

**Report of the
Defense Science Board
Acquisition Workforce Sub-Panel
of the Defense Acquisition Reform
Task Force**



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**On
Defense Reform**

**OFFICE OF THE UNDER SECRETARY OF DEFENSE
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DEFENSE SCIENCE
BOARD

19 Mar 98

Dr. J. S. Gansler
Under Secretary of Defense for Acquisition and Technology
The Pentagon
Washington DC

I am forwarding the final report of the Acquisition Workforce Sub-Panel of the Defense Acquisition Reform Task Force. This report provides three policy recommendations, based on the overarching theme of more closely integrating DoD with industry. The Sub-Panel believes that improved integration with industry is the critical element that will enable the acquisition system to perform better, faster, and cheaper in support of the warfighter.

The recommended policy initiatives are that DoD should:

1. ***Restructure its Research, Development, Test, and Evaluation (RDT&E) organizations and associated workforce*** to enable the Department to make better use of the capabilities of industry and other government agencies, to concentrate in-house capabilities in areas where there is no external capability, and to eliminate duplicative capabilities.
2. ***Expand the use of price-based forms of contracting*** to reduce the cost of doing business with Department of Defense (DoD) for existing Defense contractors and to give DoD access to segments of industry that currently choose not to do business with the Department because of the costs and complexities associated with cost-based contracts.
3. ***Expand the outsourcing of sustainment activities*** to eliminate duplicative capabilities between DoD and industry, to enable the Department to capitalize on industry's advancements in applying technology to these functions, and to provide better support to the user.

The Sub-Panel believes that these policy changes, and the specific actions that are detailed in the report, will enable the acquisition system to deliver to the warfighter the systems and equipment needed for success on future battlefields. The Sub-Panel acknowledges that some of its recommendations represent dramatic departures from current ways of doing business, but is nevertheless convinced that major change is necessary.

I endorse the recommendations in this report, and I encourage you to adopt both the recommended policies and the specific actions based on those policies. The Board, as always, stands ready to assist with the difficult but vitally important implementation process, I encourage you to accept the Sub-Panel's proposal that they be tasked to return in six months to provide you with an independent assessment of the Department's progress in acting on their recommendations.

A handwritten signature in black ink, appearing to read 'C. I. Fields', with a stylized flourish at the end.

Dr. Craig I. Fields
Chairman



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March 16, 1998

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THRU

Dr. Robert J. Hermann
Chairman
Defense Science Board Task Force on Defense Acquisition Reform, Phase IV
The Pentagon
Washington, DC

TO

Dr. Craig I. Fields
Chairman
Defense Science Board
The Pentagon
Washington, DC

Attached is the report of the Defense Science Board Acquisition Workforce Sub-Panel. The Sub-Panel was tasked to examine acquisition organizations and functions, with a special emphasis on how the acquisition workforce should be reshaped to contribute to the objective of performing acquisition better, cheaper, and faster. Our product is a proposed blueprint for change.

Before summarizing our conclusions and recommendations, we acknowledge that many of our proposals call for sweeping, dramatic changes in the way the Department carries out acquisition, and that implementing these changes will be tremendously challenging. To assist with the implementation process, we suggest that the Under Secretary of Defense for Acquisition and Technology (USD[A&T]), after determining which of our proposals he chooses to adopt, task our Sub-Panel to reassemble in six months to provide him with an independent assessment of the plans and progress that the Department of Defense (DoD) has made in carrying out the approved recommendations. We believe that such an assessment would be exceptionally helpful to DoD executives in maintaining their focus on the overall objectives of the changes, particularly as they become immersed in the complex details of implementation.

Our primary focus has been on the warfighter, who is the ultimate user of the weapon systems and equipment that the acquisition process provides. The objective of better, cheaper, and faster acquisition must be defined from the warfighter's perspective. The acquisition process must be

- ◆ *better* so that the warfighter has the high-quality, leading edge systems needed to maintain technological superiority;
- ◆ *cheaper* so that the acquisition process is carried out efficiently, enabling the Department to make the best use of limited resources; and

- ◆ *faster* so that systems go from system commitment decision to fielding more quickly in order to be available for the warfighter when needed.

During our deliberations, the dominant theme that became clear to us is that DoD must take aggressive action to more closely integrate itself with American industry. We reached this conclusion first by recognizing, as stated in *Joint Vision 2010*, that information dominance will be critical to our Nation's success on future battlefields, and then by determining that most of the technological advances that contribute to American superiority in information warfare arise in the non-Defense sector of industry. Closer, more effective integration with the considerable capabilities that industry possesses will give DoD access to these capabilities, and will also eliminate the unaffordable duplication of capabilities that exists in today's acquisition environment. Also, by broadening the industrial base, closer integration with industry will allow for far greater use of competitive market forces to assure best performance at lowest cost to DoD.

From this theme we developed three major policy recommendations, supplemented by a number of specific recommendations. The policy recommendations are that DoD should:

- ◆ *Restructure its Research, Development, Test, and Evaluation (RDT&E) organizations and the associated workforce to integrate them more effectively with industry.* This will eliminate duplication, permit DoD to remain on the leading edge of technology in those key areas where industry's investment is significantly more than DoD's, and free up assets to enable DoD to concentrate on technology areas that do not have commercial analogues.
- ◆ *Expand the use of competitive, price-based contracting.* This will give DoD access to high-technology firms that presently choose not to do business with the Department because of the cumbersome and costly procedures associated with cost-based contracts. It will also reduce the cost of doing business with existing Defense firms. These leading edge companies frequently possess the technological capabilities that are essential to DoD's success on future battlefields and by expanding the field of play, we increase the impact of competitive, capitalistic forces.
- ◆ *Expand the outsourcing of sustainment activities that need not be performed in-house.* This will eliminate duplication of capabilities with industry in such areas as product support of fielded systems, commodity support, and services. These represent areas where industry in recent years has made dramatic progress, and where DoD could significantly improve effectiveness and efficiency by relying on industry to perform the functions.

Based on these principles, our report provides a number of recommended actions, five of which are particularly critical to implementing our proposed blueprint for change. They are:

- ◆ *Restructure RDT&E.* This recommendation fleshes out the first principle, and calls for DoD to take direct action to eliminate any in-house RDT&E capability that can be found in the private sector and to form cooperative agreements with industry and

other government agencies so that DoD can draw upon their capabilities.

- ◆ *Establish an all-Service development Command, Control, Communications, Computers, and Intelligence (C4I) capability.* In spite of the recognized need for interoperable C4I systems to support joint operations, US forces continue to succeed in spite of, rather than because of, our C4I systems. In order to provide a foundation from which improved integration and interoperability can proceed, we recommend that key Army, Navy, and Air Force program management teams responsible for C4I systems for which there is a joint warfighting requirement be collocated at a single installation. This would be the first of several such integration actions.
- ◆ *Increase the use of price-based forms of contracting.* Several contract vehicles exist that do not carry the onerous overhead burden of cost-based contracts, and their use must become the rule rather than the exception. The greatest management challenges that must be overcome are to develop feasible price-based contracting options that are both performance-based and competitive, and to educate the acquisition workforce in these alternatives to cost-based contracts.
- ◆ *Give Program Executive Officers (PEO) and Program Managers (PM) full responsibility for life cycle support of their systems, to include funding responsibility.* The current practice of terminating a program manager's responsibility when a system is fielded contributes to higher life cycle costs, because it gives the PEO/PM no incentive to work on initiatives, during development or after fielding, that would make systems easier and cheaper to maintain and operate.
- ◆ *Redesign the nature of acquisition work.* Our recommendations will result in a much smaller group of acquisition professionals who will be performing different jobs than they do today. The members of the new acquisition workforce must become more skilled as managers rather than as doers, more focused on systems engineering and less on component development, and more capable of making business judgments rather than being guided by rule-based thinking.

Impact of Policy Changes on Acquisition Metrics

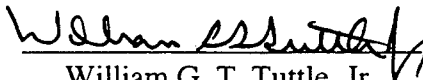
Policy Changes	Better	Cheaper	Faster
Restructure RDT&E	• Commercial technology • Gov't lab products	• Duplication between Services and with industry	• Technology upgrade
Expand Price-Based Contracting	• Commercial technology		• Contracting
Outsource Product Support	• Operational availability • Reliability	• O&S costs • Duplication with industry • Infrastructure costs • Inventory	• Parts delivery
Outsource Commodities	• Quality commercial commodities • Variety • Easy to order	• Duplication with industry IM and distribution • Infrastructure costs • Inventory	• Faster receipt
Outsource Services	• Services with better technology	• Economies of scale	

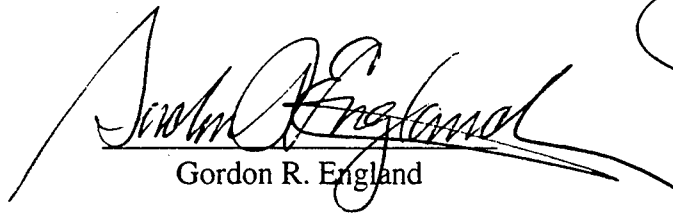
As summarized in the accompanying table, our recommendations will have a direct and immediate impact on the Department's ability to perform the acquisition process better, cheaper, and faster.

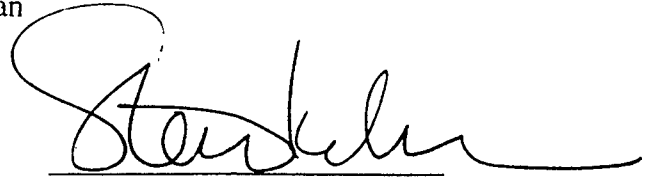
Implementation of our proposals will reduce acquisition costs and total cost of ownership, will enable the acquisition system to deliver weapon systems and equipment to the warfighter more quickly,

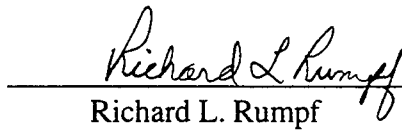
and will ensure that those systems and equipment give the warfighter technological superiority on the battlefield. We strongly encourage DoD to view these recommendations with a bias toward taking aggressive action. We are convinced that continued incremental improvements are not what DoD needs, and that only bold actions will enable the acquisition community to make the progress that is essential.

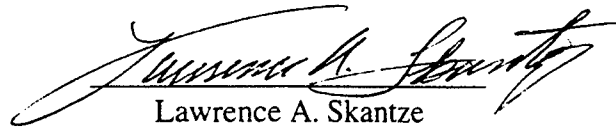
We welcome the opportunity to have undertaken this study, and would like to express our appreciation to the many DoD personnel who assisted us. This includes the members of the Senior Support Group, who participated in many of our meetings and provided valuable insights; the members of the Joint Working Group, who did excellent work in providing staff support; and the numerous individuals from the Office of the Secretary of Defense Staff and Services who provided briefings or participated in the panel discussions that were tremendously helpful to us in identifying issues and potential solutions.


William G. T. Tuttle, Jr.
Chairman


Gordon R. England


Steven Kelman


Richard L. Rumpf


Lawrence A. Skantze

Foreword

The report summarizes the work of the Defense Science Board Acquisition Workforce Sub-Panel, which the Under Secretary of Defense for Acquisition and Technology (USD[A&T]) established to examine acquisition organizations and functions, with a particular emphasis on the implications for the acquisition workforce.

Cognizant of the slow pace of change that has resulted from similar studies in recent years, we determined that DoD must adopt a more aggressive course of action in order to more rapidly achieve the overarching objective of making the acquisition system better, cheaper, and faster. We believe major change, rather than incremental improvement, is needed, and the opportunity is now. We encourage DoD to recognize that this is an opportune moment to bring dramatic and long-overdue changes to the acquisition community, and to read this report in that light. We suggest that executives adopt a bias toward bold, "outside the box" actions.

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Executive Summary

The Under Secretary of Defense for Acquisition and Technology (USD[A&T]) tasked the Defense Science Board (DSB) to review the Department's acquisition organizations and workforce, and to recommend changes that would lead to better, cheaper, and faster acquisition.

This report is the result of that intensive assessment. It contains a proposed blueprint for change which we believe will lead to Defense acquisition organizations and a workforce that can acquire high quality products and services better, more quickly, and at lower cost.

Focus on the Warfighter

While our recommendations are directed at the Department's acquisition infrastructure, they are nevertheless designed to directly benefit the warfighter and contribute to improved mission readiness. As the Department strives for an acquisition process that will perform better, cheaper, and faster, we believe that the criteria should be measured from the warfighter's perspective in addition to any "business" perspective that might be considered. We suggest that better, cheaper, and faster acquisition contributes to mission readiness, and thus to the warfighter, in a very direct fashion:

- ◆ *Better* acquisition ensures that the warfighter has the high-quality, leading edge systems needed to maintain technological superiority on future battlefields.
- ◆ *Cheaper* acquisition enables the Department to make the best possible use of limited resources and ensures that the warfighter gets the greatest return from each dollar.
- ◆ *Faster* acquisition enables systems to move from system commitment decision to fielding more quickly in order to be available for the warfighter when needed.

Closer Integration with Industry

One overarching theme emerges from our assessment. That is the compelling need for Defense officials and the Congress to recognize that the key to maintaining our technological edge on 21st Century battlefields is to more closely integrate the Department of Defense (DoD) with America's dynamic, innovative and competitive industrial base. As the pace of technological change continues to accelerate, it will become even more important for DoD to access the best that US industry can provide, both in acquisition and support. Otherwise, without substantive changes, the pervasive increase in technological complexity will either underwhelm or overwhelm the Department.

On the one hand, technological advances will likely pass by a DoD Research, Development, Test, and Evaluation (RDT&E) structure that is unaware of the broad US industrial base and a contracting system insensitive to commercial market forces. DoD will be underwhelmed by not accessing the best the US can offer.

On the other hand, unless DoD can access the commercial industry infrastructure that supports modern and rapidly changing technology, technological complexity will overwhelm the Department's support capabilities necessary to keep weapon systems at a high level of readiness for longer useful lives.

At the same time, it has become clear that Defense priorities and budgetary pressures will no longer permit DoD to retain the redundant capabilities of acquisition organizations that marked the Cold War era — redundancies among Services and redundancies with industry capabilities. While such duplications of RDT&E and sustainment capabilities may once have had justification, they are no longer appropriate. The resources tied up in such redundant activities represent lost opportunities for investment in modernization, training, and the quality of life of the Nation's forces.

A prime example of the importance of keeping pace with technology is in the information technology area. *Joint Vision 2010* makes clear that information dominance will be the core of the military's warfighting capabilities. Yet the technology advances that will enable such information dominance are taking place largely in the non-Defense commercial sector, outside the Defense industrial base and DoD's own large RDT&E infrastructure.

Closer integration with America's industry can produce continuing access to the leading edge technology so necessary to achieving information dominance and other combat capabilities. And closer integration can help to eliminate unnecessary duplication of RDT&E and sustainment capabilities.

Three Policy Recommendations

Major Policy Changes

- ◆ **Restructure RDT&E organizations**
 - > Use industry and other government capabilities where equal to or better than DoD's
 - > Concentrate in-house efforts on areas with no industry analogue
 - > Eliminate internal duplication
- ◆ **Expand use of price-based contracting**
- ◆ **Expand outsourcing of sustainment activities**
 - > Product support
 - > Commodities
 - > Services

The foundation of our proposed blueprint for change is the combination of three major policy initiatives, all resting upon a cornerstone of closer integration with industry.

1. Restructure RDT&E organizations and the associated workforce to integrate them more effectively with industry. This will enable DoD to:

- ◆ Use industry capabilities and other government capabilities (e.g., National Aeronautics and Space Administration [NASA] and Department of Energy [DOE]) where they are equal to or better than DoD's, producing faster integration of technology into DoD systems with less investment. The dynamic world of information technology, software, and electronics is a commercially driven area that DoD must fully exploit but not try to duplicate.
 - ◆ Concentrate DoD's organic RDT&E capabilities on those areas where neither industry nor other government agencies possess the required capabilities.
 - ◆ Eliminate duplication among the Services, thereby allowing more focused investment in retained capabilities.
 - ◆ Shift the workforce toward managing RDT&E tasks rather than performing them.
2. Expand the use of price-based contracting, reducing the need for cost-based contracting, especially in RDT&E. This will allow Defense to take much greater advantage of industry capabilities, particularly where the pace of technological change is rapid and where companies avoid DoD work because of the high costs associated with cumbersome cost-based contracting rules. This proposal extends the contracting reform legislation and process changes of the last several years, which have permitted already evident improvements in the acquisition of commercial products and services.
 3. Expand the outsourcing of the sustainment activities of the Services and DoD Agencies. This has been a major recommendation of numerous DoD studies in the last decade, but progress has been slow. It would eliminate large-scale duplication with industry in product support of weapon systems and equipment; in providing supplies, such as food, clothing, and common hardware; and in providing services in base operations, information management, and other functions. Expanded outsourcing would also enable DoD to take advantage of the explosive improvements in industry in the last decade or so in harnessing information technology to improve responsiveness, reduce inventories, and make technical assistance quickly and easily available. DoD should take advantage of acquisition reform legislation by making these sustainment services more easily attainable by DoD while still protecting the Government's interests in fair, responsible procurement.

Immediate Action

From a number of actions recommended as part of the three policy changes, we selected five that we believe are essential to launching the blueprint for change that we propose.

We strongly encourage the Department to use our Sub-Panel to assist with implementing our proposals. Specifically, we recommend that our team be reconvened periodically to provide the USD(A&T) with an independent assessment of implementation status. This assessment should be conducted approximately every six months for the first 18-24 months and should address such issues as the adequacy of the Department's implementation plans to achieve the purpose we envisioned, the timeliness of implementation actions, the extent to which cultural and other barriers are impeding full implementation, and corrective actions needed to keep implementation on track consistent with the USD(A&T)'s guidance.

First-Order Recommendations

- ◆ **Restructure RDT&E activities**
- ◆ **Establish all-Service C4I development capability**
- ◆ **Increase use of price-based forms of contracts**
- ◆ **Expand PEO/PM responsibility for life-cycle support, to include funding responsibility**
- ◆ **Redesign the nature of acquisition work**

Recommend DSB Sub-Panel reconvene in six months to review implementation

Restructure RDT&E

Maintaining in-house RDT&E capabilities that essentially duplicate those found in industry not only is unaffordable, but it also keeps DoD behind the technology curve, because the Department is frequently not agile enough to periodically reinvent the workforce in order to keep itself staffed with sufficient numbers of leading edge technologists. We therefore

recommend that DoD policies recognize the need to eliminate any in-house RDT&E capability that can be matched by the private sector or other government agencies, and form the necessary cooperative agreements with those industrial activities to enable DoD to take advantage of the rapid technological change that is occurring, especially in information technology. The restructuring will also facilitate DoD RDT&E project leaders coming in contact with these technologies and optimizing their usefulness in DoD systems.

Establish all-Service Command, Control, Communications, Computers, and Intelligence (C4I) development capability

Joint Vision 2010 makes it abundantly clear that future US military operations will be increasingly joint in nature, and that information dominance will be critical to success on the battlefield. To foster greater jointness and interoperability in C4I hardware and software, and to achieve the goals of *Joint Vision 2010*, we recommend that DoD collocate to a single installation elements of existing Army, Navy, and Air Force program management teams that have responsibility for managing the development of C4I systems for which there is a joint warfighting requirement. This recommendation maintains the warfighting interests and fiscal responsibilities of the Services, yet provides the human environment to facilitate better long-term coordination and cooperation. We see this recommendation as the first of several such changes that need to be implemented to improve the joint warfighting effectiveness of our 21st century military forces. Other — and more fundamental — actions that would contribute to enhanced joint C4I capabilities are to improve the joint process for determining system and support

capability needs and to form a military systems engineering capability, as outlined by the DSB Task Force on Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) Integration in February 1997. We believe our collocation recommendation will facilitate the accomplishment of those objectives.

Increase the use of price-based forms of contracts

Industry incurs considerable cost to comply with the rules associated with cost-based contracts, and these costs are passed on to DoD, thus increasing cost and procedural burdens for both the government and industry. In addition, these same cost and procedural obstacles deter many leading edge technology firms from doing business with the Department. To minimize both these effects, DoD should implement the second of our three major policy initiatives by making price-based contracts, contracts under Federal Acquisition Regulation (FAR) Part 12, and "other transactions," the *preferred* method of buying technology. It should be DoD policy that price-based contracts will be the rule rather than the exception. This will require extensions and expansions of selected pieces of legislation, but the primary requirement will be a focused effort to change the mindset of those contracting officials who prefer cost-based contracts. They should come to understand that — through skillful use of business judgment — the public trust can be maintained in a competitive environment without the imposition of costly oversight rules.

Give Program Executive Officers (PEO) and Program Managers (PM) expanded responsibility for life cycle support of their systems

In today's environment, most PEOs and PMs are responsible for developing and fielding weapon systems and equipment, but their responsibilities generally end once the system is fielded. We believe that this practice results in much higher life cycle costs than should be the case, because the PEO/PM does not have adequate incentive or responsibility for taking action during development or modification of the systems to invest in equipment features that will improve the reliability and maintainability of the fielded system, and it divides the responsibility for system support among many agencies. We recommend that the PEO/PM be given control of funding and responsibility for the system throughout its life cycle (with the exception, of course, of those funds normally provided to operational commanders for repair parts), and that annual personnel performance evaluations/fitness reports include an assessment of how well the PEO/PM is progressing toward achieving reduced life cycle costs.

We further recommend that the USD(A&T) direct the Services to implement this arrangement for all fielded weapon systems and equipment. It will facilitate the outsourcing of systems support and overseeing upgrades to counter obsolescence problems of fielded systems.

The result would be a single manager focused on maintaining a system's operational readiness and reducing its operating and support costs, a concept that has been successfully demonstrated by the Navy's Fleet Ballistic Missile Program over many years.

Redesign the nature of acquisition work

The preceding recommendations call for greater reliance on industry to perform RDT&E, for the development of a new jointness in the development of C4I and other systems, for a new philosophy in the way DoD writes contracts with industry, and for an enhanced role of the PEO/PM in managing a system through its life cycle. All of these signal our fifth major recommendation, namely that the Department redesign the nature and character of the work that its much smaller group of future acquisition professionals will perform. In this regard, members of the DoD acquisition workforce must become more, and they must become less:

- ◆ More manager and leader and less hands-on doer.
- ◆ More focused on systems engineering and less focused on “black box” component design.
- ◆ More capable of making “business” judgments based on insightful understanding of industry operations and technological change, and less guided by rule-based thinking.

A key workforce-related action that DoD should take is to implement the central management of assignments and professional development of the acquisition professionals who will staff and be groomed for the “Top 500” acquisition positions — PEOs, PMs of major systems, product center directors, etc. — by the USD(A&T), Component Acquisition Executives (CAE), and other senior managers.

Implementation — A DoD-Congressional Partnership

It is clear to us that the goal of these recommended changes — the creation of an even more effective and efficient DoD acquisition organization and workforce that better meet future defense needs — will not be realized without the full support and commitment of both the Congress and DoD. It is clear from our own experiences, ratified in the briefings we received from senior acquisition officials during this study, that without Congressional support, DoD cannot implement even those proposals for which it already has legal authority. It is axiomatic in Congressional-Executive branch relations that it is acceptable to add government jobs to a state or Congressional district. But attempts to move functions or people away to another state or district inevitably face a much more difficult approval process.

Most of the changes we recommend require restructuring to produce the changes we believe are necessary to enhance the ability of DoD to make acquisition of the best available technology affordable and to keep our armed forces in a position of dominance. However, the mere cutting of people without the restructuring and other measures recommended will hollow out DoD’s RDT&E and support capabilities, will retain only the most senior people regardless of skills and technological knowledge, and will prevent DoD from bringing in fresh scientific, engineering, and logistics management talent. And that can only lead to diminished capability for our operational forces.

It is our view that DoD and Congress can and must work as a team to ensure that these recommendations can be implemented, making them as humane and caring as possible for the adversely affected workforce members and as politically palatable as possible to Congress. We suggest below the legislative changes needed to facilitate the implementation. They are essential, but only the willing cooperation of the Congress will allow progress to take place. We believe it is incumbent on both DoD and the Congress to make every effort to work together toward the common objective of better, cheaper, and faster acquisition in support of the warfighter.

Legislative Changes Required

In addition to the partnership just described, implementation of our recommendations will require support from Congress in the form of legislative changes. These are summarized here.

Reason	Change
Open the "revolving door" in order to ◆ Facilitate understanding of military needs in industry as well as military knowledge of new technology ◆ Get technology leading edge into Defense	Rely on the Procurement Integrity Act (41 US Code (U.S.C.) Section 423) Repeal 18 U.S.C. Section 207
Allow better use of term employees	Amend 5 U.S.C. (various sections)
Expand use of Intergovernmental Personnel Act (IPA) program to include participation by members of industry	Amend Intergovernmental Personnel Act of 1970 (5 U.S.C. Sections 3371-3376)
Allow for full realization of financial benefits	Enact Base Realignment and Closure Authority (BRAC) authority
Realize full benefits of outsourcing product support	Omit annual limitations on in-house depot maintenance in authorization and appropriation acts
Allow greater use of micro-purchases	Amend 41 U.S.C. Section 428 to increase threshold to \$10K
Continue/expand/amend "other transactions authority"	Amend 10 U.S.C. Section 2371 to make OTA permanent for prototype projects and to permit pilot project for production

Benefits

Our three major policy recommendations will contribute to better, cheaper, faster acquisition, and to improved battlefield capabilities for the warfighter.

Restructuring RDT&E will result in:

- ◆ Faster technology delivery to the warfighter, by more effectively coupling needed DoD technology with the innovative capabilities of industry.

- ◆ Reduced investment requirements and improved RDT&E efficiency, by using industry capability where existing or feasible and eliminating cross-Service and national laboratory duplicative capability.

Expanding the use of price-based contracting will result in:

- ◆ Reduced cost of non-value added processes for Defense and commercial firms, by tailoring and eliminating current requirements of cost-based contract vehicles.
- ◆ Better, cheaper, and faster delivery of capabilities to warfighters, by facilitating military use of non-Defense companies, particularly in areas where the pace of technological change is rapid.

Outsourcing product support, commodities, and services will align DoD with commercial practices and processes, and will result in:

- ◆ Improved warfighting capability.
- ◆ A DoD infrastructure that stays on the leading edge of process technology.
- ◆ Reduced cost through the application of cost-cutting competition.

Implications

The proposed policy changes will have significant implications for DoD's acquisition organizations and workforce.

Whenever workforce reductions and organizational changes are proposed, the question of BRAC arises. We have not developed our recommendations at a level of detail that requires BRAC actions — such as recommending the closing of a specific installation. However, we believe that in order to fully realize the potential financial benefits associated with our proposals, the Department will need BRAC authority. At the same time, we point out that BRAC authority is not required to begin implementation of our recommendations, and that even without BRAC, our recommendations will lead to meaningful improvements in the quality, speed, and cost of the acquisition system

Implications for Acquisition Organizations

There will be a shift toward all-Service organizations and away from Service-unique structures as development programs, labs, and test facilities are merged into DoD-wide centers of excellence. While the precise organizational form must be tailored to each situation, we believe that these consolidations should usually be accomplished by collocating the major elements and

designating a lead Service. We do not believe that a Defense agency is necessarily an effective solution in these cases.

While most of these all-Service centers of excellence are envisioned in the RDT&E community, we also expect that similar organizational arrangements will be possible in other areas. For example, in subsequent pages we recommend that many of the existing organizations that perform product support be eliminated as the functions are outsourced to industry, with funding control and oversight by system PMs. The PMs most likely would be part of the all-Service centers of excellence, which could become life cycle "product centers."

When our policy recommendations are implemented, the remaining organizations will have a program management orientation, as opposed to their current development and production focus. The hands-on "doing" of the acquisition process will be, to a large extent, turned over to industry, and government managers will shift their focus to managing the contractors rather than managing the actual development and sustainment programs.

The shift away from hands-on doing of functions to a higher-level management responsibility is expected to bring a higher grade structure to DoD organizations, since the "doing" functions are accomplished by lower grade engineers and technicians. At the same time, Defense acquisition organizations will be smaller, and there will be fewer of them.

Implications for the Acquisition Workforce

Changing the mix of workforce skills for the future is a critical success factor in implementing our recommendations. The future acquisition workforce must be populated by a greater proportion of generalists who have a broad base of knowledge and experience in more than one part of the acquisition process. New training and education programs, as well as new recruitment and assignment policies, will be needed to enable the Department to develop such a workforce.

Our recommendations call for a substantial reduction in the current acquisition workforce.¹ The RDT&E restructuring actions would reduce the requirement for current skills by nearly half. To acquire the needed additional skills, technologists working under terms of the IPA should be recruited, and new term employees should be hired. As additional members of the current workforce reach retirement, the preponderance of the scientific and engineering management talent would be in term appointments with relatively free movement between Defense organizations and industry, universities, and other Research and Development institutions.

Similarly, the sustainment workforce would gradually be reduced to those skilled individuals involved in overseeing industry-provided product support, commodity distribution, and services. Term appointments should be used to attract promising talent from industry with acknowledged

¹ We decided to address only the civilian component of the acquisition workforce. The significant cultural differences among the Services in how they manage military acquisition professionals made it difficult to develop cohesive recommendations in the short time available for this study.

free movement back to industry. In that way, sustainment managers would stay better abreast of the world class logistics expertise found in America's competitive industry.

Implications for Leadership Development

The implications for leadership development represent a particularly critical part of the equation in capitalizing on the talents of our workforce.

