Product Support for the 21st Century:

A Year Later

September 2000

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Foreword

A year ago, DoD published a product support implementation strategy that was built on the Section 912(c) report submitted to Congress by Secretary Cohen in April 1998. That report, *Actions to Accelerate the Movement to the New Workforce Vision*, responded to the requirements in Section 912(c) of the Fiscal Year 1998 National Defense Authorization Act. The following areas were included in the "Restructuring Sustainment" section of the 912(c) report and are being implemented under the overarching umbrella of product support reengineering:

- Reengineer product support process to use best commercial practices
- Competitively source product support
- Modernize through spares
- Greatly expand prime vendor and virtual prime vendor.

DoD's product support reengineering implementation strategy is a critical part of our logistics transformation to achieve Joint Vision 2020. The strategies, implementation elements, and outcome objectives that are fundamental to product support reengineering coincide with the logistics transformation objectives of operational agility, improved customer service, and integrated logistics chains.

To lead our migration to customer-focused product support, the military departments identified 30 pilot programs in 1999. Those programs initiated analysis, planning, and coordination efforts necessary to implement innovative product support strategies. I greatly appreciate the efforts of the pilot program managers and their staffs. Simultaneously, an OSD team methodically addressed key issues such as financial structures, competitive environments, and enabling information systems. This progress report highlights the results of their work, summarizes completed actions to address structural issues, and identifies remaining tasks and milestones.

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Executive Summary

DoD Logistics Transformation

The Department of Defense (DoD) implementation strategy to improve materiel readiness, increase warfighter confidence in logistics support, and reduce costs was described in "Product Support for the 21st Century," published in July 1999. That strategy encompassed a pragmatic three-phased migration to a customer-focused product support environment over a 7-year period. The envisioned product support environment is characterized by the following attributes:

- Customer relationships that are based on performance outputs (such as flying hours or the mission availability of equipment)
- Integrated logistics chains across government and industry that focus on system readiness and customer service—driven by the unique requirements of the military services
- Best-value providers selected from government, industry, or government/industry partnerships
- A support environment that maintains long-term competitive pressures
- Secure, integrated information systems across industry and government that enable comprehensive logistics chain integration and full asset visibility
- Continuous improvement of weapon system supportability and reduction in operating costs by dedicated investments
- Effective integration of weapon-focused support that is transparent to the warfighter and provides total combat logistics capability.

This report summarizes DoD's progress over the last year to move toward that environment, identifies initial lessons learned, and describes required near-term actions and milestones.

RECENT ACCOMPLISHMENTS

Phase I of DoD's implementation strategy—establish a new product support environment—was intended to explore the potential application of innovative product support concepts for new and existing weapon systems and to provide an initial "get ready" phase for pilot programs and cognizant policy offices. During the past year, DoD accomplished the following:

- Solicited and incorporated warfighter comments and concerns on the product support implementation strategy. Representatives from the Office of the Deputy Under Secretary of Defense (Logistics and Materiel Readiness) conducted site visits at U.S. Forces Command; Commander, Naval Air Force U.S. Atlantic Fleet; Commander, Naval Air Force U.S. Pacific Fleet; U.S. Central Command; U.S. Joint Forces Command; U.S. Special Operations Command; and U.S. Transportation Command. *All site visits reconfirmed the need for and support of reengineering DoD product support practices.*

- Completed a detailed survey of the U.S. Central Command Area of Responsibility and documented current processes, delivery performance, and key challenges. *These efforts resulted in a model that enables the services to establish "as-is" and doctrinal baselines for implementing initiatives to reduce customer wait time and achieving time-definite delivery standards.*

- Established 30 pilot programs to test innovative product support practices and conducted quarterly forums of the pilot program managers to exchange approaches and lessons learned. *Twenty-four of the 30 pilot programs have adopted innovative product support strategies in concert with their product centers and service headquarters.*

- Defined cost and performance baselines for the pilot programs. *This effort highlighted the complexity and lack of accountability for life-cycle cost and output within current product support processes.*

- Assessed policy and operational implications of increased contractor support on the battlefield during the Focused Logistics Wargame (FLOW)'99. *This effort highlighted the need for clarifying guidance, which was issued in April 2000 as Joint Publication 4.0 (Chapter 5) as a direct result of FLOW'99.*

- Demonstrated integration of cross-platform support at the product command level within the U.S. Tank-automotive and Armaments Command and Naval Sea Systems Command. *These efforts highlighted that program-centered strategies can be effectively coalesced to support operational requirements.*

- Expanded on the initial Defense Logistics Agency (DLA) prime vendor efforts to form strategic supplier alliances. *These efforts reinforced DLA's migration to supplier performance management and solidified contractual provisions for comprehensive support, including surge.*

- Documented functional requirements for managing product support data and information. *The results of these efforts were published as a Mission Needs Statement for an Integrated Product Data Environment.*

- Defined an appropriate process that considers all relevant regulations and statutes to evaluate industry-proposed product support innovations. *The Joint Aeronautical Commander's Group, under the Joint Logistics Commanders, published that process.*

- Integrated key aspects of customer-focused product support with acquisition life-cycle processes. *This integration was documented in the recent update to the DoD 5000 series acquisition regulations*.

- Established a product support virtual integrated product team (IPT). *This virtual IPT is a knowledge-based Web site that enables electronic exchange of product support reengineering background information and implementing actions.*

These key actions established the environment for full evaluation of the pilot programs during Phase II.

INITIAL LESSONS LEARNED

DoD's efforts during the first year of the implementation strategy also identified several key lessons, including the following:

- *Warfighter flexibility*. Product-centered support strategies must be structured to afford sufficient flexibility to allow warfighter customers to respond to changing operational requirements.

- *Legacy systems*. Imposition of a contractor integrated product support strategy on existing weapon systems is exceptionally difficult at the system level. More promising strategies include major subsystem strategies or major upgrades.

- *Program manager accountability*. Program managers are unwilling to accept responsibility for life-cycle costs and readiness without commensurate insight and control over resources. Current budgeting and financial management practices diffuse responsibility across numerous organizations.

- *Financial processes.* Existing financial processes reinforce functional stovepipes and inhibit functional integration to improve customer service. Existing financial management practices must be revamped to enable single-point accountability for costs and outcomes.

These early lessons are being incorporated into the product support implementation strategy.

NEXT STEPS

The first year of the product support implementation strategy included several highlights that reinforced the overall strategy, as well as several areas of concern that merit near-term action. Specific actions include the following:

- Issuance of product support guidance to help program managers and the logistics workforce assess and develop performance-based logistics strategies.
- Development of quantitative-based methodology to assess pilot program results prior to proceeding into Phase III.
- Implementation of output-driven product support strategies with appropriate enabling financial mechanism on at least three current pilot programs.
- Testing of time-definite delivery standards and customer wait time standards during the Bright Star FY01 exercise.
- Assessment of the impact of multiple product support strategies on operational capabilities during FLOW 01.

These near-term actions and tests will provide appropriate data to support the product support major review in FY02, prior to proceeding into Phase III.

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Chapter 1
Product Support

This chapter provides background information on DoD's product support implementation strategy. It describes the requirement and timing for product support, defines the term, and provides information on costs and personnel.

CONGRESSIONAL REQUIREMENT

Section 912(c) of the National Defense Authorization Act for fiscal year (FY) 1998 required DoD to submit a plan to Congress for streamlining acquisition organizations, workforce, and infrastructure. The plan, titled *Report to Congress on Actions to Accelerate Movement to the New Workforce Vision,* was submitted in April 1998.[1] It included a strategy for reengineering product support processes through the use of best practices, the use of competitive organic and commercial sources, modernization through spares, and expansion of prime vendor/virtual prime vendor arrangements.

PRODUCT SUPPORT FOR THE 21ST CENTURY

The DoD strategy to implement the product support portion of the plan, titled *Product Support for the 21st Century,*[2] was prepared by a joint military service/defense agency team chaired by the Office of the Deputy Under Secretary of Defense (DUSD) for Logistics and Materiel Readiness. The report, issued in July 1999, addressed four broad objectives:

- Reengineer logistics processes, starting with warfighters
- Expand the use of competitively sourced product support for new and legacy systems
- Improve reliability, maintainability, and sustainability through continuous technology refreshment
- Expand the use of prime vendor (PV) and virtual prime vendor (VPV) arrangements.

[1] Available at http://www.acq.osd.mil/ar/912crpt.htm.

[2] Available at http://www.lmi.org/virtualipt/secure/geninfo.html and http://www.acq.osd.mil/ar/section912/product-report.pdf.

DoD Product Support—Defined

For the Section 912(c) effort, product support was considered to be the package of support functions required to maintain the readiness and operational capability of weapon systems, subsystems, and support systems. The package of functions includes materiel management, distribution, technical data management, maintenance (excluding operational and deployable intermediate maintenance), training, cataloging, engineering support, repair parts management, failure reporting and analyses, reliability growth, and configuration management.

