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**DTIC 2000
A CORPORATE PLAN FOR THE FUTURE**

JULY 1984

**DEFENSE TECHNICAL INFORMATION CENTER
DEFENSE LOGISTICS AGENCY
CAMERON STATION
ALEXANDRIA, VA 22314**

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This report documents the corporate level long-range plan for the Defense Technical Information Center (DTIC). The plan describes the societal and DoD environments within which DTIC will most likely operate over the next 15-20 years. It relates these future environments to meaningful long-range goals for DTIC. The particular areas highlighted in the plan are Products and Services; Personnel; and Finance and Budget.			
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DTIC 2000

A CORPORATE PLAN FOR THE FUTURE

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FOREWORD

We are well into an Information Revolution which is affecting the world as profoundly as did the Industrial Revolution of the nineteenth century. The Defense Technical Information Center (DTIC) is an integral part of this revolution. Careful planning is crucial if we are to be successful in carrying out our vital and evolving role in the defense research and development community. This long-range plan gives broad direction for the inevitable changes ahead and provides guidance for more specific subordinate plans. I wholeheartedly expect that by using this plan and by continuing our efforts, DTIC will meet the challenges of the future.

H. E. Sauter
HUBERT E. SAUTER
Administrator

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2.0 EXECUTIVE SUMMARY

BACKGROUND

This plan indicates the overall direction in which the Defense Technical Information Center (DTIC) will move as we approach the twenty-first century. It also provides general guidance to DTIC managers to allow them to develop detailed short- to mid-range plans for their areas of responsibility. A long-range planning group was set up to develop this plan and to prepare a regulation defining the DTIC planning process. This group contacted many of the Military Services planning groups, along with those in related information transfer organizations. These contacts; information gained from the literature on future directions, technology and planning; and the views of the DTIC senior staff form the basis for the material presented in the plan.

The plan's major sections deal with the following: the environment in which DTIC might operate in the year 2000; DTIC's products and services and how they may be affected by changing technology; the effect of these changes on our personnel; and finally, the financial picture of DTIC today and in the future.

FUTURE OPERATING ENVIRONMENT

Futurists and planners are surprisingly unanimous in their views of the factors that will shape our environment by the year 2000: the U.S. economy will be more services-oriented than dependent on heavy industry; computers will be in general use; and the focus of work will shift from mass production to customization. These changes will have a major impact on the kinds of jobs available, the skills needed to do those jobs, the when and where of work and, consequently, the nature of management and supervision.

The military planners see information transfer as an integral part of defense. They see movement toward high technology in the development of smart weapon systems. They also recognize the impact of societal changes on their specialized manpower needs.

Military planners expect the DoD budget to continue to grow, but at a lesser rate than it is currently expanding. The research and development (R&D) portion of that budget should continue to show a real growth rate of 2-3 percent. While this growth will be fueled in great part by the need to modernize our equipment, a goodly portion will be spent on automating the management of the Armed Forces and on research into the training/motivation of the volunteer force to operate and maintain these very sophisticated systems being developed.

DTIC IN 2000 AD

DTIC will be a highly automated operation where the vast majority of data transfers are electronic. Users will have access to computer work

stations and computers will have the storage capacity, access speeds and reliability to permit full-text storage. Sophisticated software will eliminate the need for much of the indexing and for the manual development of intricate search strategies. The volume of available information will necessitate the retrieval of highly relevant significant portions of data rather than bibliographic references.

The organizational structure, workflows, staffing patterns and outputs will be quite different from those in current use at DTIC. How DTIC will move from what it is now to what it will be depends on how it views itself as an organization, how it views the community it serves and what data it chooses to collect. This plan sets goals for DTIC in each of those areas.

PRODUCTS AND SERVICES

The most dramatic shifts between DTIC today and DTIC in the future will be in the information we supply and the way we format and deliver it. By the year 2000 the fundamental elements of information transfer (i.e., acquisition, storage, and dissemination) will have changed as technology changes. For example, a user will be able to access information in many physically dispersed data bases; electronic storage of complete texts will be a reality; and electronic transfer of information will continue to advance. As more and more workers on all levels will be using computers in their daily work activities, DTIC will need to be more aware of the end-user of its information. Who are DTIC's end-users? What information do they want and need? These questions must be answered as DTIC prepares for the year 2000 as a user-oriented organization.

PERSONNEL CONSIDERATIONS

DTIC must develop flexible systems and organizational structures to accommodate the dynamic environment that prevails in the fields of information transfer, ADP, and telecommunications. Changes will most heavily impact that portion of the current workforce employed producing or reproducing paper either for distribution as products or for internal administrative use. However, virtually the entire workforce will be affected.

DTIC needs to look at what jobs will really be needed and how different factors such as authorized personnel strength and the skill and educational level of present employees will impact on our ability to restructure the workforce. Training will play a major role in preparing the current workforce for the future. In addition DTIC must have excellent rapport with its personnel office and be able to articulate and defend its personnel requirements in all aspects of the program to hire, retain and train employees.

FINANCE AND BUDGET

Expressed in constant dollars DTIC's funding has declined from \$7.2 million to \$5.9 million over the past 10 years. Expressed in the same

constant dollars DoD Research, Development, Test, and Evaluation (RDT&E) funds have grown from \$5.9 billion to \$7.7 billion. DTIC's portion of the DoD RDT&E budget has decreased 41 percent over this same period. For DTIC to be able to meet the needs of an expanding RDT&E effort, this trend must be reversed.

An average of 72.7 percent of DTIC's funds are allocated for personnel-related costs. This average is slowly declining as DTIC automates more functions and makes increased use of private industry for others.

The growth in funds allocated to the development function and to liaison services over the past 2 years is evidence of our commitment to be both innovative and user-oriented.

CONCLUSION

In describing the environment in which DTIC will likely operate in the future, and in highlighting needed services and suggesting ways we might fulfill these needs, this plan defines DTIC's corporate image, goals and overall direction. Only when these things are clearly defined can individual Directorates and Offices develop operating plans that are mutually supportive and have a reasonable chance to meet their goals.

3.0 INTRODUCTION

The Defense Technical Information Center (DTIC) is a field activity of the Defense Logistics Agency (DLA). DTIC is under the operational control of the Director, DLA and receives policy guidance from the Office of the Under Secretary of Defense for Research and Engineering (OUSDR&E). DTIC's mission is to provide centralized services in support of the DoD Scientific and Technical Information Program (STIP). It also serves as the central activity within the DoD for applying advanced techniques and technologies to DoD STI systems and for developing improvements in services and in information transfer effectiveness. One of DTIC's activities, in common with most organizations, is planning for the future.

This publication documents a long-range corporate level plan for DTIC which meets the planning requirements of DoD Directive 3200.12, DoD Scientific and Technical Information Program. It provides general long-range guidance to all DTIC managers from which they may prepare plans applicable to their specific areas of functional responsibility.

The plan describes the national and DoD conditions and the technological environment within which DTIC will most likely operate over the next 15-20 years. It also relates this future environment to long-range goals for DTIC in order that DTIC may serve DoD research and development (R&D) needs.

In this plan, the particular areas highlighted are the products and services offered by DTIC, the personnel who supply them, and the financial resources available to meet mission needs.

ACKNOWLEDGEMENTS

Many people have contributed to the preparation of the report and the Long-Range Planning Group wishes to thank them all. This includes all the people in the various agencies we visited who kindly gave us their time and provided invaluable insights into the planning process. Too many DTIC employees have contributed to the report to list them all, but the assistance of Mr. Robert McKalvia and Mr. Hollington Lu in the presentation of the statistical data and Ms. Betty Bowers in the preparation of this report cannot go unacknowledged.