We recommend that the USD(A&T), CAEs, and other senior managers take charge of the professional development and assignment of individuals who serve in, or are candidates to serve in, the top 500 acquisition positions. The essence of this recommendation is that senior acquisition executives should manage the professional development and assignments of these selected individuals in much the same way that large corporations manage the careers of their top executives. To achieve the objective of grooming and developing individuals to fill the Top 500 positions, this recommendation would require the management of a larger number, perhaps 700-800, acquisition professionals. Once identified as a member of the Top 500, an individual's career should be managed so that he/she proceeds through successively broadening assignments, with the payoff for the Department coming when the individual reaches the most senior levels of the acquisition community.

We also recommend that some number, perhaps 75-100, of these Top 500 positions be designated for position pay. This would not be performance-based compensation, but rather a special compensation for the incumbents, recognizing that the positions carry special responsibilities and that the individuals selected for them deserve at least the equivalent of the highest warfighting proficiency pay. Such an approach would serve as an incentive to the Top 500 to actively seek out the more challenging and responsible assignments.

The increased expertise DoD needs at any point in time might very well reside in industry or academia, particularly in fields where the pace of technology change is rapid. We recommend that DoD actively recruit potential leaders from outside the Department. It is very important that DoD seek legislative change to open the revolving door between government and industry, a loosening of the rules governing IPAs, and the use of innovative approaches such as renewable term contracts that allow an individual to return to industry after serving with DoD for four or five years.

The training and education process must be a career-long effort that keeps each individual on the leading edge of technological and business issues. While acquisition training has improved in recent years, training programs are not focused on developing judgment skills. We need a new approach to acquisition training, in which we provide less training on rules and procedures, but more education on the development and application of judgment and case-based skills. The DoD school environment might not be the only or best place to conduct such training. In-house training can help new acquisition professionals learn procurement law and the FAR. But the main thrust of acquisition learning should shift to education programs conducted for the Department by universities and other organizations that specialize in executive education and development.

Implications for the Size of the Acquisition Workforce

The following table identifies the projected impact that our recommendations will have on the size of the four components of the acquisition workforce that we considered. The table shows the FY98 civilian workforce, the size of the workforce programmed for FY03 in the most recent Future Years Defense Program (FYDP), and the workforce that results from applying our recommendations. The DSB figures include IPA and term employees who would be added to the workforce under our proposals.

Workforce Category	Civilian Workforce (Thousands)		
	FY98	FY03 — August 1997 FYDP	FY03 — Based on DSB Proposals
RDT&E	78.2	64.0	42.1
Oversight	18.5	16.5	9.3
Product Support	97.6	90.2	49.5
Commodity Support	21.9	16.1	10.6

Conclusion

We conclude that if DoD makes the policy changes described in this report, initiated by the five specific actions discussed above, acquisitions will be better, cheaper, and faster. Integrating a smaller acquisition structure with industry will enable significant reduction of both RDT&E and sustainment organizations and their workforces. The remaining structure can concentrate on those tasks which only the Department can do, but the professional acquisition workforce will have the tools to oversee industry's production and sustainment of leading edge technology for the Nation's armed forces.

Our recommendations do not suggest that nothing has been done in these areas. But, due in large measure to difficulties in achieving political consensus, DoD's actions have been tentative and incremental. Our recommendations are intended to encourage the Department and Congress to go further and faster in implementing these concepts. Building on the initial steps that have been taken, it is now time for DoD and the Congress to move out more aggressively and on a broader front to reap the benefits of these proposals.

Section I

Tasking and Methodology

This section explains the genesis of this study and describes the approach and methodology the Sub-Panel used to conduct its deliberations.

Requirement and Guidance

- ◆ **FY98 Defense Authorization Act calls for an independent study of acquisition organizations**
- ◆ **USD(A&T) guidance:**
 - **DSB Sub-Panel will lead the study, with a focus on the associated workforce implications**
 - **Changes in technology and in the role of government must drive the size and activities of the acquisition workforce, to include their skills, knowledge and behavior**
 - **The product of the study will be a blueprint identifying opportunities for changes in process, organizational design, and the workforce transformation that leads to a better, cheaper, and faster acquisition system**

This study was prompted by the National Defense Authorization Act for FY98. Section 912(e) of the act directed the Secretary of Defense to require that an independent body examine “the missions, functions, and responsibilities of the various acquisition organizations of the Department of Defense, including the acquisition workforce of the Department.” An extract of the act is at Appendix B.

The USD(A&T) charged the Sub-Panel to review and assess the DoD acquisition system of the future, with a special focus on how that emerging system will affect the workforce. The terms of reference document for the study is at Appendix C.

Goal and Guiding Principles

Goal

An acquisition workforce that achieves *better, cheaper, faster* acquisition

Guiding Principles

- ◆ View acquisition as a full life-cycle process that includes S&T and sustainment
 - For new and legacy systems
 - To avoid narrow, limited perspectives that focus only on stovepipes
 - To recognize connectivity of acquisition & sustainment; don't lose sight of legacy system realities
- ◆ Increase the acquisition system's flexibility and responsiveness in introducing technology
 - To keep pace with more ambiguous, changeable threat and the accelerating pace of technology
- ◆ Use industry and other governmental capabilities more effectively and focus DoD work on minimum inherently governmental acquisition activities
- ◆ To duplicate within DoD the capabilities of industry is unnecessary, wasteful, unrealistic
 - Prefer private sector accomplishment of non-inherently governmental activities
- ◆ Improve processes and reduce organizational barriers
- ◆ Focus on output vice input metrics

When the USD(A&T) formed the Sub-Panel, he established his goal for the acquisition system and its workforce. That goal is to have a process and a supporting workforce that achieve better, cheaper, and faster acquisition.

To ensure that our study proceeded from a foundation that was compatible with the Department's overall objectives for the acquisition process, we began by developing a set of principles upon which to base our analysis and recommendations. In an initial guidance session, the USD(A&T) agreed that these principles provided a sound basis from which to proceed.

The first principle is that we should take a broad view of acquisition. The acquisition process includes the Department's science and technology activities at one end of the life cycle, and extends into sustainment at the other end. We discussed at length the question of "how much" of sustainment is included in the acquisition system. Our conclusion is that the critical activities of providing product support are clearly part of the acquisition system, while the sustainment functions that take place at organizational level in operational units are not.

We make a special point of including legacy systems in our definition. This inclusion has always been appropriate, but has become even more important in recent years as the Department has dramatically reduced its procurement of new weapon systems and equipment and has increased its reliance on systems that were fielded decades earlier. To a large extent, the effectiveness of the acquisition system will be determined by how well it deals with the challenges of legacy systems, to include such issues as technology insertion and modernizing through spares.

Effective application of new and emerging technology is critical to most of DoD's processes, and acquisition is no exception. Technology enables the acquisition system to perform faster and

cheaper and is also a key element in enabling functional processes and organizations to operate seamlessly together and to present a common interface to the end user, whether he be a warfighter who needs to order repair parts for a weapon system or a contracting officer who wants to order supplies from a “virtual” online catalogue.

Perhaps the toughest challenge we have given ourselves is in focusing on output or outcome metrics rather than input metrics. Our basic metrics are found in the goal of achieving better, cheaper, and faster, acquisition.

Determining whether the system is performing “better” leads us to metrics that tend to be subjective and difficult to measure, but we know that this must be measured from the perspective of the user — ultimately, the warfighter in most cases.

A “faster” acquisition process has different meanings at different points in the acquisition life cycle. In the pre-fielding development of weapon systems, we want the acquisition process to operate as quickly as it can to develop and field new capabilities for the user. But when we reach the sustainment portion of the cycle, the need for pure speed is replaced by the need for timeliness — the right goods and services delivered to the user when they are needed.

The most straightforward measure, of course, is “cheaper,” where total cost of ownership and unit cost give us the best measure of performance.

Study Methodology

- ◆ **USD(A&T) marshaled extensive expertise to address the issues**
 - **DSB Sub-Panel to lead the effort**
 - **Senior Support Group (SSG) -- acquisition and logistics executives from across DoD**
 - **Joint Working Group -- Military Department and selected Agency representatives**
- ◆ **Information gathering by Sub-Panel**
 - **Conducted extensive discussions with experts from DoD and other government agencies**
 - **Considered previous DSB studies, Departmental initiatives, GAO reports, other studies and analyses**

The USD(A&T) designated two groups of DoD personnel to assist the Sub-Panel: a Senior Support Group (SSG) and a Joint Working Group (JWG).

The SSG was composed of senior acquisition and logistics executives from the Military Services and Defense Agencies, and representatives from The Joint Staff and OSD Staff. The SSG members attended each of our meetings, at which they engaged in discussions with speakers and panelists and also provided their considerable insights to assist us in defining the emerging issues.

Asked to review a near-final draft of this report, the SSG members provided more than 80 pages of thoughtful comments. We carefully considered all of these comments and incorporated many of them into this final report. We note that the SSG provided numerous comments dealing with implementation issues at a greater level of detail than we were able to address in our compressed time schedule. We recognize that many details will have to be worked out to implement our recommendations, but do not believe that any "showstoppers" have been identified to date.

The JWG members, composed of representatives from the Military Departments and selected Defense Agencies, provided full-time support to the Sub-Panel and played a major role in developing DoD's answers to the questions posed in Section 912(d) of the FY98 National Defense Authorization Act, an analysis that was conducted in parallel with our study to deal with Section 912(e) of the same act.

The members of the Sub-Panel, the SSG, and the JWG are identified at Appendices D, E, and F, respectively.

To make the best use of the limited time available for this study, the Sub-Panel conducted a series of focused meetings, each addressing a particular phase of the acquisition process. Representatives from DoD, other government agencies, and industry were asked to participate in these meetings, either as speakers or as members of panels. Each of the discussions was facilitated by the advanced preparation of "forcing questions" to guide the speakers and panelists. Appendix G contains a list of the primary topics for each Sub-Panel meeting and the participating speakers and panelists.

Study Approach

- ◆ **Examine the activities of the “Big A” Acquisition process:**
 - **Conduct RDT&E**
 - **Prove Out Advanced Technology**
 - **Integrate Technology and Produce**
 - **Sustain**
 - **Product Support**
 - **Commodity Support**
 - **Services**
 - **Integrate with Other Processes**
- ◆ **Recommend policy changes**
- ◆ **Identify implications for:**
 - **Acquisition organizations**
 - **Acquisition workforce**
 - **Resources**
- ◆ **Develop implementation plans**

As noted, we used a broad, or “Big A” definition of the acquisition process. In studying the process, we found it helpful to decompose it into the sets of activities shown here. The first four major activities are the elements of the acquisition process, while the fifth represents the interfaces that acquisition must maintain with other critical DoD processes.

As we studied the acquisition process in these major sets of activities, we developed our recommended policy changes, and for each of those we identified the major implications for acquisition organizations and the acquisition workforce. To support our analysis of the impact of our recommendations, we categorized the workforce into four major components:¹

1. The RDT&E workforce, whose members are in the RDT&E organizations of the Services and Agencies.
2. The product support workforce, whose members are involved with the support of Defense equipment. This includes, for example, inventory management, part of the distribution depots, and the maintenance depots. (We excluded — for now — the non-deploying installation logistics workforce, which is nearly 100,000 military and civilian personnel.)
3. The commodity support workforce, whose members staff the Defense Logistics Agency (DLA) supply centers and parts of the distribution depots.

¹ See Appendix H for a more detailed description of the workforce segments we considered.

4. The oversight workforce, which consists of Defense Contract Audit Agency (DCAA) and Defense Contract Management Command (DCMC).

The two other processes that we spent some time on are the requirements generation process and THE Planning, Programming, and Budgeting System (PPBS).

We concluded that there are opportunities to improve the interface between the requirements process and acquisition, but the improvements that might be made in this area would have relatively little impact on the acquisition workforce. We therefore did not pursue these issues in depth. But while the implications for the acquisition workforce might be not significant, we believe that significant gains can be made that would benefit the warfighter — the ultimate customer of the acquisition system — if the interfaces between requirements generation and acquisition were improved. We therefore suggest that this interface be addressed in a follow-on study.

On the other hand, it is clear that the interface between PPBS and acquisition does have implications for the acquisition workforce, and we will address this issue later in the report.

Section II

Annotated Briefing

DSB Sub-Panel Study of DoD Acquisition Organizations and the Acquisition Workforce

This section presents the main body of our analysis and rationale for our conclusions. For each of our proposed policy initiatives we present our recommended actions, the implications of those recommendations — in terms of acquisition organizations, the workforce, and resources — and a timeline for initial implementation actions.

The section concludes with a summary of our recommendations and their overall impact on the acquisition system.

Restructure RDT&E

- ◆ **Rely on industry and other government RDT&E capabilities when available**
- ◆ **Consolidate in-house labs with other government labs and industry**

Why Change is Needed

Joint Vision 2010, the Department's conceptual template for improving the joint warfighting effectiveness of our military forces in the early 21st century, depends heavily on DoD's ability to leverage new and emerging technological opportunities. Unfortunately, the rapid rate of technological change, coupled with DoD's inflexibility in being able to deal with the pace of change, is about to leave the Department technologically overwhelmed. We note that this inflexibility can be traced not to dedicated individuals working within the system, but rather to the system itself.

We are convinced that the only way for DoD to provide the warfighter with the technologically superior systems essential for battlefield success is to integrate its RDT&E capabilities much more fully with those of industry, and to rely on industry to provide the preponderance of its Research and Development (R&D) requirements. DoD spends millions of dollars annually to maintain in-house capabilities that duplicate those of industry or other government agencies. Not only is this unaffordable, but it gives the Department a task it cannot accomplish — keeping up with the pace of change. Industry has demonstrated that it does a far better job of staying on the leading edge of technology in all but a few areas — and especially in the critical information technology area — than do DoD's in-house RDT&E organizations.

This restructuring should also result in DoD's smaller, more focused RDT&E structure doing the right things.

Rely on industry and other government RDT&E capabilities when available

If the private sector has a research and technology development capability that is also maintained by DoD, the Department should terminate the in-house effort and depend on industry to provide the required capability. If no private sector capability exists in a given technological field, DoD should next look to partnership arrangements with leading edge laboratories in other government agencies, such as DOE and NASA, to fill its needs.

In cases where non-DoD agencies are on the leading edge of technologies, equipment, or practices and are able to solve difficult development or prototyping problems, the Services should use these resources in partnership with their organic capabilities and industry suppliers to reduce development risk. This will allow for reduction of marginal facilities and personnel support in the DoD acquisition structure. DoD should maintain an internal RDT&E capability only in that limited number of cases where there is no industrial capability or where the industrial base is so limited that DoD needs to retain the capability for national security reasons. Those facilities would deserve focused modernization. These activities should seek to bring in scientific and engineering talent from industry and universities to contribute to their technological leadership.

Consolidate in-house labs with other government labs and industry

For those capabilities that DoD must retain in-house, numerous opportunities exist to restructure organizations and facilities to capitalize on the unique capabilities, ranges and facilities of each Service or Agency and at the same time to eliminate or significantly reduce duplicative capabilities and excess capacity. The resulting all-Service "centers of excellence," as we have termed them, should be federated with industry and other government laboratories to make their technological capabilities available for industry research and development projects. They should also sponsor RDT&E projects in industry and other government facilities. One successful example has been the consolidation under the Air Force as lead Service for RDT&E in aircraft propulsion.

DoD should act quickly on our proposed initiatives for C4I and the major range and test facilities, beginning with actions that can be implemented without BRAC authority. At the same time, it should develop more comprehensive consolidation plans that would allow even greater efficiencies through base closures and realignments. Major additional areas that DoD must consider for cross-Service consolidations are electronic combat, directed energy, and munitions.

RDT&E centers will remain that have a single-Service focus, such as the Navy's submarine technology program. They, too, should follow the principles of closer integration with industry where feasible.

We note that the National Research Council, in a recently-published assessment of a DoD research laboratory, observed many of the same problems that we have identified. The Council noted that the lab did not make optimum use of commercial research capabilities, did not focus its efforts on military-unique problems, and needs to do a better job of integrating its efforts with

those of other government laboratories. We believe that the Council's findings in this one lab are symptoms that would be found throughout much of DoD's lab structure, and we recommend that Council assessments of other DoD labs be reviewed for specific areas to be addressed as this action is implemented.

Restructure RDT&E Policy Implications

- ◆ **Acquisition organizations**
 - **Creation of all-Service centers of excellence**
 - **Elimination of duplicative RDT&E capabilities**
 - **First phase:**
 - “All-Service” C4I development capability
 - “All-Service” range command
- ◆ **Acquisition workforce**
 - **Focus on systems integration vice “black box” design**
 - **Business judgment vice rule-based thinking**
 - **Recruit and develop technology leaders**
 - **Transition to renewable-term workforce through addition of IPAs and term employees**
 - **Management focus on activity costs vice organizational costs**

**More than 45% reduction from current
RDT&E civilian end strength**

Acquisition organizations

Creation of all-Service centers of excellence/Elimination of duplicative RDT&E capabilities

Taken in concert, these two actions will result in a smaller number of in-house RDT&E organizations. They will be highly focused on technology areas where they possess unique capabilities, and their day-to-day operations will be characterized by habitual teaming and partnering with labs and centers in both industry and other government agencies in order to bring leading edge technology to bear on DoD’s requirements.

We recommend that DoD act promptly on two reorganizations that will bring dramatic improvements in efficiency and effectiveness.

All-Service C4I capability

In virtually all recent US military operations, our forces have had to contend with C4I capabilities that were not fully integrated across the Services. Even in the last 15 years, when technological advancements should have contributed to enhanced interoperability, joint operations have been hindered by the inability of forces to share critical information at the rate demanded by modern warfare. To attack this problem, we recommend that DoD establish an all-Service C4I development capability. This consolidation would have several key features:

- ◆ Elements of all three Military Departments’ C4I program management teams (the Army’s Communications-Electronics Command (CECOM), the Navy’s Space and Naval Warfare Systems Command (SPAWAR), and the Air Force’s Electronic

Systems Center (ESC) that have responsibility for joint interoperability in the development of tactical radios, theater communications systems, satellite communications, surveillance, sensors, and other imbedded C4I systems should be collocated at a single installation. Collocation would facilitate closer coordination in developing the linkages necessary to achieving C4I interoperability, while maintaining Service warfighting focus and fiscal responsibility in a long-term environment that facilitates understanding and coordination. Note: IPT arrangements may require some PMs to physically collocate with their prime contractors.

- ◆ Moves of military personnel would be maximized. Moves of civilian personnel would be kept below 300 per Service to avoid conflicting with legal limitations.

We envision this restructuring of C4I development responsibilities as the first of several similar actions. Because this collocation of C4I capability is the one action most likely to have an immediate payoff for the warfighter, it is the best opportunity for demonstrating that such restructurings represent a sound approach to dealing with cross-Service requirements. The Department should make this restructuring a matter of high priority, and should draw lessons learned from the action that would be applied in the near term to other functional disciplines.

In an earlier study, the DSB Task Force on C4ISR Integration recommended other — and more fundamental — actions that would contribute to enhanced joint C4I capabilities. That Task Force recommended that DoD improve the joint process for determining system and support capability needs, and that the Department form a military systems engineering capability. We support those recommendations, and believe that our proposal to collocate C4I program management teams would facilitate the accomplishment of those objectives.

All-Service range command

We believe that better use could be made of DoD's ranges and test facilities if most facilities were brought together eventually into a joint or all-Service range command. As a first step in this direction, we recommend that a pilot project be conducted by forming the "Western Test Range Command." This new organization would bring together under one umbrella the ranges and facilities at White Sands Missile Range, China Lake, Edwards Air Force Base (AFB), and others if appropriate, with the objective of reducing any unneeded or duplicative capabilities or capacities. Key features would be:

- ◆ The organizational arrangement would include a flag officer commander that rotated among the Services, reporting to a multi-Service board of directors comprising the Service directors of testing and evaluation.
- ◆ Expanded conversion to government-owned, contractor-operated facilities would improve efficiency.
- ◆ Funds for both operations and maintenance and investment would be converted to Defense-level appropriations and managed by the board of directors. The conversion

of investment funds would enable senior managers to make better use of limited investment resources and, thus, to address one of the most pressing problems faced by range and test facility managers, namely the inability to sustain the level of investment required to revitalize facilities.

As the Department gains experience with this new organization, lessons learned would be drawn from the pilot project and applied to further consolidations of additional ranges and test facilities.

Acquisition workforce

As we begin this discussion of the implications for the acquisition workforce, we point out that this is the area where the need for a genuine partnership between DoD and the Congress is most essential to success. The Department can implement some of our recommendations on its own authority, but without the support and cooperation of Congress, it can go only so far in effecting the critical transformation of the acquisition workforce. The following paragraphs will recommend that DoD and Congress embrace several personnel management policies that are a significant departure from business as usual, but that we believe are critical to DoD's success. We encourage Congress to welcome this opportunity to dramatically improve the way DoD's acquisition workforce is structured and managed.

Focus on systems integration vice "black box" design

The nature of the work that government personnel do will change dramatically when our recommendations are adopted. The DoD RDT&E workforce should focus more on systems integration, and less on hands-on engineering and "black box" component design.

Business judgment vice rule-based thinking

As DoD moves to a performance-based business environment in which "insight" becomes more critical than "oversight," the acquisition workforce will need a new set of skills. The workforce will no longer be able to depend on military standards and procurement rules. Rather, they will need to understand, at a detailed level, the motivation and business aspects of industry.¹ Their skills should include "sourcing" analysis common to manufacturers and market research, especially in rapidly changing technology areas. As DoD places greater reliance on performance-based requirements that describe "what" DoD wants as opposed to "how" to do it, the acquisition workforce will need to be able to measure progress and status by developing and understanding performance-based metrics. Allowing contractors greater flexibility in recommending trade-offs among performance, cost, and schedule provides a mechanism for them to execute the most effective and efficient program plan to achieve better results faster and cheaper. The workforce will need to be more empowered to make the appropriate business decisions based on industry's recommendations and their impact on warfighting needs.

¹ In this report, the words "industry" and "commercial" refer to all private sector firms. In cases where we mean to differentiate between firms that routinely or traditionally do business with DoD and those that do not, we refer to the former as "Defense firms" and the latter as "non-Defense firms."

Recruit and develop technology leaders

Several of our recommendations depend on new or enhanced programs that will allow DoD to bring on board experienced scientific and engineering management talent from industry who can make valuable contributions as members of the workforce. To make this happen, the Department will need more broadly written IPA rules, a significant easing of the limitations on the "revolving door" between government and industry, and the establishment of policies to allow for term employees who can shift easily between jobs in government and industry. These policies will encourage entry into government of promising early- and mid-career technology managers from industry. Allowing return to industry will guarantee a cross-fertilization between the all-Service centers of excellence, other government R&D activities, and industry, promoting the greater integration we recommend.

A number of legislative changes will be needed to implement this recommendation. The Clinger-Cohen Act provided some increased flexibility in the employment of former agency officials. More relaxation is needed to attract scientific and engineering expertise from industry. The Procurement Integrity Act and 18 U.S.C. Section 207 both contain post-employment restrictions on government personnel moving into positions with government contractors. Those restrictions need to be lifted, allowing the opening of the "revolving door" between government and industry. The Clinger-Cohen Act revised significantly the Procurement Integrity Act. The new Act is aimed at sanctions against wrongdoing (rather than occupying a particular position in the government), primarily releasing or obtaining procurement information. The new Act provides for civil and administrative remedies (and narrow criminal remedies) aimed at both employee and government contractor activity. Section 207 of Title 18 (a purely criminal statute), on the other hand, is primarily concerned with contacts or representations to an official's former agency. These undefined "contacts" have a profound chilling effect on the government's ability to lure the most competent people from industry to staff key upper-level positions. Consequently, there is a considerable overlap between the new Act and Section 207 regarding post-employment. We therefore recommend sole reliance on the use of the Procurement Integrity Act and the repeal of 18 U.S.C. 207. This reliance would place more discretion on the imposition of appropriate sanctions for wrongdoing and would decrease reliance on the criminal justice system, with its accompanying reluctance and baggage. We believe administrative remedies, in most instances, can be sufficient. Likewise, repealing Section 207 would result in more decriminalizing of the acquisition system and would contribute to streamlining the system. Moreover, other criminal laws, especially the bribery statutes, will remain available to deal with egregious wrongdoing.

The Intergovernmental Personnel Program, which limits participation to personnel from non-profit organizations and educational institutions, should be expanded to allow for participation by industry personnel. In addition, once the Intergovernmental Personal Act is amended to enable the exchange with industry, we strongly recommend that the implementing regulations be structured in a fashion that would not affect the willingness of prospective critical experts or specialists to accept government service by undue fettering through stock plans, retirement, etc. with their employer.

In addition, proactive professional development programs will be needed to develop workers once they are on board, whether they are recruited from industry or are among the dedicated existing corps of acquisition professionals.

Transition to renewable term with mobility required

In addition to allowing the workforce to be mobile between government and industry jobs, we also expect that individual employees will be asked to be more geographically mobile in order to build the broad base of skills and experience that will be expected as in-house managers take on their new role, involving less doing and more managing. New members of the acquisition workforce should be given five-year renewable term appointments. Given the current average age of the current workforce, over the next decade or so we would expect the majority of the workforce to be composed of term employees. This will allow for necessary turnover to continually refresh technology and management skills, and will provide incentives to maintain skills in the smaller workforce. In addition, we recommend that DoD continue to move forward on initiatives being tested as part of the Civilian Acquisition Workforce Personnel Demonstration project, to include the realignment initiative that delinks separation incentive from Reduction in Force (RIF), the integrated contribution-based compensation and appraisal system, and critical skills training.

Management focus on activity costs vice organizational costs

The current DoD financial system was not designed to provide data on the cost of activities in terms that are meaningful to functional managers. The Department needs to change this by adopting activity-based costing tools, and then training managers in the use of these tools.

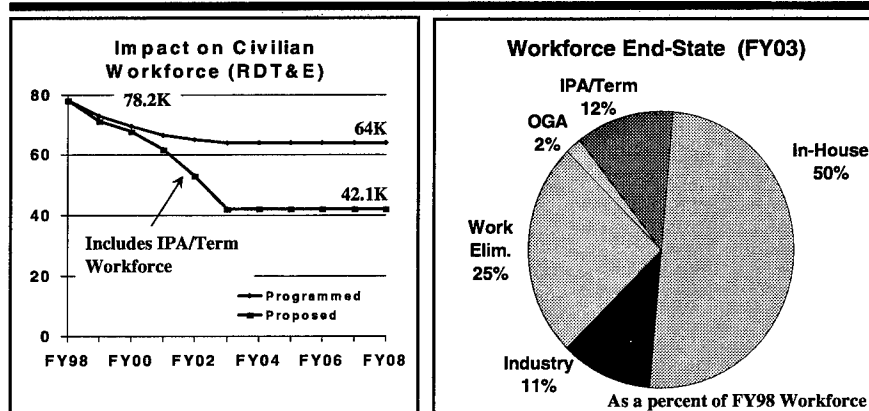
A proven restructuring technique

Many of our recommendations call for significant reductions in the civilian workforce. The Department has recent experience with a procedure that, with careful planning, can achieve meaningful reductions with minimum hardship to the personnel involved. In this preferred approach, the old organization is disestablished and a smaller, refocused organization is established. The new organization is staffed with employees from the current workforce based on matching their skills to organizational needs. The best qualified people are assigned to positions in the new organization, and some jobs may not be filled initially. Employees not assigned to the new organization are assigned to a "transition organization." The transition organization is funded for a period of time, for example 18 months. During this time, transition organization employees can be assigned to the new organization if they acquire necessary skills, but are also provided special assistance in finding employment elsewhere, both within government service and within private industry. Voluntary Early Retirement Authority (VERA) and Voluntary Separation Incentive Program (VSIP) are used to minimize adverse impacts if a RIF becomes necessary when the transition organization is no longer funded. Under current law, people assigned to the transition organization have the same retention rights as before and may in fact bump an employee who was placed into the new organization if a RIF is necessary. Actual

experience with this management technique resulted in a significantly smaller organizations with only a few people actually being involuntarily separated.

This approach should be applied in all functional areas, not just RDT&E.

Restructure RDT&E Resource Implications



**\$1.14B available for reinvestment over 5 years;
\$8.81B over 10 years**

See Appendix H for a description of the workforce included in this analysis.

This chart summarizes our estimated resource implications that result from the recommendation to restructure RDT&E. Our estimates are based on briefings we received, and our own understanding of estimates made in the Reliance Study, Vision 21, and BRAC 95 analyses.

The line graph depicts two civilian acquisition workforce reduction ramps. The top line represents the ramp in the Program Objective Memorandum (POM)99 FYDP, and the second line represents the reduction ramp that we recommend, with IPA and term employees added back. This ramp equates to an additional reduction of 24.9K in the permanent workforce by the end of FY03. In that same period, approximately 3K IPA and term employees are added back to augment the permanent workforce, which results in an in-house, steady state RDT&E workforce of 42.1K. This estimate is predicated on making the changes described in the implementation plan that follows, to include meeting the dates identified in that plan.

Also in the steady state, a total of approximately 3.2K Full-Time Equivalent (FTE) personnel of present R&D work would be done by industry (2.7K) and other government agencies (.5K) over the same period. Our analysis projects a 25% workload reduction resulting from the elimination of duplicative and redundant work. This projection is based on previous estimates in the BRAC 95 and Vision 21 studies. It could vary in either direction. Projections would need to be refined as the recommended "Basic Technology Development Plans" proceed. Again, these are only our best estimates and depend entirely on the extent to which DoD can implement the recommended changes, and the pace at which implementation can be accomplished.