Joint Vision 2010 tenets of force projection, joint warfighting, and focused logistics were held close in defining product support approaches. Particular emphasis was placed on continental United States (CONUS) support capabilities, consistent with the concept of deployed forces "reach back" to the CONUS base for time-definite delivery and re-supply of materials.

The source of support may be organic or commercial; the decision is left to the discretion of the military service. The Army, Navy, Air Force, and Marine Corps have stated a preference for organic support at the organizational level. In any case, the primary focus is to optimize customer support, achieve maximum weapon system availability at the lowest total ownership cost (TOC), improve operational performance, and increase readiness.

Scope—Updated

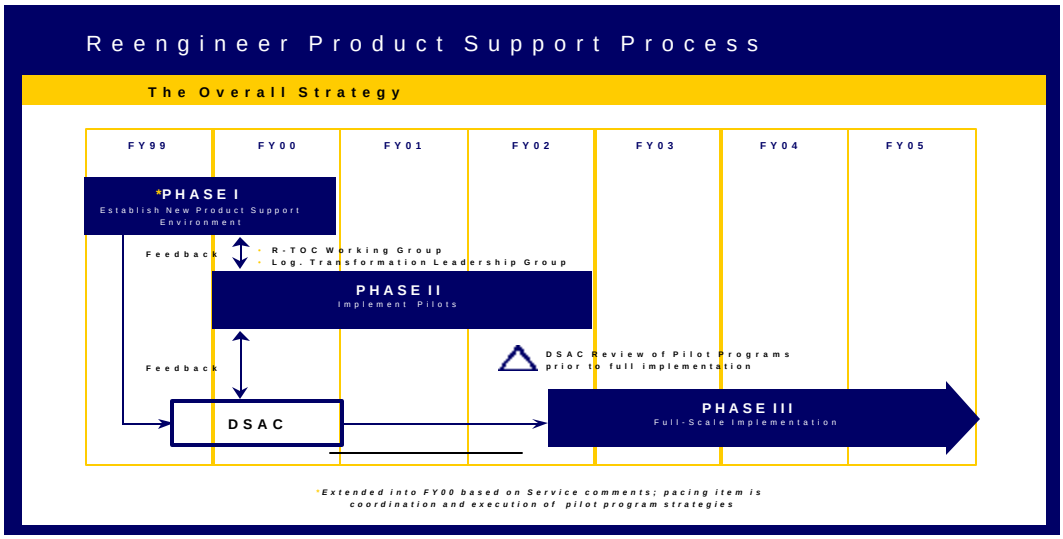
In total, product support represents 71 percent of the logistics workforce and 74 percent of DoD's $84 billion annual logistics cost.[3] DoD product support employs approximately 130,000 military and civilian personnel and costs about $32 billion per year for national-level functions such as depot maintenance, centralized materiel management, distribution, and transportation. Another 750,000 personnel are employed and $30 billion is spent at the field, or operational, level.

Timing

The DoD strategy is being implemented in three phases to allow time to conduct and learn from the analyses, to develop risk mitigation plans and implementation tools, and to test concepts (Figure 1-1).

[3] Estimated FY 2000 logistics system cost baseline (current-year dollars).

Figure 1-1. Time-Phased Schedule



In Phase I, Office of the Secretary of Defense (OSD) and service staffs refined their strategies and developed implementation plans. This phase allowed for planning and approval of pilot program strategies and preliminary structural efforts on enabling areas. Phase II concentrates on implementing pilot product support strategies. All basic strategies are tested during this phase. Phase III is the period scheduled for full-scale implementation, based on the results from pilot programs.

On March 23, 2000, the Deputy Secretary of Defense issued Defense Reform Initiative Directive (DRID) # 54,[4] "Logistics Transformation Plans." In response to DRID #54, the services developed product support logistics transformation plans and are tracking progress in implementing the DoD Logistics Strategic Plan.

[4] Available at http://www.defenselink.mil/dodreform/.

Chapter 2
Implementing Fundamental Strategies

This chapter summarizes DoD's efforts in each of the four elements that constitute the structural plan for product support. It presents innovative strategies that are being tested for integrating logistics chains to improve readiness and service to warfighters.

Product support strategies seek to find best-value providers from among government, industry, or government/industry partnerships that can build relationships with customers by giving them better performance, such as increased flying hours or higher mission availability. Successful strategies ensure that competitive pressures are maintained over the long term, information systems are secure, weapon systems are continuously improved, and operating costs are reduced.

REENGINEER LOGISTICS PROCESSES, STARTING WITH WARFIGHTERS

This strategy is designed to achieve effective integration of weapon system-focused support that is transparent to the warfighter and provides total combat logistics capability. Specific completed actions during Phase I include the following:

- *Coordination with the warfighter.* The OSD (Logistics) staff coordinated with commanders-in-chief (CINCs) and operational commands to define operational requirements for DoD product support strategies. Site visits to U.S. Joint Forces Command; U.S. Special Operations Command (USSOCOM); U.S. Central Command (USCENTCOM); U.S. Transportation Command; Commander, Naval Air Force United States (U.S.) Atlantic Fleet; and Commander, Naval Air Force US Pacific Fleet provided extensive insights into logistics requirements to support the full spectrum of operations. CINCs emphasized the need to improve materiel flows in theater and ensure that future support concepts are transparent to users. The warfighter commands expressed concern about maintaining flexibility with respect to financial controls and contractors on the battlefield.

- *Joint Logistics Warfighting Initiative (JLWI).* The Joint Staff and DUSD (Logistics and Materiel Readiness) initiated JLWI in coordination with USCENTCOM, acting as the exercising CINC. The JLWI will segment and test the supply pipeline to establish metrics for process improvements in deployment, requisitioning, distribution, retrograde, and redeployment of equipment in a joint environment. The JLWI team completed a detailed

"as-is" survey of the USCENTCOM Area of Responsibility and documented current processes, delivery performance, and key challenges.

- *Army Materiel Command (AMC).* AMC established an AMC Field Support Center (AFSC) to coordinate logistics support to warfighters. As an arranger of support (organic and commercial) from industry to the soldier, the AFSC provides a full range of product support assistance across all of the Army's integrated materiel management centers and across host major command installations. An example of the type of assistance under the AFSC concept is the U.S. Tank-Automotive and Armaments Command (TACOM) center known as 1-877-HI-TACOM, which provides assistance on more than 3,000 systems.

- *Naval Sea Systems Command (NAVSEA).* NAVSEA established the Anchor Desk—an office that is staffed 24 hours a day, 7 days a week—to facilitate and speed seamless movement of logistics data and information between ships in the fleet and government or commercial organizations. The Anchor Desk is a single point the ships can contact for help in handling logistics problems.

- *Special Operations Command.* USSOCOM implemented cradle-to-grave (CTG) management for special operations-peculiar equipment. CTG integrates life-cycle support functions by establishing partnerships among program managers and equipment users. USSOCOM developed new policy and metrics to measure the success of the CTG program.

EXPAND COMPETITIVELY SOURCED PRODUCT SUPPORT FOR NEW AND LEGACY SYSTEMS

This strategy focuses on identifying best-value providers from among government, industry, or government/industry partnerships to ensure a support environment that maintains long-term competitive pressures. The proper product support strategy for a given weapon system will vary from organic support to contractor support. The strategic sourcing strategy guides the program manager through an assessment process to determine which approach is best on a case-by-case basis. Specific completed actions include the following:

- *Issued A-76 Interim Guidance.* In April 2000, OSD published Interim Guidance rules on strategic and competitive sourcing programs. The rules state that competitive sourcing remains a major pillar in the Defense Reform Initiative and the Department's business strategy. The objective of the rules is to provide a consistent and disciplined approach in A-76 cost comparisons.

- *Issued Marine Corps Order.* The Marine Corps developed a proposed Marine Corps Order to publish policy and guidance for determining if

contractor logistics support is appropriate for a particular weapon system and how to analyze alternatives to select suitable contractor logistics support coverage. Staffing of the proposed Order has been completed, and the document is ready for signature by the Deputy Commandant for Installations and Logistics.

- *Performance-based logistics (PBL).* PBL agreements establish measurable performance targets that suppliers are expected to meet in support of warfighter requirements; PBL agreements are in place for 19 of the 30 pilot programs. Compensation that is based on how an organization performs against specific metrics is gaining greater acceptance in the government and commercial sectors.

- *Apache prime vendor support (PVS).* At the Army's request, a team from OSD examined issues associated with implementing an innovative support approach, called prime vendor support, for the Apache helicopter. PVS provides tremendous benefits to the operational user in terms of readiness and performance. The OSD team examined financial impacts, supply inventory issues, organizational alternatives, workforce concerns, and other implementation complexities. In August 2000, OSD recommended a go-ahead for the Army to implement Apache PVS. Army evaluation of the PVS concept and other alternatives is underway.

- *Army depots.* The Army formed teams of their maintenance depots and prime contractors to pursue best-value return (High Mobility Artillery Rocket System weapon system program) and government/industry sustainment initiatives (Crusader program). Other pilot programs—such as the Comanche, Abrams, and Apache—established or are planning to establish partnering arrangements with Army depots for depot level maintenance.

