries. Among those significant lessons were that indirect attack, as against Israel, is a good way to threaten coalitions. Other corollary lessons are that nuclear weapons that during the Cold War were Western equalizers for outmatched conventional forces, are today the equalizer against superior U.S. conventional forces. Other lessons were: avoid major confrontation with the U.S. if you lack a serious WMD capability, particularly nuclear weapons; bloody the American nose early before political decisions to commit forces are assured; it takes weeks, if not months, to project a significant capability to distant theaters even with excellent and *uncontested* airfields and ports; the U.S. possesses a significant capability against FIXED targets, both defended and hardened; lesser powers will have considerable trouble opposing U.S. airpower once sufficient numbers are available; and finally camouflage concealment, and deception can be very effective against current technologies even under the best of circumstances. For a comparative historical perspective on how, when, and in what type of conflicts U.S. forces have been engaged in over the last 100 years, see Major Daniel M. Gerstein, USA, "National Strategy: Future Threats and Defense Spending," Masters Thesis, Ft. Leavenworth, KS, 1992.

portant. Strategists like Clausewitz and Sun Tzu became famous for their powers of observation and synthesis, not so much for their operational skills.

Thoughtful observation is vital for strategy development because the American military has not had a long and successful history of either clear strategic observation or originality in strategy. Until recently, we have started most wars with strategists entrenched in old concepts from previous conflicts and flail around until strategic competence is found.¹⁵ The Services in their own mediums have recognized this shortcoming and taken the first steps to resolve it. The Air Force and Army have created post-intermediate service school programs emphasizing Service strategy and doctrine. Many graduates of the Army school contributed significantly in the Gulf War.¹⁶ However, integration of joint forces is still incomplete and though the Services have slowly merged doctrines, significant disputes remain, and joint doctrine remains in its infancy. The additional skills required to create a joint developmental strategy would put additional and complex demands on Service-trained strategists.

Some have concluded that the best approach to formulate more "purple" strategies is a general staff, independent of the Services, which can arbitrate the differences and provide more authoritative answers to urgent strategy issues. Calls for just such a general staff by thoughtful military officers are growing because many important strategic issues over the last few decades remain unresolved. These issues include the acceptable deployment and employment of nuclear weapons, the nature and deployment of ballistic missile defenses,¹⁷ and Service roles and missions.¹⁸

¹⁵ See examples in Stefan T. Possony and Jerry E. Pournelle, *The Strategy of Technology: Winning the Decisive War*, Cambridge, MA: Dunellen, 1970, p. 80. This is not to suggest that fine U.S. strategists do not, or have not, existed. Only that rarely have they been at the top or been able to get their concepts heard when a war broke out. Other examples of this would include Lincoln's struggles to find a competent strategist and the south's lack of one; the eventual rapid rise of several very fine strategists in WW II *after* we relied on British expertise early on; Vietnam, and Korea. Some may argue that Desert Shield/Desert Storm now invalidates this notion. While it certainly indicates progress, one of the senior leaders of that war remarked that U.S. strategy was not as significant as was the lack of strategy by Iraq. He added that the war probably did not represent a true test of our modern strategic competence because "fighting the Iraqis was like shooting a tethered goat." (Quote by a speaker to the Air War College class of 1994.)

¹⁶ General Schwarzkopf placed School of Advanced Military Studies (SAMS) graduates at almost every level in his planning staff. See Joseph J. Romm, *The Once and Future Superpower*, New York, William Morrow and Company, Inc., 1992, p. 23.

¹⁷ See Dennis McDowell, "Theater Missile Defense: A Joint Enterprise," Joint Force Quarterly, No. 3, January 1994, pp. 80-87.

Successful developmental strategies are hampered by another less recognized observational shortcoming. Several major studies have noted that there are few officers within the services who understand and can apply innovatively both strategy and cutting edge technology.¹⁹ Yet it is at the intersection of these two disciplines that the next great military revolution will probably occur.²⁰ One reason for this situation is that each service begins developing its strategists late and proficiency (earned or learned) with technology is rarely a selection criteria for candidates. In fact, the Services have a long history of discriminating against officer "geeks" who understand technology -- even in the Air Force, where technology is held in high esteem.²¹ Without defense planners and strategists who can observe modern technology and see visionary opportunities, new capabilities may be greatly undervalued.²²

However, changing defense planning paradigms won't be easy. Many of the best future-oriented conflict modeling techniques used to operationally test the implications of military technological observations, employ an approach commonly called backward planning, where planners work backward from future po-

¹⁸ See arguments by Colin S. Gray, Strategic Studies: A Critical Assessment, Westport CT: Greenwood Press, 1982, p. 158. See also Lt Col Peter W. Chiarelli, "Bevond Goldwater-Nichols." Joint Force Quarterly, No. 2. September 1993, pp. 71-81. ¹⁹ See The Commission on Integrated Long-Term Strategy (CILS), Discriminate Deterrence, U.S. GPO, Washington, D.C. 1988. Among the 11 noted commision members were John Vessey, Andrew Goodpaster, Bernard Schriever, and Zbigniew Brzezinski. Also Paul H. Richanbach, et al., The Future of Military R&D: Towards a Flexible Acquisition Strategy, Alexandria, Virginia, Institute for Defense Analysis, July 1990, pp. 5-8; and Fred S. Hoffman, et al. DARPA Strategy: New Technology for the Strategy in the 1990s and Beyond. Pan Hueristics, Los Angeles, CA. 1990, pp. v-vi, 9-11. The reasons for this situation are complex. Some of it has to do with difference in disciplines and that technology with potential military application has become so broad. Another limiting factor is that strategy-related education typically begins late in an officer's career when there is but a brief period for practical experience between command assignments. It would be almost impossible for any one strategist to be well versed in a wide range of technology fields and also so tactically and strategically adept in the complex arena of military operations, as to able to spot opportune convergences. This implies several things. First, that strategy should be developed by multidisciplinary teams and that special training or education needs to be provided to those entrusted with responsibility for strategy development. Second, that this experience needs to be gained at times other than during a crisis or war. Most of the convergences of technology and strategy will occur between conflicts and it is essential to begin testing new concepts and advocating new research or programs before a conflict occurs. Such experience should also encourage new doctrinal concepts to support advancing capabilities.

²⁰ At least this is the conclusion of numerous authors attempting to define, assess, and predict the next Military Technological Revolution or MTR. Just last year, Headquarters Air Force held workshops and conducted a number of briefings examining MTRs and what they portend for the future of the Air Force. Additionally, the Navy is very interested in trying to predict the nature and timing of the next MTR, as evidenced by a briefing presented to the CNO Executive Panel entitled, "The Navy and the MTR," presented by Jeffrey R. Cooper, SRS Technologies, 17 March 1993.

²¹ Cited by a senior speaker to the Air War College Class of 1994.