4.0 SUMMARY OF GOALS

DTIC Long-Range Goals

1. DTIC will approach the future as an innovative organization.
2. DTIC will expand its user community.
3. DTIC will expand coverage of its data collections.
4. DTIC will be an information-oriented organization providing a wider range of technical information for DoD.
5. DTIC will be a user-oriented organization.
6. DTIC will identify the types and numbers of skills required to run DTIC in the future.
7. DTIC will identify positions that may be restructured, reduced, or eliminated because of new technologies.
8. DTIC will identify future training needs.
9. DTIC will seek improved administrative systems and programs to enhance its Civilian Personnel support services.
10. DTIC will strive to have its rate of increase in funding parallel the rate of increase in DoD RDT&E funding.
11. DTIC will determine how to do better with its funding.

5.0 METHODOLOGY

The regulation from which the Defense Technical Information Center (DTIC) draws its mission and general guidance, DoD Directive 3200.12, DoD Scientific and Technical Information Program, encourages the development of plans for improving the effectiveness and efficiency of the STIP in changing environments. In support of this objective the Administrator, DTIC, established in July 1983 a Center-wide project to develop a long-range plan for DTIC. The project called for the establishment of a small multidiscipline group who had as its main objective the development of a corporate plan for DTIC. This group proceeded through the following phases in plan development:

- Information Gathering
- Draft of Plan
- Staff Seminar on Planning Options
- Final Preparation of Plan

INFORMATION GATHERING

As is fitting in an organization whose primary mission is information storage and retrieval, the first step in the information gathering process was a literature search of the DTIC collection for material on planning, plan development and current plans/planning activities within Defense components. The DTIC Technical Library was used as a source of texts by futurists and planners and management theoreticians. Textual materials in these areas from the private libraries of the group members were also used. Appendix A is a bibliography of materials used by the group members. The second phase of the information gathering process concerned personal visits by the planning group. The group visited planners in all branches of the Services and a number of DoD components. Visits were also made to organizations with missions similar to that of DTIC. (Appendix B lists the persons/organizations visited.) In addition to these organizations, the senior DTIC staff was interviewed by long-range planning group members. These were in-depth interviews covering a wide range of questions about the operation of the Center as a whole and in particular the area for which the staff member was responsible. Appendix C is the outline used by the interview teams.

Concurrently with these two phases, the group performed what might be more properly called a "data gathering" operation. This involved a series of statistical analyses of DTIC's users, products, services, personnel and financial history.

The information in the materials thus located was used to review alternate planning methodologies, to review management theory on planning and the planning process, and to develop a picture of the social, economic, political and technological factors that would shape the environment in which DTIC would be operating in the early years of the 21st century.

DRAFT OF A PLAN

The group analyzed the information obtained in phase one and developed a consensus as to the general shape of the future. The data on DTIC's current situation in respect to the budget, personnel and the products and services provided to users was analyzed and statistical trends were projected for the period to be covered by the plan. These trends were further analyzed to highlight areas where action would be needed. Each team member then developed a section of the paper dealing with his/her specific area of expertise. Mr. Douglas, as the group leader, directed the approach and methodology. Ms. McCauley wrote the section on Future Operating Environment and Mr. Kuhn developed the section on Products and Services. Ms. Woolridge was responsible for the section on Personnel and Ms. Bell for the Finance and Budget section. Drafts of the sections were circulated within the team and modified as necessary. The sections were combined to form a "strawman" which was circulated to the Directors and senior staff for comment.

STAFF SEMINAR ON PLANNING OPTIONS

The long-range planning group led a seminar for the DTIC Administrator and senior staff in February 1984. At the seminar the options raised by the LRP group were discussed in detail and a general consensus was reached as to the direction that DTIC should pursue in the next 15-20 years. The Directors and Office Heads also presented their projections for their individual Directorates/Offices. These presentations focused on the impacts of technology on the products, services and work force. In general, the seminar stressed goals, not specific detailed plans for accomplishing the goals.

FINAL PREPARATION OF THE PLAN

Following the staff seminar, a consolidated list of goals was developed and coordinated. Each of the previously written sections was reviewed and revised where necessary. A table of contents and additional sections were prepared along with an executive summary. This plan has been concurred in by the DTIC's senior staff.

6.0 FUTURE OPERATING ENVIRONMENT

SOCIETY IN 2000 AD

Whether because of the imminence of a new millennium, or for other reasons, both the special and popular press have been inundated by the predictions of futurists. While the only long-range certainty is uncertainty, there is a surprising degree of unanimity in their views of the factors that will shape our environment by the year 2000. America will be a post-industrial society where services play a larger role in the Gross National Product (GNP) than do products. This growth in services will not occur in the areas most of us think of as services, e.g., waiters, store clerks, etc., but in areas associated with what John Naisbitt in his book Megatrends calls "the information float." He sees a fairly static percentage of traditional service jobs but a big increase in the number of people who create, process, and distribute information. We are in the beginnings of an Age of Information — by 2000 that age will be in full flower.

Alvin Toffler describes a coming society that differs radically from the Industrial Age. His The Third Wave contrasts today with the future as: standardization giving way to customization, specialization to generalization, synchronization to flexi-time, concentration to dispersal, maximization to appropriate scale, and centralization yielding to decentralism. He postulates a society where individualism has replaced conformance as the dominant theme and then extrapolates from this premise to how and where work will be performed, what expectations and attitudes the worker will have and changing organizational patterns. He sees an end to both work enforced schedules and the need to locate near a central source of employment. Instead he envisions the emergence of the "electronic cottage" with a mixture of "telecommuting," individually determined working schedules and more informal, horizontal organizations. He also sees this trend affecting the products produced by this workforce — "the direction in which we are heading: products custom cut for individual users." The rapid evolution in computer and communications technology is the underpinning of this new civilization. The Computer Revolution will have given birth to a society that works, learns, and plays in very different ways than the society most of us now know and in ways that the society in which most of us grew up could not even imagine.

THE MILITARY SERVICES

The military futurists do not differ substantively from their civilian counterparts. They too see a society in which high-tech information transfer is an integral part. They also tend to agree that the next 15-20 years will not see a global war. Air Force 2000 says "the effects of such an event would be incalculable and it is thus not useful to consider them in (this) context . . ." Although they do not see war, they do not see disarmament either. Rather, they envision a balance of

power punctuated by local actions generally contested by "surrogates" for the major powers.

They see a marked reliance on sophisticated weapons. In part, they hope to use these "smart" weapon systems to compensate for the increasing manpower shortages in the 18-26 age bracket. The military planners expect the DoD budget to grow but not at the same rate as it is currently experiencing. The research and development (R&D) portion of that budget should continue to show 2-3 percent real growth through the period, fueled in part by the need to modernize our equipment. A goodly portion of this R&D will be spent on automating the management of the Armed Forces. It is thought by some, however, that a greater emphasis will be put on the soft sciences such as research into the training of the volunteer force to operate and maintain these very sophisticated systems now being developed.

DOD RESEARCH AND DEVELOPMENT

A study by the National Science Foundation projects an R&D budget growth of 2.5-3 percent and spending ranges of \$19.7 to \$20.4 billion expressed in 1972 constant dollars. The study also predicates a further shift away from in-house laboratory performances toward performance of R&D by industry and academe. By 1990 they see the distribution of Federal R&D funding as:

- 51% industry
- 27% in-house
- 12% universities
- 6% Federally funded R&D centers
- 4% other non-profit institutions

WHAT THIS MEANS FOR DTIC

We will be operating in a time when the sheer volume of available information makes it imperative that the wheat be separated from the chaff. As Naisbitt says "with the coming of the information society, we have for the first time an economy based on a key resource that is not only renewable but self-generating. Running out of it is not a problem, but drowning in it is."

He sees the emphasis in information shifting from supply to selection. The sheer volume of information available will add a new dimension to the question of relevance vs. recall. The impacts of the volume of information, the familiarity of the general population with direct computer access, and the shortening of time between generation and consumption of information will have major impacts on DTIC's acquisition, indexing, announcement, and distribution services and products. Users will expect real-time access to facts. Decision support systems will be an integral part of managing in DoD. DTIC will have to supply factual information in both hard and soft sciences for researchers, planners, and managers who will operate in an environment where real-time access to customized results is the expected norm in an "electronic information age."