- *Air Force Lightning Bolt 99-7.* The Air Force formalized its product support program, known as Lightning Bolt 99-7, and trained its program managers to prepare and carry out product support plans for new and legacy systems. Many different support arrangements are available to the program managers: performance-oriented contracts, award term incentives, long-term support arrangements, sharing in cost reduction initiatives, and service level agreements.

- *Navy/Honeywell.* In June 2000, the Navy contracted with Honeywell for total logistics support of F/A-18, P-3, S-3, and C-2 auxiliary power unit (APU) systems. As public-private partners, the Navy and Honeywell will apply their combined strengths to develop and sustain a supply chain that meets worldwide fleet requirements for available and reliable APUs.

- *Issued Alternative Logistics Support Guide.* The Joint Logistics Commanders/Joint Aeronautical Commanders Group developed a roadmap—known as the alternative logistics support candidate flow process—to help program managers make informed decisions about competitive sourcing opportunities.

IMPROVE RELIABILITY, MAINTAINABILITY, AND SUSTAINABILITY THROUGH CONTINUOUS TECHNOLOGY REFRESHMENT

This strategy considers ways to reduce ownership costs and enhance readiness. Lower costs can be achieved by improving the efficiency of the supporting infrastructure (for example, by improving the design of support processes and reducing infrastructure) or by reducing demand for support by incorporating new technology that improves reliability, maintainability, and sustainability (RM&S) design characteristics. Completed actions include the following:

- *Pilot programs committed to RM&S.* All pilot programs committed to RM&S initiatives aimed at correcting longstanding problems that have depressed weapon systems readiness rates. All pilot programs report progress toward reducing total ownership cost baselines; 10 programs project that they will meet or exceed the 20 percent reduction goal by FY 2005.

- *Issued Program Budget Decision (PBD) No. 721.* PBD No. 721 was developed and approved to support program managers as they look for different product-centered ways to reduce ownership costs. The services identified opportunities in which the return on investment would exceed 3:1 and the payback would occur within the Future Years Defense Plan. The PBD provides about $13 million for FY01.

EXPAND PRIME VENDOR AND VIRTUAL PRIME VENDOR ARRANGEMENTS

This strategy encourages PV and VPV partnerships, which allow DoD to take advantage of industry's capabilities and focus the mission support expertise of DoD personnel on DoD's most essential requirements. A PV is a partnership with a vendor for commercial products that uses commercial pricing and established distribution arrangements. A VPV is a partnership that furnishes a broad range of

items in a particular commodity group over a given geographic area for direct vendor delivery to customers. PV and VPV partnerships typically are long-term strategic alliances with suppliers. PV, VPV, and other related logistics integrator and service initiatives underway by the Defense Logistics Agency (DLA) include the following:

- *Endorsement of strategic supplier alliances (SSAs).* In association with an audit of the C-130 aircraft VPV program, the DoD Inspector General (DoDIG) endorsed DLA pursuit of an SSA initiative. This concept employs commercial contracts and business practices introduced as a tool for leveraging DoD's substantial buying power. Data exchange, replenishment, and rapid build-to-order capabilities are enhanced by migration to strategic sourcing environments such as this. Several potential SSA opportunities are on the horizon.

- *Establishment of SSAs.* DLA is pursuing SSAs with suppliers who produce a wide variety of military-unique items. The innovation in these long-term, corporate contracting arrangements is that they would include item demand-unique acquisition strategies. DLA is in the final stages of completing its first SSA with Honeywell. This alliance will cover 40,000 items in three groups.

- *DLA pilot program engagement.* DLA Weapon System Support Managers have engaged all 30 pilot programs, advising Service program managers of support service options available from DLA. To date, 12 programs have adopted or are exploring prime vendor arrangements, virtual prime vendor (VPV) arrangements, corporate contracts/long-term contracts with direct vendor delivery (DVD), or service level agreements for consumable parts support. These initiatives include:

  - Defense Supply Center Richmond (DSCR) nearing award on VPV contracts for the C-5 and EA-6B and exploring VPVs for the KC-135 and F-16

  - Defense Supply Center Columbus (DSCC) awarded a corporate contract including DVD provisions to Oshkosh for improved support of the HEMTT.

  - DSCC exploring corporate contracts/long-term contracts with DVD for the MTVR, M-1 Abrams Tank, and AEGIS Cruiser

  - DSCR exploring corporate contracts/long-term contracts with DVD for the ASE/CASS

  - DSCR developing service level agreements with the program managers for the AWACS, JSTARS, and B-1B.

DLA is working with eight other pilot program PMs (program managers) to improve consumable parts support (i.e., C-17, AFATDS, SLAM-ER, HIMARS, Guardrail/Common Sensor, AAAV, AH-64 Apache, and CH-47). DLA coordination is underway with the following pilot program PMs to determine the DLA support role: Crusader, LPD-17, H-60, and Comanche.

Chapter 3
Enablers

As presented in DoD's product support implementation strategy, the fundamental strategies are supported and enriched by several key enabling actions. The three primary enabling actions are as follows:

- Foster a competitive base
- Reengineering financial processes
- Implement complementary information technology systems strategy.

In addition to these enablers, other long-term actions that are attentive to policy requirements, training the workforce, and testing reengineering processes are underway.

FOSTER A COMPETITIVE BASE

Integrated product support strategies must capitalize on the existing competitive commercial base for support services and maintain competitive pressures throughout the product life cycle. Specific completed actions in Phase I include the following:

- *Program Executive Office/Systems Command (PEO/SYSCOM) conference workshop.* In November 1999, Under Secretary of Defense (USD) for Acquisition, Technology, and Logistics sponsored a workshop with representatives from program management offices, the services' product commands, and industry. The workshop examined how to capitalize on existing competitive commercial base services, how to maintain competitive pressure throughout the life cycle of equipment, and how to break some of the barriers that discourage commercial vendor participation and thereby lessen competitive sourcing capabilities.

- *Future competition for Defense products.* Policy emphasis on competition has been included in revised DoD Directive 5000.1, and further guidance will be included in the implementing regulation, DoD 5000.2-Regulation and a *Market Analysis Handbook* to help the components assess future competitive concerns. DUSD (Industrial Affairs) has formed a group to

evaluate specific product or technology areas and to decide how future competition can be maintained in particular sectors.

- *Cancellation of MIL-STD-2549.* DoD canceled MIL-STD-2549, Configuration Management, in favor of an industry standard (EIA 649 & 836) to ensure adoption of commercial configuration management practices.

REENGINEER FINANCIAL PROCESSES

To accomplish product support objectives, more flexible financial processes are required. Potential financial management solutions continue to be examined. In this early stage of product support reengineering implementation, actions to date include the following:

- *Defense Working Capital Fund (DWCF).* The DWCF Task Force recommended that the services be given greater flexibility to fund product support initiatives. The DWCF is used to finance national-level maintenance and supply operations. The DWCF Task Force recommended that indirect costs such as war reserve and excess capacity be paid by direct appropriations. This recommendation has been approved at the OSD (Comptroller) level, and the services now have discretion to directly fund costs that are not related to the cost of providing services or materiel.

- *Flexible financial approaches.* More flexible, program-centered financial approaches that do not limit reengineering strategies have been developed. The DWCF can be used to deliver performance-based (e.g., flying-hour) support instead of optimizing within individual logistics business areas. By using appropriations to fund indirect operating costs, the services can move product support programs out of the DWCF or to a new DWCF activity group without burdening remaining customers with the full indirect cost of operating the fund.

COMPLEMENTARY INFORMATION SYSTEMS STRATEGY

The shift to product-oriented supply chains requires not only integrated materiel flows but integrated information flows. Fleet management concepts of the 21st century are built on real-time monitoring of prime mission equipment, shared data, and visibility into vendor support processes. Actions completed in this area include the following:

- *Integrated product data environment (IPDE).* DoD has established requirements to implement an IPDE. These requirements include the use of emerging commercial or government-developed information technologies that will assist in the discovery, retrieval, management, analysis, distribution, and use of product information. The ultimate goal of IPDE is to

enable authorized users to locate and use desired product data in a timely fashion throughout the product life cycle, regardless who owns the information or where it is stored.

- *Logistics information management oversight.* The Defense Logistics Information Board (LIB) and the Logistics Foundation Steering Group (LFSG) provide logistics information systems collaboration and oversight. The LIB provides a forum for senior managers to review and resolve issues regarding information requirements associated with logistics policies, procedures, and business practices. The LFSG works to leverage resources necessary to support four crucial areas of logistics transformation: product data management, assured information infrastructure, logistics systems governance process, and logistics operations data management.

- *Joint Interactive Electronic Technical Manual (IETM) architecture.* Defense components have developed a joint IETM architecture that facilitates user-level interoperability; this architecture is based on commercial off-the-shelf (COTS), Web-based technology.

