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21st-Century Logistics: Joint Ties That Bind

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The end of the Cold War has occasioned a sea-change in the utility of the instruments of US power. The United States enjoys a much wider range of policy options, and at the same time, the US military faces many new missions. Security challenges have become far less transparent, the security environment significantly more volatile. Internationally, the United States is likely to face in growing measure what Rudyard Kipling referred to as "savage wars of peace." In the fitting words of the late NATO Secretary General Manfred Wörner, "The collapse of the Soviet Union has left us with a paradox: there is less threat, but also less peace." [1] Moreover, many of the critical threats to the United States are now transnational in nature, increasing the difficulty of designing an appropriate response. [2]

New circumstances require that the United States address a number of fundamental issues. Perhaps the most pivotal from a joint perspective have to do with logistics. More and better logistics planning is needed to deal with the various contingencies confronting US military forces and allied powers. Mission sets include: disaster relief, humanitarian assistance, noncombatant evacuation, combat search and rescue, personnel recovery, sanction or embargo enforcement, preemptive strikes and raids, security assistance, counterinsurgency or insurgency support, and nation-building.

The United States has already reconfigured its National Military Strategy, affording it greater pertinence to a new world order. Salient themes are flexibility, selectivity, and power projection. [3] As all have crucial implications for logistics, these attest to the need for a fresh logistical concept and warrant a fundamental rethinking of the entire logistics architecture. The purpose of this essay is twofold: first, to provide an overview of the sequential nature of the logistics process, whose multidimensional nature can be broken down into four essential elements, and second, to identify and discuss the key change agents that will shape the evolution of 21st-century logistics. The new concept outlined here is not intended to be comprehensive, but is devised to furnish perspectives, advance intellectual discussion, and provide a sense of doctrinal direction. Although one cannot divine future military logistics in all its aspects, one can nonetheless sketch the prominent contours of logistics for the 21st century.

The Phases of Logistics

The logistics process begins with acquisition. In this initial step, the military procures, produces, or constructs commodities, facilities, ordnance, and major weapon systems. During this phase, primary input enters the logistics pipeline. A number of "functions" associated with acquisition result in the transfer of real goods and services to the military. Such functions include:

- . Budgeting. The acquisition objectives must be compared with available budgets to determine financial feasibility.
- . Contracting. This is the advertisement, selection, and administration of contracts for desired products and services.
- . Production. The management and coordination of the actual manufacturing process are handled by the civilian vendor if one is hired.

- . Evaluation. Finished goods and services are compared with contract specifications and a determination made with respect to the quality of compliance.

The second phase of the logistics process is distribution, supplying needed materiel, support, and personnel to the operational commander at the correct time. Distribution provides the military end-user with those items procured in the acquisition phase. Among the functions of the distribution subprocess are the following:

- . Transportation. The required items or personnel must be transported from their origin to the site of the end-user. This involves such important issues as lift adequacy, scheduling, and prioritization.
- . Warehousing. Logistics support requires storage and basing. In addition to problems of physical space, the issue of security against enemy threats presents itself.
- . Inventory control. Accounting control of inventories is an essential aspect of distribution if materiel and end-user are to be properly matched.
- . Supply management. The operational issues associated with the management of real goods awaiting distribution are critical and tedious components of the distribution subprocess.

The third phase is sustainment, which refers to the resiliency of a logistics system. A high capacity for sustainment allows military forces to continue operations and to maintain required levels of manning and effectiveness. Sustainment insures that the logistics pipeline continues to flow. Sustainment coalesces around several pivotal functions.

- . Maintenance. Through a program of maintenance and repair, the operational life of existing assets can be extended, thereby enhancing the level of logistics support.
- . Supply systems. Replenishment materiel is catalogued, reordered, and distributed through various supply systems.
- . Base or facility operation. The sustainment effort involves the operation of both rearward and forward bases or logistics nodes which permit the servicing of end-users.

The final stage in the logistics process involves handling and storage of retrograde materiel and resources. Handling and storage increase in importance as fiscal restraints become tighter and environmental regulations more binding. This, the terminal stage of the logistics process, involves three salient tasks:

- . Managing hazardous materials. The proper use, storage, and disposal of hazardous or environmentally destructive materials are the legal responsibility of the end-user.
- . Administering classified materials. The disposition of classified materials must be consistent with their sensitive nature.
- . Recycling products. The legal and economic considerations for recycling must be evaluated when establishing procedures for handling retrograde material.