We seem to be on the brink of a major revolution in information transfer spurred on by very rapid technological development. How DTIC will function in the future is very much dependent on the rate at which these technologies are available in the marketplace. Most futurists and long-range planners agree that this technology will develop but they do not agree on when. The following section is therefore set in an indeterminate future. It is a possible DTIC — a scenario of what we might become.

DTIC IN 2000 AD

DTIC will be a highly automated operation where the vast majority of data transfers are electronic. It will be situated in an environment where all users have access to computer work stations; where computer storage has the density, access speeds, and reliability to permit full-text storage of all items; where computers are netted together — both main frames and personal computers — to permit input systems, retrieval systems, decision support systems, and production control systems to share data and processing resources; where mailing of paper products has been replaced by electronic transmissions, where computer-to-computer conversation has replaced interoffice memos; where the power/speed of computers and the sophistication of software eliminate the need for both manual indexing and development of intricate search strategies; and where the sheer volume of available information dictates the retrieval of highly relevant significant portions or specific facts rather than a stream of references.

NOW AND THEN — THE DIFFERENCE

The organizational structure, workflows, staffing patterns and outputs of an organization functioning in such an environment would be quite different from the current DTIC. Some functions would virtually disappear, others be performed with far fewer people, some new functions would be taken on, and the way in which some remaining jobs are defined/accomplished would change dramatically.

The movement toward creating technical publications via electronic means has already begun. As the technology develops and becomes cost effective it should be commonplace to create a report using some type of "word processing," append the needed authorizations/approvals to the electronic record, and transmit the completed package to DTIC via computer network or by physical transmission of a disk or tape with the former as the mode of choice. Some of the functions that will be affected by electronic input include:

- . Incoming mail — volume would be substantially reduced with only a few documents arriving by mail/messenger.
- . Selection and number assignment would be eliminated.
- . Cataloging, indexing, and input preparation as they are now would be eliminated.

Announcement would be customized and generated by user terminal request, e.g., "cite all new accessions after 2/15/01." This form of announcement would eliminate additional functions including preparation and printing of DTIC's current announcement product, the Technical Abstract Bulletin (TAB), and cause a drop in outgoing mail.

Retrieval would be user-driven. The software/hardware of the period would aid the searcher in finding the appropriate paths through the data. Search results would be electronically transmitted and printed at the user's site (if printed copy were needed). Orders for full or partial documents would be received and filled via electronic transmission. These changes would eliminate the need for a large micrographic operation and drastically reduce the need for highly trained bibliographers. It would further reduce the outgoing mail volume.

The types of data stored and the kinds of possible retrieval questions answered will be different from DTIC of 1984. There will be increased use of management and decision support systems and at least the beginnings of expert (artificial intelligence) systems. The historical collection of research results will continue to grow and will still be a major DTIC application. It is not unreasonable to suppose, however, that the content/format of the technical report will change dramatically to reflect its change from a paper publication. The changes probably will be as startling to those of us raised on printed books as books were to the medieval world used to hand-copied scrolls.

The functions now performed by the ADP-Telecommunications Directorate will change as end-users of the system whether in-house or at remote sites use high-powered languages to develop their own application programs. Analysts and programmers will be required to monitor system performance and design and modify data bases and underlying communications management systems.

The registration function will experience a workload growth as the shift toward customized service increases the user population by the registration of individuals or small research teams. The way the function is carried out will be different in that the kinds of services available and the multiplicity of user interests will dictate a more complex and customized registration process. Users interested in planning or management data may require quite different registration packages than those interested in technical R&D results. As in other functions most of the communication between registrars and registrants will be by electronic mail. Validation of registrants' access rights will be more of an active function.

DTIC will assume a more aggressive role in the management of information transfer within the DoD community. Program managers will use data culled from the collections to actively pursue input and aggressively market DTIC services. DTIC will provide a small staff of highly trained information professionals who can provide training and user assistance

through computer-to-computer nets; participate in the development of expert knowledge systems; assure inclusion of the latest technological developments; and monitor system performance, modifying it where necessary to accept new technology or to improve efficiency and effectiveness.

The use of personal computers will bring about another major change — the elimination of the clerk typist and the evolution of the secretarial function into that of a paraprofessional office administrator. All in all, the workforce of the future will be made up of fewer people, and those people will be highly skilled and innovative professionals. However, they may not be "at" DTIC.

The most drastic change made feasible by extensive use of computers and communications networks may be the dispersal of the workforce. Today, if your job involves answering questions, you and the information you use must be in the same place — generally at work. However, when the information is available to you via computer network and that same network can route your "answer" to the "questioner," it won't matter where you locate your terminal — at home or at an office. A physically dispersed workforce could make most current supervisory and personnel administration practices obsolete. Such a development would change both the formal and informal organization structures, the benefit/reward and discipline practices, and revolutionize the nature of supervision and management. It might also begin to provide such pluses as "service when you want it."

WHY PLAN?

Whether this particular model is the DTIC of the future or not, it is imperative that we begin a real planning process; that we take the time to evaluate our products and services in light not only of today, but of tomorrow. To fulfill our mission to support the DoD R&D community we must be alert to changes in that community and in its needs. What good are faster printers if our users want electronic transfer of factual material? We don't know the future — we only know it won't be the same as the past. We have to develop plans that will allow us to regularly update our operation to respond to new environments. The majority of planners believe that a plan is not static, but rather it is a dynamic guide to be reviewed for accuracy and performance, modified in light of experience and constantly questioned as to the current validity of its assumptions.

HOW DOES DTIC SEE ITSELF?

Before moving on to a more detailed discussion of DTIC's future we need to discuss certain fundamental issues. How these issues are resolved will have a major impact on the more detailed questions to follow. The basic issue is DTIC's corporate view of how to approach its mission. For purposes of discussion we can identify three models within which an organization may wish to operate and plan for its future operations.

An organization may consider itself:

. Conservative — comfortable with current mission, but willing to take on new missions if they do not differ substantially from the current ones; using proven new technologies but shying away from unproven, high risk ventures; making sure it can do something before it tries; placing a high premium on experience.

. Innovative — comfortable with the current mission, but actively seeking ways to expand its services whether or not they closely relate to its traditional role; regularly assessing operations/equipment for effectiveness; actively seeking out new technologies; taking calculated risks in offering services/products, willing to create a market for a new service and seek new markets for current ones; balancing experience with innovation.

. Entrepreneurial — dissatisfied with current mission; exploring new services or markets; interested in being the first to try new processes; aggressively seeking new markets and marketing new products; choosing innovation over experience.

DTIC sees itself as an active organization, setting goals and priorities, actively seeking work, setting standards for others to follow, and judiciously lobbying for support of its programs and budgets. The consensus of the senior staff, both in interviews and at the staff seminar on planning options, is that DTIC must be an active, innovative organization. Only an organization which is willing to look outside itself and to branch out into allied mission areas can cope with the oncoming technological revolution in information processing. With this plan (and more detailed ones to follow), with a commitment to formalizing the planning process demonstrated by promulgating a planning regulation, and by an ongoing commitment to a development program, DTIC is taking the basic steps to assure that it will be an active, innovative organization in the future.

The next issue concerns the user community and more precisely whether DTIC should actively seek out new users and, more importantly, new classes of users. We have traditionally served the needs of the R&D community through its technical libraries. We are also providing limited services to planners and managers both in DoD and at contractor sites. With the advent of wide-scale use of personal computers and computer networks, we need to consider users as individuals. We need to expand our user base by actively seeking to provide service to managers in new forms such as decision support systems and customized services. We need to seek out end-users directly, find out what they want and see how we can meet those needs.

The issue of users is closely intertwined with the one of data collection. If DTIC wants to expand its user base, it needs to collect additional types of information. We need to consider the kinds of

information the DoD might need and see how much of it we can or should provide. Naturally we need to continue our efforts to expand the coverage of our current collections — but the issue in that context is not "should we," but "how can we." Any discussion of expanding our data collections needs to include an awareness of the special concerns of the originators or suppliers of defense-related information. Careful attention to security is of prime importance but we need to be as responsive to their individual needs as we want to be toward end-users of the information they supply.