²² See William J. Perry, "Defense Investment Strategy," Foreign Affairs, Spring 1989, v68, no. 2, p. 78. This perhaps explains why Secretary Perry subsequently claims that we have historically "squeezed out" R&D, mortgaging the future, when restructuring.

litical objectives to military objectives, goals, forces and specific actions. But a series of RAND wargames proved current U.S. planners have trouble with using such "non-traditional backward planning" techniques.²³ Almost apologetically, the RAND authors noted the general inability of senior participants to project themselves fully into the future in thinking about force employment strategies and doctrine that go with new technologies.²⁴ Perhaps this is because most military assignments involve implementation of a strategic plan rather than its generation. Nonetheless, the armed services have rarely organized, located, nor promoted officers based on their strategic skills.²⁵

One approach to improve both strategic observation, creation of joint force developmental strategies, and ultimately, even joint employment strategies, might be creation of a joint strategist specialty. The Services already have specialists in key areas like acquisition, contracting, and missiles, so why not strategists? One possible framework might have Joint Strategist as the senior specialty, with education prerequisites of Service certification as an air, space, sea, and land battle strategist. Properly prepared, there are quite a number of key positions on CINC, OSD, and Joint staffs that would benefit from, or require, joint strategists.²⁶

²³ See Bruce W. Bennet, et al., "Technology and Innovation in Future Warfare: Wargaming the Persian Gulf War Case," Santa Monica, CA., RAND, N-3603-NA/OSD/AF/A, p. v. In a similar vein, this is precisely what the ongoing Air Force Spacecast 2020 has attempted to do to project future Air Force space requirements and strategies. Discsussions with Spacecast 2020 participants further highlight the difficulties they are having in employing backward planning without prior experience in using this technique.

²⁴ Ibid. Traditional wargaming typically explores achievable military goals working from a provided force structure.

²⁵ Pournelle and Possony in arguing this point have this warning for the Services: "[The Services] must encourage strategic thought particularly among younger officers....However we go about it, we must find ways of selecting, training, promoting and rewarding strategic talent and placing it in positions where it would be able to formulate successful strategy. Without strategists we will have no strategies." Stefan T. Possony and Jerry E. Pournelle, *The Strategy of Technology: Winning the Decisive War*, pp. 81-82.

²⁶ One idea that might be explored to further both the observation skills and development of joint strategists and their application of those skills towards warfare forecasting, would be to create a Joint Future Warfare Center. This center could be located at one of the joint schools, at an existing center like the Joint Warfare Center at Hurlbert, or in the Joint Staff. Populated by joint strategists and supported by service schools and wargaming centers, this center could become the focus for developing, testing and distributing advanced joint military strategy concepts to schools, laboratories, and analysis centers. It also would provide a single locale for military contractors to explore preliminary independent research and development ideas with military strategists. Such a Joint Future Warfare Center might reduce Service isolation and emphasize forward-looking visions, shared concepts, strategies even if joint strategists are not created.

Critics might argue that joint strategists are unnecessary since the service schools already produce such officers. To the contrary, the senior service schools may provide the introductory experiences into strategic planning, but their curriculum lacks the depth, breadth, and practical experience required by increasingly complex joint military operations. That education also starts too late in one's career for full proficiency in both joint and service doctrine, as well as in the technical skills of wargaming, military analysis and modeling, logistics, command and control, combat simulation, targeting and weapons effects. Such diverse skills are not acquired overnight, yet can be crucial in the development of successful strategies. Finally, not all military officers are equally qualified by personality, education, or intellectual interest to be successful synthesizers. The bottom line is that if qualified military strategists are important to senior commanders, then those commanders ought to seriously consider the concept of joint strategists.

Another idea to enhance the quality and breadth of concepts for joint force developmental military strategy, involves the creation of a joint strategy advisory board. Much like the Defense Science Board, the Chairman or theater CINCs might consider having a advisory "board of governors," composed of retired senior officers and noted civilians, to weigh and debate significant matters of strategy. Removed from the day-to-day pressures of senior command, these officers could play a valuable role in observing the national security environment, exploring new concepts, developing alternative measures of merit, and challenging outmoded assumptions.

Successful military strategy depends greatly upon the visions, skills, and experiences of those who craft it. Knowing where and how to start, what is important, having experience in detecting and understanding the complex patterns military conflict, and how to integrate all the diverse, yet salient, fragments into a coherent whole, are all crucial skill requirements of military strategists. For strategy creation is, perhaps, the most difficult of all military skills. If the U.S. military is to create successful joint force developmental strategies, it will certainly need officers appropriately skilled to the task. In the long run, this is probably an area of professional education and development in which the U.S. cannot afford to be lacking.

11

"The best way to predict the future is to create it." Peter Drucker

SECTION IV

ORIENTATION: CREATING JOINT STRATEGIES

IDENTIFYING COMPLICATING FACTORS

John Boyd defines orientation as "an interactive process of many-sided, implicit, cross-referencing projections, empathies, correlations, and rejections that is shaped by and shapes the interplay of genetic heritage, cultural tradition, previous experiences, and unfolding circumstances."²⁷ In essence, orientation is the process or framework that must be created to provide the context for strategy development and to allow a balancing of military requirements. The operational challenge for the developmental component of military strategy is balancing near-term readiness, sustainability, and force structure with modernization requirements. A major obstacle to successful strategic decision making is the disconnect between a 15 year acquisition cycle for major programs, some generational technological advances that occur every few years, a six year future defense program and planning process, programs managed by military officers on three year assignments, a two year Program Objective Memorandum, and a one year congressic[…].

Cold War strategic planners succeeded in this mismatched environment by using a simple planning model to orient their decisions, where threats were first projected and then military forces were designed to cope with those threats. This worked well in the short-term where interests and environments changed little and Cold War "stability" allowed defense planners to wrest workable solutions from the process. Planners' miscalculations were masked by Soviet disinclinations to engage. U.S. forces were almost exclusively aimed to counter the low-probability, high-risk Soviet threat and assumed sufficient for all others. Not surprisingly, U.S. performance against the "unplanned" threats was unimpressive.²⁸ With today's less pre-

²⁷ John R. Boyd, "Discourse on Winning and Losing," p. Section II - 15.

²⁸ Examples of our unimpressive performance would include Korea, Vietnam, Beirut, the Mayaguez incident, and even some of our "successes" like Grenada or El Dorado Canyon.

dictable threats, this approach would probably provide an unsuitable context for designing long-term forces.²⁹

The Soviet threat was the thread that oriented and related all the diverse elements of the defense analysis, planning, and resource allocation process (DAPRAP). ³⁰ It determined force levels, types of capabilities, technical requirements, direction for R&D, readiness levels, and force deployments. Ultimately, the yardstick of the Soviet threat became so embedded that it, rather than military objectives, drove the process for Congress, OSD, the Services, and the military-industrial complex. The Services and defense agencies defined and defended their programs by identifying shortcomings relative to the threat, while Congress used U.S. versus Soviet capability comparisons. Today the defense establishment is laboring to identify another comparable benchmark. Questionable attempts have been made to leap beyond the threat benchmark to identify the broad military capabilities required by a military superpower. However, to many critics, this approach appears much too open-ended and merely a military wish list.