Change Agents

The principal factors defining the contours and character of military logistics in the 21st century are best described as

"change agents." As these drive the evolution of modern logistics, they are part and parcel of any new paradigm. Change agents should be considered under the following headings: warfighting doctrine, technology, economics, the geostrategic environment, and the political aspects of maintaining the armed services.

Warfighting Doctrine

First, warfighting doctrine as defined in the National Military Strategy and in joint and service doctrinal publications will necessarily exert a significant influence on logistics practices.[4] Perhaps the foremost example is maneuver warfare, a warfighting concept that has gained wide currency in all the services. Logistics systems must dovetail with maneuver warfare.[5] The implications for the design of logistics systems are conspicuous: the characteristics of maneuver warfare determine the logistics system to a considerable degree. Distinct attributes of maneuver warfare--mobility, physical maneuver, offensive surprise, high operating tempo, and penetration--generate special logistical requirements. Maneuver warfare strives to increase battlespace volatility and unpredictability; in consequence, military logistics systems must be correspondingly responsive, spontaneous, and creative. The attendant ability of military logisticians to improvise presupposes a cognizance of battlespace opportunities, which, in turn, necessitate imaginative leadership and stylized techniques. Such alternative sustainment procedures augment the logistics network.[6]

The nature of maneuver warfare presumes independent and aggressive action by subordinate commanders. Success requires that subordinates be allowed to exploit opportunities and to seize the initiative as battlespace circumstances permit. Determination of end-user requirements and ascertaining the physical location of these operations pose challenges to the logistician. The logistics system, first and foremost, is designed to support combatants; new warfighting concepts underscore the need for an alteration of the relationship between the materiel command and subordinate combatant units to maximize sustenance to the battlespace commander. Furthermore, logisticians must anticipate the complete range of alternatives for ultimate materiel distribution.

Maneuver warfare explicitly recognizes that windows of opportunity are ephemeral during a conflict. Once closed, these windows are unlikely to reopen.[7] To exploit open windows to the utmost, commanders may use feints or diversions to distract the enemy, which may result in a diffusion of the logistics effort as the system is forced to accommodate a variety of operations simultaneously. The multiplicity of combat exertions, however minor, enlarges the difficulties associated with achieving adequate coordination between the logistics supplier and the end-user. Hence, the beckoning of opportunity in combat is in large part a function of the swiftness and agility of the logistics system.

Technology

Technological primacy is and will remain America's strong suit. Conforming to customary US warfighting style, employment of technologically advanced weapon systems and munitions enhances maneuver warfare capabilities. Technological primacy facilitates the exploitation of tactical opportunities with a minimum of casualties. Much, though, turns on the logistics system being able to secure, maintain, and distribute advanced technologies to the end-user. The influence of technology on the logistics system of the 21st century will be pervasive, affecting virtually every aspect of the logistics process. The scope of technological development governs the kind of support afforded military forces, as well as the level and duration of that support. In seeking new technologies for military applications, the logistics system must be proactive and resilient. Training programs must develop qualified uniformed technicians capable of operating and servicing sophisticated equipment in a conflict environment. During operations, the logistics system will need to maintain adequate supplies utilizing current and emerging technologies and components, balancing the cost of carrying inventories against the potential for military defeat due to weapon system or munition stock-out.[8] The logistics system is also largely responsible for technology security. Enemy acquisition of, or interference with, sophisticated technology will negate military advantages accruing to US forces.

Notwithstanding the salience it accords the offensive, maneuver warfare doctrine recognizes the legitimate role of defensive operations. A commander may, for instance, assume a defensive posture when conditions prove unfavorable for combat, or when further offensive operations would compromise the overall campaign.[9] Although logistics support of a defensive position is generally easier than for offensive operations, the need for security is normally greater. The logistics system must insure the safety and integrity of materiel and services until they are required for offensive operations at the decisive time and place.[10]

Be that as it may, the advantages technology confers upon a military force are invariably temporary. Duplication and the acceleration in product life cycle severely restrict the period of technological primacy. Opportunities for battlespace exploitation of advanced technologies have likewise contracted. In consequence, the logistics system has to become more sensitive to real-time military and technological competition by foreign entities, and, what follows, it must improve response times to end-users. Private enterprise proffers two approaches that might prove useful in realizing these goals. The first involves strategic linkage between supplier and customer. Specifically, a link is established between the vendor and the customer's customer. In military logistics, the end-user establishes an informational junction with the vendor. Based upon user-determined application projections and depletion rates, the vendor can estimate future requirements more accurately, and is thus more capable of furnishing quick-response service. Although the logistics system continues to process actual requisitions, in this approach the vendor receives end-user demand data in advance and is better able to anticipate production requirements before receiving an order.