SUMMARY

This section of the report has attempted to sketch very briefly the probable outline of society in the next 15 or 20 years particularly as it concerns information transfer. The remaining sections will deal with trends in our products and services — how we should evaluate these trends and how we should modify our products and services in light of future trends. The kinds of people we will need to fulfill our mission — how to get them and keep them — will be covered along with further, in-depth looks at our budget and related financial questions in subsequent sections. In charting our path through the coming years, it is well to remember Peter Drucker's warning: "Long-range planning should prevent managers from uncritically extending present trends into the future, from assuming that today's products, services, markets, and technologies will be the products, services, markets, and technologies of tomorrow and, above all, from dedicating their resources and energies to the defense of yesterday."

FUTURE OPERATING ENVIRONMENT GOALS

1. DTIC will approach the future as an innovative organization.
 - 1.1 Allot 10 percent of DTIC's budget for funding projects to assess technological developments in information processing.
 - 1.2 Actively seek new missions and information service responsibilities.
 - 1.3 Identify elements of the workplace environment where innovative organizational techniques, management practices and state-of-the-art tools can be used to improve performance.
2. DTIC will expand its user community.
 - 2.1 Develop a marketing strategy to attract new user groups.
 - 2.2 Acquire and use publicity aids to promote use of DTIC with identified user groups.
 - 2.3 Determine the benefits, both tangible and intangible, of DTIC collecting its own monies for services provided.
(Particular emphasis will be put on benefits in the areas of DTIC name recognition and understanding within the DoD community of DTIC's role.)
3. DTIC will expand coverage of its data collections.
 - 3.1 Increase DTIC's awareness of and response to the special concerns of information suppliers.
 - 3.2 Develop an active acquisitions program for all data bases to increase percentages of available material actually reported in the data bases.
 - 3.3 Devise a program for acquiring new data bases of interest to DTIC's user community.
 - 3.4 Establish DTIC as the DoD point of entry to DoD and interagency data bases.

7.0 PRODUCTS AND SERVICES

DTIC TODAY

DTIC has well-defined products constructed from three basic building blocks:

- . Technical report data base record
- . Technical report
- . Management information data base record

DTIC services and products are available to DoD and its contractors and to other U.S. Government agencies and their contractors. A description of current products and services follows:

(1) The Defense RDT&E On-Line System (DROLS) is an interactive system which is used to input to and retrieve from DTIC's data bases. Dedicated telephone circuits connect system users who wish to search classified material; users may also access DROLS via a dial-up capability which provides unclassified information only. In either case, proper security clearances are required of both the organization and the terminal operator.

(2) Technical Reports (TR) which result from or refer to DoD research and development make up the bulk of DTIC's collection. TRs are available in paper copy or microfiche and are disseminated either on demand or through a subscription service.

(3) Automatic Document Distribution (ADD) is the automated biweekly dissemination of newly accessioned technical reports on microfiche to subscribers according to their areas of interest.

(4) The Technical Abstract Bulletin (TAB) and Indexes is DTIC's biweekly announcement publication. TAB is classified CONFIDENTIAL. TAB contains citations to TRs accessioned into DTIC's collection during the preceding biweekly updating cycle.

(5) Technical Report Bibliographies are listings of citations to technical reports which the computer generates in response to structured information requests. TR bibliographies are produced as paper copy both on demand and by subscription to the Current Awareness Bibliography (CAB) program.

(6) Current Awareness Bibliography (CAB) program matches a subscriber's interest profile against newly acquired TRs. The paper copy bibliographies are sent automatically to subscribers biweekly.

(7) Management Information Data Base Records are available from the Work Unit Information System (WUIS), the Research and Development Program Planning (R&DPP) data base, and the Independent Research and Development (IR&D) data base. (The R&DPP data base is now static, pending

replacement.) Management information data base records are displayable via DROLS and are available on demand and by subscription as follows:

(a) Summaries (Work Unit Summaries, IR&D Summaries) are compilations of the management information data base records, computer generated on user demand (analogous to TR bibliographies furnished on demand).

(b) Recurring Reports (Work Unit Recurring Reports, IR&D Recurring Reports) are compilations of the management data base records, cyclically computer generated for subscribers according to their established interest profiles (analogous to TR CAB).

(8) Magnetic Tapes containing compilations of Technical Report or Work Unit data base records are disseminated to DTIC users under two programs:

(a) Automatic Magnetic Tape Dissemination (AMTD) is a subscription service analogous to CAB or Work Unit recurring reports.

(b) Retrospective Bibliographies on Magnetic Tape (RBMT) is a demand product analogous to the demand technical report bibliographies or Work Unit summaries.

Participation in these tape distribution programs has been at an extremely low level.

USAGE HISTORY AND TRENDS

The charts in figure 7.1 are compact representations of DTIC product dissemination trends and projections. The performance trend is for the most part based on 1976-1983 because that period of time is most closely representative of the current situation. The projection is made to 1995 to represent a long-range period. Projections are based on the current situation and represent only what might happen if no changes take place.

The charts show the rates at which given products have been requested and suggest that some products may be losing their usefulness. Requests for demand products, with the exception of demand technical reports and IR&D reports, are decreasing while the number of products provided via subscription (with the exception of TAB) is increasing. Appendix D gives the data upon which these summary charts are based.