- *Center of excellence.* DoD has established a center of excellence for product data conversion at Hampton University to assist the Department in moving to world-class product data management practices.

OTHER ENABLERS

In addition to the foregoing primary enabling actions, several other long-term enablers were identified in the Section 912(c) product support reengineering report. Actions that have moved out well include the following:

- *DoD 5000 acquisition policy revision.* Acquisition policy contained in DoD Directive 5000.1, DoD Instruction 5000.2, and DoD 5000.2-R has been revised. Section 912(c) product support reengineering recommendations were a primary driver of strengthened sustainment policies included in this new policy.

- *Training and education of future product support workforce.* The emphasis on logistics transformation and product support reengineering has led to a great deal of publicity, outreach, and professional development associated with these initiatives. Acquisition and Logistics Reform Forums have prominently featured these subjects for the last two years. Likewise, PEO/SYSCOM conferences have consistently focused on product support initiatives, pilot programs, and related issues. Defense Acquisition University courses and other commercial environment training provide increased attention to policies and procedures associated with innovative logistics strategies.

- *Testing of reengineering processes.* Changes in logistics processes have been tested via simulation-based efforts, demonstrations, prototypes, and wargames. Many existing weapon systems employ modeling and simulation technology to examine the life-cycle costs of systems approaches. The Focused Logistics Operational Wargame (FLOW)'99 provided initial insights into in-theater contractor integration challenges. Customer service aspects of product support have been planned into the construct of the JLWI exercise. Finally, an ongoing Defense Reform Initiative Wargame is assessing issues associated with contractors on the battlefield, time-definite delivery, and information systems integration.

- *Product support virtual integrated product team (IPT).* DUSD (Logistics & Materiel Readiness) established a learning environment through the development of a product support virtual IPT. This virtual IPT is a knowledge-based Web site that enables electronic exchange of product support reengineering information and implementing actions. The objective of the site is to share innovative ideas and expand the application of concepts for continuous improvement throughout the acquisition and logistics communities. The product support virtual IPT is consistent with the June 2000 guidance of USD (Acquisition, Technology, and Logistics) to create a learning culture by sharing knowledge among the acquisition workforce. The address for this Web site is http://orion.lmi.org/virtualipt/secure/geninfo.html.

Chapter 4
Pilot Programs

This chapter presents the product support strategies of the 30 weapon systems selected by the military services to participate in pilot programs.

The pilot programs are representative across weapon system types and life-cycle maturity. Program offices, in conjunction with their program executive offices and service staffs, developed initial product support strategies that identified critical elements, issues, metrics, user interfaces, and timelines for implementation.

The pilot programs are listed in Table 4-1. Each of the sections that follow provides a thumbnail description of one program's product support strategies and status; the figures depict the systems. The Reduction of Total Ownership Cost (RTOC) working group and the Office of the Assistant Deputy Under Secretary for Logistics Architecture, under the Defense Systems Affordability Council, are providing guidance and oversight.

Table 4-1. Pilot Programs for Product Support Strategies

Army	Navy	Air Force
Abrams M-1 Tank	AAAV	AWACS
AFATDS	AEGIS Cruiser	B-1B Lancer
Apache AH-64	ASE/CASS	C-17 Globemaster
Chinook CH-47	Common Ship	C-5 Galaxy
Comanche RAH-66	CVN-68	Cheyenne Mountain Complex
Crusader	EA-6B Prowler	F-117 Nighthawk
Guardrail/Common Sensor	H-60 Helicopter	F-16 Falcon
HEMTT	LPD-17	J-STARS
HIMARS	MTVR	KC-135 Stratotanker
TOW/ITAS	SLAM-ER	SBIRS

Note: AAAV = Advanced Amphibious Assault Vehicle; AFATDS = Advanced Field Artillery Tactical Data System; ASE/CASS = Aviation Support Equipment Consolidated Automated Support System; AWACS = Airborne Warning and Control System; HEMTT = Heavy Expanded Mobility Tactical Trucks; HIMARS = High Mobility Artillery Rocket System; J-STARS =; Joint Surveillance Target Attack Radar System; LPD = Landing Platform Dock; MTVR = Medium Tactical Vehicle Replacement; SBIRS = Space-Based Infrared Systems; SLAM-ER = Standoff Land Attack Missile-Expanded Response; TOW/ITAS = Tube-launched, Optically-tracked, Wire-guided Improved Target Acquisition System.

ARMY

Abrams M-1 Tank

Source: The DoD Joint Combat Camera Center, *U.S. Forces In Bosnia* [CD-ROM], image 0076, December 1995–February 1996.

The Abrams is the main battle tank of the U.S. Army and the U.S. Marine Corps. The point of contact (POC) is Project Manager, Abrams Tank System, ATTN: SFAE-GCSS-AB, Warren, MI 48397-5000, (810) 574-6882.

PRODUCT SUPPORT STRATEGIES

- Concentrate on four key initiatives: Abrams engine systems, Abrams integrated management programs, technical support, performance-based field logistics support—M1A2 unique
- Team Abrams Partnership, a public/private partnership that uses contractor parts and technical support with government skilled labor and facilities to overhaul selected engine components
- Public/private partnership to redesign entire engine (Abrams-Crusader Common Engine Program)
- Public/private partnership—Abrams Integrated Management (AIM) XXI Program—to overhaul entire M1A1 fleet

- Acquire more fuel-efficient and reliable tank engines under long-term performance-based contract
- Technical support program to identify and replace obsolete parts, address vehicle safety issues, and provide post-deployment software support
- Use Direct Vendor Delivery, electronic data interchange, and electronic commerce to streamline process for providing unique spare and repair parts to the warfighter.

STATUS

- Recapitalization program for Abrams tank fully funded for 135 tanks per year
- Team Abrams Partnership providing support to Ft. Hood; plan to expand to three other fort locations, as well as integrating contractors with item managers for various logistics functions
- AIM XXI to be expanded to include M1A2 tanks
- DLA is preparing solicitation for long-term contract support for M1A2 consumable spares. The goal is to have the spares located on Ft. Hood to support the soldier and the repair facility. DLA is working on a similar long-term contract to support the Wolverine at Ft. Hood.

Advanced Field Artillery Tactical Data System

Source: Defense Visual Information Center, *Defense Image Digest* [CD-ROM], image 0597, November 1996.

AFATDS is a network of computer workstations that automates fire support planning. The POC is Project Manager, AFATDS, ATTN: SFAE-C3S-FS, Ft. Monmouth, NJ 07703-5303, (732) 427-3090.

PRODUCT SUPPORT STRATEGIES

- Communications and Electronics Command (CECOM) as fully accountable partner for reducing life-cycle support costs for fire support command and control
- Improve technology base coordination and synchronization with Army Battle Command System and First Digitized Division system architecture
- Reduce parts costs through use of contractor logistics support.

STATUS

- AFATDS implementation plan updated to detail shared team responsibility between CECOM and program manager office
- Plan encompasses development of integrated master plan and ensures that ongoing and planned acquisition efforts support legacy software to avoid duplication or noninteroperable work.

Apache AH-64

Source: Defense Technical Information Center, DTIC Homepage, January 2000 [cited September 2000]. Available from http://www.dtic.mil/soldiers/almanac/equip/apache.html.

The Apache AH-64 is the Army's principal gunship/anti-tank helicopter. The POC is Program Manager, ATTN: SFAE-AV-AAH, Redstone Arsenal, AL 35898, (256) 313-4200.

PRODUCT SUPPORT STRATEGIES

- Establish Prime Vendor Support (PVS) of aircraft and subsystems
- Use continuous technology refreshment to increase reliability and reduce total ownership cost.

STATUS

- Army and OSD continuing to work to resolve issues with PVS concept
- If PVS not pursued, Army organic management will attempt to implement several PVS tenets via partnerships and technology refreshment through a coordinated recapitalization program and improved Apache field support.

Chinook CH-47

Source: Defense Visual Information Center, *Defense Image Digest* [CD-ROM], image 0299, November 1996.

The Chinook CH-47 is a twin-engine, tandem-rotor helicopter designed to transport cargo, troops, and weapons during day, night, visual, and instrument conditions. The POC is Program Manager, ATTN: SFAE-AV-CH, Redstone Arsenal, AL 35898, (256) 313-4252.

PRODUCT SUPPORT STRATEGIES

- Focus on system costs by using functional approach
- Concentrate on reducing nonhardware process cost drivers, such as training
- Coordinate with Aviation and Missile Command, Logistics Integration Agency, and Logistics Support Agency for prognostic statistical analysis and with Navy to understand best use of resources
- Establish Fleet Management Center, which uses commercial airline business practices to integrate all functions of customer support and perform analysis of "at the aircraft" operating and support costs and downtime
- Coordinate with 101st Air Assault Division for fielding of Enhanced Logbook Automation System
- Partner with CECOM to update and digitize non-airframe technical manuals.

STATUS

- Initial operations and support cost baselines completed for engine and rotor subsystems
- Major component analysis underway
- Exportable training packages being developed.