The changes in the domestic and international security environments ought to imply the need for different force developmental priorities and a strategic reorientation, as well as new defense concepts and supporting strategies.³¹ Such a long range reorientation is tremendously difficult for defense planners, particularly in periods of rapid change. Compounding the difficulty of such a reorientation is the national tendency to-

²⁹ Colin Gray makes a persuasive case against using threat trends or as he calls it "clear and present dangers" by saying that by the time we can see them, it's often too late for friends and front-line allies. He likens this to failing to buy health insurance and says trends are worthless because a trend depends upon the time period selected and often come in bunches. He notes that if you can affect the environment, your actions may well change the trends upon which you are predicating your actions. Colin Gray, "Strategic Sense, Strategic Nonsense," *The National Interest*, No. 29, Fall 1992, pp. 14-15. Paul Bracken of RAND takes a different tack, contending that "standards methods employed for defense planning do not adapt easily for the solution and elucidation of long-term issues." He contends that current strategic planning practices are often just tools and techniques for marketing defense programs and that they "focus disproportionately on strategic planning as resource allocation, rather than as a way to shape a new emerging environment." Paul Bracken, "Strategic Planning for National Security: Lessons from Business Experience," Santa Monica, CA., RAND N-3005-DAG/USDP, February 1990, pp. 4-5.

³⁰ This author has coined the term DAPRAP to broadly describe the entire defense planning, analysis, programming, budgeting, and procurement processes covered by the Joint Strategic Planning System (JSPS), Joint Operational Planning and Evaluation System (JOPES), Planning, Programming, and Budgeting (PPBS) system, and systems acquisition process.

³¹ SECDEF Aspin's Bottom Up Review was just such an attempt to reorient the existing military strategy by developing a new methodology for assessing force requirements. However, it is doubtful that its results will generate a long-lasting reorientation of U.S. military strategy because its was accomplished outside the formal military planning process and it was perceived as a one-time-only, snapshot review. One example of the many novel defense concepts being put forward is Sam Nunn's "flexible readiness," See "Implementing a New Military Strategy," p. 450.

wards short-term horizons, near-term bottom lines and quick fixes.³² Even American business, long recognized for its entrepreneurial excellence, has come late to sophisticated concepts of long range strategic planning. Americans tend to be pragmatic problem solvers rather than systematic, long range thinkers and favor narrowing complicated issues to practical problems, then finding a solution.³³ This should not suggest that successful long-range strategic planning isn't possible, only more difficult, because it runs counter to our natural tendencies. Overcoming individual and national predispositions requires not only organizational commitment and specialized training, but better methods of institutionalizing the broader, future oriented perspectives of strategic defense planning. Where can such forward looking perspectives be found and how can they be applied to force developmental military strategy?

Some American businesses *have* become much more adept at strategic planning and execution.³⁴ The best of these are forward-looking businesses, which when facing comparable, high uncertainty circumstances, focus resources and strategies against *environments* instead of particular *threats*.³⁵ Such strategic planning asks not what the future will be, but what large, generally constant factors will determine most future outcomes. Such planning also considers the most desired outcomes and under what circumstances those desired outcomes would occur.

The key to using this approach in a military context, is to first create a correctly oriented decision framework suitable to developing appropriate strategies that will shape the environment and achieve priori-

³² Edward N. Luttwak presents an excellent discussion of this aspect of our national style in "On the meaning of Strategy . . . for the United States in the 1980's," National Security in the 1980's: From Weakness to Strength, ed. W. Scott Thompson, San Francisco: Institute for Contemporary Studies, 1980, p. 262-3. The most comprehensive book in this area is Michael T. Jacobs, Shortterm America: The Causes and Cures of Our Business Myopia, Boston: Harvard Business School Press, 1991.

³³ Ibid., p. 263. Luttwak adds "American defense debate routinely simplifies complicated matters to isolate the supposed 'practical problems.'" Strategy, by contrast, "requires a different approach, systematically connecting diverse issues into plans - often long range - for dealing with a whole practical problem."

³⁴ For example, companies like Federal Express, AT&T and Intel have very successfully created and applied strategic visions that have left even Japanese competitors in their wake. In particular, Intel has wrestled the lead in microprocessors back from the Japanese with a quicker product cycle, overlapping generations of new systems and a 15 year product and marketing plan that is shaping rather than reacting to the marketplace. A discussion of the Japanese approach to strategic planning and the importance of a long range vision can be found in Omae Kenichi, *Mind of the Strategist: The Art of Japanese Business*, New York: McGraw-Hill, 1982.

³⁵ Paul Bracken, "Strategic Planning for National Security: Lessons from Business Experience," pp. 8-18.

tized joint objectives. Let's explore how this can be done to create a joint force developmental strategy we'll label here as the Defense Investment Strategy.

"Strategic Planning is worthless -- unless there is first a strategic vision" John Naisbitt

PROMOTING A DEFENSE INVESTMENT STRATEGY

In 1989, William J. Perry authored his ideas for a defense investment strategy.³⁶ What he presented was not so much a strategy, as a listing of DoD programs he thought merited funding and why. Though his views are a little dated today, his idea of a Defense Investment Strategy could prove enduring. For the years of declining budgets have exacerbated already intense inter-Service debates over resource allocation and suggest that a new integrated and cooperative approach is needed.

Arguments over resources are inevitable in every organization, for resources determine organizational capabilities and, ultimately, existence. And nothing more vehemently provokes bureaucratic intransigence than challenges to their existence or independence. Over time resource debates have fomented suspicion and entrenchment that have frozen the military into traditional positions and prevented dispassionate, analytical decision making. Senior military leaders learn early that program growth, within the finite DoD budget, comes only from other initiatives or at the expense of another Service. This win-lose resources scenario has caused years of unrelenting Service competition and erected inter-Service partitions to protect operational turf and limit debates on relative capabilities.³⁷ This competition led to unsolvable debates which produced routine (and "equitable") partitioning of the defense budget.³⁸ This "workable" solution is now applied routinely across defense organizations and even within the services. So today, while "integrated priority lists" is the buzz word, the reality is "integrated lists."

³⁶ See William J. Perry, "Defense Investment Strategy," p. 72-92.

³⁷ One if the most recent examples can be found in the space arena. See Steven Watkins, "Space Chiefs Assail McPeak Plan" *Air Force Times*, April, 18, 1994, no. 35, p. 3.

³⁸ Kevin Lewis, Budget Stability comes from National Security Spending and Budget Trends Since World War II, Santa Monica, CA., RAND N-2872-AF, June 1990., pp. 1-13.