The pie chart summarizes our view of how DoD would be staffed to perform RDT&E work functions in the end state (FY03). The FY98 staffing level is used to illustrate how staffing levels will further shift overtime from in-house staffing to industry, other government agencies, and augmentation of in-house staffing with IPAs and term employees. The chart also depicts the percentage of work that would be eliminated over time through the reduction of duplicative and redundant functions.

DSB Ramp	78.2	71.1	67.0	60.0	50.0	39.1	39.1	39.1	39.1	39.1	39.1	
FTE:												Total
Off the Rolls	0	5.1	3.5	3.1	1.6	0.9	0.0	0.0	0.0	0.0	0.0	14.2
POM99												
Off the Rolls DSB	0	7.1	4.1	7.0	10.0	10.9	0.0	0.0	0.0	0.0	0.0	39.1
RAMP												
Delta (DSB		2.0	0.6	3.9	8.4	10.0	0.0	0.0	0.0	0.0	0.0	24.9
Additional												
Reduction)												
Dollar Estimates:												
Delta (\$M) Gross		\$160	\$208	\$520	\$1,192	\$1,992	\$1,992	\$1,992	\$1,992	\$1,992	\$1,992	
Cumulative												
Savings: note 1												
Buy Back												
IPA (Cumulative)		\$19.2	\$25.0	\$62.4	\$143.0	\$239.0	\$239.0	\$239.0	\$239.0	\$239.0	\$239.0	
(\$M): note 2												
OGA (Cumulative)		\$3.5	\$4.8	\$11.4	\$26.2	\$43.8	\$43.8	\$43.8	\$43.8	\$43.8	\$43.8	
(\$M): note 3												
Industry		\$14.1	\$18.3	\$45.8	\$104.9	\$175.3	\$175.3	\$175.3	\$175.3	\$175.3	\$175.3	
(Cumulative) (\$M):												
note 4												
Total Buy Backs		\$36.8	\$47.8	\$119.6	\$274.2	\$458.2	\$458.2	\$458.2	\$458.2	\$458.2	\$458.2	
(Cumulative)												
Yearly		\$160.0	\$48.0	\$312.0	\$672.0	\$800.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	
Outplacements												
Costs: note 5												
Total Yearly Costs		\$196.8	\$95.8	\$431.6	\$946.2	\$1,258.2	\$458.2	\$458.2	\$458.2	\$458.2	\$458.2	
Net Available for		-\$37	\$112	\$88	\$246	\$734	\$1,534	\$1,534	\$1,534	\$1,534	\$1,534	
Reinvestment												
(yearly)												
5 years & 10 years						\$1,143						\$8,813
Reinvestment Total												
(\$M)												

Notes:

1. Costed at \$80K per person
2. 12% buyback @ \$80K
4. 2% buyback @ \$88K
4. 11% buyback @ \$64K
5. Outplacement: \$80K charge to government in year of reduction

The table above summarizes the personnel and associated dollar impacts of our proposal over a 10-year period. The following estimated rates were used to compute the dollar FTE estimates for the RDT&E workforce:

- ◆ One FTE = \$80K
- ◆ One IPA FTE = \$80K
- ◆ One Other Government Agency (OGA) FTE = \$88K
- ◆ One Industry FTE = \$64K
- ◆ Outplacement per FTE = \$80K

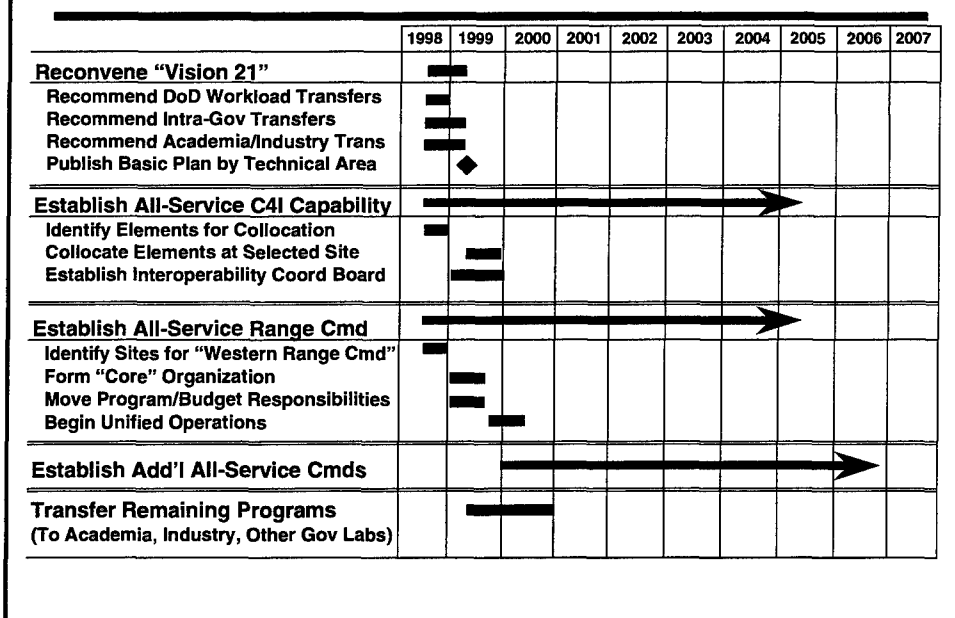
At the top portion of the table is a comparison of the current FYDP ramp with the ramp that we propose. The next two lines compare the actual number of FTE to be reduced by year.

In the next section of the table, our additional proposed reductions are costed (gross cumulative savings) based on the above estimated rates. The cost estimates for buyback of IPA, industry, and

other government agency agreements follow. The buyback costs are subtracted from the gross cumulative savings along with the one-time outplacement costs associated with workforce reductions. The "net available for reinvestment line (yearly)" is the result of subtracting "total yearly costs" from "gross cumulative savings."

The "net available for reinvestment" that results from this costing methodology is \$1,143M over 5 years and \$8,813M over 10 years.

Restructure RDT&E Timeline



We envision five components in implementing the restructuring of RDT&E. Three of those components can begin immediately. The remaining two are follow-on activities stemming from and building upon the successes of the first three.

The three initial components are:

- ◆ Building the foundation for restructuring by reconvening the Vision 21 study effort.
- ◆ Focusing C4I RDT&E efforts through collocation of the Services' capabilities.
- ◆ Unifying the Department's testing capabilities through consolidation of command and control.

Reconvene "Vision 21"

We recommend that the USD(A&T) immediately reconvene the Vision 21 study, forming a group of "veterans" of the original Vision 21 Study and others detailed to USD(A&T) for about two years. The charter for the effort should call for the development of a Basic Technology Development Plan for each of the 10 major technology areas in the Defense Technology Area Plan². These Basic Technology Development Plans should evaluate the capabilities of all

² These areas are: Air Platforms; Chemical/Biological Defense and Nuclear; Information Systems Technology; Ground and Sea Vehicles; Materials/Processes; Biomedical; Sensors, Electronics, and Battle Space Environment; Space Platforms; Human Systems; and Weapons.

components of DoD, all non-DoD sectors of the government, industry and academia to conduct the requisite RDT&E for the Department. Then the plans should specifically enumerate the best place from among the capabilities identified for the work to be accomplished. The basic criteria should be that if a facility outside DoD is capable of doing the work equally as well as, or better than, DoD, then that capability should be the preferred one for use. DoD should disestablish capabilities which do not survive this test. Where duplicate DoD capabilities exist, only the best should be chosen, with the others being disestablished. Each of the Basic Technology Area Plans should designate that RDT&E work which would be consolidated within DoD, that which would be transferred to other governmental capabilities (e.g., NASA, DOE), and that which would be transferred to industry or academia. The plans should be required by the end of the second quarter FY99.

Establish All-Service C4I Capability

As a beginning step, we recommend the collocation of all the Services' C4I capabilities at one site. The study effort to identify specifically which elements should be collocated should begin immediately, with a report due by the end of CY98. The necessary collocations should begin in the third quarter FY99 and be completed by the end of CY99. When the study report is delivered, the USD(A&T) should form an Interoperability Coordination Board to act as a governing board of directors for both the collocation effort and subsequent DoD C4I RDT&E efforts.

Establish All-Service Range Command

A most effective way to aid the identification and elimination of duplication within a given functional area is to unify the management for that area. We believe that the Department can make excellent use of this technique with respect to testing and evaluation ranges. As a first step toward developing a Department-wide command structure which can do this, we recommend that the USD(A&T) immediately unify the testing sites in the western United States. A study group should identify the specific sites and sub-sites that should be unified using the White Sands Missile Range, Edwards AFB, and China Lake testing facilities as the base. This identification should be completed by the end of CY98. At that time, a core organization should be established to assume management responsibilities for this Western Test Range Command. This core organization should have command and control, programming, budgeting, and base support responsibilities for the included sites. This organization should begin exercising those responsibilities at the beginning of FY00.

Follow-on Components

Following the successes and lessons learned from establishing the All-Service C4I Capability and the All-Service Western Test Range Command, the USD(A&T) should begin to expand the concepts to other functional areas and the rest of the test ranges within the United States.

We believe that identifying other functional areas that would benefit from All-Service consolidation can begin as early as the beginning of CY00, with implementation plans for each area that would follow a timeline similar to that used in C4I. We recommend that these studies be

conducted within each technology area and be coordinated with the results from the reconvened Vision 21 study effort.

The consolidation and transfer of RDT&E efforts within the basic technology areas can begin as early the fourth quarter FY99, and should continue until all areas are appropriately consolidated or divested as called for in the Basic Plans.

Expand Price-Based Contracting

- ◆ **Take advantage of source selection streamlining to decrease sole-source awards**
- ◆ **Increase use of and extend FAR Part 12 contracts**
- ◆ **Increase use of and extend "other transactions" agreements**
- ◆ **Perform price analysis based on previous buys**
- ◆ **Use parametric price analysis**
- ◆ **Adopt best value-dissimilar competition**
- ◆ **Use share-in-savings in contracting for services**

Limit the use of cost-based contracts

Definition

We have found that the discussion of price-based contracting is a prime area for confusion and misunderstanding, so we begin by defining the term.

Price-based contracting is the establishing of contract price by means other than recourse to costs actually incurred, or costs expected to be incurred. Fixed-price contracts may be either cost-based or price-based, depending upon the methodology used to establish the contract price. When a fixed price is established on the basis of cost proposals and cost analysis, the contract price is cost-based. This is typically the case for annual production buys of major systems.

Why change is needed

There are three major deficiencies or problems associated with cost-based contracting.

First, cost-based contracting discourages efficiency. Basing contract price, and the corresponding profit, on analysis of the seller's costs is a disincentive for the seller to reduce costs. Over time, cost reductions translate into reduced prices and reduced profit.

Second, cost-based contracts are administratively burdensome to the government as well as industry. Cost-based contracts require tracking and allocation of costs in government-unique accounting systems and reporting in government-unique formats. Associated with cost-based contracting are

- ◆ **Certified Cost or Pricing Data.** The foundation for cost-based contracting is buyer visibility of the seller's cost data. The Truth in Negotiations Act (10 U.S.C. 2306a) contains the statutory requirement for offerors, contractors and subcontractors to make certified cost or pricing data available to the government.
- ◆ **Cost Accounting Standards.** The Government established the Cost Accounting Standards (41 U.S.C. 422) to achieve (a) an increased degree of uniformity in cost accounting practices among Government contractors, and (b) consistency in cost accounting practices by individual contractors over periods of time.
- ◆ **Cost Performance and Cost/Schedule Status Reports.** Although not associated with contract pricing, DoD imposes reporting requirements on its major system contractors for monitoring cost and schedule status. For the largest contracts, DoD obtains the Cost Performance Report. Its five formats (only those required are placed on contract) provide (1) earned value performance status by product, (2) earned value performance status by organization or function, (3) contractor baseline planning status, (4) labor hour performance, and (5) variance analysis. On smaller contracts, an abbreviated version called the Cost/Schedule Status Report is obtained, providing essentially the first and fifth formats. We believe that requiring contractors to provide cost data could discourage commercial firms from doing business with the Department. Similar commercial earned value management systems do not require this type of cost visibility among commercial partners.

Third, cost-based contracts present barriers to commercial firms. Government-unique requirements associated with collecting, tracking and reporting cost data are barriers that are not easily overcome by firms that do not have Cost Accounting Standards (CAS)-compliant accounting systems. A particularly onerous barrier to these firms is DoD's use of cost-reimbursement contracts for most research and development efforts and many contracts for services. Cost-reimbursement contracts require a CAS-compliant accounting system. The Department recognizes the critical need for technology to give our forces battlefield superiority, and we cannot afford to maintain the barriers that discourage key elements of American industry from doing business with DoD.

Taken as a whole, these deficiencies work against the objectives of better and cheaper acquisition. The acquisition system does not perform better because the requirements associated with cost-based contracting lead many firms to reject DoD business, thus cutting the Department off from potential sources of improved capabilities. The system does not perform cheaper because, as noted above, for the firms that choose to do business with DoD, costs are unnecessarily elevated for two reasons. First, cost-based contracts give firms little or no incentive to reduce costs. Second, these companies must spend inordinate amounts of money on CAS-compliant accounting systems. These elevated costs are, of course, passed on to the Department, which results in DoD not getting the best possible payoff from its limited investment resources.

In this discussion of contracting issues, we should note that the Department has taken advantage of the acquisition reform initiatives that have been implemented in recent years. Examples

include the widespread use of the International Merchant Purchase Authorization Card (IMPAC) for small purchases and the use of electronic ordering systems to buy commercially available aircraft parts from the non-Defense segments of the industry. Streamlining opportunities are discussed further at Appendix I.

Alternatives to cost-based contracting

There are several alternatives to cost-based contracting. Some of these are currently in use, some require increased emphasis, and for some, DoD will need to amend its policies. We are not recommending that these techniques be used in situations where the risk of performance is high and cost-based techniques are appropriate to protect the interests of both the contractor and DoD. However, DoD should structure acquisitions to permit price-based contracting at the earliest possible milestone in the acquisition cycle. The alternatives include

- ◆ Decrease sole source awards. Awarding contracts on the basis of adequate price competition avoids the problems associated with cost-based contracts. In the past, delays associated with the procurement process gave program officials an incentive to make sole-source purchases on the grounds of "urgency." Streamlined procurement techniques that make it easier to buy supplies and services quickly and competitively are now available for a wide range of acquisitions. These include commercial items under FAR Part 12, simplified acquisitions under FAR Part 13 for commercial items up to \$5 million, electronic catalogues, the expanded federal supply schedules, and new flexibility under FAR Part 15. DoD should use these techniques to structure competitive contract awards specifically to avoid cost-based, sole source contracting.
- ◆ Increase use of FAR Part 12. FAR Part 12 contracts in FY97 represented 16 percent of DoD contracts over \$25,000, as measured both in dollars and in number of actions. These actions are all fixed-price contracts awarded on the basis of market prices. DoD should ensure that all items and services that fall within the extremely broad definition of "commercial item" enacted into law under the Federal Acquisition Streamlining Act are acquired using the procedures in FAR Part 12. DoD intends to reach out to creative commercial companies that normally do not compete for DoD business by tailoring FAR Part 12 solicitations specifically to elicit offers from such firms. These solicitations will be for development, but of sufficiently low risk that offerors can realistically price it in a competitive, fixed-price environment using the commercial terms and conditions.
- ◆ Increase use of "other transactions." DoD has been using other transaction authority (OTA) in lieu of cost-reimbursement type contracts to avoid the accounting and oversight barriers to contracting for research and development. DoD should use price-based OTA whenever appropriate and necessary to acquire such services. The authorization in 10 U.S.C. 2371 for the Defense Advanced Research Projects Agency (DARPA) to use OTA for prototype projects should be made available to all DoD activities and should be made permanent. 10 U.S.C. should also be expanded to permit DoD to conduct a pilot program to test the use of OTA for production of items

developed under 10 U.S.C. 2371, when such agreements are in the best interests of the government and exemptions from the Truth in Negotiations Act and Cost Accounting Standards would not otherwise apply. Lessons learned from this pilot should be gathered quickly and applied to further expansion of the approach.

- ◆ Perform price analysis based on previous buys. Contract pricing can be based on an analysis of acquisition histories, including prices paid, for agency purchases of similar items and for similar purchases made by other agencies or organizations. An example would be pricing a fiscal year's production run of a weapon system that has enough price data points to accurately predict the price curve for succeeding production runs.
- ◆ Use parametric price analysis. Parametric price analysis is the rational, systematic application of engineering, economics, mathematics, and statistics to the analysis of price curves for modified, evolving or dissimilar products.
- ◆ Adopt best-value dissimilar competition. This is a technique for introducing competition into what had been considered a sole-source environment. It requires a thorough bottom-up of analysis DoD's need, which is followed by inviting competition for a variety of solutions for meeting that need.
- ◆ Use share-in-savings for services contracting. This technique, which is appropriate for the procurement of services rather than hardware, gives the contractor an incentive to reduce the cost of government operations by allowing him to keep a portion of the savings he is able to effect. A typical example might be the provision of utilities service to an installation. The Department would state its current in-house cost for providing the service. The contractor might be paid a specified amount for providing the service, and also be paid a specified percentage of the amount by which he is able to reduce the cost of the service. Another typical situation would be found in cases in which the Department will continue to perform a function in-house, but lets a contract to have the function reengineered so that it costs less. For example, a Defense Finance and Accounting Service (DFAS) office that is currently incurring an internal processing cost of \$2.00 for every check that it writes might let a contract to have the check preparation process reengineered. The contract might call for the contractor to be paid a set amount, plus a portion of the amount by which the new process reduces unit cost below \$2.00. Depending on the specific situation, in some cases the contractor might be paid entirely out of the savings the contractor's efforts generated, resulting in payment only if savings are generated.

We spoke earlier of the need for a strong partnership between DoD and the Congress in order to enable the Department to realize many of the benefits of our recommendations. Contracting statutes represent a key component of that partnership, an area where Congress can build upon the legislative initiatives of recent years to bring even greater enhancements to the acquisition process. We encourage DoD to continue to aggressively pursue the needed legislative changes, and likewise encourage Congress to embrace the opportunity to enact legislation that will give the Department improved access to the best that American industry has to offer.

Expand Price-Based Contracting Policy Implications

- ◆ **Acquisition organizations**
 - Reduced DCAA oversight requirements
 - Reduced DCMC oversight requirements
- ◆ **Acquisition workforce**
 - Training in price-based versus cost type analysis
 - Training in best commercial practices
 - Development of performance-based requirements
 - Significantly reduced DCAA and DCMC workforce

Acquisition organizations

As noted above, cost-based requires an expensive oversight structure. That structure for the most part is found in DCAA and DCMC. As DoD moves away from a cost-based contracting environment and toward a price-based environment, the accompanying oversight requirements will decrease dramatically.

This recommendation will also have an impact on the size of certain elements of DFAS, but we were unable to quantify that impact.

Acquisition workforce

The transition to a price-based contracting environment will require new knowledge and skills in the acquisition workforce.

Training in price-based versus cost type analysis

The acquisition workforce would have to be trained in the price-based contracting techniques described above. DoD should continue and expand the training techniques it has used successfully in the past — such as the traveling “road show” training sessions — to educate the workforce on the techniques that have arisen from the acquisition reform initiatives. In addition to imparting knowledge of price-based contracting vehicles, this training would help to shift the current preference for cost-based contracts to a preference for price-based vehicles.

Training in commercial practices

The acquisition workforce needs exposure to and training in use of commercial marketplace practices that would make Defense business more efficient. Adopting commercial practices would move the Department toward a more performance-based business environment, would dramatically reduce the costs incurred by current Defense contractors, and would allow DoD to access the entire US industrial base. It would also give the workforce the different set of tools needed to manage in a commercial type environment where DoD tells the contractor what it wants, and lets the contractor determine how to do it.

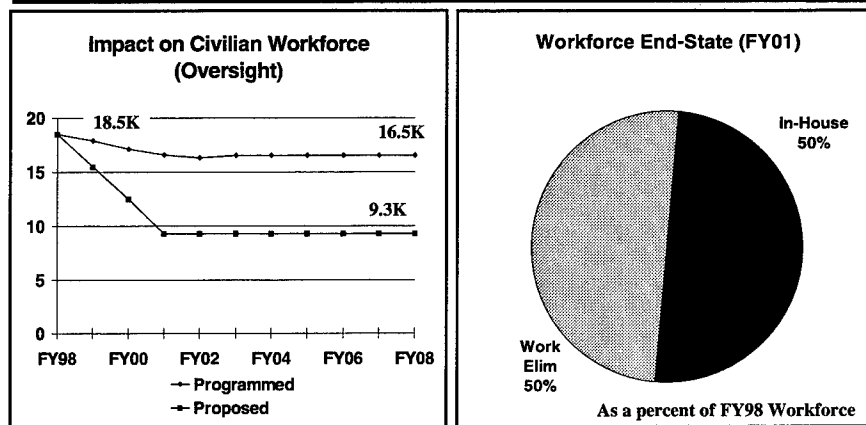
Development of performance-based requirements

The acquisition workforce needs to understand and implement the “new way of doing business” by establishing a Performance-Based Business Environment (PBBE). PBBE is a “state of being” in which government/contractor relationships capitalize on commercial practice efficiencies to improve the military acquisition and sustainment environment. In this new environment, solicitations and contracts describe system performance requirements in a way that permits contractors greater latitude than under current acquisition practices to use their design and manufacturing ingenuity to meet DoD needs. Additionally, suppliers will compete and be selected based upon their proposed approaches, process effectiveness, and prior performance.

Significantly reduced DCAA and DCMC workforce

The decreased use of cost-reimbursement contracts, along with related initiatives such as the shift toward performance-based contract requirements, is expected to result in significant reductions to the DCAA workforce and to portions of the DCMC workforce, since major portions of these two organizations currently focus on activities associated with cost-based contracts. Most, if not all, of DCAA’s workload is driven by cost-based contracts. Within DCMC, workload that is driven by cost-based contracts is found in organizational elements dealing with quality, production, contracts/pricing, engineering, and general management. Appendix J contains a more detailed analysis of DCAA and DCMC staffing projections.

Expand Price-Based Contracting Resource Implications



**\$1.7B available for reinvestment over 5 years;
\$4.6B over 10 years**

See Appendix H for a description of the workforce included in this analysis.

This chart summarizes the resource implications that result from our recommendation to expand price-based contracting, thereby reducing the number of government personnel involved in administering a cost-based contracting environment and production oversight activities. The line graph depicts two civilian acquisition workforce reduction ramps. The top line represents the ramp in the POM99 FYDP, and the second line represents the reduction ramp that we recommend. This ramp equates to an additional reduction of 7.2K permanent workforce by the end of FY01. Our analysis assumes a 50% workload reduction in oversight-related work in a three-year period. We believe this steep reduction can be achieved in DCAA by the selective elimination of low-risk, backlog work such as incurred cost audits. As DoD moves to a price-based contracting environment, the requirement to audit contractor internal control systems will be no longer be valid. In DCMC, production oversight of contractors who have demonstrated low-risk accounting and production profiles can be drastically reduced, based on a government risk assessment of contractor past performance. For a more detailed description of the proposed reductions, see Appendix J.

The pie chart summarizes our view of how DoD will be staffed to perform oversight work functions in the end state (FY01). The chart depicts that in the end state the oversight workforce in DCAA and DCMC will be reduced by 50% as the Department shifts from a cost-based to a price-based contracting environment.

Price-Based Contracting											
	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08
POM 99 Ramp	18.5	17.9	17.1	16.6	16.3	16.5	16.5	16.5	16.5	16.5	16.5
DSB Ramp	18.5	15.5	12.5	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3
FTE:											
Off the Rolls POM99	0	0.6	0.8	0.5	0.3	-0.2	0.0	0.0	0.0	0.0	2
Off the Rolls DSB RAMP	0	3.0	3.0	3.3	0.0	0.0	0.0	0.0	0.0	0.0	9.3
Delta (DSB Additional Reduction)		2.4	2.2	2.8	-0.3	0.2	0.0	0.0	0.0	0.0	7.3
Dollar Estimates:											
Delta in Gross Cumulative Savings (M): note 1		\$192.0	\$368.0	\$588.0	\$564.0	\$580.0	\$580.0	\$580.0	\$580.0	\$580.0	\$580.0
Buy Backs: None											
Yearly Outplacements Costs: note 2		\$192.0	\$176.0	\$220.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Net Available for Reinvestment (yearly)		\$0	\$192	\$368	\$564	\$580	\$580	\$580	\$580	\$580	\$580
5 years & 10 years Reinvestment Total (\$M)					\$1,704						\$4,604
Notes:											
1. Costed at 80K per person											
2. Outplacement: 80K charge to government in year of reduction											

This table summarizes the personnel and associated dollar impacts of our proposal over a 10-year period. The following estimated rates were used to compile the dollar FTE estimates for the oversight workforce:

- ◆ One FTE = \$80K
- ◆ Outplacement per FTE = \$80K

At the top portion of the table is a comparison of current FYDP ramp with the ramp that we propose. The next two lines compare the actual number of FTE to be reduced by year.

In the next section of the table, the additional FTE proposed reductions are costed (gross cumulative savings) based on the above estimated rates. The one-time outplacement costs associated with workforce reductions are subtracted from "gross cumulative savings to arrive at the "net available for reinvestment line (yearly)."

The "net available for reinvestment" that results from this costing methodology is \$1,704M over 5 years and \$4,604M over 10 years.

Expand Price-Based Contracting Timeline

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Policy to Prefer Price-Based Contr.										
Publish DoD Directive	◆									
Develop Field Training Program	■									
Implement Field Training Program		■	■	■						
Expand Other Transactions										
Legislation to Extend/Expand to Prod.	◆									
Establish Pilot Program for Production	◆									
Nominate Candidate Program	◆									
Obtain Legislative Authority	◆									
Execute Pilot Program	■	■	■	■	■	■	■	■	■	■
Expand into Other Programs										→

The two key components to success in this area involve overcoming the tendency within the Department to over-rely on cost-based contracting and obtaining authority to expand the use of OTA.

Policy to Prefer Price-Based Contracting

The first step in this process is to publish policy that makes it clear and specific that the preferred way of doing business is to avoid using cost-based contracts unless no other alternative exists. Implementation of such a policy will be difficult given the current tendency to over-rely on cost-based contracting. One effective technique to overcome this might be to require a specific waiver before a cost-based contract can be used. Another way to overcome the tendency to over-use cost-based contracts is through comprehensive field training. A field training program should be developed before the end of CY98. This program should cover at least a two-year training effort during CY99-00 with the goal of not only reaching each contracting official, but reaching them numerous times to ensure that the principles of, and tools available for, price-based contracting are well understood and received by the field.

Expand Other Transactions

The current preference for cost-based contracting also inhibits the active pursuit of OTA as a way of doing business with commercial entities. Before the use of OTA can be effectively pursued, however, enabling legislation is required. The Department should vigorously seek the permanent extension of OTA as a part of the FY99 enabling legislation. In addition, there should be a concerted effort to expand on current authorities in this area, with the first step being the authorization of a pilot project to extend an OTA into production.

After such legislation is obtained, the Department should nominate at least one pilot program. The program(s) selected for the pilot should be capable of being started in FY99 and be limited to the FY99-00 timeframe. If successful, the concept should be extended into other programs where this type of working relationship is appropriate.

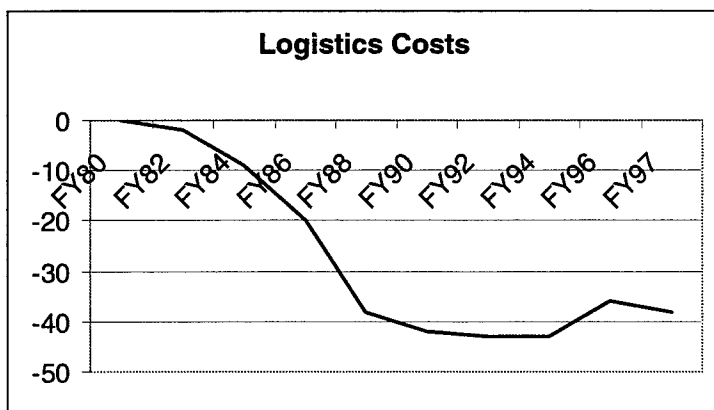
Outsource Product Support

- ◆ **Apply to new and legacy systems**
 - **Adopt flexible sustainment/contractor logistics support**
 - **Contractor-owned repair parts inventory with direct delivery to user**
 - **Incentivize time-definite delivery standards and operating and support cost objectives**
 - **Task contractor to train military maintenance personnel**
 - **Perform modernization through spares**
- ◆ **Give PMs oversight and funding control of all life cycle activities**
- ◆ **Apply to Advanced Concept Technology Demonstration projects**

The result: Improved readiness at reduced cost

Why change is needed

Support of weapon systems and equipment is the second area of concentration of acquisition organizations and workforce. We have chosen to use the industry term, “product support,” to describe this function. The workforce supports operating forces by buying repair parts from industry, storing them, and distributing them to operating forces in response to requisitions (at the purchase price plus a surcharge to cover infrastructure operating costs). For both components and end items, this workforce does some repair actions itself, and contracts with industry for other repairs. Other vital services such as technical training of military mechanics and technical assistance to the operating forces are part of this support. The fact that the preponderance of product support — nearly all the buying, storing, and distribution of parts and 60-70% of the repair — is done by the DoD workforce caused the Sub-Panel to question the value added by the DoD workforce as “middleman.”