The second approach for increasing the duration of technological superiority is the "designer" logistics system. This method aims to tailor the logistics system individually to the needs of a specific command. Jointness and interoperability issues complicate this approach, but by no means preclude its use. In fact, the approach offers considerable promise for certain advanced technologies and service to high-priority commands. The chief idea is to devise a logistics system that incorporates distinctive technologies and exceptional organization, with an eye to shortening delivery time to the end-user.

In growing measure, the influence of computing technology upon the practice of logistics will continue to make itself felt.[11] Microcomputers and workstations have made possible advances in database management and network optimization considered unthinkable only a few years ago. Logistics in the 21st century will be intensely computerized, significantly reducing the extent of human intervention and decisionmaking. The result will be a logistics system capable of solving even the most sophisticated logistics problems with extraordinary speed. Among those areas offering great promise for efficiency gains through computerization are routing and scheduling, warehouse design, facility location, and inventory management.

Through continuous improvements in transportation, technological advances will shape logistical capabilities indirectly as well. Several emerging innovations in transportation appear predisposed at present to affect the future of logistics. The first involves environmental regulations on engine design and power sources. Despite tighter environmental restrictions, and in some cases because of them, speed and delivery capabilities will increase across the transportation spectrum. Second, the intermodal trend employing trucks, predominantly, for short-hauls, and rail for long-haul movement will persist. Commercial linkages between trucking and rail firms will expand, engendering in turn integrated transportation companies. Third, the development of new transportation technologies such as the intelligent vehicle highway system, magnetic levitation, and high-speed water transportation have the potential to alter both the operational efficiency and the attendant economic feasibility of current transportation networks.

New technologies will improve communications associated with the 21st-century logistics system, and could even recast the entire architecture of information dissemination. In any event, communications will augment the responsiveness of the logistics process to the end-user's needs, both in terms of time and materiel provided. Among the features characterizing future logistics communication are electronic data interchange, automatic identification, and radio data communication.

In the field of materiel handling systems, technology will profoundly influence future logistics practices.[12] Current materiel handling systems are already largely integrated, with manufacturing and distribution seamlessly joined in an effort to attain synergy. The future lies with an "intelligent" materials handling system in which artificial intelligence is instrumental. For instance, "expert" systems are employed by automated guided vehicles and "smart" monorails in determining on-line routing and dispatching. "In receiving and shipping," as one observer describes it, "expert systems are being sought to direct a robot in palletizing or depalletizing mixed loads, unloading or loading delivery trucks, and assigning storage locations to mixed loads." [13]

Economics

Because US military forces will likely operate within relatively narrow budgetary guidelines, economic issues will

loom large in the logistical sphere. Attention to economic efficiency in the armed services could even be accorded the salience it has in the private sector. Several economic trends now just becoming discernible are likely to influence profoundly the nature of military logistics in the 21st century. Although only in its infancy, the privatization of many support services within the armed forces is likely to expand. The US Army, for instance, already contracts with Brown and Root, a subsidiary of Halliburton, Inc., to provide messing, garbage collection, laundry, and water purification services for its operations in Haiti. Areas projected to be privatized in the future include military housing, aircraft maintenance, training, and medical and dental services. Privatization or outsourcing helps the US military adjust to changing circumstances.[14] As the armed forces downsize, it becomes economically, and frequently operationally, more efficient to outsource basic support services.[15] To maintain sufficient warfighting capability--the teeth in the military's "tooth to tail" ratio--support services will be privatized in the interest of fully manning combat units. Privatization also reduces the size of any troop commitment, rendering an operation more palatable in the public eye, and thus facilitating the continuance of political support.