By definition and practice, strategies should link objectives with resources, while threats and other factors like cost constrain, but do not produce, strategies. Contrary to definition, U.S. military strategy is often derived from DoD objectives and the *threats*.³⁹ This odd approach that develops strategies independent of resources is common practice. Resources were allocated by essential equivalence with the threat and not by the requirements of the strategy. In contrast, DoD budgets have also been fiscally derived, with a budget target specified first. These opposing DAPRAP approaches confound the principles of sound strategic planning, and, therefore, it's not surpriving, that Aspin's BUR took a third tack, substituting a desired capability -- fighting and winning two near-simultaneous major regional conflicts (MRCs) -- for the threat.⁴⁰ Colin Powell alternatively proposed another capabilities-based replacement for requirements development when he spoke of his "core competencies."⁴¹ However, neither threat-based force structure justifications, nor capabilities-based analyses have sufficient forward-looking horizons. Both are currently anchored in existing, or soon arriving, force structure. These approaches work well for developing operational planning guidance for the CINCs, but their inability to articulate how the U.S. would *like* to fight future battles, across the spectrum of conflict, with viable future strategy concepts, reduces their ability to shape the military environment on U.S. terms or support sound, long-range investment decisions.

Another issue that demands resolution is whether maintaining enhanced readiness and a larger force structure today is a better investment than preparing for possibly more difficult times ahead. Historically, for example, the Air Force has favored current force structure over acquisition.⁴² In eras of declining

³⁹ This curious, and perhaps excessive emphasis on the threat that dominated Cold War planning is illustrated in most of the *DoD* Annual Reports to Congress between 1983-1988. Flow chart diagrams show that strategy is derived from higher level boxes labeled "objectives" and "threats."

⁴⁰ Les Aspin, *The Bottom-Up Review: Forces For a New Era*, Washington, DC: GPO, September, 1993. p. 10-11. For a critical, but excellent, assessment of the BUR, see Elliott Cohen, "Beyond Bottom Up," *National Review*, vol. 45, No. 22, Nov 15, 1993, pp. 40-44.

⁴¹ Quoted in Walter J. Hosey, "Economics, National Policy, and Military Strategy: The Growing Linkage in the 1990s," in *Defense Resource Allocation - NS 622: Book 1*, Maxwell AFB, AL, Air War College, November 1993, p 22.

 $^{^{42}}$ This is probably true of the other services as well, though the author could not locate a similar study for them like the one in the next footnote.

budgets, the Air Force has cut future investment deeper than force structure by more than three to one.⁴³ Therefore, when funding becomes available, it usually pays for replacement of depreciated existing systems and is relatively independent of strategy. With strategy a secondary consideration, it's not surprising that disconnects, like the unsustainable procurement bow wave of the Reagan years, occur. Such boom and bust acquisition spending creates extreme peaks and drops in the defense budget where DoD is historically inefficient at execution.

Finally, the Services have enshrined as benchmarks misleading force metrics like 40 fighter wing equivalents, a 600 ship navy, or million-ton miles that do not reliably indicate capability.⁴⁴ While some may argue that these numbers only reflect a means of communicating broad technical requirements to laymen, their impact on the Services is no less real nor significant. Their frequent use has caused even senior officers to hotly defend their validity and obscured the generation of necessary and valid task-oriented metrics of operational capability such as *effective* sorties per day, *targets* destroyed per sortie, *restrike* cycle times, or time to deploy and relocate an infantry division. Without true measures of merit, and especially ones that transcend the Services, the nation will be unable to make valid decisions on comparable Service capabilities. Cynically, perhaps that's the best explanation for the situation today. Numbers count less than the right capabilities perfectly employed. If the U.S. can both develop and employ such capabilities, we surely ought to be able to create meaningful metrics to track our progress. Without an overarching, shared, and *enforced* investment strategy, as proposed by Perry, each defense organization will continue to subop-timize its budget based on *its* perceptions, traditions, and solutions to deal with the future uncertainty.

What DoD needs is an investment strategy with an equal emphasis on investment and strategy. Sound investment strategies contain a long-term horizon, a balance between short and long-term objectives, di-

⁴³ An Air Force study showed that for every budget dollar cut, 75 cents will come from acquisition accounts. LTC John A. Rolando and Dr. Robert T. Batcher, "Is There Going To Be A High-Tech Air Force in the Future?" *Program Manager*, vol. 21, No. 3, May-June 1992, p.6.

⁴⁴ For example, the Iraqis had many fighter wings equivalents but not an effective Air Force in the Gulf War.

versity to reduce risk, continuous assessment and management, and *a crisis reserve*. A published Defense Investment Strategy should apportion the major components of the DoD budget, manpower, R&D, modernization, and operations and maintenance (O&M) through three subordinate strategies for technology, infrastructure and deployment and contain a crises reserve for unexpected employment. These strategies would set investment priorities and objectives, identify available resources and constraints, and define execution responsibilities. Investment strategies should enable better definition and selection of the "best" courses of action by providing the framework for making comparisons and identifying the potential costs and benefits of various alternatives.

Like any strategy, the defense investment strategy needs to be the departure point, not the culmination, of development and deployment actions. It should first apportion resources, like a warfighting air apportionment, by setting specific percentages of the defense budget to be dedicated to R&D, O&M, manpower, etc. Congressional pre-approval of the apportionment might be sought to reduce budget authorization conflicts later. These percentages should change over time in response to environmental changes to retain the highest value capabilities, but that there is probably some minimum level for each.⁴⁵ Apportionment today is to each Service and defense agency without regard to strategy and is the source of much gamesmanship and inter-Service mismatches.⁴⁶

Allocation would follow apportionment in this concept, with allocation assigned by mission area, not by Service.⁴⁷ Within each identified mission, the Services could propose alternative courses of action (COAs) to fulfill all or part of the mission within the dollars available, much like the current depot bidding.

⁴⁵ George C. Wilson, "How Much Readiness can the U.S. Afford?" *Air Force Times*, November, 22, 1993, no. 17, p.63. Wilson contends that the Services are running perilously close to dropping R&D below such a minimum. He cites a historical relationship between R&D and O&M and procurement that is now much more heavily weighted in favor of O&M. This "has put the Pentagon budget dangerously out of whack." Whether the right amount of O&M to R&D is the traditional 1.3-1, or the current 1.7-1, is not really the issue as much as whether we have a feel for what we need to continually spend to sustain and modernize our forces. Forsaking any one area in the short term, could leave us seriously short in the long term.

⁴⁶ For example, the Air Force is rapidly getting rid of air-to-ground assets like the A-10 when the Navy is critically short of strike aircraft and the Army wants more close air support.

⁴⁷ This again emphasizes a broad task oriented basis for spending defense dollars rather than giving it to the Services to divide among their various tasks. OSD and Congress and the Joint Staff do attempt to cut across the Services, but with questionable effectiveness, as evidenced by the disconnects that exist today.

The "best" COAs would be selected and associated funding provided. The Service budgets would be the aggregate of selected COAs.⁴⁸ Unlike the existing resources process, this approach mirrors those in several of the best corporations⁴⁹ and replicates the process used to prepare for and fight a war. It offers a significant improvement in coherency of effort and should spur, rather than impede, innovative ideas through competition. It would also demand meaningful metrics to compare alternatives and limit unnecessary duplication of effort.