While the functions that DoD performs as “middleman” represent tasks that must be performed, it is clear that DoD’s organization for these tasks adds unneeded nodes and transactions and, thus, delay time and costs to the essential process of getting parts from the industry producer to the operating forces consumer. The costs of the “middleman” role are best depicted

in the accompanying chart, which shows the dramatic 40% reduction in logistics costs (as a percent of sales) that commercial firms have achieved in the previous decade. Companies such as Caterpillar, John Deere, and Cummings Engine, faced with competition from high-quality Defense firms selling products in the US at 25-40% lower prices found ways to wring out unnecessary logistics costs. DoD's organic infrastructure, facing no such threat to its survival, has not achieved similar cost reduction. (See the discussion on Page K-6.)

The simplest product support process has the operating forces order directly from the industry producer using a catalog in much the same way as we order outdoor equipment from L. L. Bean or an airline might order a part from Boeing. While there may have been reasons during the Cold War to interpose a "middleman" into the producer-consumer relationship, the argument for maintaining it in this era of instantly available information and worldwide package distribution does not justify the high costs of keeping the large organic workforce. We believe that having these tasks performed by industry would generate significant cost reductions. The outsourcing of product support would, in our view, reduce the direct cost of product support (i.e., the cost of the workforce performing the function) by several hundred million dollars per year, and would contribute to even larger cost reductions by discouraging the maintenance of large inventories of obsolete or unneeded parts and components.

The provision of product support by government personnel — an approach that operates without the benefit of competitive market forces that could make it more efficient — represents an example of how DoD's failure to fully integrate with and capitalize on the strengths of industry results in higher costs and less responsiveness. By having DoD personnel perform product support function, the Department has kept itself overly involved in the "doing" of functions that industry is well-qualified to handle, and has not streamlined the function as effectively as has industry. In addition, the insertion of government middlemen in the product support process makes it difficult for commercial firms to gain insights into how their products are performing, and thus deprives them of information they could use to design better reliability and maintainability into their hardware.

Furthermore, the Department has had great difficulties in providing responsive repair parts support, taking 20-25 days to deliver depot-stocked parts. This poor responsiveness has caused DoD to maintain unnecessarily large inventories, the management of which (at increased cost) continues to make the General Accounting Office's (GAO's) list of "high risk" management areas. Examples are shown in the excessive lead times and buying of unneeded stocks (Page K-3). Based on a presentation given by Herbert W. Davis and Company at the 1997 Council of Logistics Managers Conference, private sector delivery times are about eight days from the time the order is received until it is delivered to the customer. A comparison of private sector and DoD for internal (depot) processing time, from receipt of order until it is shipped, shows less dramatic differences than in the overall order and shipment times — about 4.0 days for the private sector compared to 5.7 days in DoD (see Page K-2). Segmentation between support echelons in DoD accounts for the dramatic differences in overall order-receipt time. It complicates and slows down both requisitions moving to the depot level of supply and materiel flowing to the customer. Supply chain techniques employed in the private sector have produced significant reductions in cycle times and improved customer satisfaction and dramatically

reduced logistics costs. Data from 1997 show private sector logistics costs at approximately 9% of sales, while DoD surcharges range from 25% to 44%, indicating that in spite of differences in calculation, industry performs more efficiently than does DoD. We believe these commercial techniques can be applied to weapons system support to reduce customer response times and thus to improve the mission readiness of our forces.

Another example of the product support performance gap between DoD's organic support infrastructure and industry's is the difference in the time to repair components. DoD depot maintenance repair cycle times for components being repaired for return to inventory or to customers varied between 56 days and 130 days in fiscal year 1997, depending on the Service. This can be compared to a sample of private sector repair times that varied from 5 days to 21 days (Page K-2). Although the DoD and private sector repair times are not directly comparable because of DoD's hierarchical repair levels, it does point out the emphasis that private sector firms place on reducing all support cycle times. Long repair cycle times, lack of flexibility in adjusting capacity, and large induction quantities make it difficult for the supply and maintenance systems to adjust to changes in inventory requirement levels. See Appendix K for more information on materiel management performance indicators.

Depot and installation maintenance workforce management, governed by civil service rules, is largely inflexible when workload constantly changes. Elevating the technical skills of the workforce is increasingly problematic in areas of rapidly changing technology, particularly software maintenance. The very skills needed to diagnose and repair the technologically complex components of DoD's weapon systems are those skills most in demand by the thriving private sector. These skills are not easily learned by new accessions to the military, nor can the government compete successfully with private sector salaries in this tight labor market for skilled civilian workers. Further, upgrading the skills is a difficult task and may even result in the loss to the private sector of the most skilled. At the same time, most operating and support costs are climbing as legacy systems age. Thus, the time is right to convert these systems to industry-provided product support as they are modernized, much the same as Boeing and Caterpillar provide support for their products worldwide. Their response times for parts and their focus on keeping costs under control, forged in conditions of rigorous worldwide competition, are features that DoD badly needs.

Our recommendation to outsource product support builds on the policy that is already established in DoD Regulation 5000.2. We propose that contractor support become the norm rather than the exception, and that it be applied to both new and legacy systems. We note that numerous examples of this approach already exist within the Services. The Navy has long outsourced support of one of the most vital weapon systems in our Nation's arsenal, the Fleet Ballistic Missile Program, and has established contractor support as a key element of the DD-21 program. The Army has outsourced product support of the Mobile Subscriber Equipment digital battlefield communication system since its fielding nearly a decade ago, and is planning to outsource product support of the recently fielded Paladin howitzer. The Services will have to manage cross-platform components (radios; Identification, Friend or Foe (IFF); etc.) to maintain the advantage of commonality.

For new systems, contractor support should be established as part of the program's acquisition strategy. For legacy systems, we foresee contractor support being competed, not necessarily to be awarded to the original equipment manufacturer. One option for legacy systems could be the teaming of a manufacturer, a contract field maintenance firm, an engineering services firm, and a third-party logistics firm.

Appendix L describes the relationship between contractor logistics support and operational units.

Apply to New and Legacy Systems

Adopt flexible sustainment/contractor logistics support

We strongly believe that when industry is properly incentivized to provide sustaining support, it will do so on a timely basis and, in the process, lower the total cost of ownership to the Service. As shown at Appendix L, operating forces would continue to provide organic support, with the contractor providing repair parts and technical assistance in accordance with a Commander in Chief's (CINC) support concept. Successful implementation of this recommendation would, of course, require that Contractor Logistics Support (CLS) be transparent to the warfighter and responsive to the uniformed logistician.

Contractor-owned repair parts inventory with direct delivery to user

By calling for contractors to own repair parts inventories, DoD could reduce the capital investment and carrying costs associated with inventory and would empower contractors to increase reliability. For items common to both DoD and non-DoD users, the inventory cost would be shared with other users and not borne totally by DoD. With responsibility for carrying these costs, and with better access to information on reliability and maintainability issues associated with their products, contractors would have both the incentive and the means to design better reliability into their equipment. Industry expertise would result in direct delivery, fast transportation, asset visibility, and other best business practices to minimize inventory costs. For legacy systems, DoD can "consign" existing inventory to the contractor, allowing him to manage its gradual reduction. One additional benefit is that by breaking the "middleman" role, DoD would at last escape from GAO's "high risk" list — at least for inventory management.

Incentivize time-definite delivery standards and operating and support (O&S) cost objectives

Time-definite delivery offers DoD many of the benefits of commercial just-in-time inventory practices, but is better suited to an environment with unpredictable requirements and potentially dire consequences for not-quite-in-time delivery performance. Both DoD and commercial providers must strive for time-definite delivery performance. Time-definite delivery reduces uncertainty in replenishment cycle times, allowing users to lean out inventory and reduce safety stock levels. It can reduce the mobility footprint for deployed units and reduce inventory costs.

O&S costs typically account for about 60% of a weapons system's total life cycle cost. Thus, identifying O&S cost objectives and incentivizing performance can generate significant cost avoidance for the Department. Delivery time, back-order rates, and controllable O&S costs are the significant metrics of product support, along with operational availability rates (an indirect measure of performance).

Task contractor to train military maintenance personnel

Initial cadre training for maintenance personnel should be conducted by the vendor. Training for follow-on personnel and recurring training would expose new mechanics to the latest vendor-supplied diagnostic and maintenance techniques. Private industry has a robust training services sector and can make use of distance learning technology and continuous training processes. Giving the contractor responsibility for training allows him to influence a significant part of a system's O&S costs.

Perform modernization through spares

DoD must initiate a more aggressive approach toward technology upgrades and modifications to legacy systems.

Many DoD weapon systems are being retained and operated well beyond their originally planned life spans, which tends to drive up O&S costs because of the higher failure rates experienced with older systems. Modernization through spares can be an effective, efficient method to introduce newer technology into weapon systems for better performance, enhanced reliability, and a high potential for a reduction of O&S costs. The product support contractor can insert the new components, from circuit boards to line replaceable units, into the normal parts flow or run a modification program under the PM's direction. Open architectures and modular systems make modernization through spares easier.

The Military Departments have successfully used this approach to technology insertion and demonstrated a high return on investment (ROI). For example, under the Navy's Best Overall Support Solutions (BOSS-III) program, the mechanical Global Positioning System (GPS) gyros in the Inertial Navigation System (INS) for the F-14 had a Mean Time Before Failure (MTBF) of 40 hours. The Navy replaced the subsystem with a newer GPS that was functionally integrated with the INS. The newer system is achieving a 4,500 hours MTBF. The newer system is initially more expensive than the old replacement gyros. However, the extended MTBF is lowering the O&S costs over time. The Navy expects to break even on its investment within five years.

The Army was experiencing excessive tire wear on its five-ton trucks that was traced to the front axle U-joints. Replacing the U-joints with form-fitted compatible CV joints stopped the excessive tire wear. The savings result not from higher reliability of the joints, but from decreased tire wear. This program is achieving savings rapidly, with a break-even point in two years.

While the Services recognize the potential cost avoidance of modernization and technology insertion programs, financing has been problematic because of the up-front investment required. These investments compete with many other programs that address pressing budget year needs. Conservative ROI estimates project a 5 to 1 return, normally within five years. In spite of the attractiveness of these estimates, the Services hesitate to commit substantial funding to these programs. A policy that encourages modernization through spares, coupled with the expanded authority for PMs that is discussed below, will help to address this dilemma, for the PM can be expected to take a longer-term view of resources than the operational unit commander.

Give PMs oversight and funding control of all life cycle activities

Giving PMs oversight and funding control for life cycle sustainment is essential to making this proposal work effectively. Rather than throw a project "over the transom" after it has been fielded, the PM would be responsible for ensuring that contractors properly carried out the product support function. PMs would control funds for sustainment engineering and depot maintenance as well as modifications, but not for the repair parts purchased by operational units. Program managers would be responsible for managing and supporting their program over its entire life cycle. Responsibility for operating and sustainment costs is important to incentivize proper trade-offs during development, acquisition, and modification, and to control total ownership cost. Funding control contributes to program stability and allows PMs to optimize the effectiveness of, and support for, their weapon systems. In addition, funding control gives the PM the ability to apply periodic upgrades to counter the inevitable problems of obsolescence. The payoff in terms of mission readiness and improved support to the warfighter should be direct and dramatic. The performance appraisal or fitness report for each PEO/PM will address the progress the individual is making in achieving reduced life cycle costs for his system.

Apply to Advanced Concept Technology Demonstration (ACTD) projects

ACTDs are designed to take advanced technologies and rapidly prove out their ability to meet operational requirements. The primary focus is on rapidly applying technology, rather than life cycle planning. Successful ACTDs may leave operationally useful assets in the hands of end users, and operational commanders anxious to employ them and acquire additional assets. However, ACTDs do not perform normal sustainment planning since the technology is not yet known to be viable. Successful ACTDs must transition to an acquisition program, accomplish logistics support analysis, and acquire sustainment support before full operational capability can be achieved. With the proper planning, industry can provide product support for successful ACTDs in the same way it does for traditional acquisition.

Outsource Product Support Policy Implications

◆ Acquisition organizations

- Reorganize inventory management and engineering activities into equipment support teams operating under PMs
- Phase out depot maintenance and distribution activities

◆ Acquisition workforce

- Change focus from managing supplies to managing suppliers
- Develop and recruit additional world class logistics expertise
- Transition inventory management and engineering workforce
- Phase out organic depot maintenance workforce

Acquisition organizations

This proposal has major implications for acquisition organizations. When fully implemented, it will lead to the streamlining of all repair parts inventory management activities, assigning them to the PM offices within the all-Service centers of excellence, and the phasing out of the maintenance and distribution depot structure.

Acquisition workforce

Change focus from managing supplies to managing suppliers

For the workforce, this recommendation would take DoD workers out of the role of middleman for the maintenance and related supply systems. Rather than buying and managing supplies for inventory, DoD people would be responsible for managing suppliers. This is a case where industry already has the skills that are needed — the skills to buy, sell, and repair hardware — and it is unnecessary for DoD to maintain the same skills internally.

Develop and recruit additional world class logistics expertise

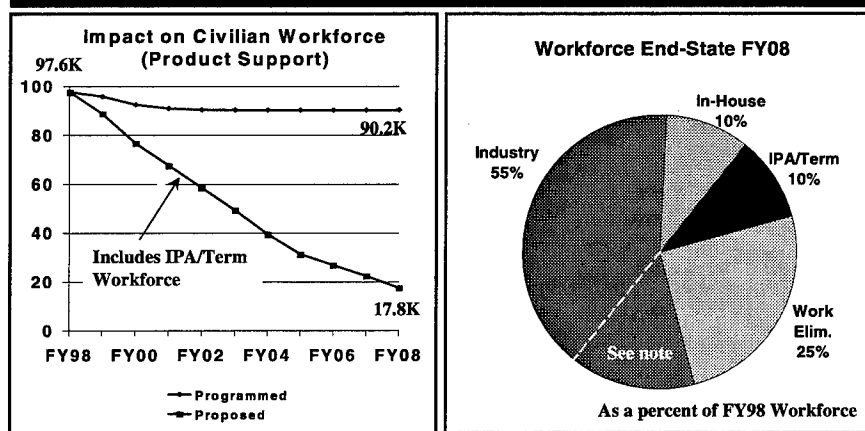
The remaining DoD workforce would require some different skills, and the Department would have to take steps to staff its organizations with logisticians skilled in overseeing contract formation and performance metrics vs. item management and maintenance planning. Just as in the RDT&E area, this would be accomplished by developing some managers internally, and by expanding the opportunities for bringing in talented managers from industry. Traditional inventory management skills will be replaced by the skills needed to operate and survive in an

environment in which there are multiple suppliers and techniques available capable of meeting user needs. The challenging requirement will be to make the new procedures and techniques transparent to the warfighters — the crews of the battalions, ships, and air squadrons who are the customers of the system.

Transition inventory management and engineering workforce/Phase out organic depot maintenance workforce

Over time the Department will realize significant savings as the government-owned organic depot maintenance and inventory management facilities and the government workforce are replaced by industry. We estimate that this transition can take place over the next decade or so, allowing many of the present workers to retire and younger workers who have the more “portable” Federal Employee Retirement System pension benefits to fill skill shortages in industry. Our estimate is that approximately 20% of the present systems/equipment support workforce would be required to augment PM offices for weapon systems support oversight and other uniquely governmental tasks once the transition is completed, and we project that this staffing requirement will be filled with a mix of “conventional” employees, term employees, and IPAs. Note that we do not recommend outsourcing depot maintenance *per se*. Rather, we believe that a CLS contractor can determine the most responsive and economical repair and overhaul strategy for the system being supported. Undoubtedly some of the depot infrastructure and certainly the skilled workers will be in demand. But the recent experiences at Newark AFB and the San Antonio and Sacramento Air logistics Centers (ALCs) suggest that these decisions might be better made by the PM and CLS contractor who can assess the complete repair and overhaul process and make operationally sound decisions, rather than by a piecemeal, politicized workload allocation process.

Outsource Product Support Resource Implications



**\$.79B available for reinvestment over 5 years;
\$7.13B over 10 years**

Note: If 40% of current in-house work is eliminated, availability of funds would increase to \$1.6B over 5 years and \$10.1B over 10 years

See Appendix H for a description of the workforce included in this analysis.

This chart summarizes the estimated resource implications that result from our recommendation to further outsource product support functions over a 10-year period. The line graph depicts two civilian acquisition workforce reduction ramps. The top line represents the ramp in the POM99 FYDP, and the second line represents the reduction ramp that we recommend, with IPAs and term employees added back. This ramp equates to an additional reduction of 80.4K in the permanent workforce by the end of FY08. In that same period, approximately 8K IPA and term employees are added back to augment the permanent workforce, which results in an in-house, steady-state product support workforce of 17.8K to augment PM offices and execute the contracting and oversight of support for weapon systems and equipment. A total of approximately 44.2K FTE are competitively sourced to industry over the same period. Our analysis projects a 25-40% workload reduction resulting from a combination of efficiencies in the reorganization and transfer of inventory management, maintenance, and engineering activities to industry, and the elimination of duplicative capabilities. As was the case with the RDT&E workforce reductions, this ramp is predicated on DoD's ability, in partnership with the Congress, to make timely competitive outsourcing decisions as recommended in our proposed timeline (Page II-38). It does not depend upon BRAC (although BRAC would add to infrastructure savings) nor upon A-76 actions. If the recommended timeline cannot be met, the rate of reduction must slow down and savings forfeited so as not to jeopardize operational availability of weapon systems and equipment.

In addition to the numbers shown here, at the end of FY96 there were some 48,000 active military and 44,400 civilian employees identified with logistics activities in DoD's "Installation Support" infrastructure category. A large portion of this workforce would no longer be required

as the product support process expands. It should be noted that by the Services' definitions, the 48,000 active military positions are not in deployable units. They may be part of a rotation base. We suggest that the maintenance of a rotation base is a practice that DoD should consider terminating or reducing, now that significantly fewer military positions are permanently forward stationed than was the case during the Cold War.

We recognize the immense challenge of gaining Congressional agreement to removing depot maintenance allocation rules, but we are hopeful that the Congress can be responsive to the Nation's security interests and to the need for DoD to modernize along the lines of the US private sector industrial base.

The pie chart summarizes our view of how DoD would be staffed to perform product support work in the future. The FY98 staffing level was used to illustrate how staffing levels will shift further over time from in-house staffing to industry, other government agencies, and in-house staffing augmentation with IPAs and term employees. The chart also depicts the percentage of work that would be eliminated over time through efficiencies gained in the reorganization and transfer of inventory management and engineering activities to industry, and, especially, the elimination of duplicative and redundant work.

	Product Support										
	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08 Total
POM 99 Ramp	97.6	95.8	92.6	90.9	90.5	90.2	90.2	90.2	90.2	90.2	90.2
DSB Ramp	97.6	88.0	75.0	65.0	55.0	45.0	34.0	25.0	20.0	15.0	9.8
FTE:											
Off the Rolls POM99	0	1.8	3.2	1.7	0.4	0.3	0.0	0.0	0.0	0.0	0.0 7.4
Off the Rolls DSB RAMP	0	9.6	13.0	10.0	10.0	10.0	11.0	9.0	5.0	5.0	5.2 87.8
Delta (DSB Additional)		7.8	9.8	8.3	9.6	9.7	11.0	9.0	5.0	5.0	5.2 80.4
Dollar Estimates:											
Delta (\$M) Gross		\$397	\$897	\$1,319	\$1,809	\$2,303	\$2,863	\$3,322	\$3,576	\$3,831	\$4,098
Cumulative Savings: note 1											
Buy Back											
IPA (Cumulative) (\$M): note 2		\$39.7	\$89.7	\$131.9	\$180.9	\$230.3	\$286.3	\$332.2	\$357.6	\$383.1	\$409.8
Industry (Cumulative) (\$M): note 3		\$174.8	\$394.5	\$580.6	\$795.8	\$1,013.2	\$1,259.8	\$1,461.5	\$1,573.6	\$1,685.7	\$1,803.1
Total Buy Backs (Cumulative)		\$214.6	\$484.2	\$712.5	\$976.6	\$1,243.5	\$1,546.1	\$1,793.7	\$1,931.2	\$2,068.8	\$2,212.9
Yearly Outplacements		\$397.4	\$499.3	\$422.8	\$489.1	\$494.2	\$560.4	\$458.5	\$254.7	\$254.7	\$267.0
Costs: note 4											
Total Yearly Costs		\$612.0	\$983.4	\$1,135.4	\$1,465.7	\$1,737.6	\$2,106.5	\$2,252.2	\$2,185.9	\$2,323.5	\$2,479.9
Net Available for Reinvestment (yearly)		-\$215	-\$87	\$184	\$343	\$565	\$757	\$1,069	\$1,390	\$1,508	\$1,618
5 years & 10 years						\$791					\$7,133
Reinvestment Total (\$M)											

Notes:

1. Costed at 50.9K per person
2. 10% buyback @ 50.9K
3. 55% buyback @ 40.8K
4. Outplacement: 50.9K charge to government in year of reduction

The table summarizes the estimated personnel and associated dollar impacts of our proposal over a 10-year period. The following estimated rates were used to compile the dollar FTE estimates for outsourcing product support functions:

- ◆ One FTE = \$50.9K
- ◆ One IPA FTE = \$50.9K
- ◆ One Industry FTE = \$40.8K
- ◆ Outplacement per FTE = \$50.9K

At the top portion of the table is a comparison of the current FYDP ramp with the ramp that we propose. The next two lines compare the actual number of FTE to be reduced by year.

In the next section of the table, the additional proposed FTE reductions are costed (gross cumulative savings) based on the above estimated rates. The buyback cost estimates for buyback of IPAs and term employees and industry follow. These costs are subtracted from the gross cumulative savings along with the one-time outplacement costs associated with workforce

reductions. The “net available for reinvestment line (yearly)” is the result of subtracting “total yearly costs” from “gross cumulative savings.”

The “net available for reinvestment” that results from this costing methodology is \$791M over 5 years and \$7,133M over 10 years.

Note that we did not attempt to estimate the benefits of inventory reduction, including the avoidance of buying (or repairing) unnecessary inventory. Based on the results from existing “prime vendor” contracts, we would expect these benefits to be significant. Clearly, the enhanced system reliability that would result from modernization through spares should produce additional savings. These estimated savings — or, more accurately, cost avoidances — should be developed by each PM in preparation for the next sourcing solicitation.

Outsource Product Support Timeline

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Give PMs Funding and LC Respon	◆									
Directive for Top 10 Programs	◆									
Services Prepare Plans	■									
Services Designate Contract Teams	◆									
Contract Prep/Solicitation/Award	■									
Top 10 CLS Begins		◆								
CLS on Second Group Begins			◆							
CLS on Additional Groups										→

A critical factor for success in this area is fixing responsibility for planning and resourcing for the entire life cycle with the program manager. This is also the most difficult cultural barrier to overcome. Once this is accomplished, implementation is a series of common-sense steps to prepare, solicit and award the requisite contracts.

Give PMs Full Life Cycle Responsibility

The USD(A&T), in coordination with the Comptroller, should immediately promulgate a policy that gives system PMs responsibility for the planning, programming, budgeting and execution of full life cycle support for their systems. This directive should apply to legacy systems as well as those in development or production. The PMs can then set about planning for the outsourcing of support for the legacy systems.

Implementing the Top 10 Programs

Concurrent with publishing the policy for full life cycle support responsibility for PMs, the USD(A&T) should direct that the Services designate their portion of DoD's top 10 legacy systems programs as measured by annual O&S costs for immediate implementation. These programs should be ones which are implementable within the next year and which will have a significant impact on reducing costs. The Service programs should be nominated by the beginning of FY99. During FY99, the Service should designate contract development teams, working under the supervision of the PM, to design, prepare, solicit and award product support contracts for those 10 systems. Contractor logistics support should be started for these top 10 systems at the beginning of FY00.

Implementing Follow on Programs

At the beginning of the third quarter, FY99, the Services should designate their next 10 programs for implementation. The same contract development cycle followed with the top 10 should be implemented for these programs, with contractor logistics support beginning at the end of the second quarter FY00. This six-month staggered cycle should be repeated until virtually all systems are under contractor logistics support for their life cycle

Outsource Commodities

- ◆ **Expand “Prime Vendor”**
 - Use electronic catalogs for ordering
 - Expand use of purchase cards for purchase and payment
- ◆ **Establish long-term, incentivized vendor relationships**
- ◆ **Develop interfaces with strategic distribution systems in theaters of operations**
- ◆ **Retain inventory only at operating forces’ “retail” activities**

Why change is needed

Before the advent of the Prime Vendor program and its associated tools (such as electronic catalogues and purchase cards), the process of providing commodities to users had too many middlemen and cost too much, in terms of both dollars and time. The various nodes in the “old” supply system added little value to the process, but did add to the cost of operating the supply system and detract from the timeliness of support provided to the warfighter.

The maintenance of inventories will undergo a dramatic change under this proposal, as contractors will retain all inventories except for those in the hands of operational forces. Government-held stocks will disappear, to be replaced by contractor-held inventories. Expanded reliance on industry for commodity support will require the establishment and maintenance of long-term relationships with contractors who are properly incentivized to provide reliable delivery at affordable prices. It will also depend on effective interfaces with strategic distribution systems in theaters of operation, to ensure that the supply system and the transportation system work together to provide for timely delivery to deployed units.

Expand “Prime Vendor”

In the long run, the “Prime Vendor” concept should be expanded to include all commodities except repair parts and ammunition. (Repair parts are included in the “product support” recommendation previously discussed, but they should be placed under this concept as long as DoD continues to manage them.) Current commodities managed by prime vendor include such items as food, clothing, pharmaceuticals, and medical supplies. Prime vendor is a closed loop electronic data interchange trading partnership with a commercial distributor of market-ready or

commercial products, using Electronic Data Interchange (EDI) from pricing and distribution arrangements or corporate/long term contracts, or from vendor-provided subcontracts. DLA is already planning to pursue this for “commercially ready” products, such as common hardware. The Services also should expand their use of the technique to encompass items such as aircraft and vehicle tires, batteries, and filters. We also recommend that the concept be expanded to group military-unique components into compatible commodity groupings for contracting to a prime vendor who will pursue the subcontractor base for support of legacy systems with a high percentage of military-unique items — at least until the legacy systems are converted to contractor logistics support.

DLA has pioneered the use of the cybermall or electronic marketing within DoD. DoD needs to expand this electronic marketplace initiative to all Services and integrate those efforts to provide a single access window for both customers and vendors. This single access point initiative will go far to allow the integration of support from many sources by the warfighter on the battlefield or at sea and his forward support elements.

Establish long-term, incentivized vendor relationships/Develop interfaces with strategic distribution systems

The warfighter logistician is appropriately concerned about the increased number of stovepipes that might occur with the migration to a larger number of vendors providing support. DoD and industry can address these concerns, and minimize the number of stovepipe distribution systems, by using incentivized contracts to establish long-term relationships with prime vendors and by integrating contractor support with the strategic distribution systems that provide forward battlespace support in a theater of operations. See the Appendix L discussion of repair parts support. The CLS contractor is the “prime vendor” for parts. The process described is also useful for prime vendors of other commodities.

Retain inventory only at operating forces’ “retail” activities

Our recommendation calls for the Services to maintain commodity inventories only at the organizational level. Necessary war reserve inventory can be negotiated with the support contractors — who should also own the retail inventory — the principle being “the unit buys an item when it is needed for use.” Thus, Operations and Maintenance (O&M) funds are used only for operational/training support, not for buying inventory. This avoids buying too many of the wrong items.

Outsource Commodities Policy Implications

◆ Acquisition organizations

- **DLA form commodity management teams to select and oversee prime vendors**
- **Reorganize inventory management activities**
- **Phase out distribution depot activities**

◆ Acquisition workforce

- **Change focus from managing supplies to managing suppliers**
- **Transition wholesale inventory management workforce**
- **Phase out distribution workforce**

Acquisition organizations

The outsourcing of commodities would cause a reorganization and reorientation of DLA elements, as the Agency forms commodity management teams to manage the increasing number of prime vendors. At the same time, inventory management offices would undergo a transition from managing supplies to managing suppliers. Finally, distribution depots would experience a significant downsizing, leading to eventual elimination.

Acquisition workforce

Change focus from managing supplies to managing suppliers

As in the case of the outsourcing of product support, this recommendation means that government managers would change their focus from managing supplies to managing suppliers. We know this can work, because it is already happening in places where prime vendor has been fully implemented. We have seen DoD managers who have developed the ability to elevate their perspective from the hands-on management of items flowing through the supply system to the higher level of managing the vendors who provide those commodities.

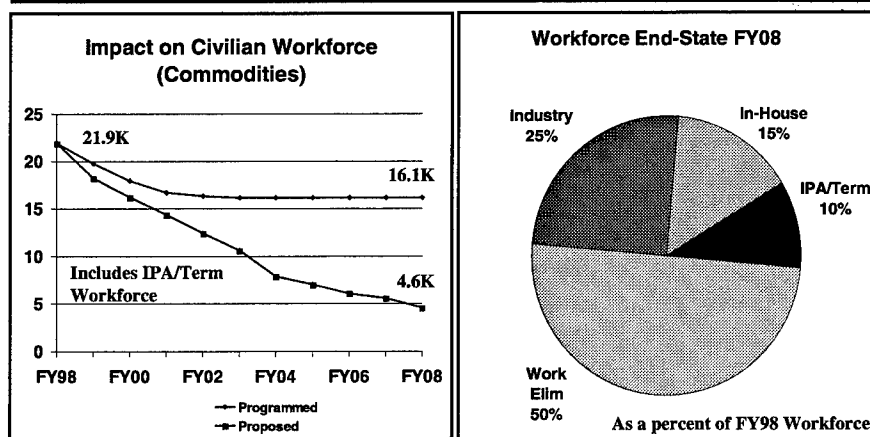
Some of the essential features of contractor commodity support, such as incentivized contracts and the establishment of effective interfaces between suppliers and strategic transportation systems, are indicative of the new skills that will be required of the DoD manager in this new approach. So while some portions of the workforce will no longer be required, those workers who do remain will have to be world class managers and logisticians, well-versed in functional expertise and the supporting technologies. They must focus on managing vendors with more

partnership and less oversight, more performance focus and less detailed direction, more product support focus and less direction of business processes. Training in the areas of price-based contracting, negotiation techniques, and contractor motivation will be essential to the success of the evolving government acquisition workforce.