Comanche RAH-66

Source: Director, Operational Test & Evaluation, *FY 1999 Annual Report* [cited September 2000]. Available from http://www.dote.osd.mil/reports/fy99/army/99comanche.html.

The Comanche RAH-66 is the Army's next-generation light-attack/armed reconnaissance helicopter. The POC is Program Manager, ATTN: SFAE-AV-RAH, Redstone Arsenal, AL 35893, (256) 313-0846.

PRODUCT SUPPORT STRATEGIES

- Warranties/guarantees are mandatory program requirements
- Early contractor logistics support benefits designed to drive reliability improvements
- Conduct support strategy study in 2001 to determine performance-based logistics applications; support concept decision during FY03.

STATUS

- Successfully completed Army Systems Acquisition Review Council and Milestone II Defense Acquisition Board review in March/April 2000
- Currently have two operational aircraft for testing, including logistics and maintainability demonstrations.

Crusader

Source: *Crusader's Web Page*, July 1998 [cited September 2000]. Available from http://w3.pica.army.mil/crusader.

The Crusader is the Army's next-generation, 155 mm, self-propelled howitzer and companion resupply vehicle. The POC is Program Manager, ATTN: SFAE-GCSS-CR, Picatinny Arsenal, NJ 07806, (973) 724-4588.

PRODUCT SUPPORT STRATEGIES

- Integrated life-cycle support (ILCS)—a performance-based logistics approach adopting government and industry best practices
- Success of ILCS measured by fleet performance
- Long-range plan is for five years of contractor logistics support, then to competitively source support
- Working with Abrams program manager on common engine.

STATUS

- Program restructured to better support transformation to lighter, more deployable Army; examining tracked and wheeled options
- Preliminary design effort underway
- Milestone II decision in FY03
- Equipping of first units deferred from 2005 to 2008.

Guardrail/Common Sensor

Source: U.S. Army Aviation and Missile Command Public Affairs Office [cited September 2000]. Available from http://www.redstone.army.mil/pub_affairs/rc.html.

The Guardrail/Common Sensor is a corps-level airborne signal intelligence collection/location system. The POC is Program Manager, ATTN: SFAE-IEW&S-SG, Fort Monmouth, NJ 07703, (732) 427-5211.

PRODUCT SUPPORT STRATEGIES

- Memorandum of agreement with sustainment community incorporating Army life-cycle management guidance
- Integrated software and hardware coupled with rapid technology advances create opportunity for several alternate support concepts
- Revised management structure to provide single face to customer.

STATUS

- PEO Intelligence and Electronic Warfare Systems (PEO/IEWS) and CECOM perform as partners to jointly sustain Guardrail/Common Sensor
  - Program managed by program manager, Airborne Common Sensor
  - Sustainment managed by CECOM (payloads and ground equipment) and Armament and Missile Command (fixed wing)
- IPTs manage life-cycle funding for program to consider all funding sources to reduce total ownership cost.

Heavy Expanded Mobility Tactical Truck

Source: U.S. Army Tank-Automotive and Armaments Command [cited September 2000]. Available from http://www.tacom.army.mil/dsa/pm/htv/hemtt/hemtt/programs.html.

The heavy expanded mobility tactical truck (HEMTT) provides transport capabilities for resupply of combat vehicles and weapon systems. The POC is Program Manager, ATTN: AMSTA-DSA-LT, Warren, MI 48397, (810) 574-5800.

PRODUCT SUPPORT STRATEGIES

- Three major initiatives:
  - upgrading vehicle with existing commercial technologies to improve reliability and extend the service life (Extended Service Program)
  - continuous support improvement using direct vendor delivery (DVD) for DLA items and expanding the number of items provided directly by contractor
  - improving training and safety procedures
- Partnering with DLA to reduce surcharges to program
- Partnering with Oshkosh Truck Corporation and government agencies to evaluate commercial technologies and determine best mix of enhancements to reduce costs.

STATUS

- Working with Oshkosh Truck Corporation to determine best mix of product support enhancements to reduce operations and support costs
- Established partnership between Red River Army Depot and Oshkosh to jointly rebuild HEMTTs to bring them to like-new condition
- Evaluating software code to determine potential use in developing interactive electronic technical manuals
- DLA awarded long-term corporate contract to Oshkosh Truck Corporation in April 2000 with DVD and reduced cost recovery rate covering 13,000 consumable items. Since October 1999, DLA price decreases from corporate contracts with Oshkosh have saved the Army approximately $900,000 on the HEMTT program.

High-Mobility Artillery Rocket System

Source: Department of Defense, *DefenseLink* [cited September 2000]. Available from http:/www.defenselink.mil/photos/aug1998/98073-A-0089G-003.html.

HIMARS is an all-weather, indirect area fire weapon system to strike counterfire, air defense, armored formations, and other high-payoff targets at all depths of the tactical battlefield. The POC is Program Manager, ATTN: SFAE-MSL-ML, Redstone Arsenal, AL 35896, (256) 876-1195.

PRODUCT SUPPORT STRATEGIES

- Conducting trade study to determine best-value approach to life-cycle management and coordinating with user and sustainment communities
- Expanding competitive sourcing and teaming relationships to obtain lower cost, more reliable line replacement units
- Developing management information system with decision support tools that will enhance total asset visibility of multiple launch rocket and HIMARS systems and supplies.

STATUS

- Successfully completed Milestone Decision Review in November 1999
- Awarded HIMARS Maturation/Engineering and Manufacturing Development contract to Lockheed Martin Missiles and Fire Control.

TOW Improved Target Acquisition System

Source: U.S. Army Simulation, Training and Instrumentation Command, July 2000 [cited September 2000]. Available from http://www.stricom.army.mil/products/itas.

The TOW/ITAS system increases target acquisition ranges for all configurations of TOW missiles. The POC is Program Manager, ATTN: SFAE-MSL-CC, Redstone Arsenal, AL 35898, (256) 876-4800.

PRODUCT SUPPORT STRATEGIES

- Contractor logistics support for wholesale supply and depot maintenance for life cycle of system that requires 90 percent system operational readiness level as performance requirement
- Program manager negotiating transition plan with contractor for future competition
- Surge considerations built into contractor support strategy.

STATUS

- Funded initiative that provides Army with cost avoidance of more than $300 million
- Contractor logistics support concept approved May 1999

- Coordination of contractor logistics support concept with CINCs underway: Forces Command, European Command (EUCOM), Southern Command, Central Command completed; Pacific Command to follow
- Alpha contract negotiations successful in achieving innovative fixed-price support contract
- First unit equipped with 82nd Airborne (1998)
- Fielding continues through FY 2010.

Summary of Army Pilot Programs

Table 4-2 presents a summary of the Army pilot programs. An "X" indicates that the weapon system program manager is actively pursuing or has plans to pursue the indicated product support strategy.

Table 4-2. Army Pilot Programs

Army Program	Reengineer logistics processes, starting with warfighters	Competitive sourcing	Continuous technology refreshment	PV/VPV
Abrams M-1 Tank	X	X	X	X
AFATDS	X	X	X	
Apache AH-64D	X	X	X	
Chinook CH-47D	X		X	
Comanche RAH-66	X	X	X	
Crusader	X	X	X	
Guardrail/Common Sensor	X	X		
HEMTT	X		X	X
HIMARS	X	X	X	
TOW/ITAS	X	X		

NAVY

Advanced Amphibious Assault Vehicle

Source: Program Manager, AAAV, HQ USMC [received via e-mail].

The AAAV provides high-speed transport of embarked Marine infantry from ships located beyond the horizon to inland objectives. The POC is Direct Reporting Program Manager AAA, Director of Logistics, 991 Annapolis Way, Woodbridge, VA 22191.

PRODUCT SUPPORT STRATEGIES

- Improve current shared data network to provide connectivity between program manager, warfighter, support organizations, and vendors. Web-based system to be developed and prototyped during engineering and manufacturing development phase
- Establish teaming agreements with industry and government organizations
- Multi-year support contracts with annual award options, based on performance
- Use contractor logistics support for selected maintenance and supply support functions
- Mature onboard prognostics and diagnostics and ability of AAAV to electronically report and archive performance status
- Develop embedded training for operator/maintainer

- Continue to emphasize open architecture in design of all components
- Emphasize reliability design enhancement on top-reliability component drivers (use reliability-centered maintenance process tool)
- Use readiness-based sparing to determine optimum depth and range of spares for operational forces and support organizations (including vendors in supply chain)
- Scheduled Maintenance/Technology Insertion Program enables modernization and reduces requirement for depot-level maintenance
- Two-level maintenance concept promotes maintainability while reducing cost
- Contractor logistics support products and services will be competed; government will have ownership or access to technical data and training devices.