DTIC PRODUCTION TRENDS & PROJECTIONS with growth rate

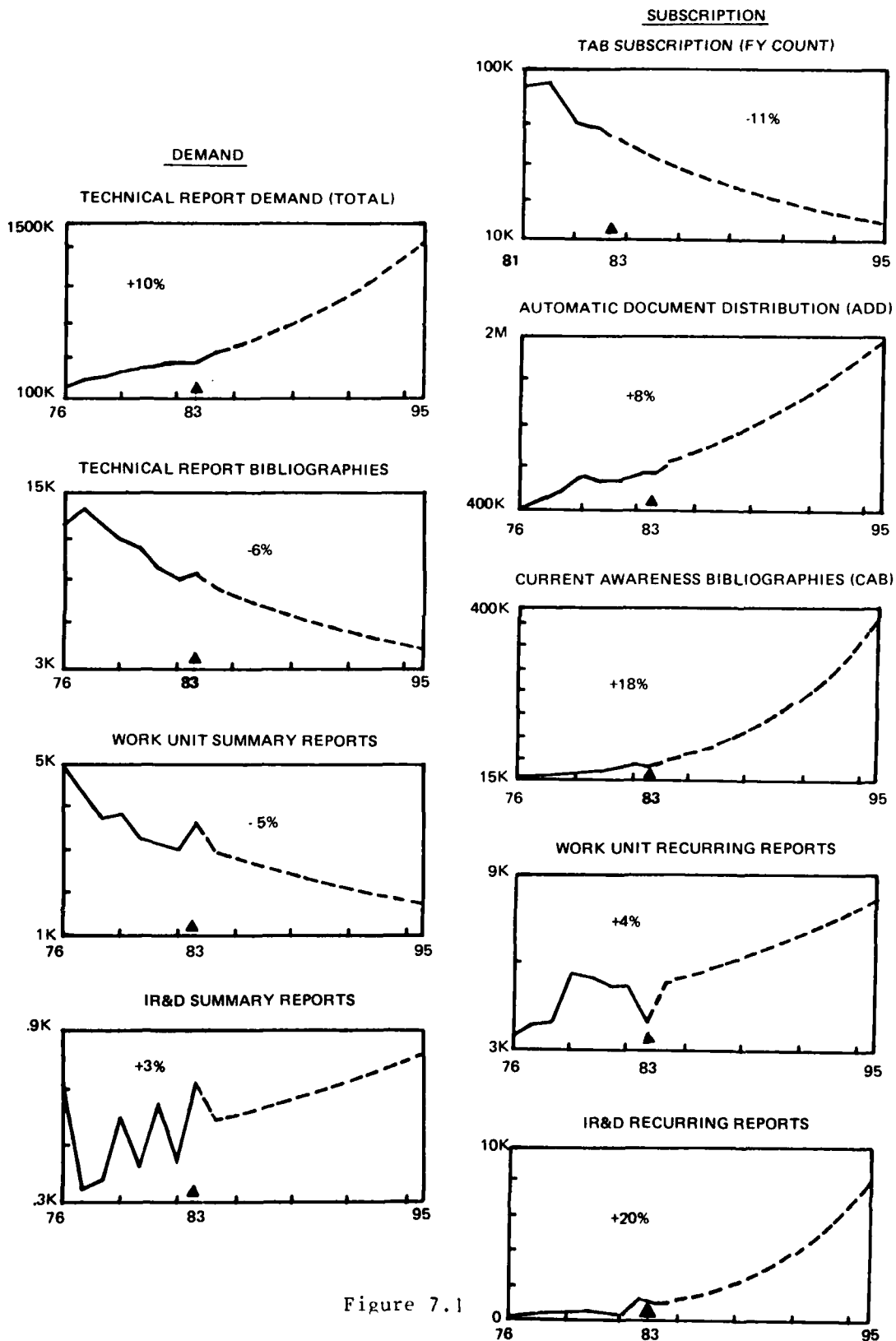


Figure 7.1

DTIC'S PRODUCT ORIENTATION--THE PRESENT

DTIC is oriented towards product preparation. By reason of its mission more emphasis has been placed on producing standard products than on providing individualized information.

As already mentioned, there are three basic building blocks from which all products are produced:

- . technical report data base record,
- . technical report (referenced by the technical report data base record), and
- . management information data base record.

The technical report data base record as a product is either displayed electronically or generated as a paper copy bibliography.

The technical report, as a product, is involved in automation only through automated request processing. The document is not computer generated, but is reproduced from microfiche.

The management information data base record as a product is either displayed electronically or generated as a paper product.

The result of using these three building blocks is that DTIC's user community is obliged to use standardized products. DTIC's efforts are concentrated on making those products available as efficiently as possible.

Examples of product orientation at DTIC include:

- . A query/response system designed to answer "yes" or "no document available."

- . The only recently rescinded requirement that a document be under DTIC computer control for every citation in the data base. Until the recent inception of cooperative cataloging agreements with selected DTIC users, few citations were included for documents not under DTIC control,¹ i.e., documents at a location other than DTIC.

- . Long-term investment in microform handling. This includes DTIC's policy of minimum charges for microfiche, DTIC's extensive microfiche storage and reprographic facility, and DTIC's investment in a prototype film-to-fiche conversion machine.

- . Management statistical measurements which focus on turnaround time, expressed in terms of days required for product production.

¹ There are exceptions such as Information Analysis Center (IAC) data but most documentless entries were exceptions to both policy and practice.

LOOKING TO THE YEAR 2000

The year 2000 is now closer to us than is 1961, the year DTIC then known as the Defense Documentation Center (DDC) was established as a computer-based facility. With the future rapidly approaching, DTIC must look at information transfer changes in the offing.

The impact of the heralded Age of Information is centered around the impact of the revolution in computer/communications technology on information transfer. The ability of an organization to meet the one fundamental concept of information transfer — information availability — is determined by how it performs the basic functions of acquiring, storing, and disseminating information to its clients.

It is the fundamental concept of making information available when, where, and how the user needs it that justifies the costs of information transfer. The successful achievement of information transfer is shown by the acceptability of its products and services. The following discussion looks at how products are influenced by information acquisition, storage, and dissemination.

ACQUISITION

The acquisition function has historically consisted of locating the wanted information and physically gaining control of it by acquiring a copy and/or by entering some reference to it in an on-site computer. The computer revolution has the potential for eliminating this need for physical possession by providing widespread intercomputer links among dispersed data bases.

The importance of this concept is that the outside information is not acquired and stored in the host data base because the information is already stored in another, easily accessible data base. Users will not be limited to compiling information that has been acquired and stored in only one, centralized data base but may tap into as many data bases as are useful and accessible. The availability of multiple data bases will be true information sharing among the providers and users of information. Information compiled from multiple sources will generate more effective and more comprehensive products.

STORAGE

What the product will be is determined by what is stored. If, for example, references are stored, then the data base information can provide only those references — as we now supply citations to technical reports from our data base. If, however, entire technical reports are stored, then the data base can provide not only references to the reports but also actual information from them. A whole new gamut of product possibilities opens up, beginning with computer generation of reports on demand and including specific information access such as fact retrieval. Electronic document storage would further permit remote sites with an electronic production interface to generate specific information from documents, or the documents themselves, on demand at their own site.

Information storage capabilities for product dissemination will also determine what kinds of information displays will be available. If all parts of a report can be digitized, e.g., charts, photos, maps, stereo images, etc., then products including these displays may also be generated.

Both storage media and product media should be considered together. Videodisc, for example, is a storage and product medium in which information may be stored and combined in text, still images, moving images, color, and sound with multiple tracks. Videodisc might be a searchable source of information, or it might be a product in itself for dissemination. The future recording of research and development results may be more advantageous on videodisc display formats than on the current flat paper (or film) technical report format. Both the Library of Congress and the National Library of Medicine have development programs in videodisc technology. DTIC should look at and keep up with these programs for R&D information application possibilities. All likely storage capabilities and media should be explored for their application to DoD R&D. These capabilities will determine how DTIC information will be disseminated.

DISSEMINATION

As information transfer technologies develop to facilitate the control and availability of information, there is likely to be a merging of service and product. This will be quite different from today's DROLS on-line search and ordering service which basically locates a document which contains the information and allows the requester to order the document for delivery by mail. With electronic document storage, a user could peruse and extract actual information, or could generate a document copy in any medium, either at the site with electronic reproduction interfaces, or through DTIC. The greatest change in product services can occur only with a major change in the data handled.

The data stored at DTIC is only one element to be considered. As already mentioned, new acquisition practices will allow access by one computer system to data stored on a different system, even at a different location. This type of access will also change how users receive information. Now they have to get documents from multiple sources (generally via the U.S. Mail) and then synthesize the information in these documents to provide the information they are seeking. This synthesis often requires rekeyboarding of portions of documents for computer manipulation or report preparation.

With electronic access can come synthesis and manipulation as an integral part of the search operation followed by electronic dissemination of the needed information. The information may be selected portions of several documents, or it may be new information created by mathematical operations on data extracted from multiple sources. Many possibilities will exist in what can be disseminated and at least as many in the media of receipt. Naturally, paper or microfiche would continue to be provided

by DTIC for users wanting them, but electronic dissemination would allow production of complete documents or portions of documents in either paper or microform directly at a user site. It would also facilitate computer-to-computer dissemination for more involved data manipulation or subsequent multiple-site dissemination within a using organization.

USERS AND USER NEEDS

DTIC historically has communicated with intermediaries in the library community who act as conduits for DTIC products to end-users. DTIC only rarely talks to the scientists, engineers, researchers, planners and managers who are the end-users of DTIC information. The question of direct communication with end-users will become more critical with the rapidly expanding use of personal computers allowing direct access to data bases and information systems. DTIC must define the users it serves according to DTIC's mission, but it should also consider ancillary user areas as candidates for DTIC information transfer services.

The ability to access many data bases/information systems brings with it the responsibility to examine what information is needed by DTIC's end-users and what sources DTIC should tap to supply that information. Up to now DTIC has, in general, limited the information it collects to documentation about planned, ongoing and completed research and development performed by or funded by DoD. Admittedly this is a large area in itself and we acknowledge we can do more to increase our coverage of it. There are, however, many other areas of information of interest to our major constituencies. DTIC should examine this field of information and, where DoD interests are not being adequately served, take steps to fill the needs of our users. One example of such a need is in long-range planning within DoD. In our own efforts in developing this plan we identified a lack of documentation on the planning process, an unawareness within organizations of what other related organizations were planning, and a lack of a convenient system for the transfer of planning data and documentation. Providing such a system is surely within DTIC's capability. If it is not within a narrow reading of our mission, it is within a broad reading of it. Other such gaps in DoD's information systems exist and DTIC should be looking for ways to fill those gaps.