Transition wholesale inventory management workforce/Phase out distribution workforce

Over time the Department will realize significant savings as the government-owned distribution depots and inventory management facilities and the government workforce are replaced by industry.

Outsource Commodities Resource Implications



**\$.29B available for reinvestment over 5 years;
\$1.9B over 10 years**

See Appendix H for a description of the workforce included in this analysis.

This chart summarizes the resource implications that result from our recommendation to further outsource commodity functions. The line graph depicts two civilian acquisition workforce reduction ramps. The top line represents the ramp in the POM99 FYDP, and the second line represents the reduction ramp that we recommend, with IPAs and term employees added back. This ramp equates to an additional reduction of 12.8K in the permanent workforce by the end of FY08. In that same period, approximately 1.3K IPAs and term employees are added back to augment the permanent workforce, which results in an in-house, steady state commodity management workforce of 4.6K. Also, in the steady state a total of approximately 3.2K FTE are competitively sourced to industry. Our analysis projects a 50% workload reduction resulting from efficiencies in electronic data interchange, the transfer of inventory management to industry, and the elimination of duplicative and redundant work.

The pie chart summarizes our view of how DoD will be staffed to perform commodity support work in the end state (FY08). The FY98 staffing level is used to illustrate how staffing levels will shift further overtime from in-house staffing to industry and augmentation of in-house staffing with IPAs and term employees. The chart also depicts the percentage of work that will be eliminated over time through efficiencies in electronic data interchange, the transfer of inventory management to industry, and the elimination of duplicative and redundant work.

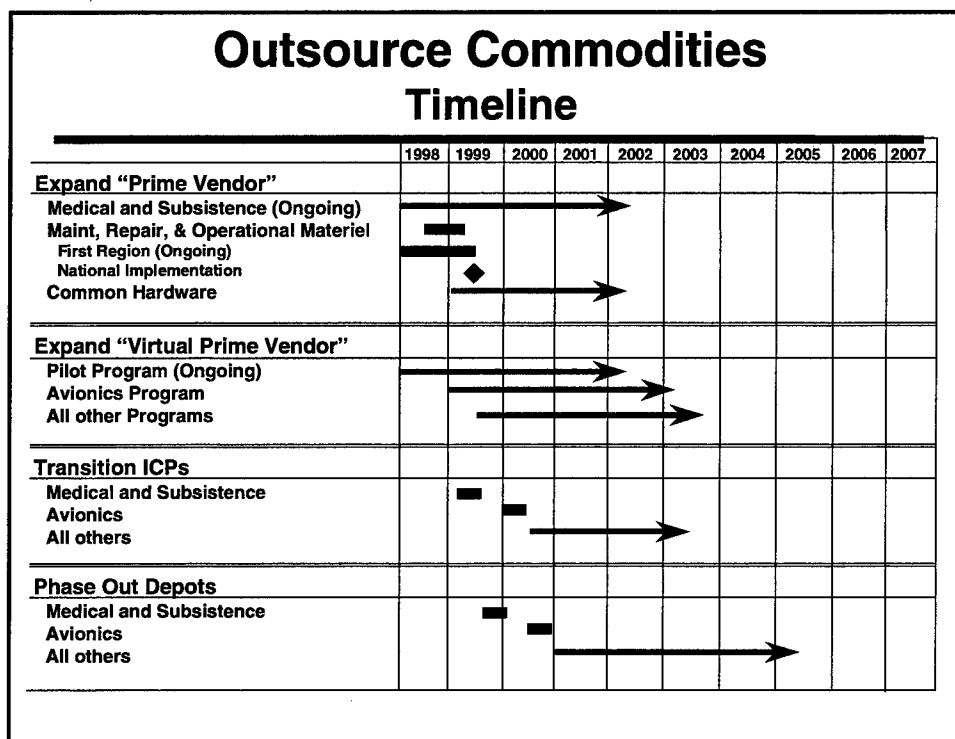
	Commodities											
	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	Total
POM 99 Ramp	21.9	19.7	17.9	16.7	16.3	16.1	16.1	16.1	16.1	16.1	16.1	
DSB Ramp	21.9	18.0	16.0	14.0	12.0	10.0	7.0	6.0	5.0	4.4	3.3	
FTE:												
Off the Rolls POM99	0	2.2	1.8	1.2	0.4	0.2	0.0	0.0	0.0	0.0	0.0	5.8
Off the Rolls DSB RAMP	0	3.9	2.0	2.0	2.0	2.0	3.0	1.0	1.0	0.6	1.1	18.6
Delta (DSB Additional)		1.7	0.2	0.8	1.6	1.8	3.0	1.0	1.0	0.6	1.1	12.8
Dollar Estimates:												
Delta (\$M) Gross Cumulative Savings: note 1		\$87	\$97	\$138	\$219	\$311	\$464	\$515	\$565	\$596	\$652	
Buy Back												
IPA (Cumulative) (\$M): note 2		\$8.7	\$9.7	\$13.8	\$21.9	\$31.1	\$46.4	\$51.5	\$56.5	\$59.6	\$65.2	
Industry (Cumulative) (\$M): note 3		\$17.3	\$19.4	\$27.5	\$43.8	\$62.2	\$92.7	\$102.9	\$113.1	\$119.2	\$130.4	
Total Buy Backs (Cumulative)		\$26.0	\$29.0	\$41.3	\$65.7	\$93.2	\$139.1	\$154.4	\$169.6	\$178.8	\$195.6	
Yearly Outplacements Costs: note 4		\$86.6	\$10.2	\$40.8	\$81.5	\$91.7	\$152.8	\$50.9	\$50.9	\$30.6	\$56.0	
Total Yearly Costs		\$112.6	\$39.2	\$82.0	\$147.2	\$184.9	\$291.9	\$205.3	\$220.6	\$209.4	\$251.7	
Net Available for Reinvestment (yearly)		-\$26	\$58	\$56	\$72	\$126	\$172	\$309	\$345	\$387	\$400	
5 years & 10 years Reinvestment Total (\$M)						\$285					\$1,898	
Notes:												
1. Costed at 50.9K per person												
2. 10% buyback @ 50.9K												
3. 25% buyback @ 40.8K												
4. Outplacement: 50.9K charge to government in year of reduction												

The table summarizes the personnel and associated dollar impacts of our proposal over a 10-year period. The following estimated rates were used to compile the dollar FTE estimates for outsourcing commodity functions:

- ◆ One FTE = \$50.9K
- ◆ One IPA FTE = \$50.9K
- ◆ One Industry FTE = \$40.8K
- ◆ Outplacement per FTE = \$50.9K

At the top portion of the table is a comparison of the current FYDP ramp with the ramp that we propose. The next two lines compare the actual number of FTE reduced by year. In the next section of the table, the additional proposed FTE reductions costed (gross cumulative savings) based on the above estimated rates. The cost estimates for buyback of IPAs and term employees and industry follow. The buyback costs are subtracted from the gross cumulative savings along with the one-time outplacement costs associated with workforce reductions. The “net available for reinvestment (yearly)” is the result of subtracting “total yearly costs” from “gross cumulative savings.”

The “net available for reinvestment” that results from this costing methodology is \$285M over 5 years and \$1,898M over 10 years.



This initiative builds upon programs already in place within DLA. We recommend that the USD(A&T) accelerate DLA's efforts in this area. Acceleration is required in the implementation of the Prime Vendor and Virtual Prime Vendor programs, as well as in the restructuring of Inventory Control Points (ICPs) and phasing out of distribution depots.

Expand Prime Vendor

The current programs involving Prime Vendors in the medical and subsistence should be expanded beginning FY99 into maintenance, repair and operational materials. This expansion should be accomplished by the end of that fiscal year. Currently, DLA is doing this in one test region. This test should be thoroughly evaluated and national implementation should begin in mid-CY99, certainly not later than the beginning of FY00. Part of this expansion has to do with the incorporation of maintenance bench stock materials into the category of a commodity. This effort is the overlap between outsourcing of commodities and outsourcing of product support. It will require the participation of PMs and product support contractor alike to coordinate the effective purchase and distribution of those stocks common to many systems.

Expand Virtual Prime Vendor

The current pilot program of on-line catalog purchasing for the C-130 Propeller System represents a positive step in taking full advantage of these capabilities. The USD(A&T) should require DLA to begin immediate expansion of this program into the avionics area by the beginning of CY99, with other product groupings following at six-month intervals. At the same time, commodity management teams should meet with Services' PM offices to plan for

contractor access to vendors as PMs plan for transition to contractor logistics support of weapon systems.

Transition ICPs

As products move into the Prime Vendor and Virtual Prime Vendor arenas, aggressive action is required to begin transitioning the ICPs for these commodities from being purchasers of products to being coordinators of suppliers. Since medical and subsistence have been under Prime Vendor for some time, this restructuring should receive full attention in early FY99 and be completed by the beginning of FY00. Restructuring of the avionics-related ICPs should follow at the beginning of CY00, about one year after Prime Vendor starts. Subsequent restructurings should follow on a one-year lag basis after the commodity group enters Prime Vendor status.

Phase Out Depots

Just as ICPs require restructuring, so do distribution depots require phased reductions. The lag time for these should be between 18 months and two years after the beginning of the Prime Vendor or Virtual Prime Vendor conversion. This means that the phase-out of the portions of depots that handle medical and subsistence should begin not later than mid-CY99 and be completed before the end of that calendar year. Avionics should follow in Mid CY00, with a six-month phase-out period. Others should follow as their products are converted.

Outsource Services

- ◆ **Adopt regional focus**
 - **Multi-Services and Agencies**
- ◆ **Omnibus contracts**
 - **Base operations**
 - **Communications and ADP support**
- ◆ **Outsource centralized data processing**
- ◆ **Outsource equipment disposal activities**

Why change is needed

One of the largest elements of the cost of the DoD infrastructure is the provision of base operations support and other commercial-type support services to the Department's vast array of bases and installations. DoD has traditionally provided these services by having the work performed in-house by employees assigned to each installation, or by having each installation separately contract for the required services. The Department has recently come to realize that this approach is no longer affordable, and that significant cost savings are achievable by providing support on a regional basis and by contracting the functions out to industry.

Regionalization of services is already being done in a number of areas, and additional opportunities abound throughout the Department. We recommend that DoD move out more aggressively in this area, and establish policies that would make the regionalize and outsourcing of selected services the rule rather than the exception.

Adopt regional focus

A regional focus, in which a single command assumes responsibility for support services in a given geographic area, coupled with the outsourcing of those services, can result in improved service at reduced cost. This concept can be extended to cross-Service consolidations for base support aligned along the same geographic areas as the recent TRICARE initiative that regionalizes military health care. It can be applied to such activities as airspace management, training facilities, facility engineering, demolition, installation logistics support, and, potentially, to utilities, which could be a significant source of savings.

Omnibus contracts

Following the same theory of a regional focus for base support, commercial contracts could be awarded on a regional basis for all functions common to base operations, taking further advantage of economies of scale. An intermediate step (or a step to take where regionalization may not be practical) is to combine all the many base operations services on an installation into one omnibus contract. This approach would allow the contractor to reallocate resources as temporary workload peaks occur in various functions, and gives the military commander a single support organization to deal with. Similarly, instead of each operating command and/or base pursuing its own contract for communications and Automatic Data Processing (ADP) support, omnibus contracts could be awarded by region for such support.

Outsource centralized data processing

A great deal of ADP support has been regionalized in the Defense Information Systems Agency's (DISA's) megacenters, but the question remains as to why this commercial function is still being performed in-house. In our view, it need not be. The experience of industry is that outsourcing ADP support not only saves money but also frees internal managers to focus more of their efforts on managing their primary business and less on managing the support functions.

Outsource equipment disposal activities

DLA has already put in place plans to outsource a major portion of its reutilization and marketing function. That effort should be expanded. Even for that equipment requiring special demilitarization to eliminate unique military characteristics, we believe that a commercial firm(s) should be contracted to handle the receipt, processing for reuse, necessary demilitarization, and resale of such surplus equipment and materiel on a consignment basis. Funds generated through commercial disposal would be shared between the government and the commercial contractor.

Outsource Services Policy Implications

◆ Acquisition organizations

- Restructure Defense Information Systems Agency megacenters
- Restructure Defense Reutilization and Marketing Service

◆ Acquisition workforce

- Improve services contracting skills and realign procurement workforce
- Reduce DISA workforce
- Reduce disposal workforce to contract oversight

Note: Major reductions achievable in service delivery workforce

Acquisition organizations

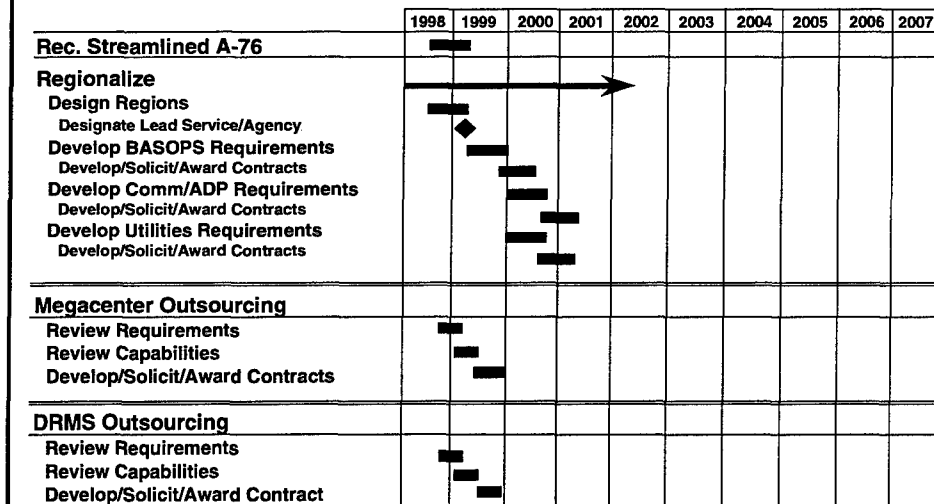
Our recommendations to outsource the property disposal function and the DISA megacenters will, of course, reduce those organizations to contract oversight elements. Depending on the exact vehicle used to outsource these functions, many members of the current workforce might very well become employees of the commercial firms that pick up the mission on a contract basis.

In addition to those reductions, the regionalization and outsourcing of base operations support will result in major reductions to that portion of the DoD workforce. Although much of this workforce is technically outside the definition of the acquisition workforce, it is nonetheless an action that makes sense from a business standpoint and will contribute to an overall more efficient DoD organization.

Acquisition workforce

As the Department achieves the potential benefits attainable through contracting out service-oriented functions, the need for workforce skilled in negotiating will become more and more evident. The contracting staff that understands requirements and how to translate requirements into performance-based terms where the results are measurable will be in great demand. Training the acquisition workforce to think in terms of the desired outcome and not in traditional output ways is a challenge that must be met. Simply transferring work and existing processes to industry will not produce significant savings. Thus, one would expect to see the skills and grades of contracting personnel increase as procurement technicians decrease — a result of both simplified acquisition rules and contractor-operated services.

Outsource Services Timeline



Recommend Streamlined A-76 Procedures

To achieve the benefits of outsourcing services in a timely manner, OMB Circular A-76 will have to be streamlined. Although the procedures prescribed in the circular have been improved in recent years, they still act as a disincentive to outsourcing and streamlining. The cumbersome procedures make it difficult for the local commander to achieve savings while he/she is still in command, thus giving the commander little incentive to initiate outsourcing actions. The Department should work with OMB to develop new policies and procedures that would

- ◆ raise personnel thresholds for study activation,
- ◆ provide flexibility in the implementation of most efficient organization, and
- ◆ shorten the timeline from study initiation to implementation.

There are three distinct categories of outsourcing that lend themselves to immediate action in this category. These are:

- ◆ Regional outsourcing of support to bases and omnibus contracts for single installations.
- ◆ Outsourcing of the Department's computer megacenters.
- ◆ Outsourcing of the activities of the Defense Reutilization and Marketing Service.

Regionalize

We believe this concept should be aggressively pursued throughout DoD. The process begins with the immediate formation of an inter-Service team to study and recommend the grouping of Defense installations along regional lines. For each region a lead Service/Agency should be designated by the end of the second quarter CY98. The lead Service/Agency will then have approximately nine months to develop requirements and develop, solicit, and award contracts for the delivery of Base Operations (BASOPS) services for the region. These BASOPS contracts should be effective at the beginning of FY00. Where regionalization is impractical or as an interim step, omnibus contracts for single installations should be created.

After completing the BASOPS requirements, the lead Service/Agency should begin developing the communications/ADP support requirements with the goal of beginning contract development on these by the end of FY99. Contract solicitation and award should then be accomplished so the contracts can begin in FY01. The development of regional contracts for utilities should be conducted in parallel with communications and ADP.

Megacenter Outsourcing

The USD(A&T) should direct the immediate development of a requirements and capabilities review of DoD computer megacenter capacity. This review should be completed by the end of the second quarter FY99 and be used as the basis to develop, solicit and award a contract for the delivery of computing capacity to the Department by commercial entities. The Department should be out of the megacenter business by the beginning of CY00.

Defense Reutilization and Marketing Service (DRMS) Outsourcing

In the same manner as with the computer megacenters, the USD(A&T) should immediately direct the completion of requirements review for activities conducted by the Defense Reutilization and Marketing Service. The goal is to complete the review of requirements and capabilities by early-CY99, with the goal of contracting out all of these activities by the end of that calendar year.

A small but meaningful example of outsourcing is DoD's initiative to allow soldiers, sailors, airmen, and Marines to arrange their own shipments of household goods when moving from assignment to assignment. DoD managers believe that this initiative will improve service to the Service member, reduce loss and damage of household goods, and reduce overall costs to DoD.

Refocus Acquisition Leadership Development

- ◆ **Implement special management procedures for “Top 500” positions**
 - Establish position pay for key positions
- ◆ **Recruit and develop technology leaders**
 - Increase use of IPAs with academia and industry
 - Use renewable term contracts with ability to return to industry
 - Seek legislative change to “revolving door” and IPA law
- ◆ **Expand the professional certification program**
- ◆ **Establish “continuous learning” for all acquisition professionals**
- ◆ **Outsource acquisition workforce education and training**
 - Focus on judgment skills
 - Tailor executive education programs

We believe that these implications for leadership development represent a particularly critical part of the equation in capitalizing on the talents of our workforce.

Overview

We noted earlier the need to create more broadly-based acquisition generalists in the workforce, generalists who will need to be highly skilled in understanding and dealing with technical matters, the acquisition process, and the various government and industry practices and players who become involved in the process. DoD program managers often have to deal with a wide variety of government and industry players who have some compatible and some incompatible goals. Reducing the number of DoD acquisition managers will place an even higher priority on substantive acquisition training and skill development, particularly if PEOs and PMs are expected to manage programs as well as serve as program advocates. In a perfect world, if all acquisition programs were to proceed as planned, the job of an acquisition manager would be fairly simple. But programs rarely proceed as planned, and the resulting challenges call for managers who can deal with them effectively. The skills needed can be acquired through a combination of years of experience in a proper progression of assignments, and the application of a well-focused education and development program. This section addresses both parts of this equation.

Implement special management procedures for “Top 500”

We recommend that the USD(A&T), along with the Component Acquisition Executives (CAEs) and other senior managers, take charge of the professional development and assignment of individuals for the top 500 acquisition positions. These would include assignments to critical

PEO positions, and other critical positions throughout the acquisition community. The intensive management of these individuals would help to ensure some degree of cross-leveling, so that key positions were always staffed with individuals with a broad base of skills and experience. Implementation of this recommendation would entail identifying a larger number of acquisition professionals — perhaps 700-800 — who occupy the Top 500 positions and who are considered strong candidates for these positions in the near future.

The essence of this recommendation is that senior acquisition executives should manage the professional development and assignments of these selected individuals in much the same way that large corporations manage their top executives. Once identified as a member of the Top 500, an individual's career should be managed so that he/she proceeds through successively broadening assignments, with the payoff for the Department coming when the individual reaches the most senior levels of the acquisition community. The career development pattern should include assignments to a number of disciplines within the acquisition field, so that each candidate for a Top 500 position would be a broadly-based generalist, rather than someone who had spent an entire career developing expertise in one narrow field of interest.

We also recommend that some number of these top 500 positions be designated for position pay. The number of positions should be approximately 75-100, encompassing perhaps the PMs of Acquisition Category (ACAT) 1 systems, directors of selected laboratories, and other key acquisition positions. This would not be performance-based compensation, but rather a special compensation for the incumbent, recognizing that the position carries special responsibilities. Such an approach would serve as an incentive to the Top 500 to encourage them to actively seek out the more challenging and responsible assignments.

Recruit and develop technology leaders

The expertise DoD needs at any point in time might very well reside in industry or academia, particularly in fields where the pace of technology change is rapid. The Department is extremely limited in its ability to bring these individuals into the Department, primarily by the rules that make it difficult for senior DoD managers to work in the commercial sector upon leaving Defense. We recommend that DoD actively recruit potential leaders from outside the Department. DoD should seek legislative change to open the "revolving door" between government and industry, a loosening of the rules governing IPAs, and the use of innovative approaches such as renewable term contracts that allow an individual to return to industry after serving with DoD for four or five years.

We might even want to take this so far as establishing a "technology reserve force," a group of selected individuals who return to industry after working in DoD acquisition, and who then maintain a degree of currency with Defense policies through distance learning and other approaches.

Expand the professional certification program

As DoD goes through the process of consolidating RDT&E and other elements of the acquisition system, we expect that the Department will identify new mixes of job skills and performance requirements. This might in turn drive the need for new or additional certification requirements to ensure that the "new" workforce does not operate under the old rules for certification. DoD should adopt enhanced standards for senior acquisition positions effective in FY00. Senior positions would require Level III certification, a specified number of hours of management training, a master's degree or equivalent, multiple organization experience, and training in the Leadership Effectiveness Inventory competencies. These provisions are currently being staffed within the Department.

Establish "continuous learning" for all acquisition professionals

Regardless of whether acquisition professionals are recruited from industry or are "home grown" within DoD, the training and education process must be a career-long program that keeps each individual on the leading edge of technological and business issues. While acquisition training has improved in recent years, training programs are not focused not on developing judgment skills, but rather on teaching rules and procedures. The Department needs a new approach to acquisition training, in which students are given less training on rules and procedures, and more education on the development and application of business judgment skills.

Outsource acquisition workforce education and training

We believe that such training programs must be exceptionally fluid and adaptive, and that the DoD school environment might not be the only or best place to conduct such training. Therefore, a limited amount of in-house training, which can focus on the rule-based skills that are needed, should be supplemented by education programs conducted for the Department by universities and other organizations that specialize in executive education and development.

In developing these education programs, DoD should adopt successful executive education models. For example, rather than classroom instruction, some of these programs could be conducted in Web-based virtual classrooms, where students participate in training without leaving their home stations. And such training will almost certainly be based heavily on case studies that require and encourage innovative thinking on the part of the students, with much less emphasis on rule-based solutions. Other programs would emphasize the team-building and IPT approaches to project management and use small-group case study and role-playing models. These groups could include industry members as well as government personnel.

Refocus Leadership Development Timeline

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Establish "Top 500" Management	◆									
Develop Criteria	■	■								
Designate Participants and Positions		◆								
Legislation for Position Pay										
Begin Formal Management Program										
Recruit Technology Leaders										
Legislation for IPAs with Industry	◆									
Amend "Revolving Door" Legislation	◆									
Term Employee Legislation	◆									
Designate IPA/Term Positions	■									
Recruit and Place Persons										
Professional Certification										
Review Requirements	■									
Publish Program		◆								
Begin Implementation			◆							
DAU Outsourcing										
Design/Review Curriculum	■									
Develop/Solicit/Award Contracts		■								

There are four major areas in which the USD(A&T) can take immediate action to improve the personnel management and training of the acquisition workforce. These are:

- ◆ Establish a "Top 500" Management Program,
- ◆ Begin recruiting technology leaders from industry,
- ◆ Strengthen the professional certification program,
- ◆ Outsource the majority of acquisition workforce education and training

Establish "Top 500" Management

The USD(A&T) should immediately direct the establishment of a focused management program for the top 500 personnel in the acquisition workforce. Following this direction, the Department should develop the criteria by the end of CY98 which would be used to select those individuals who should be in the "Top 500." During the second and third quarters of FY99, the Services and Agencies would nominate their candidates for designation. At the same time, the Department would prepare a legislative package that would include provisions for position pay for 75-100 of the top acquisition positions. The goal is to have the enabling legislation be included in the FY00 authorization. Active career management of the Top 500 should begin in FY00.

Recruit Technology Leaders

The ability to recruit technology leaders from industry depends largely upon enabling legislation. Three legislative packages need to be developed immediately with the goal of having them in the FY99 authorization. These are:

- ◆ Enabling legislation to allow implementation of Intergovernmental Personnel Act-type agreements with persons in industry,
- ◆ Amendment of the "Revolving Door" legislation to allow for easy entry/exit from temporary DoD employment to/from industry,
- ◆ Enabling legislation to allow the expanded use of term employment contracts.

Concurrent with the development of these legislative packages, the Department needs to begin designating those positions which will be converted from full-time government employees to IPA/term employment positions. Upon securing the appropriate enabling legislation, DoD should immediately begin actively recruiting and placing people in the designated positions.

Professional Certification

The Department should conduct an immediate review of the professional certification requirements for the acquisition workforce. This review should be based on the requirements of the future acquisition process as envisioned in the rest of this report, not on the requirements of the process as it exists today. From this review should emerge a standard of certification appropriate to the grade and level of responsibility of each position in the workforce. Provisions should also be made in this certification program for certification of individuals to be linked to their personal achievement, rather than being assumed to be true because of their occupying a position requiring certification. Publishing of the certification standards should be done before the beginning of CY99, with implementation of the program beginning in FY00.

Defense Acquisition University (DAU) Outsourcing

In 1997 the USD(A&T) directed a full review of the structure, curriculum and course development and delivery techniques for the entire Defense Acquisition University (DAU). In addition, the DAU has been reviewing all courses for adaptability to Distance Learning delivery technology and has set ambitious goals for transition to distance learning for the majority of DAU courses. Finally, the Defense Reform Initiative (DRI) Task Force has recommended transfer of the DAU to a Chancellor of Education and Career Development within the National Defense University (NDU) structure. We recommend that the Department carefully examine these initiatives and studies with the perspective that, other than Defense-unique training, the majority of acquisition education can best be achieved by taking full advantage of the training capabilities that exist in the private sector. In this manner, the Defense workforce can have broad exposure to the best policies and practices of commercial industry.

The principal focus should be on how to restructure the Defense Systems Management College (DSMC) as the prime DoD institution of acquisition education. While DSMC has slowly moved toward a more realistic case-based study orientation, it lacks a strong infusion of outside expertise on the policies and practices of commercial industry. This must be a major effort and will require a balanced government/industry team, directed by the USD(A&T), to examine and reshape the curriculum, infusing a major insertion of commercial practitioners versed in teaching industry's best practices to the DoD workforce. The goal should be to restructure DSMC from an OSD-only institution into a properly-balanced joint government/industry institution that preserves necessary OSD-unique training but depends heavily on outsourcing to obtain the best education and curriculum that the commercial world has to offer.

Integration with PPBS

- ◆ **Program instability results in non-value added workload and program cost growth**
- ◆ **Clear need exists for program/budget community and acquisition community to mutually develop cooperative procedures**
- ◆ **Major impact on workforce**
 - **Efficiency**
 - **Morale**

Why change is needed

Almost without exception, the PEOs, PMs, and other acquisition managers we talked to told us that their number one difficulty with PPBS is the program instability that the system seems to cause. Their view was that each time a new set of resource allocation decisions is made — which happens at least three times a year and sometimes more frequently — managers must restructure their programs to meet new funding profiles.

On the other side of this issue, programmers and budgeteers offer the view that program instability often is a ripple effect that results when program managers have to “fix” programs that were not properly resourced in the first place. They note optimistic cost estimates (much *lower* than Cost Analysis Improvement Group (CAIG) estimates). Another factor has been optimistic estimates of program savings in operating and support costs, which cause subsequent erosion of the investment accounts when they are not fully realized. When managers adjust an under-funded program or must pay O&S bills during a program or budget review, other acquisition programs suffer instability.

It has also been noted, correctly, that the appropriation process can contribute to program instability through such actions as non-programmatic, undistributed “taxes” on RDT&E and procurement programs.

Clear need exists for cooperative procedures

We believe that real nexus of the program instability issue lies inside the Pentagon. One essential step in attacking the problem of program instability is that the acquisition and resource

management communities must work more effectively together so that each understands the other's processes and can find ways to allow the processes to work together more smoothly. This action has to proceed from a sense of mutual cooperation, in recognition of the fact that the acquisition process and PPBS must coexist. This step can add to efforts already underway to automate and unify programming and budget displays, reducing the amount of data required of program offices, and to streamline supplementary data request from budget analysts.