Like the Air Force's recent bomber roadmap but on a much larger scale, investment strategies can better illustrate and relate operational strategies to specific weapon systems and technologies than current approaches. They might, for example, show how long range bombers and space assets are critical to defending Pacific sea lines of control if carrier battle groups are reduced. Properly executed, these strategies should solidify dialogue with Congress on long-term defense needs. They would also help define the balancing points between the competing camps, those responsible for battlefield operations who more highly value current force structure, readiness, decisive force, and dedicated capabilities, and representatives of the "business" side of DAPRAP who naturally place greater emphasis on affordability, sufficiency of capability, and operational efficiencies.

Defense planners won't hit the mark all the time. So their investment strategies must accommodate and account for changes in the underlying objectives, assumptions, and priorities. A defense investment strategy should represent a solid foundation for establishing joint defense priorities and long-term objectives. Implementing a defense investment strategy certainly won't end Service rivalries, but if it provides an enhanced basis for better supporting future joint operations by reducing some of the current disconnects

⁴⁸ Each Service would, of necessity, have to receive some sustaining funding for administrative activities like headquarters staff, commissaries, MWR activities, etc. This approach would apply primarily to major mission areas, weapon system procurement, and operations.

⁴⁹ Hewlett Packard is a good example of a company that employs such an approach. They routinely allow business elements to bid for R&D and production dollars based on either new concepts they've raised or because they would be more efficient producers.

between the Services, then it could add an element of rationality and coherence that has been lacking to date.

The current fragmentation between the Services in force developmental strategy is symptomatic of the fragmentation of both focus and guidance at the higher levels of national security and military strategy. Without an improved overarching national security architecture, even the best oriented and executed defense investment strategy could still founder. Let's now explore an alternative to enhance jointness at that level.

Everything should be made as simple as possible, but not simpler. Albert Einstein

FIGHTING FRAGMENTATION WITH FOCUS -- A TRUE NATIONAL SECURITY STRATEGY

At the strategic and operational levels of war, a key tenet is unity of effort. DAPRAP, however, is incredibly fragmented with hundreds of organizations and committees possessing a say and sway, and sharing few common visions of likely or desired futures. This complicates a common understanding of the objectives and means to be pursued, and deprives system developers, planners and strategists of a common context for sharing innovative ideas. The fragmentation also invites additional criticism and makes defense program advocacy more difficult. During the Cold War, DAPRAP processes were expensive, but acceptable. But with today's smaller forces and dynamic external environment, the inefficient, laborious defense planning and procurement assembly line may lead to future military bankruptcy.

DAPRAP is expected to produce optimized decisions -- not Service suboptimized ones -- from a broad range of choices on force structure, readiness, sustainability, modernization, and warfighting capabilities and integrate everything into a coherent whole. Ideally, the path selected by DAPRAP decision makers reflects an appropriate optimization of choices between national security objectives and available resources. Finding this path is not nearly as easy as it might sound. First, there are quite a number of possible optimization "strategies" possible, including: least risk, lowest cost, best capabilities against a broad spectrum of threats, best capability against most serious threats, sufficient capability against the worst case threat, sufficient capability against the most likely threat, among many others. Second, the selected optimization must be approved, effectively communicated and executed by all parties to the process. Finally, because the external factors that often drive the initial objectives, resources, and assessments are rarely constant, a review and feedback mechanism must exist to permit the necessary revisions.

Such optimization is extremely difficult in far less complex examples than DAPRAP, where the often irrational vagaries of politics can preclude even approximate optimizations. Nevertheless, the public, legislative and executive branches all desire and usually expect a highly efficient, even unrealistically optimized, national security process. To even come close to achieving expectations, several keys components must be as clearly and accurately as possible, identified up front. These include, the national security objectives and sub-objectives, resources available at each level, known constraints and obstacles, type of optimization and the duration it is expected to be valid over, and acceptable levels of risk or failure.





Figure 1 is a simple (!?) diagram of the DAPRAP process from the Joint Staff Officer's Guide. The interlocking circles reflect a two year budget cycle, a semi-continuous acquisition process, and a regular joint planning and execution process. In theory -- and only in theory -- progress can be traced by sequential actions and documents that lead to specific decision milestones. In practice, the process is more like Rube

⁵⁰ AFSC Publication 1, Joint Staff Officer's Guide, Washington, DC: GPO, 1993, pp. 5-34.

Goldberg's worst nightmare than a Swiss watch with well synchronized gears. Everything doesn't really start at the top with the National Security Strategy (NSS) -- sometimes that comes last -- and guidance, inputs, and changes can come from all directions. The best description is probably horizontal integration. Many despair that DAPRAP will ever be logical or responsive, let alone accurate or cost effective because of its political nature. Let's postulate anyway how DAPRAP might be "reengineered" to reduce fragmentation, inspire (and coerce) better unity of effort, and ultimately generate a better military product for the American people.

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Look again at Figure 1. The four circles represent large, separate, but interrelated processes that create key military decisions. It looks simple, but only a select few DAPRAP high priests possess the insights to trace the logical flow, hierarchy of decisions, and key documents and are confident enough to proclaim the outputs of the process a success. Seriously, DAPRAP reflects a confusion of command and a convoluted structure of execution responsibility that seriously undermines unity of effort. In the short run, fragmentation frequently produces ad hoc, incomplete and often competing strategies, whereas in the long run it encourages unfocused strategies that are the average of all participants' inputs.⁵¹ This decentralized planning has aided the Services' separate notions of doctrine and strategy and contributed to forces that are not fully complementary. These differences, and conversely, similarities are the target of congressional attention that aims to lower cost and improve jointness. These differences also complicate the development of joint doctrine, and particularly, joint strategy. Few would argue that there must be a better way. No operational commander would allow such disparate direction and convoluted coordination and decision making in a combat environment, so why should it be accepted in a larger context? Figure 1 probably explains why the U.S. military can be successful in the Gulf War and still defeat itself within the Beltway.

⁵¹ Paul Bracken, "Strategic Planning for National Security: Lessons from Business Experience," p 28-29. Bracken makes an interesting, but opposing argument. He argues that it is not important for diverse agencies to cooperate around a common set of objectives. He says that it is not required for long-range planning because there is time to fix mistakes (because the future is far away), and in the short range it doesn't matter, because the environment and 'orce structure are fixed and fragmented planning can't affect it. This cynical analysis might be labeled as bureaucratically pragmatic.

The timely creation and successful integration of employment and deployment strategies in both time and space and within available resources are the greatest challenges for a combat commander. That effort pales by comparison to that which is necessary to coherently integrate employment, deployment, and development efforts within the DAPRAP environment. The heart of the problem is the lack of an authoritative, coherent, and *common* defense strategy that contains comprehensive and specific objectives and directs supporting subordinate military strategies for development and deployment. Resolving this shortfall with a solution that promotes unity rather than division, is the first challenge of an improved DAPRAP framework.