This situation occurs in many areas of DoD. DTIC should base its products and services on the information needs of its users, including potential users. It must also maintain an awareness of the developing technologies. With these two base lines, DTIC can then proceed to develop its products and services.

DTIC'S INFORMATION ORIENTATION -- THE FUTURE

In the future DTIC should become information-oriented -- by which we mean DTIC should vastly expand on its capability for providing individualized information services electronically. With such an orientation at DTIC, the requester site would have the option of stating its specialized, optimal needs and a further option of producing its special product based

on those needs. DTIC's focus would then be on making information available how the user wants it, not how DTIC can produce it most easily.

One of the ways to begin DTIC's transition to an information-oriented organization is to have DTIC serve as the point of entry to multiple data bases for its user community. Another step in the process is to work toward establishing a full-text storage system. As has been mentioned, this change is a pivotal one which will allow DTIC to greatly expand the range of information services it can provide. The new technologies on the horizon offer an incredible array of possible new tools for DTIC's use. We will have to evaluate their usefulness carefully and select what we need based on our users' requirements. Figure 7.2 compares today's operation with that of the future.

<u>TODAY</u>	<u>DTIC 2000</u>
Bibliographic references	Full-text information
DTIC-generated products	User-generated
All data at DTIC	Multi-site data
Products in days/weeks	Answer today
Standardized product	Customized information
Product oriented	Service oriented

Figure 7.2

SUMMARY

In summary, the issues in deciding the future products and services DTIC will offer are the kinds of information we provide and the formats/media we provide it in.

DTIC could continue to be a collection point for DoD and devote its efforts to processing information produced with DoD money. DTIC should, however, additionally seek out new sources and related planning and management information of interest to DoD no matter who produces it. Enlarging on this theme, DTIC could play an activist role in the international exchange of information of interest to the DoD R&D community by negotiating arrangements for receipt and release of foreign technical information. DTIC might also take a more active role in recommending changes in the security/sensitivity labels given information by its originators.

The other major area of discussion is the dissemination of this information.

The technology trends strongly point to extensive computer networks with direct access for just about anyone who wants it. DTIC should base its future product strategy on this assumption and move toward individually tailored products defined at the time of production by the user who requests them -- what some have called "customized mass-production." The future for microfiche and paper products in a computer network age should also be of concern to DTIC.

It is imperative to have a strong commitment to a well defined set of goals and objectives for future services and products. In the absence of that commitment we may be in danger of fragmenting our resources and spending money to update information that is no longer useful, or of committing ourselves to products that no one wants.

PRODUCTS AND SERVICES GOALS

4. DTIC will be an information-oriented organization providing a wider range of information for DoD.

- 4.1 Define how DTIC's audience uses information.
- 4.2 Establish the kinds of information storage needed.
- 4.3 Meet the responsibilities inherent in the dissemination of classified and/or sensitive DoD information.
- 4.4 Develop an electronic document storage and retrieval system.
- 4.5 Investigate the application of new technologies for the complete digitization of documents.
- 4.6 Develop interorganizational data base links.
- 4.7 Use new technologies to expand the media in which DTIC products are provided.
- 4.8 Formalize DTIC's transition from product orientation to information orientation.

5. DTIC will be a user-oriented organization.

- 5.1 Define DTIC's actual end-users.
- 5.2 Enhance end-user access.
- 5.3 Expand the process of user involvement in DTIC's product/service changes.

8.0 PERSONNEL

INTRODUCTION

A major consequence of the accelerated rate of technological change is that DTIC's current personnel skills will become outmoded. By planning for DTIC's future environment, we can project future staffing needs and minimize the affect of change on employees. Personnel changes will flow most smoothly when those personnel affected are brought into the process at the earliest possible stage. DTIC must develop flexible systems and organizational structures that can accommodate the dynamic environment that prevails in the fields of information transfer, ADP, and telecommunications.

DTIC DISCIPLINE LEVELS

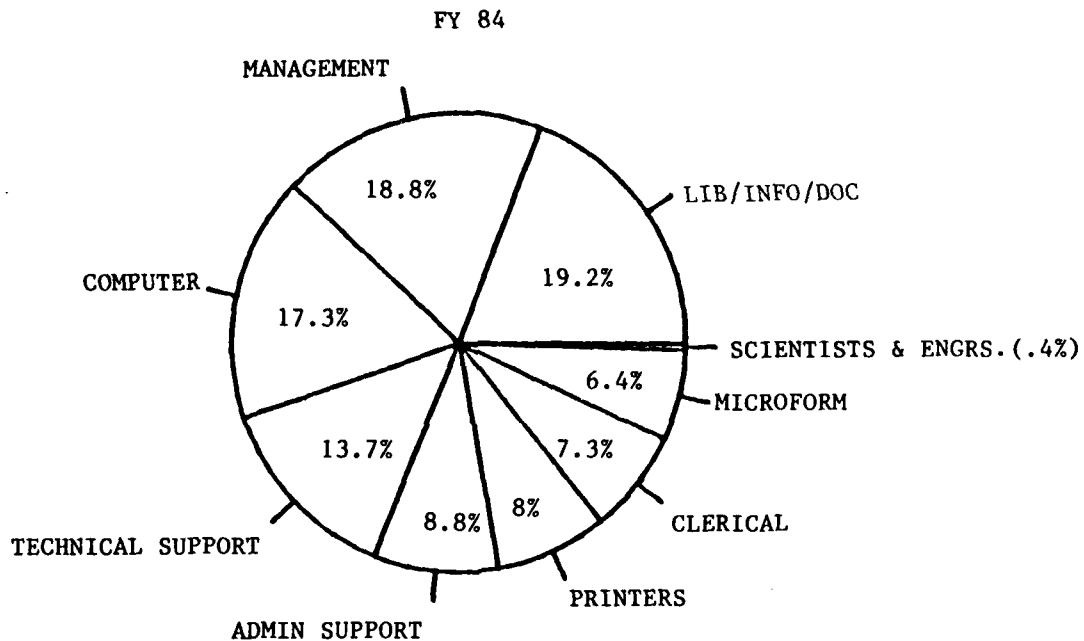


Figure 8.1

JOBS OF THE FUTURE

Figure 8.1 shows a breakdown of the types of positions currently in DTIC. Definitions for the categories and supporting data for all charts are provided in appendix E. Positions were divided into categories based on series. This chart will change considerably in the future because product and service goals will require different kinds of employees. Expertise in advanced computer technologies will be needed to effect electronic document storage and retrieval. Office automation will redefine clerical and administrative support and reduce its numbers. Secretaries will be involved in less paper processing and more in managing electronic processes, e.g., word processing and electronic mail, and their pay will increase. The information specialist will need redefining in light of changes in our services. Contract assistance may increase if we cannot get the strength or salary to hire the expertise to effect our product and service goals. These changes in personnel requirements will impact the current trends in our personnel program.