We recognize that this is no panacea, so efforts to improve program realism must also be stepped up so that false expectations of available resources for procurement and RDT&E and optimistic program cost estimates are eliminated from POM and budget requests. The reinstitution of affordability reviews as part of the DAB process, use of CAIG cost estimates, the implementation of the programmed "Acquisition Stability Reserve," and determined efforts — as proposed in this report — to extract infrastructure savings, all can contribute to reducing program instability. The Department also should continue its efforts to persuade Congress to raise reprogramming thresholds.

Major impact on workforce

Whether caused by the PPBS system, Congressional action, or other factors, every requirement to restructure or redesign a program's resource profile results in added work for everyone involved. Efforts to improve the teamwork among the financial management and acquisition communities and the degree of program realism are the first steps in a journey that could result in the reduction of major causes of program instability.

Major Policy Changes

- ◆ **Restructure RDT&E organizations**
 - **Use industry and other government capabilities where equal to or better than DoD's**
 - **Concentrate in-house efforts on areas with no industry analogue**
 - **Eliminate internal duplication**
- ◆ **Expand use of price-based contracting**
- ◆ **Expand outsourcing of sustainment activities**
 - **Product support**
 - **Commodities**
 - **Services**

This is a restatement of our three major policy recommendations, all of which are based on the overarching theme of better integrating the DoD acquisition system with industry. Taken as a package, these recommendations will, we believe, enable DoD to execute the acquisition process cheaper and faster. More importantly, they will lead directly to an acquisition process that is better for the warfighter, who in the final analysis is the reason the acquisition system exists.

First-Order Recommendations

- ◆ **Restructure RDT&E activities**
- ◆ **Establish all-Service C4I development capability**
- ◆ **Increase use of price-based forms of contracts**
- ◆ **Expand PEO/PM responsibility for life-cycle support, to include funding responsibility**
- ◆ **Redesign the nature of acquisition work**

**Recommend DSB Sub-Panel reconvene in six months
to review implementation**

Our proposed policy changes lead to a number of specific recommended actions. Summarized here are the actions that we believe the Department should adopt immediately. These are actions that can be begun quickly, and for which there is a high potential for early payoff.

We recognize that carrying out our proposals will not be easy, and that many real and potential barriers — only some of which can be identified at this point — stand in the way of effective implementation. We believe that we can contribute to the implementation process. To this end, we recommend that the USD(A&T), after determining which of our proposals he chooses to adopt, direct that our Sub-Panel reconvene in six months, and periodically thereafter, to provide an independent assessment of the plans and progress that DoD has made in carrying out the approved recommendations. We believe that such an assessment would be exceptionally helpful to DoD executives in maintaining their focus on the overall objectives of the changes, particularly as they become immersed in the complex details of implementation.

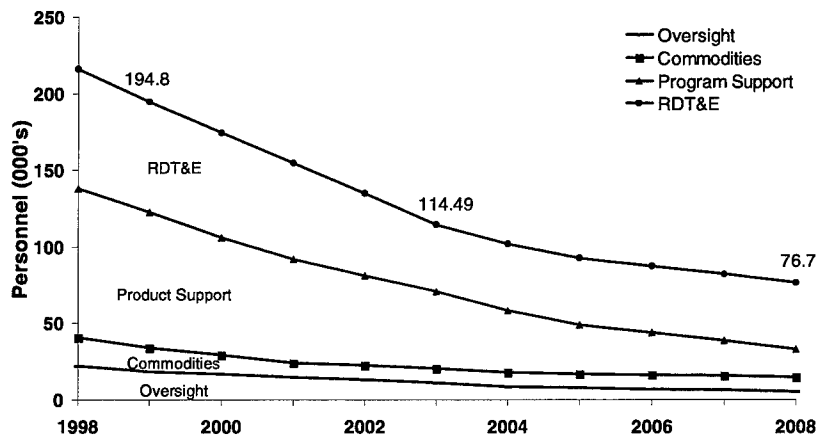
Composite Impact of Policy Changes

	S&T	Prove Out AT	Integrate & Produce	Sustain	Workforce Impact
Restructure RDT&E	M	M	M	S	M
Expand Price-Based Contracting	M	M	M	M	S
Outsource Product Support	S	S	M	M	M
Outsource Commodities				M	M
Outsource Services				M	S

M = Major Impact S = Secondary Impact

This is a summary of the impacts that follow from our recommendations. Across the top are the acquisition activities that we identified earlier, and the row headings are our five major recommendations. The Ms and Ss indicate whether a given recommendation will have a major or secondary impact on that portion of the acquisition process. And in the last column we provide an assessment of the impact on the acquisition workforce. Since our charter called for us to focus on workforce issues, it is no surprise that most of our recommendations will have major implications for the workforce. We believe that the implications are positive ones that will build upon DoD's outstanding workforce and make it an even more effective corps of acquisition professionals.

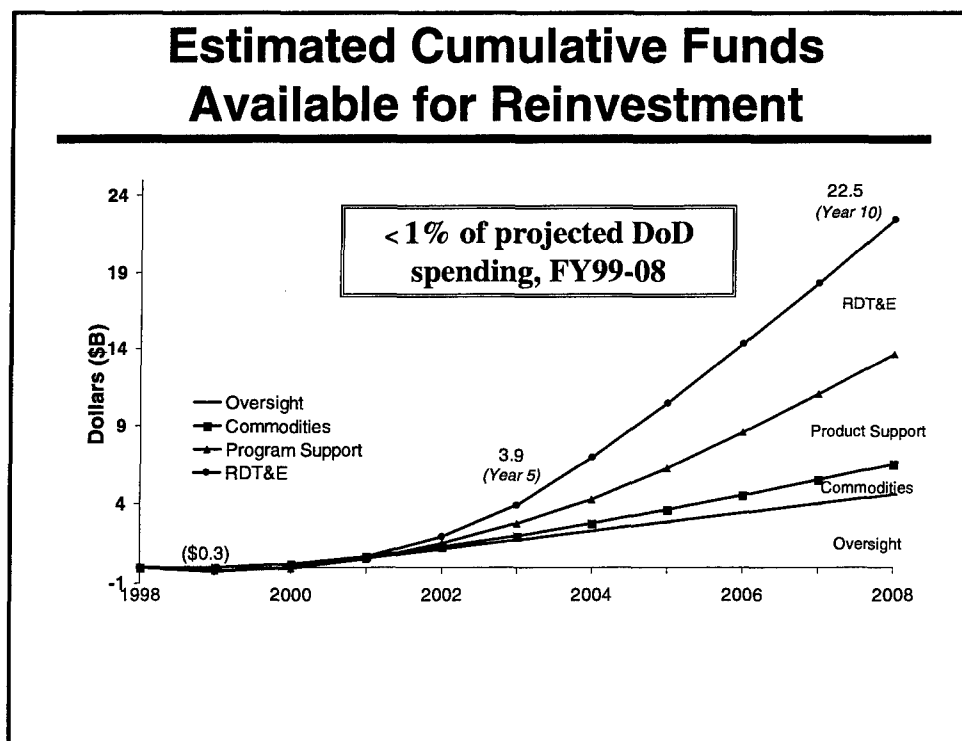
Estimated Cumulative Impact of Proposals on Acquisition Workforce



NOTES

- > Staffing lines include permanent employees, term employees and IPAs
- > To focus on critical functions, this study used the four acquisition categories shown here. These categories do not directly correspond to previous workforce definitions.

This chart summarizes the overall impact of our proposals on the acquisition workforce that is involved in RDT&E, product support, commodity support, and oversight. The segments are displayed so that the top line represents the total impact on the workforce in the four areas that we examined. The chart includes “conventional” government employees and the term employees and IPAs that we recommend be added to the workforce. The net estimated reduction stemming from our proposals is 47% over 5 years and 64% over 10 years for the affected workforce.



This chart shows the estimated cumulative dollar impact of the workforce realignments we have proposed. Additional savings or cost avoidance would result from reduced facility requirements, decreased inventory management requirements, and other factors that we have not included in our estimate.

Because of the first-year costs associated with personnel reductions, our initiatives do not produce a positive dollar return until FY00. After 10 years, we project that our proposals will make \$22 billion available for reinvestment. To place this in perspective, this is less than 1% of the projected Defense budget over that period. Thus, while we are confident that our proposals will, in fact, generate cost avoidances, our recommendations are driven more by the need to perform acquisition better and faster than by the need to do it cheaper.

Conclusion

- ◆ Our recommendations have tremendous impact on the workforce and organizations
- ◆ Recognized need for a “Revolution in Business Affairs,” yet:
 - Only incremental changes made since end of Cold War
 - Acquisition funds drained to support infrastructure
 - Technology revolution threatens to overwhelm the workforce and pass it by
- ◆ The Acquisition Community provides the tools for America’s Warfighters -- they need our best
- ◆ Now is the time for you to lead the Revolution -- to transform the organization and the workforce to produce *better, cheaper, faster* acquisition

The Blueprint Supports the Warfighter

We do not offer our recommendations lightly, and are fully cognizant of the dramatic impact these recommendations will have on the acquisition workforce and their organizations.

Much has been written about the need for a “revolution in business affairs,” a revolution to remake DoD’s supporting infrastructure so that it can do a better job of providing our warfighters the tools they need. But in spite of the consensus that such a revolution is needed, and in spite of all the strides that have been made to reshape parts of the supporting infrastructure:

- ◆ America’s operating forces have been reduced by a greater percentage than has the support structure since the end of the Cold War,
- ◆ there is a need for a fundamental change in the nature of the work that we ask the support structure to do,
- ◆ the Department faces a constant struggle to maintain adequate funding for acquisition programs, and
- ◆ the Department is not well-positioned to keep abreast of the pace of technological change so that it can optimally apply technology both to weapon systems and to the process used to acquire them.

Our recommendations are intended to provide acquisition managers with a set of actions that will enable them, in partnership with the Congress, to lead the revolution — to achieve an acquisition process that is better, cheaper, and faster — and at the same time to put in place a blueprint for the future that will improve the level of support to the warfighter.

Appendices

<u>Appendix</u>	<u>Title</u>
A	Glossary
B	Extract from the FY98 National Defense Authorization Act
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Appendix A

Glossary

ACAT	Acquisition Category
ACTD	Advanced Concept Technology Demonstration
ADP	Automatic Data Processing
AFB	Air Force Base
ALC	Air Logistics Center
AT	Advanced Technology
B&P	Bid and Proposal
BASOPS	Base Operations
BMDO	Ballistic Missile Defense Organization
BOSS	Best Overall Support Solutions
BRAC	Base Realignment and Closure
C4I	Command, Control, Communications, Computers, and Intelligence
C4ISR	Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance
CAE	Component Acquisition Executive
CAIG	Cost Analysis Improvement Group
CAS	Cost Accounting Standards
CB	Chemical and Biological
CECOM	US Army Communications-Electronics Command
CINC	Commander in Chief
CLS	Contractor Logistics Support
CLSMC	CLS Management Center
CNA	Center for Naval Analyses
COD	Carrier Onboard Delivery
CONUS	Continental United States
CRAF	Civil Reserve Air Fleet
CY	Calendar Year
DARPA	Defense Advanced Research Projects Agency
DAU	Defense Acquisition University
DCAA	Defense Contract Audit Agency
DCMC	Defense Contract Management Command

DFAS	Defense Finance and Accounting Service
DISA	Defense Information Systems Agency
DLA	Defense Logistics Agency
DoD	Department of Defense
DoDI	Department of Defense Instruction
DOE	Department of Energy
DRI	Defense Reform Initiative
DRMS	Defense Reutilization and Marketing Service
DSB	Defense Science Board
DSMC	Defense Systems Management College
EDI	Electronic Data Interchange
ESC	US Air Force Electronic Systems Center
EVMS	Earned Value Management Systems
FAA	Federal Aviation Administration
FAR	Federal Acquisition Regulation
FASA	Federal Acquisition Streamlining Act
FEDEX	Federal Express
FSCATT	Fire Support Combined Arms Tactical Trainer
FTE	Full-Time Equivalents
FTR	Field Technical Assistance Representative
FY	Fiscal Year
FYDP	Future Years Defense Program
GAO	General Accounting Office
GPS	Global Positioning System
ICP	Inventory Control Point
IFF	Identification, Friend or Foe
IMPAC	International Merchant Purchase Authorization Card
INS	Inertial Navigation System
IPA	Intergovernmental Personnel Act
JDAM	Joint Direct Attack Munition
JPATS	Joint Primary Aircraft Training System
JTAV	Joint Total Asset Visibility
JWG	Joint Working Group
LRU	Line Replaceable Units
MDSO	Military Direct Support Organization
MOG	Maximum on the Ground
MTBF	Mean Time Before Failure

NASA	National Aeronautics and Space Administration
NAVAIR	US Navy Naval Air Systems Command
NDU	National Defense University
O&M	Operations and Maintenance
O&S	Operating and Support
OGA	Other Government Agency
OPTEC	US Army Operational Test and Evaluation Command
OSD	Office of the Secretary of Defense
PBBE	Performance-Based Business Environment
PE	Program Element
PEO	Program Executive Officer
PL	Public Law
PM	Program Manager
POM	Preparation for Overseas Movement
POM	Program Objective Memorandum
PPBS	Planning, Programming, and Budgeting System
R&D	Research and Development
RDT&E	Research, Development, Test, and Evaluation
RIF	Reduction in Force
ROI	Return on Investment
S&T	Science and Technology
SPAWAR	US Navy Space and Naval Warfare Systems Command
SSG	Senior Support Group
TAV	Total Asset Visibility
TRANSCOM	US Transportation Command
U.S.C.	United States Code
UPS	United Parcel Service
USD(A&T)	Under Secretary of Defense for Acquisition and Technology
VAMOSC	Visibility and Management of Operating and Support Costs
VERA	Voluntary Early Retirement Authority
VSIP	Voluntary Separation Incentive Program

Appendix B

Extract from the FY98 National Defense Authorization Act

Section 912 of the National Defense Authorization Act of FY98 states, in part:

(c) IMPLEMENTATION PLAN TO STREAMLINE AND IMPROVE ACQUISITION ORGANIZATIONS.

(1) Not later than April 1, 1998, the Secretary of Defense shall submit to Congress a report containing a plan to streamline the acquisition organizations, workforce, and infrastructure of the Department of Defense. The Secretary shall include with the report a detailed discussion of his recommendations based on the review under subsection (d) and the assessment of the Task Force on Defense Reform pursuant to subsection (e), together with a request for enactment of any legislative changes necessary for implementation of the plan. The Secretary shall include in the report the results of the review under subsection (d) and the independent assessment of the Task Force on Defense Reform pursuant to subsection (e).

(2) In carrying out this subsection and subsection (d), the Secretary of Defense shall formally consult with the Chairman of the Joint Chiefs of Staff, the Director of Program Analysis and Evaluation, the Under Secretary of Defense (Comptroller), and the Under Secretary for Acquisition and Technology.

(d) REVIEW OF ACQUISITION ORGANIZATIONS AND FUNCTIONS. The Secretary of Defense shall conduct a review of the organizations and functions of the Department of Defense acquisition activities and of the personnel required to carry out those functions. The review shall identify the following:

(1) Opportunities for cross-service, cross-functional arrangements within the military services and defense agencies.

(2) Specific areas of overlap, duplication, and redundancy among the various acquisition organizations.

(3) Opportunities to further streamline acquisition processes.

(4) Benefits of an enhanced Joint Requirements Oversight Council in the acquisition process.

(5) Alternative consolidation options for acquisition organizations.

- (6) Alternative methods for performing industry oversight and quality assurance.
- (7) Alternative options to shorten the procurement cycle.
- (8) Alternative acquisition infrastructure reduction options within current authorities.
- (9) Alternative organizational arrangements that capitalize on core acquisition competencies among the military services and defense agencies.
- (10) Future acquisition personnel requirements of the Department.
- (11) Adequacy of the Program, Plans, and Budgeting System in fulfilling current and future acquisition needs of the Department.
- (12) Effect of technology and advanced management tools in the future acquisition system.
- (13) Applicability of more flexible alternative approaches to the current civil service system for the acquisition workforce.
- (14) Adequacy of DoDI 5000.58 dated January 14, 1992.

(e) DUTIES OF TASK FORCE ON DEFENSE REFORM TO INCLUDE CONSIDERATION OF ACQUISITION ORGANIZATIONS.

(1) The Secretary of Defense shall require that the areas of study of the Task Force on Defense Reform (established by the Secretary of Defense on May 14, 1997, and headed by the Deputy Secretary of Defense) include an examination of the missions, functions, and responsibilities of the various acquisition organizations of the Department of Defense, including the acquisition workforce of the Department. In carrying out that examination of those organizations and that workforce, the Task Force shall identify areas of duplication in defense acquisition organizations and recommend to the Secretary options to streamline, reduce, and eliminate redundancies.

(2) The examination of the missions, functions, responsibilities of the various acquisition organizations of the department of Defense under paragraph (1) shall include the following:

(A) An assessment of benefits of consolidation or selected elimination of Department of Defense acquisition organizations.

(B) An assessment of the opportunities to streamline the defense acquisition infrastructure that were realized as a result of the enactment of the Federal Acquisition Streamlining Act of 1994 (PL 103-355) and the Clinger-Cohen Act of 1996 (divisions D and E of PL 104-106) or as a result of other acquisition reform initiatives implemented administratively during the period from 1993 to 1997.

(C) An assessment of such other options for streamlining or restructuring the defense acquisition infrastructure as the Task Force considers appropriate and as can be carried out under existing provisions of law.

(3) Not later than March 1, 1998, the Task Force shall submit to the Secretary a report on the results of its review of the acquisition organizations of the Department of Defense, including any recommendations of the Task Force for improvements to those organizations.

Appendix C

Terms of Reference

This appendix contains the Terms of Reference for the DSB Task Force on Defense Acquisition Reform, Phase IV. The third paragraph of the Terms of Reference was written to address the responsibilities of the Acquisition Workforce Sub-Panel.



THE UNDER SECRETARY OF DEFENSE

3010 DEFENSE PENTAGON
WASHINGTON, DC 20301-3010

ACQUISITION AND
TECHNOLOGY

JAN 23 1998

MEMORANDUM FOR CHAIRMAN, DEFENSE SCIENCE BOARD

SUBJECT: Terms of Reference--Defense Science Board Task
Force on Defense Acquisition Reform - Phase IV

Over the past four years, the Defense Science Board (DSB) has provided recommendations on useful techniques and actions for reforming the acquisition processes of the Department of Defense. Internal teams and study efforts have also provided recommendations. Progress is clearly being made towards reform of the process but much is yet to be done and we need better metrics for measuring our progress. It would be useful to have an external perspective on the current status of reform implementation and appropriate set of metrics.

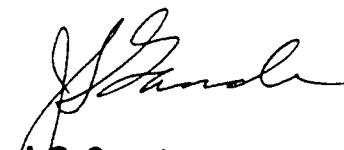
I request that you establish a DSB Task Force for Defense Acquisition Reform - Phase IV to review the status of current implementation and recommend further actions for the Department to accelerate progress. You should utilize an encompassing definition of acquisition reform, including R & D, logistics, the requirements and budget process, and civil/military industrial integration. A particular focus of this effort should be the development and implementation of metrics that could be used by the DoD to periodically measure success in the effectiveness of the overall acquisition reform efforts.

In addition, the Task Force should also put a special focus on reviewing the organization and functions of DoD acquisition activities with a view towards streamlining those organizations, the acquisition workforce, and the Department's infrastructure.

This Task Force should become a permanent sub-panel of the DSB for the next few years and provide reports semi-annually. The Under Secretary of Defense (Acquisition and Technology) will sponsor this Task Force. Dr. Robert Hermann will serve as Chairman of the Task Force. The Executive Secretary will be Mr. Ric Sylvester. LTC T. Van Horn, USA, will serve as the DSB Secretariat Representative.



The Task Force will be operated in accordance with the provisions of P.L. 92-463, the "Federal Advisory Committee Act," and DoD Directive 5105.4, the "DoD Federal Advisory Committee Management Program." It is not anticipated that this Task Force will need to go into any "particular matters" within the meaning of Section 208 of Title 18, U.S. Code, nor will it cause any member to be placed in the position of acting as a procurement official.



J. S. Gansler

Appendix D

Biographical Sketches of Sub-Panel Members

Chairman: General William G. T. Tuttle, Jr., (US Army, Retired)

General Tuttle has served as President and Chief Executive Officer of the nonprofit Logistics Management Institute since January 1993.

As the Army's senior logistician, General Tuttle led 100,000 soldiers and civilians of the U.S. Army Materiel Command from 1989 until his retirement early in 1992, a period encompassing Operation Just Cause in Panama and Operations Desert Shield and Desert Storm. General Tuttle also commanded the U.S. Army Logistics Center (now the Combined Arms Support Command), the U.S. Army Operational Test and Evaluation Agency, the Eastern Area of the Military Traffic Management Command, and both the Support Command and Supply and Transport Battalion of the 3d Armored Division in Germany. He served in the Pentagon as the Army's Director of Force Management and at Supreme Headquarters Allied Powers Europe as Chief of Policy and Programs Branch and representative to NATO's Defense Review Committee.

General Tuttle is a 1958 graduate of the United States Military Academy and earned a masters degree in business administration at the Harvard University Graduate School of Business Administration. He holds the Defense, Army (three awards), Navy, and Air Force Distinguished Service Medals as well as several other Defense, Army, and foreign decorations and awards. He served as the 1992-1995 as a member of the Task Force on Peace of the Evangelical Lutheran Church in America. He is a Director of the Procurement Round Table, a Councilor of the Atlantic Council, and a member of The Council for Excellence in Government, the Association of the U.S. Army, and the National Defense Transportation Association. Since 1995 he has been a Consultant to the Defense Science Board, participating in the 1995 and 1996 Summer Studies and chairing the Task Force on Logistics Modernization.

Mr. Gordon R. England

Gordon R. England is the Executive Vice President of General Dynamics. General Dynamics Land Systems, Armament Systems, Information Systems, Computing Devices Canada, and Computing Devices UK report to him. Gordon rejoined General Dynamics on March 1, 1997 as corporate executive vice president of Combat Systems. Previously, he was president of his own consulting company, GRE Consultants, Inc., that he started after retiring from Lockheed in March 1995.

Mr. England had been the corporate vice president and president of the Lockheed Fort Worth Company since March 1, 1993. He had been corporate executive vice president of General Dynamics Corporation and president of aircraft systems for General Dynamics prior to the sale of the Fort Worth Division to Lockheed. Prior to that, he had served as corporate vice president and general manager of General Dynamics' Land Systems Division. He spent the previous five years as vice president of research and engineering at the division.

Mr. England earned his bachelor's degree in electrical engineering from the University of Maryland in 1961 and his master's degree in business administration from Texas Christian University in 1975.

He has been very active with the military services, the Department of Defense, the U.S. Congress, and in the business community in helping formulate future defense industrial base policy. He served as a member of the Defense Science Board and still serves on numerous DSB panels and committees.

Dr. Steven Kelman

Dr. Kelman is the Weatherhead Professor of Public Management at Harvard University's John F. Kennedy School of Government. A *summa cum laude* graduate of Harvard College, with a Ph.D. in government from Harvard University, he is the author of many books and articles on the policy-making process and on improving the management of government organizations. His most recently published books are a study on how to improve the government computer procurement process, entitled *Procurement and Public Management: The Fear of Discretion and the Quality of Government Performance* (AEI Press, 1990) and *Making Public Policy: A Hopeful View of American Government* (Basic Books, 1987). He has also received a number of academic honors throughout the years. In 1996 he was elected a Fellow of the National Academy of Public Administration.

From 1993 through 1997, Dr. Kelman served as Administrator of the Office of Federal Procurement Policy in the Office of Management and Budget. During his tenure as Administrator, he played a lead role in the Administration's "reinventing government" effort. He led Administration efforts in support of the Federal Acquisition Streamlining Act of 1994 and the Federal Acquisition Reform Act of 1995.

Mr. Richard L. Rumpf

As President of Rumpf Associates International since July of 1990, Mr. Rumpf has provided technical, programmatic, and management services to a number of clients, including Hughes Aircraft Company, 3M, Allied Signal Aerospace, Ball Aerospace, Colebrand Limited, The

Bridge Group, McKenna & Cuneo, Cambridge Research Associates, and Production Technology, Inc. He has led or actively participated in a number of classic "Red Team" reviews of proposals in process, as well as leading and/or actively participating in smaller strategic groups of experts called upon to provide guidance to corporate officials earlier in the life of a program. Mr. Rumpf has also participated as a principal on major studies such as the "Next Generation Carrier Study" (CNA) and the "Surface Ship Self Defense Roadmap" (APL/JHU), and served on the Study Groups for the Navy Research Advisory Committee in the Summers of 1990, 1994, and 1997.

From April to December 1987 and from May 1989 to March 1990, Mr. Rumpf served as the Acting Assistant Secretary of the Navy for Research, Engineering and Systems.

Mr. Rumpf joined the Office of the Assistant Secretary of the Navy (Research, Engineering, and Systems) in March 1978 as the Staff Engineer for Missile Systems. In November 1981 he became the Acting Director for Air Programs, and served as director for Air Programs from March 1982 to June 1985. In June 1985, he assumed the position of Principal Deputy Assistant Secretary of the Navy, with responsibilities covering the complete range of Navy and Marine Corps weapons systems development. He played a key role as representative of the Secretary with Congressional staff and members, other services and the Office of the Secretary of Defense (OSD). He was head of the Navy's Marine Mammal Program and was the principal Navy test and evaluation representative to OSD.

Mr. Rumpf chaired the first Anti-Submarine Warfare (ASW) Master Plan Blue Ribbon Review Panel and was largely responsible for the establishment of a Joint UAV Program Office and Master Plan. He is a strong believer in joint service ventures, and worked closely with the other services to develop the joint Air-to-Air Missile and Standoff Weapons Master Plans. He was a key figure behind the Navy's initiatives in international cooperative development strategy, having initiated several memoranda of understanding with U.S. allies (for example, for the joint development of Closed-loop Degaussing for surface ships and the joint development of a Magnetic Anomaly Detector for airborne applications with the Government of France). He has served as the principal Navy advisor to several Defense Science Board committees.

General Lawrence A. Skantze (US Air Force, Retired)

In 1987, General Skantze retired from the US Air Force as Commander, Air Force Systems Command. Since then, he has served as Vice Chairman of the Board of Trustees of the Aerospace Corporation; has been a regular contributor to *Defense News*; has been a consultant to the Defense Science Board, the National Academy of Sciences, and a number of private-sector firms; and has served on a number of other boards.

After graduating from the US Naval Academy with a bachelor's degree in electrical engineering, he flew as a tactical squadron pilot, served in planning and engineering assignments in Air Force development programs, and was program manager for the Short Range Attack Missile (SRAM) and the Airborne Warning and Control System (AWACS). Later, he was assigned as

Commander, Aeronautical Systems Product Division and as Vice Chief of Staff of the U.S. Air Force.

During his active duty career and since, he has been involved in a variety of technological and management activities including budget formulation, development of acquisition strategy and of technical investment strategy (e.g., the Air Force Advanced Technology Fighter Program), and program management and engineering work in the Nuclear Powered Aircraft and Manned Orbiting Laboratory programs. He created, articulated, and negotiated the Air Force's two-bomber (B-1 and B-2) program and defended it before Congress.

General Skantze holds a master's degree in nuclear engineering from the Air Force Institute of Technology.

Appendix E

Members of the Senior Support Group

The USD(A&T) formed the SSG to assist the Sub-Panel in its deliberations. The SSG, which consisted of senior representatives (at the flag/SES level) of the Defense Components, The Joint Staff, and selected OSD staff agencies, participated actively in the fact-finding meetings of the Sub-Panel (see Appendix G for a list of these meetings) and assisted further by providing comments and suggestions on the Sub-Panel's conclusions and recommendations as they emerged from the study.

The SSG members were:

OSD Acquisition

Gary Christle
Lance Davis
Spiros Pallas
Eleanor Spector

OSD Logistics

Jim Emahiser

OSD Comptroller

Caral Spangler

OSD PA&ED

Dave McNicol

OSD General Counsel

Bob Gorman

DOT&E

Tom Carter

The Joint Staff

COL Ron Logsdon
COL Jim Verity

Army Acquisition

Keith Charles

Army Logistics

Eric Orsini

Navy Acquisition

Dan Porter

Navy Logistics

RADM George Yount

USMC Logistics

BGen Paul Lee

Air Force Acquisition

Blaise Durante

Air Force Logistics

Joe Black

DLA Acquisition

Brig Gen Tim Malishenko

Appendix F

Members of the Joint Working Group

The USD(A&T) formed the JWG to assist the Sub-Panel. The JWG, which consisted of representatives of the Defense Components and selected OSD staff agencies, provided research and analytical support to the Sub-Panel and assisted in the drafting of issue papers.

The JWG members were:

Army

COL Bill Fast
Norma Brock
Brian Shortell
Jim Sullivan

Navy

Gerald Schiefer
Charles Borsch
Bob Knetl
Bill Neustadt
Mitch Waldman

Marine Corps

Mike Halloran

Air Force

Joe Diamond
Col Bob Kayuha
Col Don Wetekam
Col Bill Wilson

Defense Logistics Agency

CAPT Steve Brooks
Leonard Yankosky

Ballistic Missile Defense Organization

Janet Wolfinger

OSD Acquisition

Steve Cohen

Appendix G

Topics and Participants for Sub-Panel Meetings

To make the best use of the limited time available for its study, the Sub-Panel conducted a series of focused meetings, each addressing a particular phase or issue of the acquisition process. Representatives from DoD, other government agencies, and industry were asked to participate in these meetings, either as speakers or as members of discussion panels. Each of the discussions was facilitated by the advance preparation of "forcing questions" to guide the speakers and panelists.