All national security matters do not flow from the NSS for several reasons. First, the NSS is more national security policy than strategy, containing broad generalities and more conceptual than measurable objectives.⁵² Little attention is paid to resources nor how they are to be appropriately linked to the objectives. Some argue that at the NSS level, policy and strategy are virtually synonymous and specificity isn't necessary.⁵³ This misconception, when combined with institutional, competitive, and bureaucratic biases, is a frequent source of confusion and poor objective decision making. Honest, but widely varying interpretations of intent, produce confusion and foment fractious debates over objectives, responsibilities, priorities, and expected results. Imagine, for example, the likelihood of getting a solid home if all you told the architect was that it should be a "just good enough" house with "safe" rooms that shouldn't cost very much. Clearly, the NSS illustrates the political aversion towards concrete statements for which accountability may be demanded. But if the political leaders cannot or will not specify political objectives any better than they have, what chance do defense strategists have of correctly achieving them?

Other NSS shortcomings limit its usefulness within DAPRAP. The timing of its release usually makes it a product of the defense debates, rather than a prelude to defense planning. The NSS also provides little guidance for the creation of subordinate economic and diplomatic security strategies. And finally, what

⁵² An example of just such a fuzzy objective can be found on page 15 of the recent National Security Strategy of the United States, The White House, January 1993. It said, "We must capitalize on our traditional strengths, learn from our experience in DESERT STORM, and plan for the future contingencies in which our challengers will have learned some of the same lessons."

⁵³ Paul Bracken, "Strategic Planning for National Security: Lessons from Business Experience," pp. 27-29.

value lies in a strategy document that doesn't assign planning and execution responsibilities? At best the national security strategy is just missing a few of the specifics, at worst, it's a pure policy document, undeserving of the designation of strategy, and insufficient to lay the groundwork for a successful U.S. military strategy.⁵⁴

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Supposedly, the U.S defense strategy flows from the NSS to the national military strategy (NMS) and on to the warfighting and campaign strategies of the theater CINCs through a series of documents produced by the Joint Staff and OSD. The operational and deployment strategies are embodied in numerous CON-PLANs and OPPLANs, sometimes in excruciating detail. As noted earlier, the same cannot be said for the force developmental component of military strategy. While the NMS foot-stomps that the "key to success...[is] clearly stated, measurable, and attainable military objectives,"⁵⁵ few such objectives exist in either the NSS or the NMS for the force developmental strategy. And since strategy theoretically links the various components of DAPRAP, strategy errors ripple through the process. Ultimately, a better strategy should mean a better DAPRAP output.⁵⁶

Figure 2 illustrates *an* alternative DAPRAP construct. There are several key elements in its design and the essence is in the concepts and not in the detail. Note that existing planning processes are replaced with tiered strategies. Those processes don't disappear, it's just that the emphasis is changed. Instead of the processes driving the strategy, the strategy drives the planning process. Strategies also formally exist where bits and pieces of them or none existed before. The framework is vertically integrated and hierarchically ordered top to bottom so that the subordinate strategies share common objectives and resources with those

⁵⁴ This should not suggest that the NSS is the source of the problem within DAPRAP, because many of these issues existed long before the first NSS was ever written. Since before WW I, the process has been a hotbed of public criticism and controversy. But ever increasing regulation and bureaucracy, low production rates, and long years of development and production are making major weapon systems unaffordable and creating a public crisis of confidence. Growing reform efforts are commonly the result of frequent charges of inefficiency, incompetence, and corruption. Instead of becoming a major vehicle leading reform, the first NSS merely incorporated existing shortcomings. In an alternative strategic framework, a sound NSS becomes the basis for honest and badly needed change.

⁵⁵ National Military Strategy 1992, Washington DC: Joint Chiefs of Staff, 1992, p. 16.

⁵⁶ This is not a sure thing due to the significant inherent drag imposed by large bureaucracies like DoD and the influences of both the legislative and executive branches outside of DoD. However, it is more likely that the outcome will be sound if the strategy is, than the reverse.

above. Ultimately, the success of the NSS and the NMS should depend upon appropriate execution of the subordinate strategies. The strategies are not just hierarchical in objectives and resources, but also in time. For example, the NSS must precede the NMS which precedes the Defense Investment Strategy and so on. This alternative also recognizes the need for detailed, published economic and diplomatic (or political) versions of the NMS. These documents are essential to coordinate visions of responsibility, programs, threats, missions. Meshing these strategies would permit defense advocates to better define requirements and defend essential programs. This strategy tree demands a greater traceability of requirements top to bottom, better organizes alternative courses of action for valid comparative assessments, and reduces somewhat the inherent conflict of responsibilities common to large bureaucratic processes.



Critics might see little difference from the current DAPRAP, claiming that it merely relabels current process documents like the Defense Planning Guidance and Joint Strategic Capabilities Plan as strategies, and assigns them under the already existing NSS and NMS. They might also question how it resolves command responsibilities conflicts and how Congress participates. Sound strategy starts with a vision, clear objectives, enabling resources, capable leadership, and the ability to communicate the selected plan to all responsible for implementation. The primary role of this approach is to take the national leadership through that process to establish the essentials of a sound strategy and allow it to be communicated in sufficient detail for implementation at the bottom. It must be the departure point in the planning process and not the aggregate of all that has happened below. No theater commander builds a campaign plan by summing the inputs of his subordinates, nor should the NSS be developed that way. A meaningful NSS speaks equally well to all elements of national power and describes key factors in both the current environment and the desired end state. In the desired end state, the NSS must state how success is to be defined and measured. Objectives and relative priorities will change over time, so proper phasing is also necessary. Identification of known constraints and limitations associated with the selected course of action are critical to a sound NSS. Also needed are: clear delineation of supporting responsibilities and subordinate strategies; statements of underlying assumptions and how adjustments are to be made if the assumptions change; circumstances that would necessitate a revision of strategy; and an assessment of the top level resources available for the subordinate strategies.

Command relationships in this construct would be subtly different than today. As now, the National Security Council would be responsible for drafting the NSS for the President's signature, with considerable assistance from the Joint Staff and OSD, the State Department and others. The NMS should be co-signed by the Chairman and the Secretary of Defense. To retain the unity of effort and command within DoD on the development of a comprehensive and umbrella national military strategy, the Chairman would be the responsible for planning the employment of military forces, whereas the SECDEF, is responsible for deployment and development activities. The Chairman would provide the current operational and future military objectives that are the key to contingency planning, day-to-day operations, readiness, command relationships and are also the basis for *future* R&D and procurement initiatives. The SECDEF would provide the business objectives, fiscal constraints, and policy restrictions. Though this arrangement approximates the current division of labor today, this broader, more detailed NMS would eliminate several of the horizontal

directives like the Contingency Guidance and the Defense Planning Guidance and other fragments that frequently generate conflicting, or at least confusing, direction and start the process of realigning the often independent Services to better and more directly support joint requirements, operations and plans.