PERSONNEL STRENGTH

DTIC PERSONNEL STRENGTH

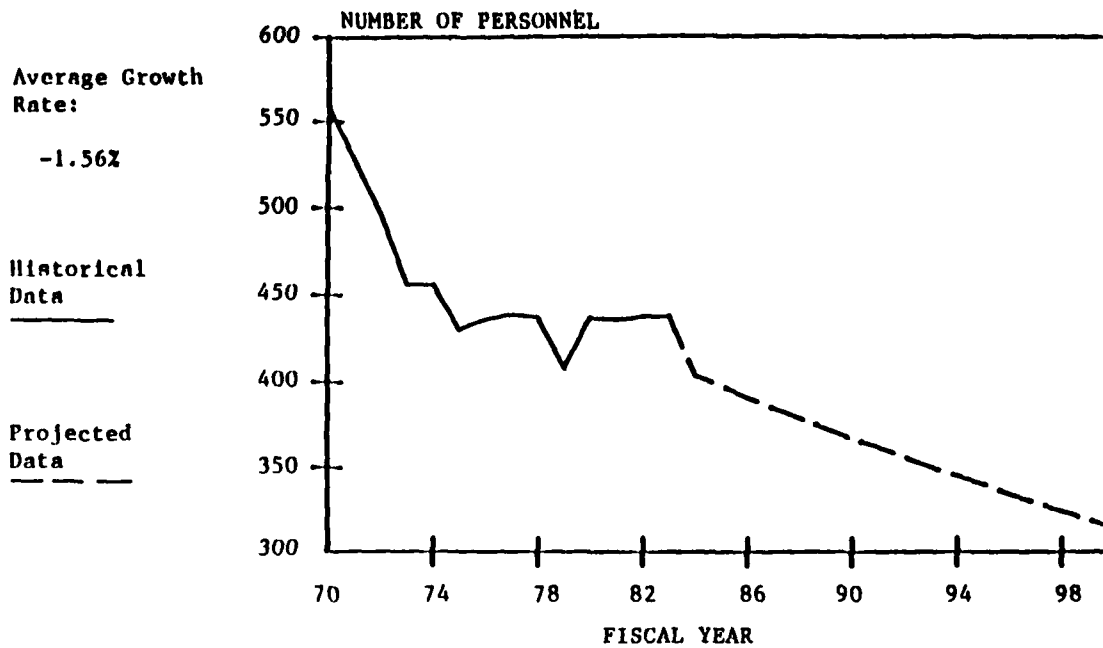


Figure 8.2

DTIC has been experiencing a consistent decrease in authorized and actual personnel strength as shown in figure 8.2. Since FY 70 our strength has decreased approximately 20 percent (about 1.5 percent each year). However, the personnel strength of the Department of Defense research and development is decreasing at a slower rate at about 1 percent each year (see figure 8.3).

DOD R&D PERSONNEL STRENGTH

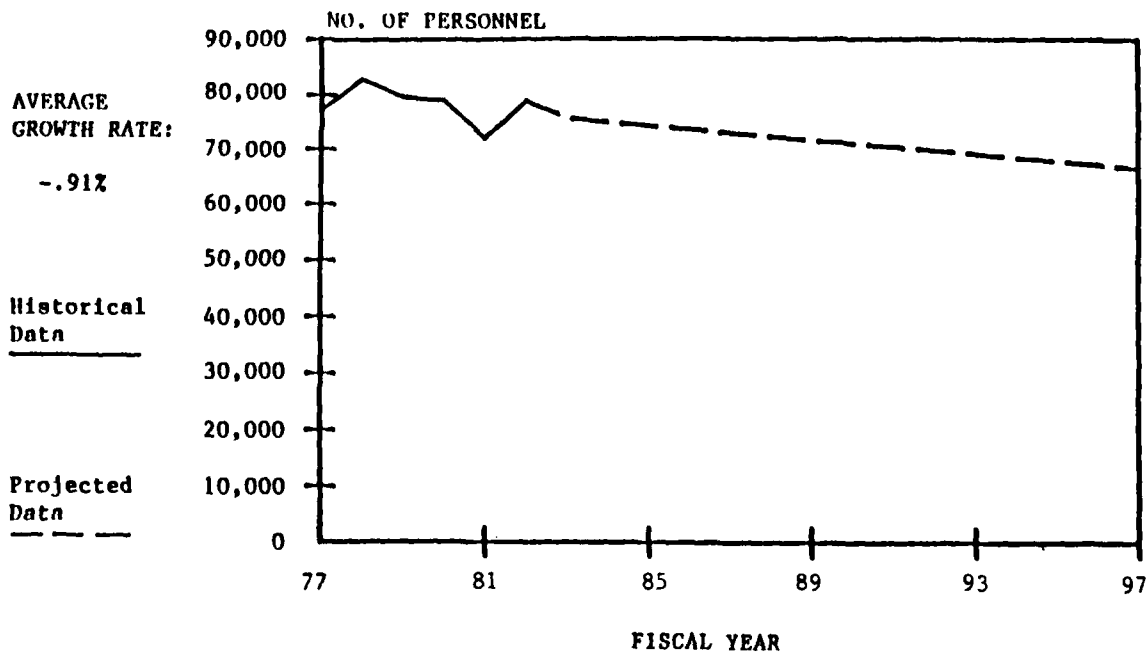
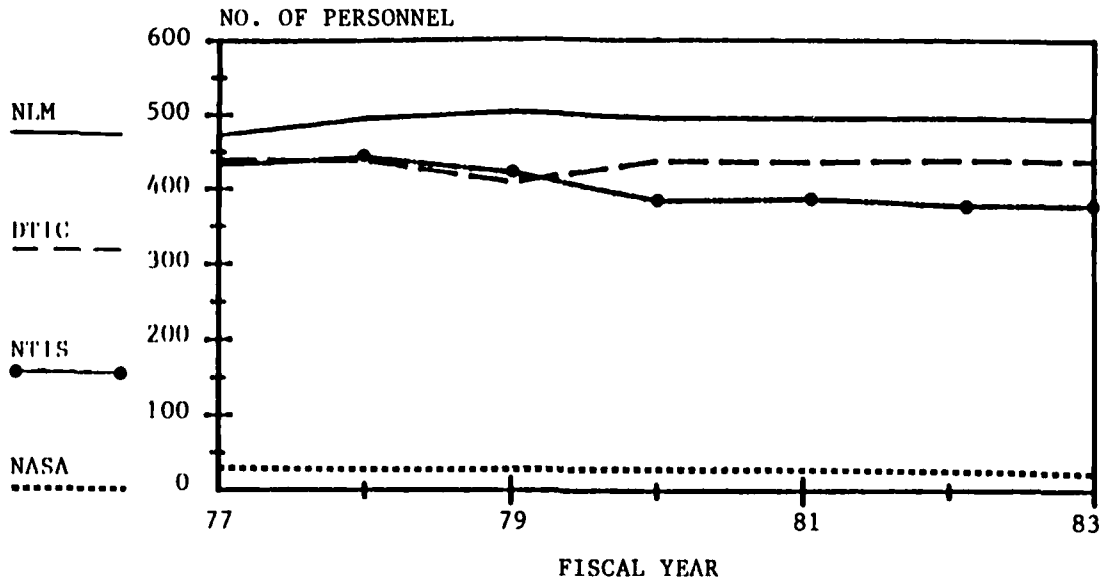


Figure 8.3

Other information centers are also experiencing a decline in personnel strength as reflected in figure 8.4.

PERSONNEL STRENGTH COMPARISONS

TECHNICAL INFORMATION CENTERS



NOTE: Contract personnel not included

Figure 8.4

However, unlike DTIC, some information centers use contractors to perform large portions of their work, e.g., National Aeronautics and Space Administration's (NASA) operating facility is contracted and National Technical Information Service (NTIS) uses contractors for printing and computer operations. If DTIC's personnel strength continues decreasing, we will have about 300 people in the year 2000. DTIC will experience a transition period between labor-intensive and more automated operations. During this transition, personnel requirements will be higher than after automated systems are effected. DTIC's actual personnel strength continues to be lower than that which is authorized. We must maintain at least authorized strength during this transition period. Technological advances will reduce personnel needed to perform labor-intensive tasks in the long term, but additional people will be needed to effect and manage new automated systems and provide better information services to users. The new effect of our product and service goals will be increased personnel requirements in the short term and lower strength in the long term. Even in the long term, however, we will probably need more than 300 employees in the year 2000. Therefore, our personnel strength should not continue to decrease at its current rate.