This appendix lists the primary topics for each Sub-Panel meeting, the speakers and panel members who participated, and titles of the formal presentations that were made.

Meeting Dates and Topics

<u>Date</u>	<u>Primary Topics</u>
6 January 1998	◆ Overview by Service Acquisition Executives ◆ The DoD requirements process
13 January 1998	◆ Science and technology ◆ PPBS ◆ Transition of technology to systems
23 January 1998	◆ Engineering and manufacturing development ◆ Production ◆ Developmental and operational testing
28 January 1998	◆ Acquisition workforce issues ◆ Sustainment
6 February 1998	◆ FAA management system and workforce ◆ NASA system and workforce ◆ DoD acquisition workforce demonstration project

Speakers and Panel Members

6 January 1998

MG Ronald E. Adams
Assistant Deputy Chief of Staff for Operations
and Plans (Force Development)
US Army

Keith Charles
Deputy Assistant Secretary of the Army for
Plans, Programs, and Policy

Honorable John W. Douglass
Assistant Secretary of the Navy (Research,
Development, and Acquisition)

LTC Ken Hawes
Force Development Directorate
Office of the Deputy Chief of Staff for
Operations and Plans
US Army

Maj Gen Gregory S. Martin
Director of Operational Requirements
US Air Force

Dr. Kenneth Oscar
Acting Assistant Secretary of the Army
(Research, Development, and Acquisition)

Col Richard W. Bates
Director
Program Analysis and Evaluation
USMC Systems Command

Col(S) Bob Dorsey
Directorate of Operational Requirements
US Air Force

CAPT Jim Hanna
Head, Acquisition and Requirements Support
Branch
OPNAV N810
US Navy

Col Edward J. Lesnowicz, Jr.
Director
Warfighting Development and Integration
Division
USMC Combat Development Command

Honorable Arthur L. Money
Assistant Secretary of the Air Force
(Acquisition)

COL Jim Verity
Chief
Acquisition and Technology Division
J-8
The Joint Staff

13 January 1998

Dr. A. Michael Andrews
Director for Technology
Office of the Assistant Secretary of the Army
(Research, Development, and Acquisition)

Irv Blickstein
Assistant Deputy Chief of Naval Operations
(Resources, Warfare, Requirements, and
Assessments)
US Navy

Dr. Lee Buchanan
Deputy Director
Defense Advanced Research Projects Agency

Dr. Craig College
Deputy Director
Program Analysis and Evaluation Directorate
US Army

Dan Czelusniak
Director
Acquisition Program Integration
OUSD(A&T)

Maurice Donnelly
Director of Investments
Office of the Assistant Secretary of the Army
(Financial Management and Comptroller)

Joe Eash
Deputy Under Secretary of Defense (Advanced
Technology)

Col Bill Elliott
US Atlantic Command

Ms. Marguerite Frick
Force Development Directorate
Office of the Deputy Chief of Staff for
Operations and Plans
US Army

Dr. Helmut Hellwig
Deputy Assistant Secretary of the Air Force
(Science, Technology, and Engineering)

Alice Maroni
Principal Deputy Under Secretary of Defense
(Comptroller)

Dr. Donald McErlean
Deputy Director
Air Vehicle Department
US Navy Naval Air Systems Command

Joe McMichael
Office of the Assistant Secretary of the Air
Force (Financial Management and
Comptroller)

Dr. A. Fenner Milton
Deputy Assistant Secretary of the Army
(Research and Technology)

Tom Perdue
Principal Assistant Deputy Under Secretary of
Defense (Advanced Technology)

Dr. Fred Sallfield
Technical Director
Office of Naval Research
US Navy

George Singley
Acting Director of Defense Research and
Engineering

Robert D. Stuart
Deputy for Budget
Office of the Deputy Assistant Secretary of the
Air Force (Budget)

Robert Soule
Acting Director
Program Analysis and Evaluation Directorate
OSD

23 January 1998

RADM Stephen H. Baker
Commander
US Navy Operational Test and Evaluation
Force

David Borland
Vice Director for Information Systems for
Command, Control, Communications, and
Computers
US Army

Col Slade A. Brewer
Director
USMC Operational Test and Evaluation
Activity

RADM Jeffrey A. Cook
PEO
Tactical Air Programs
US Navy

Philip E. Coyle
Director
Operational Test and Evaluation
OSD

COL Brent Crabtree
Chief of Staff
US Army Operational Test and Evaluation
Command

Col Jim Feigley
Direct Reporting Program Manager
Advanced Amphibious Assault Programs
USMC

Dr. John Foulkes
Director
US Army Test and Evaluation Management
Agency

John Manclark
Director
Test and Evaluation
US Air Force

Dr. Margaret Myers
Director
C3I Acquisition Oversight
Office of the Assistant Secretary of Defense
(C3I)

CAPT John O'Connell
Acting Deputy Assistant Secretary of the Navy
(C4I, EW, and Space Programs)

Maj Gen Robert F. Raggio
PEO
Fighter and Bomber Programs
US Air Force

RADM Richard A. Riddell
Director
Test and Evaluation and Technology
Requirements
US Navy

Dr. Pat Sanders
Director
Defense Test Systems Engineering and
Evaluation

RADM David P. Sargent, Jr.
PEO
Carriers, Littoral Warfare, and Auxiliary Ships
US Navy

Carla von Bernewitz
Chief Information Officer
Defense Logistics Agency

Col Craig Weston
PEO
Warning, Surveillance and Control
US Air Force

BG Joseph L. Yakovac
Deputy for Systems Acquisition
US Army Tank-Automotive and Armaments
Command

<i>28 January 1998</i>

Pete Brown
Deputy Commander
Fleet Logistics Support
US Navy Naval Sea Systems Command

Allan Burman
President
Jefferson Solutions LLC

MG Charles C. Cannon, Jr.
Assistant Deputy Chief of Staff for Logistics
US Army

Nat Cavallini
Jefferson Solutions LLC

Bernie Clark
Executive Director
Naval Shipyards, Supship Management, and
Field Activity Support
US Navy

Jim Emahiser
Acting Principal Assistant Deputy Under
Secretary of Defense (Logistics)

LTG Henry T. Glisson
Director
Defense Logistics Agency

MG David R. Gust
PEO
Intelligence, Electronic Warfare, and Sensors
US Army

VADM William J. Hancock
Deputy Chief of Naval Operations - Logistics
US Navy

Maj Gen John D. Hopper
Vice-Director
J-4
The Joint Staff

Lt Col Brandy Johnson
Office of the Director of Acquisition
Education, Training, and Career
Development
OUSD(A&T)

Jeffrey Jones
Deputy Commander
Defense Logistics Support Command

John Kuesters
Deputy PEO
Surface Combatants
US Navy

Tony Laplaca
Director
Logistics Readiness Center
US Army Communications and Electronics
Command

Dr. James McMichael
Director of Acquisition Education, Training,
and Career Development
OUSD(A&T)

L. F. "Buzz" Milan
Deputy Director and Assistant Commander for
Logistics
US Navy Naval Air Systems Command

Ron Orr
Assistant Deputy Chief of Staff for
Installations and Logistics
US Air Force

Eric Orsini
Deputy Assistant Secretary of the Army for
Logistics

Maj Gen Carlos Perez
Commander
Oklahoma City Air Logistics Center
US Air Force

MajGen Joseph D. Stewart
Deputy Chief of Staff for Installations and
Logistics
USMC

Frank Weber
Director of Logistics
US Transportation Command

Roy Willis
Acting Deputy Under Secretary of Defense for
Logistics

6 February 1998

John Ablard
Director of Management and Administration
Defense Advanced Research Projects Agency

Ken Byram
Deputy Director for Acquisition
Federal Aviation Administration

Greg Giddens
Director
Acquisition Workforce Demonstration Process
Action Team
OUSD(A&T)

Dr. Paul Kaminski
Former Under Secretary of Defense
(Acquisition and Technology)

Deidre A. Lee
Associate Director for Procurement
National Aeronautics and Space
Administration

Dr. James McMichael
Director of Acquisition Education, Training,
and Career Development
OUSD(A&T)

Bill Mounts
Office of the Deputy under Secretary of
Defense (Acquisition Reform)

Linda Reed
Science and Technology Division
Directorate of Contracting
Air Force Materiel Command

William H. Reed
Director
Defense Contract Audit Agency

Herm Reininga
Vice-President for Operations
Rockwell-Collins

Briefings and Presentations

This section lists the formal briefings and presentations that were given to the Sub-Panel.

6 January 1998

Army Acquisition, Army Acquisition Executive response to the DSB Sub Task Force Questions. Overview by Dr. Ken Oscar, Acting Assistant Secretary of the Army (RDA), briefing by Mr. Keith Charles, Deputy Assistant Secretary for Plans, Programs and Policy

Department of the Navy Briefing to the Defense Science Board Sub Task Force for Acquisition Reform, Navy Acquisition Executive (AE) response to the DSB Sub Task Force Questions, Hon. John Douglass, Assistant Secretary of the Navy (Research, Development, and Acquisition)

Preparing for the 21st Century, The Future of Aerospace Acquisition, Air Force Acquisition Executive (AE) response to the DSB Sub Task Force Questions, Hon. Art Money, Assistant Secretary of the Air Force (Acquisition)

Air Force Acquisition in the 21st Century, Paper discussing the reengineering of the acquisition and sustainment processes by SAF/AQ (4 October 1996), presented by Hon. Art Money, Assistant Secretary of the Air Force (Acquisition)

Section 912 - Defense Acquisition Workforce DDP Questions, response to the DSB Sub Task Force Questions by Mrs. Eleanor Spector, Director of Defense Procurement

Joint Requirements Process, JROC response to the DSB Sub Task Force Questions on requirements, COL Jim Verity, Chief, Acquisition and Technology Division, J-8, The Joint Staff

Briefing to the DSB Sub Task Force on Acquisition Reform, Army response to the Defense Science Board (DSB) Sub Task Force Questions on requirements, MG Ronald Adams, ADCSOPS (Force Development) and LTC Ken Hawes

Requirements Determination, A Navy Requirements Perspective to the Defense Science Board (DSB) Sub Task Force on Acquisition Organization and Functions, Captain James Hanna, Navy JROC; Head, Acquisition & Requirements Support Branch (OPNAV N810)

Questions for Requirements Determination, Air Force response to the Defense Science Board (DSB) Sub Task Force Questions on requirements, Col (S) Bob Dorsey, Air Force/XOR

Marine response to the Defense Science Board (DSB) Sub Task Force Questions on requirements, COL R. W. Bates, Marine Corps Systems Command and COL E. Lesnowicz, Marine Corps Combat Development Command

13 January 1998

DoD Science and Technology, briefing prior to panel discussion of S&T Questions and selected issues, Mr. George T. Singley, III, Acting Director, Defense Research and Engineering (OSD/DDR&E)

Army Science and Technology, Defense Science Board Section 912 Discussions, morning session, Dr. A. Fenner Milton, Deputy Assistant Secretary for Research and Technology

Navy Representative, *DSB Sub Task Force on S&T, Questions and Answers*, morning session, Dr. Fred Saalfeld, Deputy Chief of Naval Research & Technical Director, Office of Naval Research

Advanced Concept Technology Demonstrations (ACTDs), Mr. Tom Perdue, Principal Assistant Deputy Under Secretary of Defense (Advanced Technology)

Warfighting Rapid Acquisition Process (WRAP), created by the Army to initiate the rapid acquisition of successful battlelab experiments/ evaluations that meet urgent and compelling needs as determined and recommended by CG, TRADOC, by Ms. Marguerite Frick from the Office of the Deputy Chief of Staff for Operations and Plans (Force Development)

Army Representative, *DSB Sub Task Force on S&T, Questions and Answers*, afternoon session on transition of technology to systems by Dr. Michael Andrews, Director for Technology, Office of the Assistant Secretary of the Army for Research, Development, and Acquisition

Navy Representative, *DSB Sub Task Force on S&T, Questions and Answers*, afternoon session on transition of technology to systems by Dr. David McErlean, Deputy Director, Air 4.0, Naval Air Systems Command

23 January 1998

Presentation to the Defense Science Board (DSB) Sub Task Force on Acquisition Organization and Functions, discussion of Development and Operational Testing by the Hon. Philip E. Coyle, Director, Operational Test and Evaluation, Office of the Secretary of Defense

Defense Test and Evaluation, Briefing to the Section 912 DSB Sub Task Force, Dr. Patricia Sanders, Director, Test, Systems Engineering and Evaluation

28 January 1998

Identification of the Department of Defense Acquisition Workforce by Jefferson Solutions, Mr. Allan Burman

Logistics in the 21st Century, Roy R. Willis, Acting Deputy Under Secretary of Defense (Logistics)

6 February 1998

FAA Acquisition Reform, Personnel Reform, Briefing to the Defense Science Board Sub Task Force (Acquisition Workforce), Ken Byram, FAA Deputy Director of Acquisitions

National Aeronautics and Space Administration, Briefing and Discussion by Ms. Deidre A. Lee, Associate Administrator for Procurement

Acquisition Reform and Progress on Civil-Military Integration, Mr. William E. Mounts, Director, International and Commercial Systems Acquisition, Office of Deputy Under Secretary of Defense (AR)

Civil/Military Integration, FAR Part 12, Commercial R&D Acquisition, Commercial Items, Contractual Toolbox and IDCC Commercial R&D Project, Mr. John H. Ablard, Director of Management and Administration, DARPA

Rockwell Collins *Poised for Growth*, Corporate Civil-Military Integration, Mr. Herm Reininga, Vice President for Operations, Rockwell-Collins

Civilian Acquisition Workforce Personnel Demonstration Project, Mr. Greg Giddens, Director Acquisition Workforce Personnel Demonstration Process Action Team

Contribution-Based Compensation and Appraisal System (CCAS), Mr. Greg Giddens, Director Acquisition Workforce Personnel Demonstration Process Action Team

Appendix H

Workforce Composition

Numerous definitions of the acquisition workforce have been established for various purposes. We did not consider it to be part of our charter to rationalize these various definitions or to recommend that a specific existing definition be used for all purposes.

Since our objective was to assess the impact on the workforce that would result from changes to the acquisition process, we chose to focus our view of the workforce on the major policy areas that our recommendations embrace. We therefore defined the acquisition workforce of interest for our purposes as the DoD personnel who are engaged in the following activities:

- ◆ performing RDT&E,
- ◆ providing product support to weapon systems and equipment,
- ◆ providing commodity support, and
- ◆ performing contract oversight.

We decided to refine this definition further by addressing only the civilian component of the acquisition workforce. There are two reasons for this. First, there are significant cultural differences among the Services in how they manage their officers, and these differences made it difficult, in the short time available for this study, to develop recommendations that could be implemented within the different cultures. Second, there are relatively few military officers in the acquisition workforce, and the impact of any recommendations we might make would thus affect a fairly small part of the population. (The Air Force has what might be considered a significant number of military acquisition professionals, but it is the exception.)

To assess the resource implications of our proposals, we believed it would be useful to be able to relate our recommendations to the FYDP, the Department's official resource database. The FYDP contains information on DoD's resources from FY62 through the end of the POM period. These resources include dollars, manpower, and forces. For purposes of this study, we focused on civilian manpower, which the FYDP reflects as workyears.

The key data element for FYDP records is the OSD PE, a 10-character code that identifies (among other things) the major defense program the record is associated with and the Defense Component that spends the resources. To identify the manpower resources associated with the four components of the acquisition workforce defined above, we used PEs as follows.

- ◆ Performing RDT&E is defined as all civilian personnel associated with PEs in major defense program 6 (RDT&E).
- ◆ Providing product support is defined as the sum of
 - ◆ civilian personnel associated with PEs for depot maintenance,
 - ◆ civilian personnel associated with PEs for Service central supply functions, and
 - ◆ 11% of the civilian personnel associated with DLA central supply PEs.
- ◆ Providing commodity support is defined as 89% of the civilian personnel associated with DLA central supply PEs.
- ◆ Performing contract oversight is defined as all civilian personnel associated with PEs for DCMC and DCAA.

The rationale for the 11/89 split of DLA central supply PEs is based on DoD data indicating that 11% of line items managed by DLA are reparables and 89% are consumables.

Given these definitions, the workforce composition for FY89 through FY03 breaks out as follows:

Civilian Manpower (in '000s) - Source: POM99 FYDP															
Army															
Category	FY89	FY90	FY91	FY92	FY93	FY94	FY95	FY96	FY97	FY98	FY99	FY00	FY01	FY02	FY03
RDT&E	26.7	28.2	28.9	30.7	28.4	28.1	25.3	23.7	24.5	23.6	22.2	20.3	18.5	17.4	16.5
Product Support	61.2	50.7	45.0	38.0	33.4	30.1	28.2	26.5	25.1	23.7	22.1	21.5	21.2	21.2	21.1
Commodity Support	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oversight	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	87.8	78.9	73.9	68.7	61.9	58.2	53.5	50.2	49.6	47.3	44.3	41.8	39.7	38.6	37.6
Navy															
Category	FY89	FY90	FY91	FY92	FY93	FY94	FY95	FY96	FY97	FY98	FY99	FY00	FY01	FY02	FY03
RDT&E	38.2	38.0	37.8	56.8	54.1	55.3	52.9	50.5	46.2	43.0	41.6	40.2	39.1	38.8	38.8
Product Support	148.1	141.6	135.3	129.9	94.1	102.8	65.3	61.9	46.0	42.8	45.1	44.6	43.7	43.4	43.4
Commodity Support	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oversight	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	186.3	179.6	173.1	186.7	148.2	158.2	118.2	112.4	92.2	85.8	86.7	84.8	82.8	82.2	82.2
Air Force															
Category	FY89	FY90	FY91	FY92	FY93	FY94	FY95	FY96	FY97	FY98	FY99	FY00	FY01	FY02	FY03
RDT&E	11.6	11.2	12.0	11.9	11.7	11.7	10.9	10.4	10.6	10.3	8.1	7.9	7.6	7.4	7.4
Product Support	71.6	62.3	45.5	43.3	39.8	38.5	31.5	30.6	28.7	26.8	24.6	22.7	22.3	22.1	22.1
Commodity Support	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oversight	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	83.2	73.5	57.4	55.3	51.4	50.2	42.4	41.0	39.3	37.1	32.7	30.6	29.9	29.5	29.5
Marines															
Category	FY89	FY90	FY91	FY92	FY93	FY94	FY95	FY96	FY97	FY98	FY99	FY00	FY01	FY02	FY03
RDT&E	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Product Support	2.9	2.7	2.5	2.3	4.6	2.4	2.5	2.3	1.8	1.7	1.6	1.6	1.6	1.6	1.6
Commodity Support	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oversight	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	2.9	2.7	2.5	2.3	4.6	2.4	2.5	2.3	1.8	1.7	1.6	1.6	1.6	1.6	1.6
Other DoD															
Category	FY89	FY90	FY91	FY92	FY93	FY94	FY95	FY96	FY97	FY98	FY99	FY00	FY01	FY02	FY03
RDT&E	1.1	1.0	1.0	1.4	1.0	1.1	1.1	1.1	1.3	1.3	1.3	1.3	1.2	1.2	1.2
Product Support	1.4	1.5	3.0	4.2	3.9	3.6	3.3	3.1	3.1	2.6	2.4	2.2	2.1	2.2	2.0
Commodity Support	11.6	12.4	24.5	33.9	31.7	29.5	26.9	24.8	24.3	21.9	19.7	17.9	16.7	16.3	16.1
Oversight	27.3	28.8	27.9	26.1	24.7	22.6	21.3	20.1	19.2	18.5	17.9	17.1	16.6	16.3	16.5
Total	41.4	43.7	56.4	65.6	61.3	56.8	52.6	49.1	47.9	44.3	41.3	38.5	36.6	36.0	35.8

Appendix I

Streamlining Opportunities

This is an assessment of the opportunities to streamline the Defense acquisition infrastructure that were realized as a result of enactment of the Federal Acquisition Streamlining Act of 1994 (Public Law 103-355), the Clinger-Cohen Act of 1996 (divisions D and E of Public Law 104-106), or other acquisition reform initiatives implemented administratively from 1993 through 1997.

The Federal Acquisition Streamlining Act of 1994 (FASA)

Commercial Item Acquisitions

Title VIII of FASA mandated the acquisition and utilization of commercial items, to the maximum extent practicable, and the acquisition of those items in a manner similar to that used by commercial businesses. Sections 8104 and 8203 of FASA created a preference for the acquisition of commercial items by federal agencies, followed by a secondary preference for nondevelopmental items "to the extent that commercial items suitable to meet the agency's needs are not available." Sections 8003, 8105, and 8301 offered exemption from or modification of statutory requirements that previously limited DoD's flexibility and were a disincentive to commercial firms wanting to do business with DoD.

Title VIII of FASA was implemented into FAR Part 12, which contains the rules governing commercial item procurements. FAR Part 12 allows for significant exercise of business judgment by the government contracting officer and provides broad authority for the contracting officer to conduct a procurement action for commercial items in a manner determined to be consistent with customary commercial practice. When using FAR Part 12, DoD can participate as a customer in the marketplace, albeit one which may require quantities or response times that may differ from those of other customers. FAR Part 12 contracts allow commercial industry to apply standard practices and offer innovative solutions to defense requirements.

FAR Part 12 contracts in FY97 represented 16 percent of DoD contracts over \$25,000, as measured both in dollars and in number of actions. This indicates that DoD contracting officers believe 84 percent of DoD procurements over \$25,000 are DoD-unique and do not fall within the broad definition of commercial items created by FASA. However, anecdotal evidence suggests that the statutory definition of commercial items is frequently ignored, FAR Part 12 is being applied sporadically, and that the workforce is generally untrained and unfamiliar with its use. There is little indication that DoD has adequately retrained its acquisition workforce on the application of FAR Part 12. A more vigorous retraining could have resulted in far greater use of FAR Part 12.

Market Research

FASA Sections 8104 and 8203 identify market research as the first step in any acquisition. Market research requires collecting and analyzing information about the marketplace. This information is subsequently used to determine whether the need can be met by an item of a type customarily available in the commercial market place; customary practices regarding customizing, modifying or tailoring items to meet customer needs; customary terms and conditions, including warranty, buyer financing, discounts, under which commercial sales are made; and, the distribution and logistics support capabilities of potential suppliers. There is no indication that DoD has adequately retrained its acquisition workforce or tailored its infrastructure to effectively conduct market research.

Commercial Practices and the Defense Acquisition Pilot Programs

FASA Section 5064 afforded statutory relief for the Defense Acquisition Pilot Programs to serve as vanguards in implementing acquisition reform to achieve acquisition goals of acquiring systems responsively, efficiently, and smartly to meet user needs. These goals are characterized by faster cycle times (contract award to first delivery), reduced contract costs, and more efficient program staffing (compared to traditional programs). As such, the pilot programs demonstrate the benefits of acquisition reform and serve as the benchmark for measuring the success of acquisition reform across DoD. Furthermore, these gains in the acquisition process are extending into the life cycle to reduce total cost of ownership on programs such as Joint Direct Attack Munition (JDAM), Commercial Derivative Engine, and the C-130J. In 1997 DoD reported on the results of the pilot programs to date and summarized the benefits and lessons learned from the pilot program's efforts. Since their designation as pilot programs, the pilot programs successfully implemented numerous innovative acquisition techniques including:

- ◆ Specification/Standards Streamlining - Employed by all the pilot programs to successfully reduce the number of unique military specifications and standards from 80 to 100 percent and, thus, to clear the way for innovative commercial practices.
- ◆ Commercial Style Milestone Billing - Employed by the Fire Support Combined Arms Tactical Trainer (FSCATT) program, in conjunction with a fixed-price engineering and manufacturing development contract, to reduce Government and contractor administrative effort associated with progress payments and to ensure appropriate demonstration of technical progress.
- ◆ Earned Value Management - Employed by the Joint Primary Aircraft Training System (JPATS) program to reduce contractor and government management burdens associated with cost/schedule reporting and to provide enhanced "insight" into program progress.

- ◆ Reduced Oversight - Enabled by the use of integrated product teams and electronic data interchange to provide for improved management decisions.
- ◆ Commercial Practices - Employed by the Commercial Derivative Engine, NDAA/C-17, C-130J Hercules, JDAM, and the Defense Personnel Supply Center including long-term contracts, commercial logistic support, commercial R&D and electronic commerce.
- ◆ Rolling Down-select - Employed by JDAM to evaluate competing Dem/Val contractors during actual contractor performance with frank feedback and exchange. The approach enabled JDAM to reduce Request for Proposal costs by 70 percent and B&P costs by 50 percent.

The pilot programs provide invaluable lessons learned related to implementation and cultural change. Despite significant top-level management emphasis and enthusiastic program-level support, the pilot programs encountered resistance from ingrained middle management and functional managers within the Military Departments, OSD and their defense contractors. To fully achieve the benefits of acquisition reform, a major cultural change must be effected. Despite dramatic statutory and regulatory relief afforded to the pilot programs, DoD found that the defense contractors involved did not flow much of that relief down to subtier suppliers. This highlights the need for a cultural change to adopt acquisition reform and commercial practices within the defense industry as well.

As the initial implementers of integrated product team concept, the pilot programs also highlighted the need for a well-trained, stable acquisition workforce that possesses sufficient multifunctional expertise. The pilot programs demonstrated the necessity of including "non-acquisition" members on the integrated product teams from communities such as DFAS, the comptroller, and test and evaluation.

Micro-Purchase Procedures

FASA Section 4301 established the statutory micro-purchase authority. In FY97, DoD recorded eight million IMPAC transactions totaling \$3.5 billion. There has been an overall drop in contract actions from 12 million in FY92 to 7.7 million in FY97. Although DoD has embraced the expanded use of the government-wide purchase card, its use is spotty across the Department. Both the Army and Navy had approximately 1.4 million procurement actions under \$2,500 in FY93. The Army now accounts for 45.8% of DoD purchase card actions and its contract actions below \$2,500 have been reduced by 80%. The Navy now accounts for only 23% of purchase card actions and has reduced its micro-purchases by 68%. In FY97, the Defense Agencies, including the Defense Logistics Agency, were responsible for only 4% of DoD purchase card actions. DLA has reduced contract actions under \$2,500 by only 6%.

The Clinger-Cohen Act of 1996

One of the more important provisions in Clinger-Cohen is in Title IV at Section 4201, which provides an exception to the Truth in Negotiations Act for "the acquisition of a commercial item." This provision eliminates cost or pricing data requirements for commercial items. The requirement for submission of cost or pricing data or documenting that a commercial item had achieved adequate sales to be exempt from this requirement historically had a chilling effect on the willingness of commercial firms to do business with the government. Commercial firms seek to maintain their competitive advantage and closely guard sensitive business, marketing and financial information. Customers and potential competitors are rarely afforded the opportunity to review their suppliers' books and records. These government-unique practices, in and of themselves, have been historical barriers to commercial firms' willingness to do business directly with the government.

The changes to the Truth in Negotiations Act require training the acquisition workforce on the use of contract pricing techniques for sole-source commercial items. To date, there has been little effort to retrain a workforce that has been primarily engaged in cost analysis to make the transition to price analysis techniques. The result is that members of the workforce do not understand commercial market prices that DoD has, in isolated instances, paid premium prices for items and services that it does not need. An example is paying a considerable premium for 24-hour delivery of an item intended to be warehoused by the Defense Logistics Agency.

Section 4202 of Clinger-Cohen provides, for a three-year period, for use of simplified procedures for the acquisition of commercial items up to \$5 million. This provision will not change the terms and conditions that apply to a government contract for commercial items. However, it should simplify the internal procurement process the government uses to acquire commercial supplies or services between the simplified acquisition threshold and \$5 million.

Section 4203 of Clinger-Cohen provided the FAR Council with authority to exempt commercially available off-the-shelf items from almost all government-unique procurement laws, policies, procedures, and requirements for the procurement of supplies or services. Clinger-Cohen defines "commercially available off-the-shelf" as any commercial item that has been sold in substantial quantities in the commercial marketplace that is offered to the government without modification. This could eliminate the use of the clause Contract Terms and Conditions Required to Implement Statutes or Executive Orders - Commercial Items making a government contract for commercially available off-the-shelf items look identical to a standard, commercial contract for that item. The FAR Council has failed to implement Section 4203 of Clinger-Cohen.

Section 4103 of Clinger-Cohen provides for efficient competitive range determinations by contracting officers. Previously, if there were any question as to whether a bidder should be included, the bidder was kept in, in order to avoid a protest. Many contractors would continue to incur bid and proposal costs and DoD was forced to expend resources evaluating bids that had no real prospect of winning the award. Section 4103 enables DoD to expedite the procurement process, and allows bidders who do not have a chance of receiving the award to save time and

money by being removed sooner, rather than later, in the process. Federal Acquisition Circular 97-02, which implemented this provision of Clinger-Cohen, became effective January 1, 1998.

Single Process Initiative

In keeping with the goal of Department-wide adoption of commercial practices where practicable, the Secretary of Defense encouraged contractors to move to single processes in their facilities by concluding that DoD could not afford to continue to allow existing contractual arrangements to further impede broader application of his earlier military specifications and standards reform initiative. Additional guidance to implement the Single Process Initiative was provided by the Under Secretary of Defense (Acquisition and Technology). The guidance sought to replace multiple government-unique management and manufacturing systems with common, facility-wide systems. By adopting world-class standards in this regard, where technically acceptable to the government, DoD's contract costs should be reduced, while permitting the Department to take advantage of innovative manufacturing processes and business practices currently in use in the commercial sector.