Military logistics in the new century is also likely to make greater use of "off the shelf" technology. Manufacturers increasingly apply the dual-use concept, involving concurrent utilization by civilian and military customers. Tedious design specifications and costly development processes are thereby largely eliminated, and contracting becomes essentially a matter of price and delivery data negotiation. Dual-use also permits the integration of small-volume military orders with larger civilian sales. Such flexible manufacturing permits the sharing of various overhead costs, resulting in lower unit cost to customers and, ultimately, reduced weapon system expenses. Moreover, because production lines are continually providing output to the commercial sector, these are available should an international crisis require surge production.[16]

Improvements in informational technologies, coupled with the economic disadvantages of holding large inventories, will foster a major reduction of inventory levels held by materiel commands in the future. Information will substitute for costly finished goods inventories. As information improves in responsiveness and comprehensiveness, the level of inventories and appropriate safety stocks will decline. Reduced inventories will result in significant cost savings that can be used to support other operations.

The Geostrategic Environment

The geostrategic environment of the 21st century will pose fresh challenges, tendering a different and, if handled properly, an auspicious context in which logistics will assume a more consequential role. Indeed, effective logistics can contribute hugely to a setting more conducive to future military operations. International coordination and interoperability will become critical to a successful logistics effort. Logisticians in the future will work more closely with their host-nation counterparts than previously. Host-nation support will expand by degree, but also in kind as the United States pushes for greater international "cost sharing." Thus, the future portends significantly larger burdens accruing to nations sponsoring US military involvement. The financial advantages ensuing from this approach should ease some of the concerns the US public may harbor about military operations. The United States can reasonably expect recurrent pleas for intervention, many of which will take the form of requests for logistical support to local forces. The prerequisite adaptability and versatility of the logistics system underscore the importance of a new concept for the 21st century.

US participation in any major regional contingency is unlikely to be unilateral. The Desert Shield and Desert Storm model of an international coalition is a prominent feature of current security strategy and is likely to remain so.[17] The function of coalitions and alliances will, if anything, be more pronounced in any future US military strategy, meaning that the orientation of logistics on combined operations must be reinforced. Such logistical endeavors virtually presuppose international coordination and interoperability. That said, significant differences between the United States and its allies and partners with respect to doctrine, specifications, capabilities, and training will pose imminent, but not insurmountable, problems to logisticians in operationalizing the combined concept.

The implications of this new security environment for the logistician are threefold:

- . The frequency of US deployments abroad will increase.

- . The level of future deployments will decline relative to Cold War era standards.
- . Instability and the emergence of regional belligerents heighten the uncertainty surrounding future deployments.

The Political Aspects

The final change agent, one that will continue to affect the execution of logistics activity in broad areas, is the US political process. Defense budgets specifying appropriations for logistics are the upshot of an arduous political process. Although common apprehensions about national security tend to impose a certain floor on the budget, DOD funding levels can be volatile and often defy prediction. Two US political themes with important implications for DOD funding are now well-pronounced. Government "downsizing," engendered in the main by a public perception that government agencies are overstaffed and inefficient, is one. The other is the pressure, and thus the sense of urgency, to reduce the federal deficit. Closely interrelated, both indicate that substantial increases in the DOD budget are unlikely. Efficiency and innovation will remain the watchwords of the logistics process, as mentioned above.

Shaped by the geostrategic environment, the US National Security Strategy affords an essential framework for military activity. Aspects of the National Security Strategy that invariably have far-reaching and longer-term implications for the logistician are regionalism, forward presence, internationalism, and transnational threats. With its promulgation, the strategy itself becomes part of the political process, driving funding decisions and governing contingency planning. Moreover, domestic politics weigh heavily upon the National Security Strategy. Public sentiment can span the spectrum from endorsement of global engagement to the promotion of isolationism, with moods in America oscillating a good deal. With a more assertive security strategy, the domain of logistics will expand almost regardless of international circumstances. Should the National Security Strategy delineate a more circumscribed notion of US interests, the scope of logistics activity will become more sensitive to the stability of the international order. And quite apart from the provisions of a specific security strategy, an unstable global environment will evoke an enlargement of logistics operations.

Effects of Change Agents

Figure 1, below, depicts the interaction between the change agents identified above and the operation of the logistics system. This table summarizes the respective primary and secondary effects of each change agent on the logistics process. Effects are, of course, not uniformly distributed across the logistics process, but have a far greater effect during certain phases.