STATUS

- System demonstration for Defense Acquisition Board scheduled for December 2000
- Prototype 1, High Water Speed testing ongoing at Patuxent River
- Prototype 2, Land Mobility testing ongoing at AAAV Technology Center
- Prototype 3, Integration in process at AAAV Technology Center; vehicle completion scheduled for September 2000
- IPT formed to develop life-cycle support strategy that effectively balances operational readiness and TOC. Membership outside of Direct Reporting Program Manager AAA includes Deputy Chief of Staff for Plans, Policies and Operations; Marine Corps Combat Development Command; Deputy Chief of Staff for Programs and Requirements; Deputy Chief of Staff for Installations and Logistics; Commanders, Marine Forces Pacific, Atlantic, and Reserve; and Commander, Marine Corps Material Command.

AEGIS Cruiser

Source: Defense Visual Information Center, *Defense Image Digest* [CD-ROM], image 0387, November 1996.

The AEGIS system provides enhanced anti-submarine warfare and anti-air warfare capabilities to protect the Navy's aircraft carrier battle groups from air attack, particularly the threat of hostile cruise missiles. AEGIS automatically tracks multiple targets simultaneously and maintains continuous surveillance from sea level to the stratosphere. The POC is Program Manager, Office of Theater Air Defense and Surface Combatants, PEO-TSC, Arlington, VA 22242, (703) 602-7193.

PRODUCT SUPPORT STRATEGIES

- Lifetime support contract that provides depot operations and engineering services, including modernization and upgrade engineering, COTS support, ship availability support, and training
- Integrated ship controls to upgrade obsolete engineering and navigation equipment
- Advanced food service to provide state-of-the-art food preparation technology

- Total ship monitoring at multiple stations throughout the ship to monitor ship's environment and condition
- DLA Defense Supply Center Columbus Maritime Tailored Support Unit is exploring new long-term contracts with DVD for items experiencing demands over the past two years.

STATUS

- Anticipate reduction of workload requirements, leading to reduced staffing.

Aviation Support Equipment/Consolidated Automated Support System

Source: Naval Sea Systems Command, *PMA-260 Home Page*, July 2000 [cited September 2000]. Available from http://pma260.navy.mil/cass/default.html-ssi

ASE/CASS comprises a wide range of equipment that is used by organizational and intermediate maintenance organizations to test and diagnose weapon system electronics. The POC is Program Manager, Naval Air Systems Command, PMA-260, Patuxent River, MD 20670, (301) 757-6895.

PRODUCT SUPPORT STRATEGIES

- COTS as first alternative to satisfy requirements
- Contractor support agreement signed in April 2000
- Replacing limited functional test systems with standard, general-purpose, multifunction automated test systems

as long-term corporate contracts with DVD or increased inventory investment.

Common Ship

Source: Air War College gateway to *Defense Visual Information Center photos* [cited September 2000]. Available from http://www.au.af.mil/au/awc/systems/dvic010.jpg

The Common Ship program is an all-encompassing concept that addresses the fleet's maintenance problems. It entails an investment of resources to reduce maintenance work performed by sailors and improve the quality of life onboard

ship. It encompasses equipment, processes, and preventive maintenance. The POC is Naval Sea Systems Command, Arlington, VA 22242, (703) 602-1564.

PRODUCT SUPPORT STRATEGIES

- Twenty-two separate initiatives to reduce cumbersome work practices
- Reengineered maintenance to reduce manpower requirements
- Use of mechanical seals.

STATUS

- Fielding plans developed for first 13 initiatives.

CVN-68

Source: National Museum of Naval Aviation [cited September 2000]. Available from http://www.naval-air.org/Carriers/Nimitz.htm.

The Smart Carrier is a vision for a carrier force in which reengineered work processes, technology improvements, and design modifications will reduce workload by 50 percent. The POC is Office of Chief of Naval Operations, Arlington, VA 22242, (703) 602-7380.

PRODUCT SUPPORT STRATEGIES

- Reengineered work practices and design modifications to reduce manpower requirements
- Use of maintenance-free materials

- Remote sensors throughout ship to monitor status of critical spaces and machinery and facilitate transition to condition-based maintenance
- Automation of JP-5 fuel management.

STATUS

- Opportunity for greatest TOC impact is during refueling complex overhaul that, when fully funded, allows technology insertion and material upgrades
- Newport News has developed a TOC tracking mechanism
- Navy Type Commanders are onboard with pilot program and are using fleet maintenance funds to install many initiatives.

EA-6B Prowler

Source: Defense Visual Information Center, *Defense Image Digest* [CD-ROM], image 0216, November 1996.

The EA-6B Prowler is an attack aircraft with electronic warfare/countermeasures capabilities to prevent the detection of friendly forces by enemy air defense systems. The POC is Program Manager, Naval Air Systems Command, PMA-234, Patuxent River, MD 20670, (301) 757-7959.

PRODUCT SUPPORT STRATEGIES

- Competed a "best value" contract approach—Increased Capability III (ICAP-III)—to provide upgraded capabilities
- ICAP-III provides new reactive tactical jamming system, as well as new displays, controls, and associated software for integrated data environment
- Prowler utilizes integrated, two-level maintenance concept.

STATUS

- Wholesale worldwide support DLA VPV award scheduled for no later than January 2001
- Continuing to explore application of commercial radar replacement for APS-130 radar
- Reliability-centered maintenance analysis completed on highest-priority systems that affect depot requirements, life-cycle cost, and readiness.

H-60 Helicopter

Source: Air War College gateway, *Defense Visual Information Center photos* [cited September 2000]. Available from http://www.au.af.mil/au/awc/systems/dvic331.jpg.

The Navy has several versions of the H-60 helicopter for logistics support, medical evacuation, anti-ship targeting, and special warfare. The POC is Program Manager, Naval Air Systems Command, PMA-299, Patuxent River, MD 20670, (301) 757-5350.

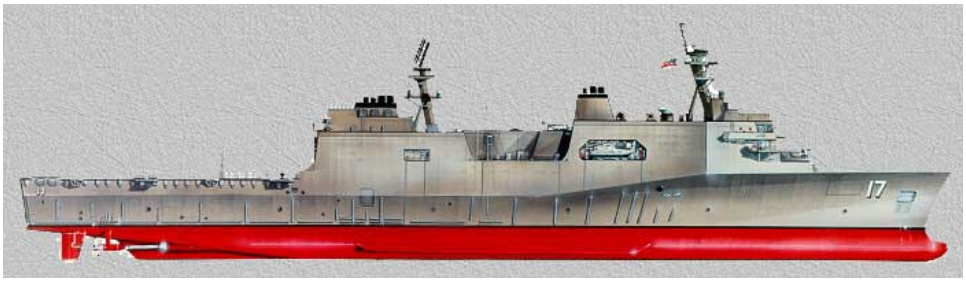
PRODUCT SUPPORT STRATEGIES

- Integrated maintenance concept
- Sustaining engineering cost sharing
- Reliability-centered maintenance
- Interactive electronic maintenance manuals and portable electronic display devices
- SH-60R integrated mission computer Value Engineering Change Proposal; moving from eight models of aircraft to two models allows more common support
- VPV support for parts and materiel to all levels of maintenance, as well as upgrade and remanufacturing programs.

STATUS

- Naval Air Systems Command (PMA-299) and Naval Inventory Control Point-Philadelphia are developing performance work statement that will result in performance-based logistics contract competitively awarded to company offering best value; Navy expects to award contract in early 2001.
- Several initiatives underway to improve reliability, maintainability, and safety.

Landing Platform Dock 17



Source: Director, Operational Test & Evaluation, *FY 1999 Annual Report* [cited September 2000]. Available from http://www.dote.osd.mil/reports/FY99/navy/99lpd17.html.

The LPD-17 is the latest class of amphibious force ship designed to transport Marines and their helicopters and landing craft. The POC is Program Manager, Naval Sea Systems Command, Arlington, VA 22242, (703) 413-4999.

PRODUCT SUPPORT STRATEGIES

- Government and industry partnership for life-cycle engineering and support
- Balanced mix of legacy and industry solutions for seamless support to class
- Reduced use of military specifications
- Homeport-based support teams
- Reduced sailor workload.

STATUS

- Pursuing best-value analysis for determining life-cycle support approach
- Working on defining core competencies, handling proprietary data, integrating multiple funding sources, defining government/industry partnerships
- Planning to award contractor logistics support contract in December 2000.

Medium Tactical Vehicle Replacement

Source: USMC Product Manager, MTVR [cited September 2000]. Available from http://www.tacom.army.mil/gcss/mtvr/.

The Marine Corps is replacing its fleet of aging medium-duty M809 and M939 series of 5-ton trucks with new vehicles equipped with cutting-edge technology. These modern vehicles are designed to carry heavy loads, at high speeds, in rugged terrain conditions. The POC is Program Manager, Quantico, VA 22134-5010, (703) 784-5822/4278.

PRODUCT SUPPORT STRATEGIES

- Five- to 10-year contractor logistics support contract planned for February 2001
- Unique repair parts supply support accomplished by original equipment manufacturer under PV relationship and use of DVD; common items provided by DLA
- Reduced inventory storage quantities as a result of contractor logistics support
- 22-year corrosion warranty
- Elimination of midlife rebuild
- Driver trainer simulators
- Computer-based maintenance training.