Similarly, the Joint Strategic Capabilities Plan could be replaced by the Theater Contingency Strategies and supporting plans under the direction of the Chairman. Note that the theater CINCs would be responsible for execution and specifying readiness and training levels for supporting component forces. SECDEF would be responsible for the execution of the Defense Investment Strategy and subordinate strategies and plans. Obviously, there would be close coordination between related strategies, especially in the area of deployment. But since each is hierarchically linked to a higher strategy, a means now exists to reconcile conflicts by either clarifying higher objectives or changing them. Involving Congress early in NSS development through advisory participation of Armed Services subcommittee members might bridge traditional tensions by offering insights into strategy deliberations and the basis for selecting and rejecting other alternatives.

Forward looking, complementary, and integrated (joint) strategic conceptual frameworks are essential to understanding and preparing for future conflicts. However, orienting the decision process to accommodate and support such constructs requires more strategic thinking and less near-term strategic planning. Success in developing sound force developmental strategies depends upon strategists thinking beyond specific net assessments of force balances and viewing military forces as part of an environmental strategy to *shape* basic trends. The U.S. is one of the few nations able to help determine the strategic environment by defining the rules of conflict, nature of war, and levels and constraints on means. We should not toss that opportunity away in our nearsightedness. To succeed, the military must clearly and forcefully present its vision of the future, the strategic components that support it, the wherewithal to coordinate and execute it, and the criteria to evaluate strategic performance.

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"The biggest cause of trouble in the world today is that stupid people are so sure of things, and the intelligent people are so full of doubts." Bertrand Russell

SECTION V

DECISION AND ACTION: REENGINEERING OUR CONCEPTS OF JOINTNESS

Reengineering the corporation is a concept currently in vogue in the business world to restructure and reorient companies to respond quicker and be more competitive in dynamic environments. Breaking down barriers between functional stovepipes in a corporation, as between design, manufacturing, and marketing organizations, is often essential to successfully implementing future oriented strategies and corporate turnarounds. Recently, businesses such as IBM, General Motors, and Sears have all suffered serious setbacks in their efforts to maintain market dominance. During an explosion of interdependency in international markets, these huge corporations squandered large economic and market advantages over their competitors in a surprisingly similar fashion. Under conservative and questionable leadership, they each failed to correctly anticipate the future environment, experienced market strategy failures, overemphasized short-term results, and failed to reorganize and reorient a large, bureaucratic management excessively committed to "business as usual" in an era of vast change.

Despite huge investments in market and product research, these corporations floundered because they underestimated their vulnerabilities, incorrectly forecast the pace and direction of key technologies, and wasted time and resources in dead-end or auxiliary ventures. Trapped in functionally separate business divisions, they missed numerous opportunities to better integrate operations, strategic planning, and product development. Ultimately, they were unable to respond either quickly or well to smaller, more agile competitors with better strategies and focused applications of the latest technology.

Once these corporations began sliding, their first ineffective, defensive actions were to merely shrink existing organizations and operations, essentially creating smaller versions of themselves. Turnarounds did not begin until these corporations broke down the traditional barriers between functional units, refocused their energies towards areas of greatest advantage or most leverage, dropped less effective, but traditional markets (like Sears' catalog sales), and *then* reorganized to support their new priorities.

There are important lessons here for the U.S. military. Today DoD still lacks such an adequate integrated mechanism that establishes and *enforces* joint priorities. Even if such a strategy existed, separate Service authority and resource allocation would preclude much of the essential change. These business practices may increasingly limit prudent investment, day-to-day operational activity, and raise the risk of losing military "market dominance."

Without more innovative, interlocking and complementary defense strategies, faster responsiveness, and better decision making, a "business as usual" approach to DAPRAP might produce a military version of IBM. Once a virtually unchallenged and dominant international corporation, IBM is now unable to shape its own environment. And IBM finds itself beset everywhere by agile competitors possessing equal or better technology, innovative business strategies, and who are quicker at getting leading edge technology to market at a lesser cost.

Avoiding a military equivalent fate may require a thorough reexamination of how we make military strategy. Improvements in cooperation and responsiveness need to be pursued. New measures of joint effectiveness and terminology for critical factors in joint military performance should be explored.⁵⁷ The entire strategy development needs to be taken apart and examined piece by piece to find the speed bumps. Architectural, procedural, educational, and technological initiatives need to be applied against those rough spots to smooth and improve all aspects jointness.

⁵⁷ Jeffery R. Cooper of SRS Technologies presents this case in an unpublished draft paper entitled "The Military Technical Revolution: Another View," 1993. He argues that the value of so-called "radical" reforms are frequently underestimated because the results are evaluated using old measures of merit. A simple example might be using tons of TNT to try and capture the effects of a nuclear weapon. Many significant and long lasting effects are produced by nuclear weapons that are not captured or are underrepresented by the metric of tons of TNT. Use of such a metric would greatly misconstrue the true impact possible from nuclear weapons.

"Building up without a strategy is foolish; building down without one could be disastrous." - Sam Nunn

SECTION VI

SUMMARY AND CONCLUSIONS

Some may feel that all attempts to improve DAPRAP and create a viable joint force developmental strategy are doomed to failure, because people and politics largely determine the results of the process, whatever its nature or design. This pessimistic view ignores some promising results achieved by business and the military in recent years at improving the quality of the "product" by focusing on institutional short-comings in various processes, not people.⁵⁸ Would such an effort applied to DAPRAP yield the "best" defense strategy? Certainly not! After all, people and politics *are* involved. Nevertheless, just because the "best" cannot be achieved, does not mean that "better" is not worth pursuing.

The obstacles to implementation of these concepts are enormous. Most of the obstacles can be traced to a loss of independence, power, and authority by elements that contribute to the fragmentation today. In particular, the Services would lose much of their ability to make unilateral decisions, particularly in the areas of funding, R&D, procurement and deployment. This should not suggest that the Services are *the* problem, for they are not. But they *are* part of the problem that includes a micro-managing Congress and an operationally intruding OSD staff and others. The Services have a lot to offer to solve existing problems, but they can't attack them independently as in the past. Jointness must go well beyond military operations and embrace the full spectrum of defense activities. A purple uniformed military is not necessary, but a military that thinks like one is. Surely if the maxim "train like we intend to fight" is true, a corollary of "plan, develop, acquire, and organize like we intend to fight" should hold true as well. As the U.S. reconfigures its smaller military in this uncertain era, defense planners must not miss opportunities to achieve the latter. Winners would be jointness, the public, and national security.

⁵⁸ Examples of this are numerous and generally fall into a broad category of initiatives under the rubric of "quality." Examples include Deming's total quality management, Quality Air Force, etc. These initiatives commonly emphasize that the problem is not in the people, but in the processes they operate. Consequently, efforts to improve the people will produce less enduring and less significant results than by changing the processes that constrain the desired results. Keys to successful implementation of quality are strategic focus and direction from the top, and empowerment of workers at the interface with the customers to solve problems using their own ideas and practices. For the latest DoD thinking, see the final draft version of *Total Quality Management Guide:* A Two Volume Guide for Defense Organizations, Vol. II, Department of Defense, Washington, DC

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BIBLIOGRAPHY

Articles

Allison, Graham T. and Morris, Frederic A. "Exploring the Determinants of Military Weapons." *Daedalus*. No. 104. Summer 1975.