Influence of Change Agents on the Elements of the Logistics Process		
Change Agent	Primary Effects	Secondary Effects
<i>Warfighting Doctrine</i>	Sustainment	Distribution
<i>Technology</i>	Acquisition	Distribution
<i>Economics</i>	Acquisition, Sustainment	Disposition
<i>Geostrategy</i>	Sustainment	Distribution
<i>Politics</i>	Acquisition, Sustainment	Disposition

Figure 1. Influence of Change Agents.

The logistics system operates within the broad structure of national *warfighting doctrine*. Emphasizing the uncertainty and inherent unpredictability associated with the interface between battlespace and logistics, doctrinal boundaries are, by necessity, irregularly drawn. Doctrine must be flexible, and political constraints ultimately control military activity. That said, the effects of warfighting doctrine will probably be most strongly felt in the area of sustainment. With its emphasis upon deception, rapid response, and the offensive, maneuver warfare doctrine presents an exceptional challenge to the sustainability endeavors of a logistics system. A second area affected will be distribution, where the rapid movement of forces and the emergence of temporary windows of opportunity make the actual transfer of materiel to the end-user difficult.

Although the cadence of *technological transformation* will resonate throughout the logistics process in the 21st century, such change will carry the most weight in acquisitions. Technology will determine what the logistics system through its acquisition activities ultimately provides the end-user. It will define what items the logistician will contract for, and how specifications should be delineated. And because it affects both the transportation and materiel-handling processes, technology also will have a conspicuous effect on the distribution of materiel.

Economic influence upon the acquisition and sustainment phases of the logistics process must not be discounted. Economic factors such as the size of the defense budget and the cost of similar civilian goods and services often predominate in the acquisition activity of a logistics command. These economic factors will also establish the extent of logistic support available for a prolonged campaign. The secondary effect of these factors occurs in the disposition stage of the logistics process. Economic considerations will help to direct decisions regarding the reuse and disposal of retrograde materiel.

Because host-nation support and coalition construction are largely a function of the *geostrategic environment*, the latter's primary influence will be on the sustainment stage. Resources made available by allied nations will be critical components of the logistics sustainment phase of combat operations. The secondary effect will be upon distribution, since infrastructure and theater transportation are inextricably connected to the broader geostrategic environment.

Because of the overarching significance of the *political process* in providing direction and channeling resources to logistics operations, its influence will permeate the acquisition and sustainment phases. It will continue to focus attention upon cost, and consequently heighten the political visibility of these phases. To a lesser extent, the political process will also affect the disposition phase, as environmental issues associated with the disposal of materiel arise.

Implications: The New Concept

Identification of the five principal change agents setting the course of military logistics, along with a description of their respective effects, facilitates the development of a new concept of logistics. Figure 2, below, addresses this new paradigm. The new concept of logistics differs from the existing or conventional model in several respects. Although both concepts recognize operational readiness as the appropriate objective for a logistics system, the new concept achieves that readiness through superior customer service rather than simple support. Consequently, the new logistics paradigm explicitly acknowledges the existence of both internal and external customers, rendering the logistics process more capable of satisfying its ultimate mission of support to the combatant commands. The entire focus of logistics shifts with this new concept, meeting customer need and entreaty, and converging around strategic alliances among customer, vendor, and logistician.

Logistics Paradigms: The Conventional vs. the New		
Item	Conventional Paradigm	New Paradigm
<i>Objective</i>	Operational readiness via support	Operational readiness via customer service
<i>Customer</i>	Internal	Internal and external
<i>Focus</i>	Logistics engineering; Acquisition procedures; Life-cycle costing	Strategic alliances; Customer service; Life-cycle costing
<i>Performance</i>	Service levels; Readiness rates; Sustainability	Order cycle time; Order fill rate; Delivery reliability
<i>Personnel</i>	Individual services' logisticians	Increased use of DOD and private-sector civilians
<i>Procurement</i>	Highly specified, military-unique materiel	Dual-use technology and applications; Off-the-shelf materiel
<i>Levels of Logistics</i>	Separation between strategic, operational, and tactical	Blurring of distinction between levels

<i>Pipeline</i>	Requirements-based	Distribution-based
<i>System nature</i>	Service-based logistics systems	Joint logistics systems
<i>Support of Coalitions</i>	Support to known coalitions	Support to ad hoc coalitions
<i>Host Nation Support</i>	Agreements in place	Contingency contracting

Figure 2. A Comparison of Logistics Paradigms.