STATUS

- Program currently in low-rate initial production (LRIP)
- Research and development contract underway for variant programs (dump and wrecker)
- Milestone III decision due first quarter, FY01.

Standoff Land Attack Missile-Expanded Response

Source: Defense Visual Information Center, *Defense Image Digest* [CD-ROM], image 0426, November 1996.

The SLAM-ER is the Navy's outside area defense weapon with improved warhead penetration, jam-resistant global positioning system and data link, automatic target acquisition, and increased survivability. The POC is Naval Air Systems Command, PMA-258, Patuxent River, MD 20670, (301) 757-6071.

PRODUCT SUPPORT STRATEGIES

- Reduce system acquisition costs through accelerated buyout of missile requirement
- Contractor-maintained drawings
- Contractor configuration control
- Maximize use of nondevelopmental and COTS items
- Two-level maintenance
- Commercial depot collocated with production facility
- Replace built-in test radio frequency signal mixer circuit board in advanced data link pod

- Upgrade missile subsystem test set
- Reduce parts requirement.

STATUS

- Completed operational test and evaluation; preparing for Milestone III decision
- Deployed on two carriers; successfully fired in Operation Southern Watch.

Summary of Navy Pilot Programs

Table 4-3 presents a summary of the Navy pilot programs. An "X" indicates that the weapon system program manager is actively pursuing or has plans to pursue the indicated product support strategy.

Table 4-3. Navy Pilot Programs

Navy program	Reengineer logistics processes, starting with warfighters	Competitive sourcing	Continuous technology refreshment	PV/VPV
AAAV	X	X	X	
AEGIS Cruiser	X	X	X	X
ASE/CASS	X	X	X	X
Common Ship	X		X	
CVN-68	X		X	
EA-6B Prowler	X		X	X
H-60 Helicopter	X	X	X	X
LPD-17	X	X		
MTVR		X		X
SLAM-ER	X	X	X	

AIR FORCE

Airborne Warning and Control System-E-3

Source: Defense Visual Information Center, *Defense Image Digest* [CD-ROM], image 0207, November 1996.

The E-3 Sentry is a Boeing 707 that is modified to carry an extensive mission avionics package to provide long-range target acquisition and identification, as well as control and communications for directing other combat aircraft to targets. The POC is Program Manager, Hanscom AFB, MA 01731, (781) 377-6899.

PRODUCT SUPPORT STRATEGIES

- AWACS Modernization Sustainment and Support program, in which contractor provides system integration
- PBL concepts for selected subsystems
- Partnership with the North Atlantic Treaty Organization to jointly develop test program sets for radar system improvement program
- Partnership with contractor to maintain technical data for the system
- Upgrade to replace central AWACS computer with open architecture/COTS design and new software
- Extensive government/contractor partnering planned for software.

STATUS

- Replacing Common Large Area Display Set flat panel; LRIP contract deliveries being made on schedule
- Analyzing partnering opportunities for wholesale depot and supply operations
- DLA working to develop a service level agreement (SLA) with program manager and AWACS community for consumable parts support.

B1-B Lancer

Source: Defense Visual Information Center, *Defense Image Digest* [CD-ROM], image 0161, November 1996.

The B1-B Lancer is a long-range strategic bomber that is designed for low-altitude penetration missions against mobile intercontinental ballistic missiles, using standoff air-launched cruise missiles or gravity weapons. The POC is Program Manager, Wright-Patterson AFB, OH 45433, (937) 255-3281.

PRODUCT SUPPORT STRATEGIES

- Establishing SLAs with organic supply sources that define responsibilities and metrics for performance
- Contractor developing approaches to address diminishing manufacturing sources and parts obsolescence

- Consolidating sole-source contracts into one contract to achieve integration efficiencies
- Consolidating intermediate-level maintenance shops
- Establishing consolidated repair contract for low-demand, mission-capable drivers
- Melding contractor and Air Force deficiency reporting systems into single system.

STATUS

- Developing top-level business cases and aggregate studies to determine proper long-term partnering initiatives to optimize mix of public and private capabilities to achieve overall improvements through innovative practices.

C-17 Globemaster

Source: The DoD Joint Combat Camera Center, *U.S. Forces In Bosnia* [CD-ROM], image 0045, December 1995–February 1996.

The C-17 is a long-range, heavy-lift cargo/transport aircraft that is intended to combine intertheater cargo lift capacity with ease of operations from semi-improved airfields. The POC is Program Manager, Wright-Patterson AFB, OH 45433, (937) 255-1504.

PRODUCT SUPPORT STRATEGIES

- Proof-of-concept contractor logistics support—“flexible sustainment”—prior to source of repair decision in 2003
- Contractor responsible for weapon system performance; guaranteed system performance for parameters most important to Air Mobility Command and Air Education and Training Command
- Paying close attention to sustainment within “technology roadmap.”

STATUS

- Employing multiyear contract to procure 80 aircraft over 7 years (FY 1997–2003)
- DLA has transferred approximately 25,000 unique C-17 consumable items to Boeing for management and will transfer another 5,000 unique items to Boeing in the future. DLA will continue to manage and supply approximately 28,000 common consumable items for the C-17.

Cheyenne Mountain Complex

Source: *U.S. Space Command home page* [cited September 2000]. Available from http://www.spacecom.af.mil/norad/cmocfb.htm.

Cheyenne Mountain is the command, control, communication, and intelligence center that coordinates and controls North American Aerospace Defense Command and United States Space Command missions. The POC is Program Manager, Cheyenne Mountain Air Station, CO 80914, (719) 554-6500.

PRODUCT SUPPORT STRATEGIES

- Planned total system performance responsibility concept under Integrated Space Command and Control contract.

STATUS

- Initiating incentive- and performance-based contracts that incorporate RTOC requirements for contractor to propose master evaluation plans that produce savings; contractor shares in execution-year savings
- Defining and refining capabilities and processes needed to implement network-centered command and control systems.

C-5 Galaxy

Source: Air War College gateway, *Defense Visual Information Center photos* [cited September 2000]. Available from http://www.au.af.mil/au/awc/systems/dvic174.jpg.

The C-5, one of the largest aircraft in the world, is a strategic heavy logistics transport. The POC is Program Manager, Robins AFB, GA 31098, (912) 926-6504.

PRODUCT SUPPORT STRATEGIES

- Conduct supply chain management study to identify cost drivers
- Enter into written SLAs with sources of repair and supply
- Programmed depot maintenance contract awarded to Warner-Robins Air Logistics Center (ALC)

- Modernize aircraft avionics (Avionics Modernization Program), using contractor to provide performance-based support for new avionics items
- Under Reliability Enhancement and Re-engineering Program, install new COTS engines.

STATUS

- DLA to award VPV contract before end of calendar year 2000 for third-party logistics support for more than 11,600 items at maintenance line at Warner-Robins ALC and C-5 operational activities worldwide
- Converting to digitized technical orders to produce and distribute compact discs to all users.

F-117 Nighthawk Stealth Fighter

Source: Defense Visual Information Center, *Defense Image Digest* [CD-ROM], image 0240, November 1996.

The F-117 is a fighter aircraft that was designed under the "Stealth" low-observability technology program to penetrate enemy radar and attack heavily defended, high-value targets. The POC is Program Manager, Wright–Patterson AFB, OH 45433, (937) 255-7132.

PRODUCT SUPPORT STRATEGIES

- Air Force has awarded 8-year, $1.8 billion total system performance responsibility (TSPR) contract to Lockheed Martin Skunk Works
- Skunk Works is compensated on semiannual subjective evaluations of five DoD organizations and on how the company performs against specific metrics that are scored monthly. DoD evaluators are 49th Fighter Wing, Air Force System Program Office, Air Combat Command, 410th Test

Squadron, and Defense Contract Management Command; these evaluators rate the company on technical performance, management performance, subcontracting, and customer satisfaction.

- TSPR includes 50/50 cost-share fee: Skunk Works receives 50 cents back on every dollar it saves the Air Force

STATUS:

- TSPR arrangement is extremely successful; contractor is meeting or exceeding all performance requirements.

F-16 Falcon

Source: Defense Visual Information Center, *Defense Image Digest* [CD-ROM], image 0230, November 1996.

The F-16 is a highly maneuverable, lightweight fighter that is used in attack, interceptor, suppression of enemy defense, and reconnaissance roles. The POC is Program Manager, Wright-Patterson AFB, OH 45433.

PRODUCT SUPPORT STRATEGIES

- Formal performance agreement between supplier and customer; SLA document coordinates agreement on what is expected of suppliers, and government performance assessment reports detail suppliers' performance in meeting weapon system goals

- Upgrade fleet avionics.

STATUS

- Product support plan coordinated and approved for implementation, including combined life-time support (CLTS), performance-based logistics arrangement for configuration and materiel management, parts repair, and diminishing manufacturing sources management and resolution
- CLTS contract awarded in July 2000 for several major F-16 upgrades
- Digitizing international technical orders
- DLA Defense Supply Center Richmond is exploring VPV contract for consumable parts support and reviewing avionics/electronics diminishing manufacturing sources parts to determine need to improve support.