Aspin, Les. "Four Challenges to the New World Order." Defense Issues. No. 8. February 1, 1993.

Chiarelli, Lt Col Peter W. "Beyond Goldwater-Nichols." Joint Force Quarterly. No. 2. September 1993.

Cohen, Elliott. "Why We Should Stop Studying the Cuban Missile Crisis." National Interest. No. 2. Winter 1985/6.

Cohen, Elliott. "Beyond Bottom Up." National Review. Vol. 45 No. 22. November 15, 1993.

Davis, Jacqueline K. "Technology and Strategy: Lessons Learned for the 1990s." Annals of the American Academy of Political and Social Sciences. Vol. 517. September, 1991.

Gray, Colin. "Strategic Sense, Strategic Nonsense." The National Interest. No. 29. Fall 1992.

McDowell, Dennis. "Theater Missile Defense: A Joint Enterprise." Joint Force Quarterly. No. 3. January 1994.

Nunn, Sam. "Implementing a New Military Strategy." Vital Speeches. Vol. 56. No. 15. May 15, 1990.

Paige, Emmett Jr. "Reengineering DoD's C3I Operations." Defense 93. Issue 6.

Rolando, Lt. Col. John A. and Batcher, Dr. Robert T. "Is There Going To Be A High-Tech Air Force in the Future?" *Program Manager*. Vol. 21. No. 3. May-June 1992.

Roth, Margaret. "Information Overload," Air Force Times, No. 26. January 24, 1994.

- Watkins, Steven. "Space Chiefs Assail McPeak Plan." Air Force Times. No. 35. April 18, 1994.
- Wilson, George C. "How Much Readiness can the U.S. Afford?" Air Force Times. No. 17. November 22, 1993.

Wörner, Manfred. "Less Threat, but Also Less Peace." ROA National Security Report. November 1993.

Books

Beaufre, General d'Armee Andre. An Introduction to Strategy. New York: Macmillan, 1965.

Collins, John M. Grand Strategy: Principles and Practices. Annapolis, MD.: Naval Institute Press, 1973.

Gray, Colin. Strategic Studies. Westmead: Saxon House, 1982.

Hosey, Walter J. "Economics, National Policy, and Military Strategy: The Growing Linkage in the 1990s," in Defense Resource Allocation - NS 622: Book 1. Maxwell AFB, AL: Air War College, November 1993.

5/20/94 4:11 AM

- Jacobs, Michael T. Short-term America: The Causes and Cures of Our Business Myopia. Boston: Harvard Business School Press, 1991
- Jordan, Amos A., et al., American National Security: Policy and Process, 3rd Ed., Baltimore and London, The John Hopkins University Press, 1989.

Kahn, Herman and Wiener, Anthony J. The Year 2000. New York: The Macmillan Co., 1967.

Kahn, Herman. Thinking About the Unthinkable. New York: Horizon Press, 1962.

Kenichi, Omae. Mind of the Strategist: The Art of Japanese Business. New York: McGraw-Hill, 1982.

Luttwak, Edward N. "On the meaning of Strategy...for the United States in the 1980's," In National Security in the 1980's: From Weakness to Strength, ed. W. Scott Thompson. San Francisco: Institute for Contemporary Studies, 1980.

Millett, Stephen M. and Honton, Edward J. A Manager's Guide to Technology Forecasting and Strategy Analysis Methods. Columbus, Ohio: Battelle Press, 1991

- Posen, Barry R. The Sources of Military Doctrine, France, Britain, and Germany Between the World Wars. Ithaca: Cornell University Press, 1984.
- Romm, Joseph J. The Once and Future Superpower. New York: William Morrow and Company, Inc., 1992.
- Snow, Donald M. and Drew, Lt Col. Dennis M. Introduction To Strategy. Maxwell Air Force Base, AL: Air Command and Staff College, 1983.
- Spanier, James. "The Games Policy Makers Play," reprinted from Games Nations Play, 7th ed., Chapter 10, 1990 in National Security Decision Making -- NS623. Maxwell Air Force Base, AL: Air War College, November 1993.
- Weidenbaum, Murray. "Small Wars, Big Defense: Paying for the Military After the Cold War," Oxford, Oxford University Press, 1992.

Documents, Studies, and Miscellaneous

AFSC Publication 1, Joint Staff Officer's Guide. Washington, DC: GPO, 1993.

- Art, Robert. The Influence of Foreign Policy on Seapower: New Weapons and Weltpolitik in Wilhelminian Germany. Beverly Hills, CA: Sage Professional Paper, International Studies Series, No. 02-019. 1973.
- Aspin, Les. The Bottom-Up Review: Forces For a New Era. Washington, DC, GPO, September, 1993.
- Boyd, John R. "Discourse on Winning and Losing." an unpublished collection of briefings and essays, Air University Library, Doc No. MN 43947. August 1987.
- Bracken, Paul. Strategic Planning for National Security: Lessons from Business Experience. Santa Monica, CA., RAND N-3005-DAG/USDP. February 1990.
- Builder, Carl H. Military Planning Today: Calculus or Charade. Santa Monica, CA., RAND MR-293. February 1993.

4

- Chaney, Dick. Annual Report to the President and Congress. Washington, DC: U.S. Government Printing Office, 1991
- The Commission on Integrated Long-Term Strategy (CILS), Discriminate Deterrence, U.S. GPO, Washington, D.C. 1988.
- Cooper, Jeffery R. "The Military Technical Revolution: Another View." unpublished draft paper, Washington, DC 1993.
- Defense Acquisition, A Process in Trouble, Defense Acquisition Study. The Center for Strategic and International Studies, Washington DC. March 1987.
- Gerstein, Daniel M., Major, USA. "National Strategy: Future Threats and Defense Spending." Masters Thesis, Ft. Leavenworth, KS. 1992.
- Hoffman, Fred S., et al. DARPA Strategy: New Technology for the Strategy in the 1990s and Beyond. Pan Hueristics, Los Angeles, CA. 1990.
- Hillestad, Richard J., et al. New Issues and Tools for Future Military Analysis: A Workshop Summary. RAND, N-3403-DARPA/AF/A. 1993.
- Lewis, Kevin. Budget Stability comes from National Security Spending and Budget Trends Since World War II. RAND, N-2872-AF. June 1990.
- National Military Strategy 1992. Washington DC: Joint Chiefs of Staff, 1992

National Security Strategy of the United States. The White House, January 1993.

- Richanbach, Paul H., et al. The Future of Military R&D: Towards a Flexible Acquisition Strategy. Alexandria, VA: Institute for Defense Analysis, July 1990.
- Taylor, Charles W. Alternative World Scenarios for Strategic Planning. Carlisle Barracks, PA: Strategic Studies Institute, U.S. Army War College, 1990.
- Total Quality Management Guide: A Two Volume Guide for Defense Organizations. draft, Vol. II, Department of Defense, 1993.