Performance measures assessing the efficiency of the logistics process have likewise changed, emphasizing actual service to the customer. Procurement and personnel components of the logistics system will become more involved with the private sector. Civilian technologies will continue to replace highly specialized military technological applications, while private firms will supplant individual service support activities. Logistics systems in the 21st century will become more integrated, blurring traditional distinctions between strategic, operational, and tactical logistics. As the logistics process becomes more streamlined and seamless, it tends to emphasize distribution rather than requirements. It will feature joint logistics systems in lieu of more traditional individual service systems. It will be capable of supporting ad hoc multinational coalitions and satisfying contingency contracting requirements. Consequently, the logistics system of the 21st century will be a more agile player in the international security environment.

As the lifeblood of military operations, logistics must be as dynamic as the warfighting community it supports. As the battlespace of the 21st century changes, so too will the practice of logistics. Numerous factors are presently altering the nature of logistics. These factors are exerting their influences across the various phases of the logistics process, producing a new logistics concept for the 21st century. Several pivotal features characterize this new paradigm. Logistics will become increasingly joint in operation, customer-focused in performance, and international in orientation. Military logistics will expand its inclusion of civilian personnel and products. Customer service will drive the logistics process, becoming the sine qua non for system assessment and design.

NOTES

1. Quoted in Barry R. McCaffrey, "U.S. Military Support for Peacekeeping Operations," Dennis J. Quinn, *Peace Support Operations and the U.S. Military* (Washington: National Defense Univ. Press, 1994), p. 3.
2. Included among such phenomena are terrorism, narcotics trafficking, refugees, and environmental degradation or depletion.
3. See *The National Military Strategy of the United States* (Washington: GPO, 1995).
4. Current naval doctrine regarding warfighting is contained in Naval Doctrine Publication 1 (NDP 1), *Naval Warfare*, Washington, D.C., 1994.
5. Actually, NDP 1 acknowledges "maneuver" as one of its nine principles of war and is defined as placing "the enemy in a position of disadvantage through the feasible application of combat power." It further notes that maneuver capitalizes on speed and agility to gain an advantage in time and space relative to an enemy.
6. For an interesting discussion of the potential role for creative tactical logistics, see L. D. Hartman, "Scavenger Logistics," *Army Logistician*, July-August 1989, pp. 22-24.
7. These windows are often the result of what Clausewitz termed the "fog" of war. Because of the frictions and informational asymmetries associated with the movement of large military forces, situational opportunities develop which offer the potential for military gain. These opportunities however, are inherently unstable, and their existence must necessarily be temporary.
8. Traditional business models of optimal inventory (e.g., economic order quantity) are inadequate since they fail to

incorporate the costs associated with potential military defeat. Even those models which incorporate a safety or buffer stock may not be satisfactory if the technology is especially critical to operational success.

9. Spruance's original defensive posture during the Battle of the Philippine Sea (June 1944) is a classic example of this. His switch from defensive to offensive operations at a time of his choice resulted in a major US victory.

10. This is related to the prescription in maneuver warfare of directing one's strength against an enemy's weakness. In concentrating that strength, a sufficient logistics buildup is required, resulting in challenges to materiel safety and compositional integrity.

11. For a broad review of the effects of technology on logistics see T. R. Gable and J. A. White, "Logistics Technology in the Twenty-first Century," in *The Logistics Handbook*, ed. J. F. Robeson and W. C. Copacino (New York: Macmillan, 1994), pp. 869-83.

12. Material handling includes moving, storing, protecting, and controlling materials. A more inclusive definition refers to a system that provides the proper material at the right time and place, in the right condition, at the right price, and using the right delivery methods.

13. Gable and White, p. 879.

14. Outsourcing refers to the process of contracting the production of selected goods or services to a third party as a firm elects to concentrate on its core competencies or capabilities.

15. See T. E. Ricks, "U.S. Military Turns To Civilian Workers For Support Services," *The Wall Street Journal*, 1 May 1995, pp. 1, 8.

16. For a discussion of the issues associated with surge production and the current capacity of the US defense industrial base see S. P. Ferris, "A Shortage of Seed Corn? Managing the Defense Industrial Base," *Military Review*, 74 (June 1994), 40-53.

17. See for instance, "military capability . . . to meet the diverse needs of our strategy, including the ability, *in concert with regional allies*, to win two nearly simultaneously major regional conflicts" in *A National Security Strategy Of Engagement And Enlargement* (Washington: GPO, February 1995), p. 7.

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