Re-Write of the DoD 5000 Series Regulation

Sections 8104 and 8203 of FASA require the head of each executive agency to ensure that procurement officials in that executive agency, to the maximum extent practicable, revise the executive agency's procurement policies, practices, and procedures not required by law to reduce any impediments in those policies, practices, and procedures to the acquisition of commercial items. DoD has recently revised the 5000 series documents to implement this requirement. Indeed, a recent article concerning the overhaul of the DoD 5000 series regulation was entitled "New Pentagon Acquisition Guide to Institute Commercial Practices." The re-write effort highlights two major themes as a result of the 5000 series update: the increased reliance on commercial products and the recognition of best practices by the Department. The Executive Summary to the new 5000 series states that:

Integrating a constricting industrial base and a fast-paced technology sector mandates that DoD fully implement the statutory preference for the acquisition of commercial items by federal agencies. Acquisition of commercial items, components, processes, and practices provides rapid and affordable application of these technologies to validated, DoD mission needs."

The new 5000 series separates mandatory policies from discretionary procedures and practices. DoD Directive 5000.1 establishes guiding principles for all Defense acquisition. DoD Regulation 5000.2-R specifies mandatory policies and procedures for Major Defense Acquisition Programs and Major Automated Information System acquisition programs. DoD 5000.2-R also describes a simplified and flexible management process, modeled on sound business practices. Major

defense acquisitions of the future must take into account customary commercial practices in developing acquisition strategies and contracting arrangements.

Organizational Changes

Change has been continuous within DoD acquisition organizations since the inception of the Department. Since 1994, acquisition organizations have been created, moved, consolidated, realigned, absorbed and eliminated. Although current organizational change is described as "acquisition reform," it is not clear that has been due to FASA or the Clinger-Cohen Act. There has not been a systematic reconsideration of acquisition requirements and the supporting organizational structures of the type that resulted from enactment of the Goldwater-Nichols Act of 1986 (Public Law 99-433).

An example of organizational change is the Air Force's creation of the Air Force Material Command in 1993 through the merger of the Air Force Systems Command and the Air Force Logistics Command. This was perhaps not a true merger. Rather, it was a reinstitution of the material command and the elimination of the system command. This action was intended to be a paradigm shift that would create a seamless culture.

The Army has consolidated a number of functions. The Army Acquisition Executive reduced program executive offices from nine to seven through consolidations and transfers of 19 programs to AMC. The Army consolidated contracting offices from 41 to 14 by establishing contracting centers with satellite offices, thereby reducing the contracting workforce assigned to those offices by 31%. The Army consolidated test and evaluation functions and responsibilities within OPTEC. This realigned portions of the U. S Army Test and Evaluation Command, Army Materiel Systems Analysis Activity, and the U. S Army Research Laboratory's Survivability and Lethality Directorate.

Other consolidations and realignments within the Army include consolidating functions that were performed by many separate commands into the Army Medical Research and Materiel Command. The Army also dissolved its Information Systems Command and realigned and consolidated its acquisition of automated systems and its software development centers under CECOM, a major subordinate command of AMC.

The Navy has consolidated within its systems commands. For example, in July 1993 Space and Naval Warfare Command combined various acquisition organizations into one. This was followed by a reengineering effort to ensure the organizational consolidation was more than a cosmetic change. The combination of three diverse organizations required a detailed review of missions, functions and processes, customers, priorities, and staffing. The result of the reengineering effort was a flatter organization, increased employee to supervisor ratios, and implementation of team processes.

In the logistics arena, the Naval Air Systems Command consolidated three logistics management divisions into a single division responsible for logistics management of all NAVAIR

commodities. The consolidation encouraged sharing of best practices among commodities and provided a single point of contact for all logistics management issues within NAVAIR.

The Navy also downsized headquarters and eliminated a number of commands. The Naval Information Systems Management Center (NISMC) was among the commands disestablished.

Summary

Taken as a whole, DoD's actions to streamline the acquisition infrastructure, particularly in response to the opportunities provided by recent legislation, represent a mixed degree of success. Some meaningful improvements have been made, but we believe that the Department could have made even greater strides in streamlining and improving its operations if it had taken greater advantage of the opportunities presented. To a large extent, the recommendations contained in the main body of this report propose that DoD move out more aggressively on those opportunities.

Appendix J

DCAA and DCMC Workforce Analysis

This appendix provides the rationale to support our projected reduction of 50% in the combined civilian workforces of DCAA and DCMC.

The table shows the workforce for DCAA and DCMC, along with the estimated reductions we believe could be achievable if DoD placed greater reliance on price-based (as opposed to cost-based) contracts and took other actions recommended in this report. We emphasize here, as we did earlier, that these numbers are estimates and that more concrete data should be developed during implementation planning.

Activity	FY97/98 End Strength (Note 6)	Reduction	Note
DCAA	4,670	2,335	1
DCMC			
Quality	4,049	2,000	2
Production	1,371	1,000	2
Program Integration	642	0	
Contracts/Pricing	4,028	2,000	3
Engineering	1,197	598	4
Property	349	0	
Transportation	290	0	
Flight Safety	318	0	
Other	1,873	1,300	5
Total	18,787	9,233	
Percentage reduction	49.1%		

Notes:

1. DCAA's activities are all cost-based activities. These include preaward audit of cost and pricing proposals, Postaward audit of cost and pricing data (defective pricing audits), CAS reviews, CAS noncompliance resolution, cost-incurred reviews and executive compensation audits. None of these activities are required for price-based contracts awarded without submission of cost data.
2. Process overseers would no longer be required when DoD implements performance-based requirements and moves away from detailed design specifications. Day-to-day cost, schedule, quality and production oversight will be fully transferred from DoD to industry.

3. DCMC contracts/pricing personnel are involved monitoring cost and schedule status for major systems, reviewing DCAA cost and CAS audits, reviewing contractor cost proposals, reviewing subcontracting and purchasing systems, reviewing incurred costs. None of these activities are required for performance-based, price-based contracts awarded without submission of cost data.
4. DCMC's engineering functions will no longer be required when DoD implements performance-based requirements and moves away from detailed design specifications.
5. DCMC did not report what percentage of the its workforce is engaged in the above activities vs. the percentage engaged in DCMC management. However, October 1997 DCMC unit cost data (provided to us in draft) identified 28.55% of DCMC's time is spent on general management. This category does not include travel (2.27%) or training (4.42%). We took 1,300 positions out of "other" to account for a reduction in DCMC's general management commensurate with a reduced mission.
6. The total workforce shown here is 18,787, which differs slightly from the 18,500 shown in Section II and in Appendix H. There are two reasons for the difference. First, the figures shown in this table are end strengths, while the 18,500 figure represents FTE workyears. Second, the figures shown in this table represent two different points in time. The DCMC end strengths are FY98 data provided by DCMC. The DCAA end strength is FY97 data provided by the Director of Defense Procurement. The differences are not significant, because the purpose of this analysis is to demonstrate that the estimated 50% workforce reduction that we propose is reasonable. The functions listed in the chart are those that DCMC identifies as "Basic CAS." These functions account for 12,244 (87%) of DCMC's positions. DCMC's October 1997 study identified that only 52.72% of DCMC's time is spent on Basic CAS. This indicates a potential for further efficiencies within the current DCMC mission.

Appendix K

Materiel Management Performance Indicators

Comparing DoD with private sector companies is always difficult. Benchmarking information from the private sector is based primarily on manufacturing enterprises, while DoD materiel management functions support the repair of equipment. In addition, DoD must have resources, both materiel and manpower, available to meet wartime surge requirements and other contingency operations. Keeping these and many other differences in mind, we can compare some measures of performance to identify what appear to be significant performance differences between the private sector and DoD.

Comparative Measures for Supply

	Private Sector ¹	DoD ²
Internal Processing Time	4.0 days	5.7 days
Product Availability	87%+	86%

DoD Repair Cycle Time ³	
FY 1997	Days
Army	130
Navy	56
Air Force	86

Private Sector Repair Cycle Time ⁴	
1987	Days
Major Airline 1	13
Major Airline 2	10
Commercial Trucking	6
Truck Leasing	5
Nuclear Power Plant	21
ADP Equipment	9

Source:

¹ Herbert W. Davis and Company, Council of Logistics Management Annual Meeting, 5-8 October 1997.

² DoD's Materiel and Distribution Management Fact Book, FY96.

³ Supply Management Working Capital Fund Budget Estimate Submissions, September 1997

⁴ LMI Report AL614R1, August 1987

Customer Support

In Section II, we discussed opportunities associated with outsourcing product support. In that section we point out that it takes 20 to 25 days to deliver depot-stocked parts to the customer. In DoD product support time includes the time required for the customer requisition to reach the depot, internal processing time at the depot, and the time to ship the materiel to the customer. The "Customer Support" table above shows a segment of the total product support time, the internal depot processing time, and compares it with the private sector. Internal processing times for DoD and the private sector are comparable, but we know from personal experience and industry performance data that the overall private sector product support time is not nearly as long as the 20 to 25 days being experienced by DoD. The average total processing time as seen by the private sector customer is about 8 days. The private sector has applied the concepts of supply chain management to create a seamless interface between the manufacturer and the customer. This approach is in sharp contrast with the DoD logistics system that purposely builds intervening levels of support, owned or operated by different organizations. The private supply chain management approach seeks to minimize the number of support levels between the supplier and the customer. If more than one level exists, the levels are highly integrated and linked with information making them invisible to the customer.

Repair Cycle Times

Again, the repair cycle times shown in the lower half of the above chart are not directly comparable. DoD cycle times are for the depot level only, which includes both repair and

overhaul of repairable components for inventory. The private sector repair cycle times probably include the types of repair done at both the depot and intermediate levels in DoD. The kind of repair done at the intermediate level has much lower repair cycle time than does the type of repair and overhaul done at the depot level. However, these times show how the private sector has collapsed intervening levels of support to increase responsiveness to the customer and minimize the forecasting horizon for setting any inventory levels that might be required.

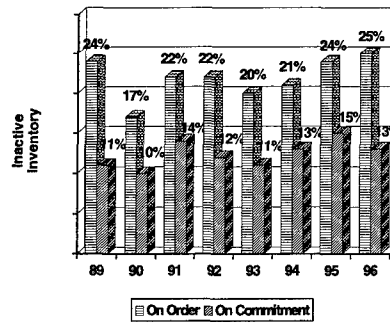
The private-sector supply-chain approach works to produce a seamless integration of support providers and focuses on products and customers with the objective to maximize customer support. The DoD approaches uses multiple levels of support and focuses on optimizing processes within each level to maximize customer support. When a customer requirement must cross several support levels, the time needed to fill the customer requirement increases. Additionally, the hierarchical and functional (supply, maintenance, transportation) structure of the DoD logistics system makes it difficult to focus on a specific weapon system or customer. Each successive layer of the DoD support system serves to shield valuable consumption information from the level above.

Materiel Management Problems

Long Lead Times ¹

FY 1997	ALT	PLT	Total
	Days	Days	Days
Army	114	251	365
Navy	143	402	546
Air Force	168	462	629
DLA	106	194	300

Buying Unneeded Inventory ²



¹ Service WCF Budget Estimate Submissions, September 1997

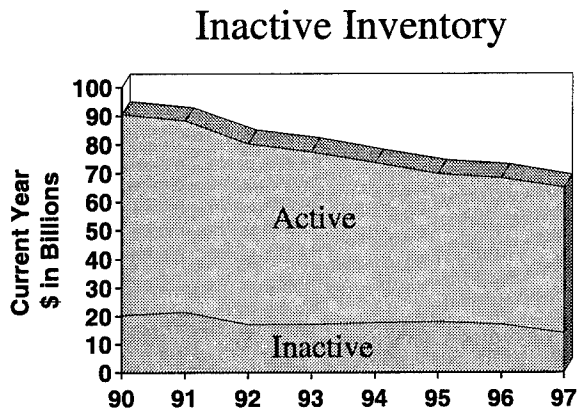
² Service Central Secondary Item Stratification Reports

Long Lead Times Result in Buying Errors

These charts emphasize the importance of reducing cycle times, integrating levels of support, and minimizing inventory levels to reduce the risk of buying materiel that may not be required. Outsourcing support moves much of this risk to the support contractor, who is often in a better position than DoD to trade production capacity for inventory investment and to use other commercial supply chain management techniques to minimize cycle times.

The Long Lead Time table shows dollar weighted average lead times for spare parts and consumable materiel purchased by the Services for wholesale-level inventories. Because of the long acquisition lead times, item managers are using past demand or failure rate information in an attempt to predict customer requirements more than two years in the future. As can be expected, these prediction are often wrong. The Buying Unneeded Inventory bar chart shows that in 1996 13% of the materiel being ordered was no longer required before the contract could be awarded (during the administrative lead time), and 25% was no longer required by the time the materiel was received. Unneeded inventory is defined as inventory in the administrative process of contracting or on contract that exceeds the total reorder objective. The Services and DLA actively attempt to modify or cancel orders or contracts before unneeded materiel is placed on contract or received. However, these efforts are resource intensive. Reducing the lead times — industry's practice — improves the accuracy of the procurement decisions saving both investment dollars and personnel resources. But as the bar chart illustrates, DoD inventory management activities have been unable to reduce the buying of unneeded inventory.

Material Management Problems



Long cycle times contribute to inactive inventory

Source: DoD Supply System Inventory Report

Inactive Inventory

Inactive inventory represents \$14 billion dollars of investment that, ideally, could be better invested elsewhere. DoD's inability to predict future demand over a long acquisition lead times is one of the major causes of inactive inventory. Outsourcing product support reduces the risk of holding large inventories and can make these investment dollars available for higher priorities. Any investment savings depends on the logistics provider's ability to use supply chain management techniques to reduce overall cycle times and reduce inventory investment.

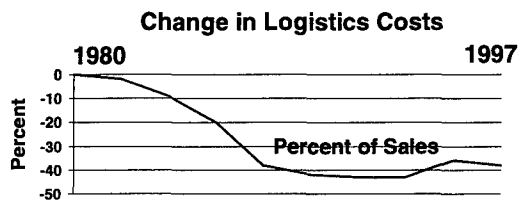
Inventory that exceeds the reorder objective plus two and a half years of projected demand is considered inactive. The amount of inactive inventory has remain relatively constant until 1997. DoD retains inactive inventory as long as it is more economical to hold it than to dispose of the inventory and possibly have to buy it again. Inactive inventory is also held to support potential foreign military sales. DoD disposes of significant amounts of inactive inventory each year when holding it cannot be justified, but more becomes inactive. This is the result, in part, of the inability to predict future requirements, over-long acquisition lead times, and the disconnected nature of the multi-level support structure.

Product Support Typical Private Sector Measures

◆ Private sector average costs for 1997

	<u>% of Sales</u>
Transportation	4.08
Warehousing	2.40
Customer Service	0.55
Administration	0.36
Inventory Carrying	1.81
Total Logistics Costs	9.20%

DoD Working Capital Fund surcharges vary from **25% to 44%**. Included costs and the sales base are clearly different between the private sector and DoD. However, the large difference is striking.



The private sector made dramatic cost reductions during the 1980s. DoD has not experienced a similar sharp decline in costs.

Source: Herbert W. Davis and Company, Council of Logistics Management Annual Meeting, 5-8 October 1997.

Large Cost Reductions in the Private Sector

DoD could capitalize on process changes made in the private sector to reduce logistics costs by outsourcing product support. Comparing private sector materiel handling costs with the similar costs in DoD is difficult. However, the surcharge for the supply management business area of the working capital funds (WCF) does provide a source for a rough comparison. The working capital funds surcharge includes most of the costs listed in the private sector cost table above, but it is not an exact match. The surcharge includes costs not specifically included in the private sector costs shown above, and the private sector table includes costs that are not in the surcharge. The surcharge is a rate based on the total costs divided by the sales. These sales are for repair parts while the sales base for the private sector table is predominately finished goods. The surcharges charge in the working capital funds vary from 25% to 44% compared to some what similar private sector costs of about 9%. Although the comparison is difficult, the large difference between the logistics costs suggests significant potential for reduction in the costs of repair parts required by the operating forces.

One large and undeniable difference between the private sector and DoD is the significant cost reduction made in private sector logistics during the early 1980s. The line graph above shows that the private sector cut costs by over 40% compared to sales. Although the total cost of DoD logistics support has decreased following the end of the cold war and the subsequent force reductions, there has been relatively little change in the cost of logistics support as a percentage of working capital funds sales.

Sector Characteristics

◆ Private Sector

- > Partnerships
- > Small inventories
- > Manufacturing centered
- > High capacity utilization
- > Small lots
- > Supply chain reliant
- > Flexible upgrades
- > Performance based
- > Customer focus
- > Competitive Survival

◆ Government Sector

- > Open competition
- > Large inventories
- > Maintenance centered
- > Low capacity utilization
- > Large lots
- > Self reliant
- > Configuration constrained
- > Specification based
- > Process focus
- > ???

Competitive Survival as a Driving Force

The chart shows some of the differences between the characteristics of private sector supply chain management and the DoD materiel management system. The most critical factor facing private sector firms is *competitive survival*. Competitive survival was the driving force behind the large logistics cost reduction experienced by the private sector in the 1980s. The challenge of strong foreign competition and market deregulation during this time were among the factors that forced companies to radically restructure logistics processes or go out of business. Although DoD logistics activities have worked hard to reduce inventory investment and operating costs to keep pace with force reductions, they have not had a set of comparable cataclysmic challenges necessary to cause similar revolutionary changes in their support processes.

Outsourcing product support is the kind of radical change that can produce the magnitude of savings that the private sector has experienced. Outsourcing product support means moving away from the standard supply and maintenance systems that have evolved since the end of the Second World War. It means changing the way DoD thinks about supporting weapon systems and possibly even the way DoD has trained maintainers and operators. It means moving away from a single requisition and distribution channel, from tightly controlled configurations, and from the concept of "one-item-one-manager." Outsourcing support can eliminate levels of support, reduce inventory investment, make the use of commercial-off-the-shelf or non-developmental equipment a practical alternative, enable the continuous upgrade of weapon systems through spares, and reduce the problem of diminishing manufacturing sources.

Appendix L

Product Support

This appendix provides an example of how the contractor logistics support process might work to support operating forces. The reader should refer to the diagrams at the end of the narrative.

Repair Parts

The deployed operational unit (battalion, ship, air squadron) with assigned or supporting maintenance personnel does preventive maintenance on its equipment — major systems and support equipment like generators. The unit's maintenance technicians deal with equipment failures by diagnosing the cause, isolating faults to line replaceable units (LRUs), removing the faulty LRUs and replacing them with serviceable LRUs.

The operational unit, or its immediate support organization, e.g., supply squadron, forward support battalion, combat logistics ship, carries a limited number of frequently used LRUs and other parts. The CLS contractors would own the system peculiar LRU and parts. The operational unit designated parts clerk issues the necessary LRU to the maintenance technicians—as at present—orders a replacement from the CLS Management Center (CLSMC) via Internet transaction and starts the process to ship the failed LRU to the supporting CLS Repair Center. (Note: The CLSMC operates the Internet server for this process.)

Those transactions cause the CLSMC to ship the replacement LRU to the unit with the appropriate urgency designation from the most appropriate source. For example, if the unit had no serviceable LRU to fix the equipment, the CLSMC would designate its closest source, perhaps the theater repair center or another organization with stock, to fill the requirement using the fastest means available and notifying the unit parts clerk simultaneously. If the replacement LRU was to be put in the unit's stock — which had other assets — that less urgent requirement might be sourced from the CLS main CONUS warehouse and take 7–8 days to reach the unit. The CLSMC and its in-theater Repair Center would be in a position to monitor system-wide availability of LRU and parts stocks and respond to unpredictable unit requirements.

The initiating order and subsequent shipping instructions are simultaneously made available to the Service "Total Asset Visibility" (TAV) server and, thus, will be visible to the uniformed logisticians in theater and the PM, etc. The order entry for the replacement of the stocked LRU also triggers payment to the CLS from the operating unit's account, and the Repair Center's receipt of the failed LRU would trigger the credit for its "carcass" value to the unit's account.

As with commercial systems, all interested parties can use the Joint Total Asset Visibility (JTAV) network to track the incoming LRU. The CLSMC likely would periodically query its third-party logistics team member (e.g., FEDEX, UPS, etc.) for intransit visibility, reporting it to

TRANSCOM's Global Transportation Network which automatically makes it available in JTAV to those needing the information.

The CLS system will need to avoid the uncoordinated arrival at theater airfields of LRU and parts on multiple carriers' aircraft. One simple solution is to contractually require CLS contractors to use the DoD "small package" carrier (currently FEDEX) to send materiel to deployed customer units—or their theater repair centers. Air Mobility Command could then schedule (with the theater airlift control element) the package carrier aircraft into the arrival airfields so as not to conflict with other missions. The package carriers' air pallets can then be trucked to the theater distribution center and either "cross-docked," e.g., a pallet headed for one supply squadron, or repalletized along with other supplies heading for an Army forward support battalion, a Marine support organization, or a Naval support activity. Repair Centers also would ship through the theater distribution centers. Thus, the CLS flow of parts and LRUs would be integrated into the normal flow of other packaged supplies through the theater distribution center. Note: This distribution center process could be partially accomplished in CONUS to minimize the theater logistics "footprint."

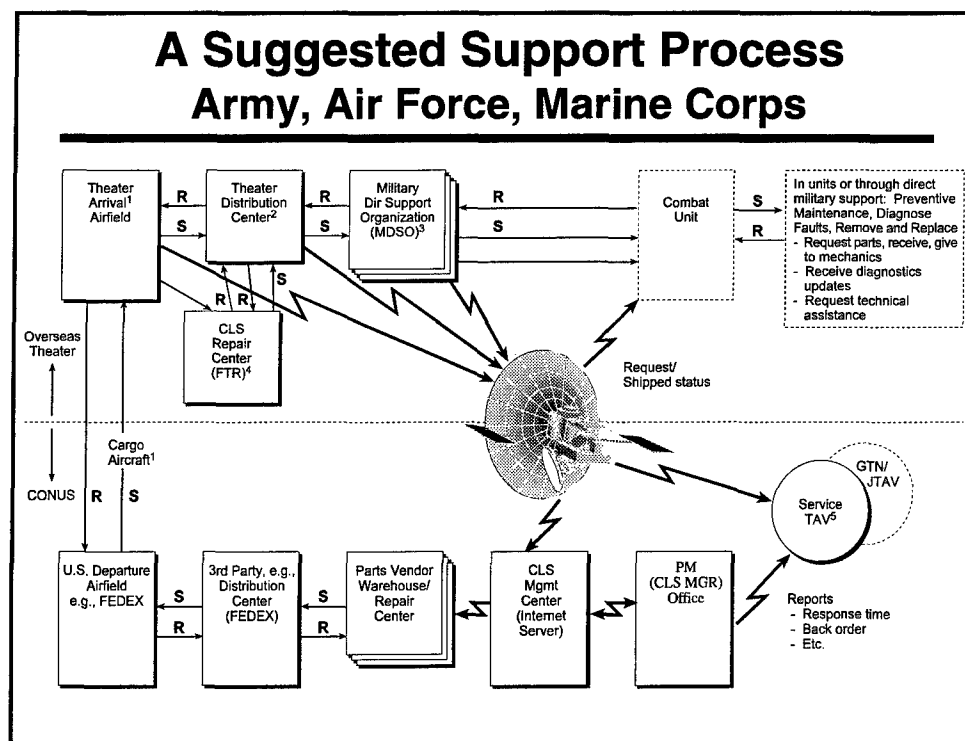
Obtaining required parts from the CLS can be transparent to the operating units, but responsive to the uniformed logisticians whose responsibility it is to assure maximum operational availability of weapons systems and equipment. The parts clerk could order parts for all supported systems and equipment from one computer using "point and click: Web-based technology" with icons representing each of the systems supported — a "virtual shopping mall." Password and embedded funding controls — as in the commercial sector, minimize the possibility of error or fraud. And the networking of CLSMC with the JTAV architecture will provide nearly instant visibility of all components of the ordering and parts status processes.

The CLS Repair Center plays an important role in the process, repairing and returning to stock reparable LRUs from operating units. It also maintains an inventory of LRUs and parts sized to support the operating units in the theater. One of its main benefits is to validate the fault diagnosis of operating units. It can catch misdiagnosed LRU (i.e., those for which there is "no evidence of failure") and alert the field technical assistance representatives (FTRs) to problems of faulty diagnostic equipment in the operating unit or inadequate skill of maintenance technicians.

Field Technical Assistance

The FTR role is essential to operating units' maintenance of high operational availability. As noted above, the experienced engineers and technicians, many of whom may have prior service, can assist unit maintenance technicians in reinforcing diagnosis and repair skills and calibrating diagnostic equipment.

The embedding of new technology can overwhelm the abilities of uniformed maintenance technicians to keep up. As software and hardware upgrading of fielded systems continues, the problem may become more acute making the back-up role of FTRs even more critical. Given the



See the text of this appendix for an explanation of the diagram.

Legend:

S	serviceable parts
R	unserviceable parts
CLS	contractor logistics support (the firm performing the product support tasks)

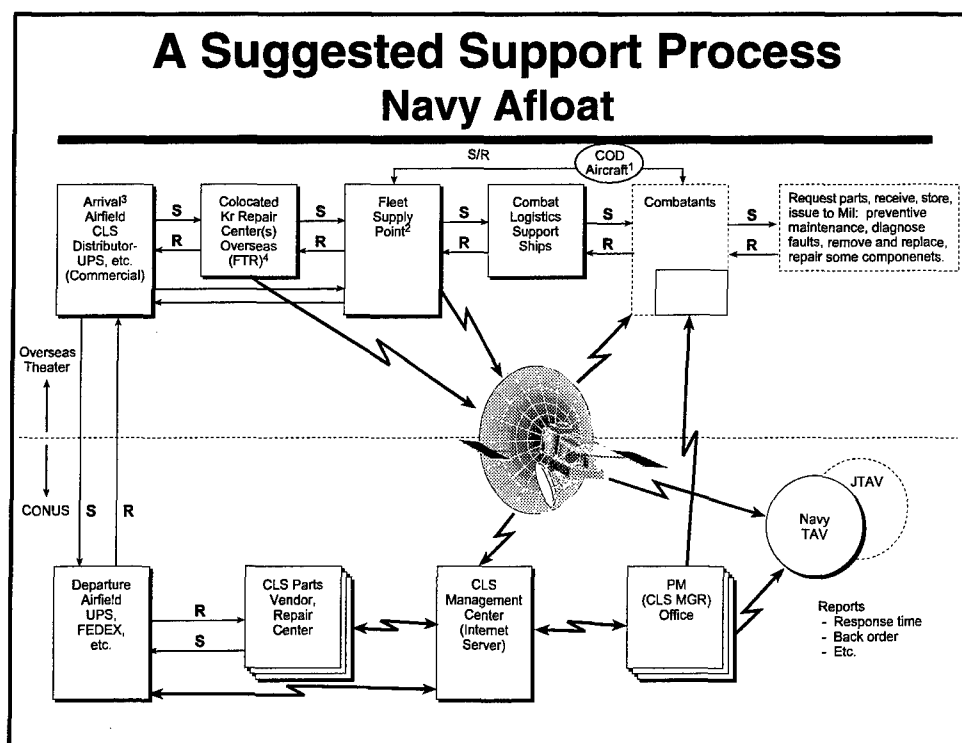
Footnotes:

1. MOG Control (aircraft scheduling) by TRANSCOM/Theater CINC; off-load, load retrograde; offloaded CLS pallets to Distribution Center with Service pallets. Proposed rule: CLS use limited number of air carriers for deployed systems. FEDEX aircraft (current DoD package carrier) can be integrated into air flow by TRANSCOM, as is CRAF.
2. Cross-deck pallets or repalletize for MDSO.
3. Air base supply and maintenance squadrons; Army corps/division, support battalion; MARCORPS units ashore or afloat.
4. Repair centers repair system components and return to stock or MDSO. FTRs go to MDSO or combat units as situation requires to provide technical assistance/repairs. FTRs work from repair centers. Control of FTR entry into battlespace by Army Division Materiel Management Centers, USMC Force Service Support Groups, Air Force Wings. FTRs are POM-qualified (CB defense equipment, etc.).

5. Total Asset Visibility - Service and Joint. Tracks stockage status and intransit status of orders. CLS required to provide information on order fulfillment to Service TAV.

Notes:

- ◆ Readiness oversight through Service component command. CLS and PM should monitor "fleet" operational ready rate, status of inoperable equipment, frequent failure modes through repair centers (theater-specific) and CLS management center.
- ◆ Major metrics: Parts response time (order fulfillment cycle) with differential standards (inoperable system, deferred maintenance, replace retail stocks).
 - ◆ Retail stock status (out of stock, back orders).
 - ◆ O&S costs - measured through the Visibility and Management of Operating and Support Costs (VAMOSC) system and by CLS contractors (who feed into VAMOSC).



See the text of this appendix for an explanation of the diagram.

Legend:

S	serviceable parts
R	unserviceable parts
CLS	contractor logistics support (the firm performing the product support tasks)

Footnotes:

1. COD = carrier onboard delivery aircraft and combat logistics support ships carry parts, retrograde to/from carrier, amphibians, and other combatants.
2. Fleet supply point (e.g., Sigonella).
3. Commercial airfield used by US air carrier or Navy air station.
4. Contract Field Technical Assistance Representative (FTR) in repair centers onboard ships as required. Repair onboard to minimize off-ship support requirement. Repair centers repair some components, return others to CONUS.

Note: Same readiness oversight and major metrics as Army/Air Force/Marine Corps chart.

Appendix M

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Letter from Frank Horton, Vice Chairman, Procurement Round Table, to The Honorable Jacques S. Gansler, USD (A&T), February 5, 1998.