Joint Surveillance Target Attack Radar System

Source: *Air Combat Command Multimedia Gallery* [cited September 2000]. Available from http://www2.acc.af.mil/gallery/images/aircraft/jstars/fi/00000002.htm.

The J-STARS E-8 aircraft provides surveillance, command and control and attack support to ground and air commanders. The POC is Program Manager, Hanscom AFB, MA 01731, (781) 377-5725.

PRODUCT SUPPORT STRATEGIES

- Partnering among Northrop Grumman, Air Logistics Commands, and program manager
- Northrop Grumman given total system support responsibility under 6-year contract with long-term award incentive
- Air Force retains contracting, budgeting, requirement development, and engineering authorities.

STATUS

- Support decision due in 2000
- DLA Defense Supply Center Richmond developing SLA with program manager and J-STARS community.

KC-135 Stratotanker

Source: Defense Visual Information Center, *Defense Image Digest* [CD-ROM], image 0251, November 1996.

The KC-135 is used primarily for in-flight refueling operations; it also has been adapted for use as a cargo aircraft and in special-purpose electronic configurations. The POC is Program Manager, Air Mobility Command, Scott AFB, IL 62225, (618) 256-5003.

PRODUCT SUPPORT STRATEGIES

- Supply management SLAs with three Air Logistics Commands and DLA, tied to weapon system performance
- Public/private competition won by Boeing
- Performance-based contract
- Improved Item Replacement Program for depot-level reparables with no commercial counterpart
- Identify feasible replacement/upgrade options
- COTS and improved reliability and maintainability priority considerations
- DLA exploring VPV contract for consumable parts support for KC-135 platform that will cover 14,000 common and unique parts.

STATUS

- Formulating process required to develop SLAs with DoD sources of supply.

Space-Based Infrared Systems

Source: *SBIRS Home Page* [cited September 2000]. Available from http://www.laafb.af.mil/SMC/MT/Sbirs.htm.

SBIRS provides sustained space-based surveillance systems for missile warning, missile defense, battlespace characterization, and technical intelligence. The POC is Program Manager, El Segundo, CA 90245, (310) 363-3978.

PRODUCT SUPPORT STRATEGIES

- Development through sustainment application, requiring contractor to do nearly everything but operate the system
- Acquisition contractor includes depot capability in system development and provides support services.

STATUS

- SBIRS depot-level infrastructure requirements to be determined in 2004 time frame.

Summary of Air Force Pilot Programs

Table 4-4 presents a summary of the Air Force pilot programs. An "X" means that the weapon system program manager is actively pursuing or has plans to pursue the indicated product support strategy.

Table 4-4. Air Force Pilot Programs

Air Force program	Reengineer logistics processes, starting with warfighters	Competitive sourcing	Continuous technology refreshment	PV/VPV
AWACS	X	X	X	
B1-B Lancer	X	X	X	
C-17 Globemaster	X			X
Cheyenne Mountain Complex	X			
C-5 Galaxy	X	X	X	X
F-117 Nighthawk	X	X	X	
F-16 Falcon	X	X	X	
J-STARS		X		
KC-135 Stratotanker	X	X	X	X
SBIRS		X		

Chapter 5
Keeping the Momentum

This chapter addresses the actions that will be taken in the next year as product support reengineering efforts move further into the pilot program implementation phase (Phase II). The Department's logistics reengineering efforts will continue to be driven by operational needs to improve readiness, speed, agility, and dependability consistent with the national military strategy. Product support will continue to evolve and remain a primary element of DoD logistics transformation. Additional outreach is required to warfighter CINCs and service major commands to gain support for these critical initiatives. In addition to maturing the results of the pilot programs, product support will focus attention, in the near term, on the following efforts:

- *Issuance of product support guidance.* DoD product support guidance is being developed to serve as the foundation supporting product support policies embodied in DoD 5000 regulations. Performance-based logistics strategies will be emphasized. The guidance will help program managers assess the optimum support concept—public, private, or partnered—and leverage the skills and capabilities of all sources to produce the right mix of best value and capability for the warfighter. A draft guide will be available by December 2000.

- *Development of pilot program assessment methodology.* A methodology will be developed and promulgated to assess pilot program product support reengineering results. Criteria for this evaluation will include performance, readiness, cost, and customer service benefits of the innovative support strategies being pursued. This methodology will be coordinated through the Logistics Transformation Leadership Group and the Reduction of Total Ownership Cost (RTOC) working group. The FY02–07 Defense Planning Guidance requires the components to review, assess, and report the results of product support pilot programs by January 2002. To support this effort, the pilot program assessment methodology will be available by July 2001.

- *Exploration of formal performance agreements and output-driven financial processes.* Selected pilot programs will tackle areas of product support that currently present barriers to improvement. These programs will establish formal performance agreements between program managers and warfighter customers; develop formal agreements with organic providers, based on outputs; and explore the use of program-specific working capital funds to pool resources to fund product support providers to meet mission availability expectations. The pilot programs selected—the Abrams tank,

Guardrail aircraft and common sensor, F-16 aircraft, and EA-6B aircraft—will provide implementation plans by November 2000.

- *Participation in JLWI.* The JLWI will be worked intensively as the vehicle for conducting joint and component logistics experimentation in real-world operations that reflect the future environment of joint warfighting. The JLWI will test time-definite delivery standards and customer wait-time standards during the Bright Star 01 Exercise in September/October 2001.

- *Participation in FLOW 2001.* FLOW 2001 will assess the impact of multiple product support strategies on operational capabilities. This assessment includes in-theater contractor support integration and related issues, such as DoD-controlled versus contractor-controlled supply chains. FLOW 2001 will be conducted in October 2001; planning for the exercise commences in March 2001.

- *Emphasis on logistics workforce development.* The future Defense acquisition workforce will further embrace sustainment logistics functions. Pursuant to the Re-identified Acquisition and Technology workforce count, 23,000 careerists are classified as acquisition logistics and sustainment logisticians. Further refinement of this count will occur in 2001. A logistics functional advisor was recently established to coordinate with the services' directors of acquisition career management and the president of Defense Acquisition University to promote the professionalism of the logistics workforce.

Appendix A
Abbreviations

AAAV	Advanced Amphibious Assault Vehicle
AFATDS	Advanced Field Artillery Tactical Data System
AFSC	AMC Field Support Center
AIM	Abrams Integrated Management
ALC	Air Logistics Center
AMC	Army Materiel Command
APU	auxiliary power unit
ASE	Aviation Support Equipment
ATTN	attention
AWACS	Airborne Warning and Control System
CASS	Consolidated Automated Support System
CECOM	Communications and Electronics Command
CINC	commander-in-chief
CLTS	combined life-time support
CONUS	continental United States
COTS	commercial off-the-shelf
CTG	cradle-to-grave
DLA	Defense Logistics Agency
DoD	Department of Defense
DoDIG	Department of Defense Inspector General
DRID	Defense Reform Initiative Directive

DSCC	Defense Supply Center Columbus
DSCR	Defense Supply Center Richmond
DUSD	Deputy Under Secretary of Defense
DVD	direct vendor delivery
DWCF	Defense Working Capital Fund
EUCOM	European Command
FLOW	Focused Logistics Wargame
FY	fiscal year
HEMTT	heavy expanded mobility tactical truck
HIMARS	High Mobility Artillery Rocket System
ICAP	Increased Capability
IETM	Interactive Electronic Technical Manual
IEWS	Intelligence and Electronic Warfare Systems
ILCS	integrated life-cycle support
IPDE	integrated product data environment
IPT	integrated product team
JLWI	Joint Logistics Warfighting Initiative
JSTARS	Joint Surveillance Target Attack Radar System
LFSG	Logistics Foundation Steering Group
LIB	Logistics Information Board
LPD	Landing Platform Dock
LRIP	low-rate initial production
MIL-STD	military standard
MTVR	Medium Tactical Vehicle Replacement
NAVSEA	Naval Sea Systems Command

OSD	Office of the Secretary of Defense
PBD	Program Budget Decision
PBL	performance-based logistics
PEO	Program Executive Office
PM	program manager
POC	point of contact
PV	prime vendor
PVS	prime vendor support
RM&S	reliability, maintainability, and sustainability
RTOC	Reduction of Total Ownership Cost
SBIRS	Space-Based Infrared Systems
SLA	service level agreement
SLAM-ER	Standoff Land Attack Missile-Expanded Response
SSA	strategic supplier alliances
SYSCOM	systems command
TACOM	Tank Automotive and Armaments Command
TOC	total ownership cost
TOW/ITAS	Tube-launched, Optically-tracked, Wire-guided Improved Target Acquisition System
TSPR	total system performance responsibility
U.S.	United States
USCENTCOM	U.S. Central Command
USD	Under Secretary of Defense
USSOCOM	U.S. Special Operations Command
VPV	virtual prime vendor