AVERAGE GRADE

DTIC's average grade is about 8.3 and is decreasing at a rate of about one percent each year (see figure 8.5). If the average grade continues decreasing at this rate, it will be about 7.0 in the year 2000. DTIC will need more highly trained, experienced employees in the future; therefore, higher grades will be needed in some areas. Moreover, current DTIC salaries are not competitive in the Washington Metropolitan area. This is particularly true in the computer area where a number of employees have left for better paying positions with private industry or with government agencies able to offer higher grades. This has hindered attracting and keeping good employees and will continue to do so if grade requirements are not fulfilled. Of course, we will have lower- and middle-graded people performing some labor-intensive and technical/administrative support work. But DTIC will not need the current level of labor-intensive workers as automation is effected. The net effect of the types of people needed for the future will be a higher average grade than our current trend for the year 2000.

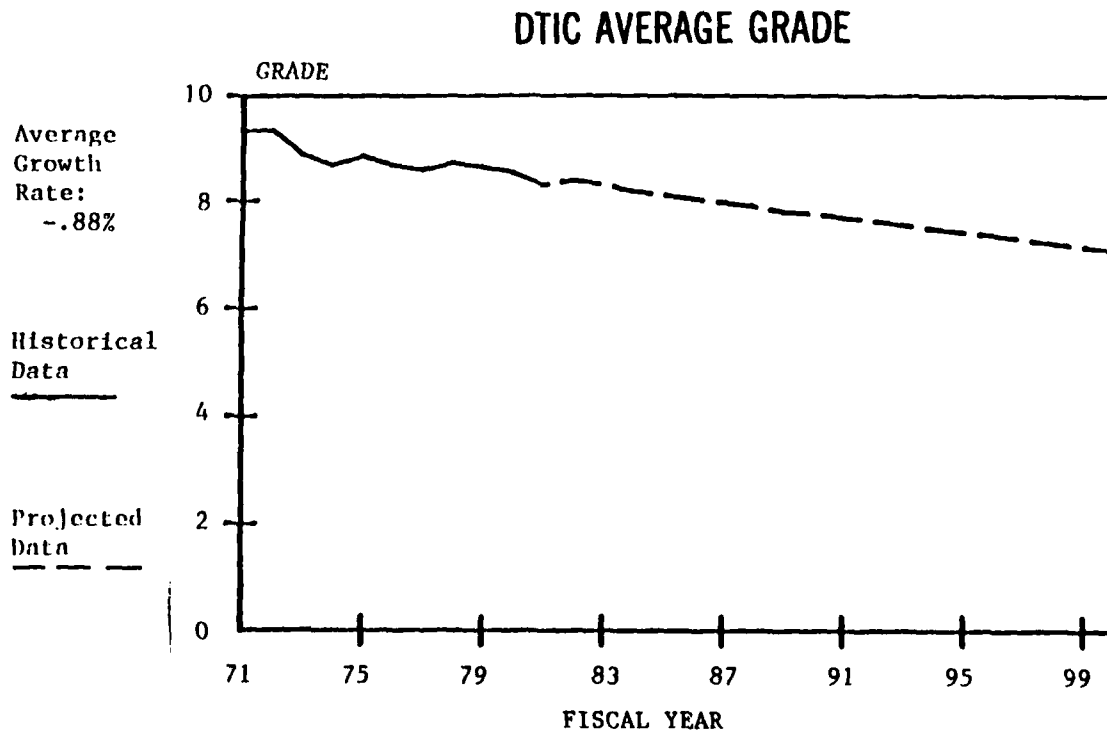


Figure 8.5

SKILL/EXPERIENCE LEVEL

Figure 8.6 shows that DTIC is currently hiring more college level people into GS-5/9 specialist positions than in FY 75. We need to continue increasing the number of highly trained and experienced people in certain areas. To plan effectively, we need better data on the level of education and skills of our current employees to enable us to make better personnel decisions in the future.

As DTIC decides more specifically what combination of experience and skills is needed to meet future requirements, the numbers, cost, and educational/experience levels will become easier to identify.

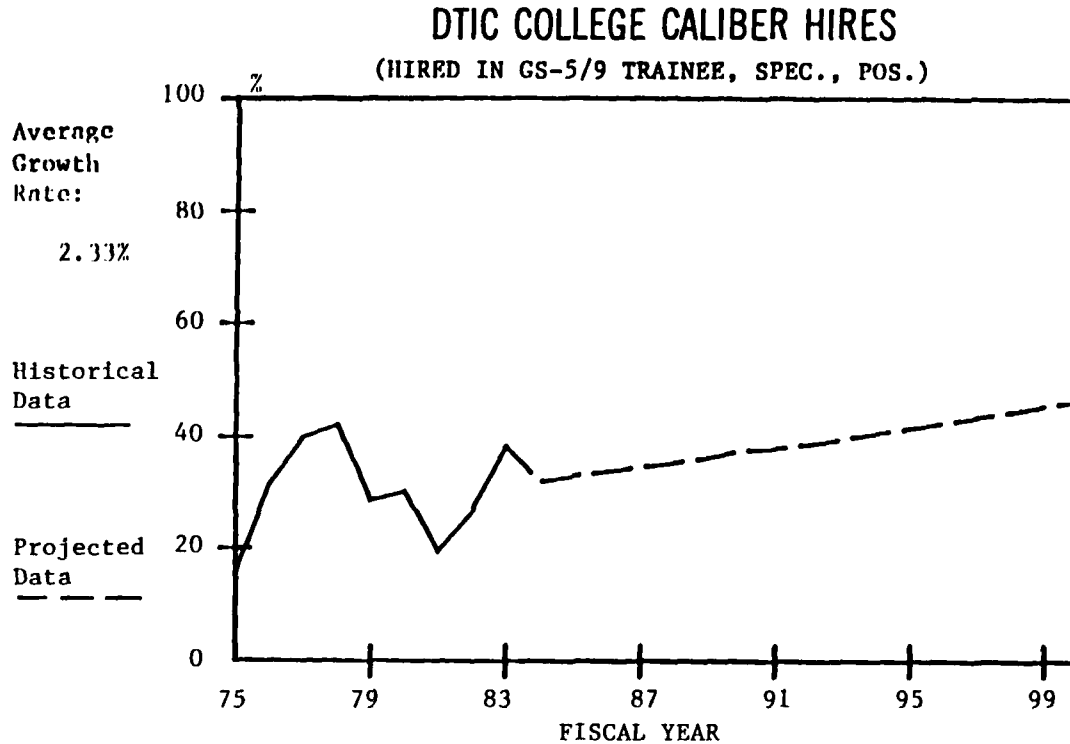


Figure 8.6

JOB RESTRUCTURING, REDUCTION, AND ELIMINATION

New technologies in DTIC's future will affect the employment of DTIC's current employees. Electronic document storage and retrieval will eliminate most of the microform positions and those printing positions directly supporting DTIC requirements. Clerical, administrative, and technical support positions will be reduced and restructured due to office automation and other new technologies. Mailroom requirements will diminish as a result of changes in dissemination systems. Information and computer positions will also be restructured because of changes in our orientation from a standard product-oriented to an individualized information-oriented organization and because of changes in the technology. Subordinate plans will determine what positions will be restructured, reduced, or eliminated. These changes in positions require us to consider various tools for effecting changes including new kinds of training and careful reaction to employee turnovers.

TURNOVER

Plans should use turnover of employees to minimize the effects of future changes on employees. Figure 8.7 shows that DTIC's potential turnover of personnel is increasing 3 percent each year. It is currently at 12 percent which includes people who can retire plus those transferring out of DTIC or quitting. Significant turnover could occur depending on administration policies concerning employee benefits. A reduction in benefits, especially those dealing with retirement, could result in large numbers of DTIC personnel retiring before they are adversely affected. We must also consider the impact of losing almost all our top managers in the next 10 years due to retirement. Turnover can be used to our advantage in planning for reductions in personnel requirements, but it can also become a problem if a significant number of people leave DTIC in a short period of time.

DTIC TURNOVER

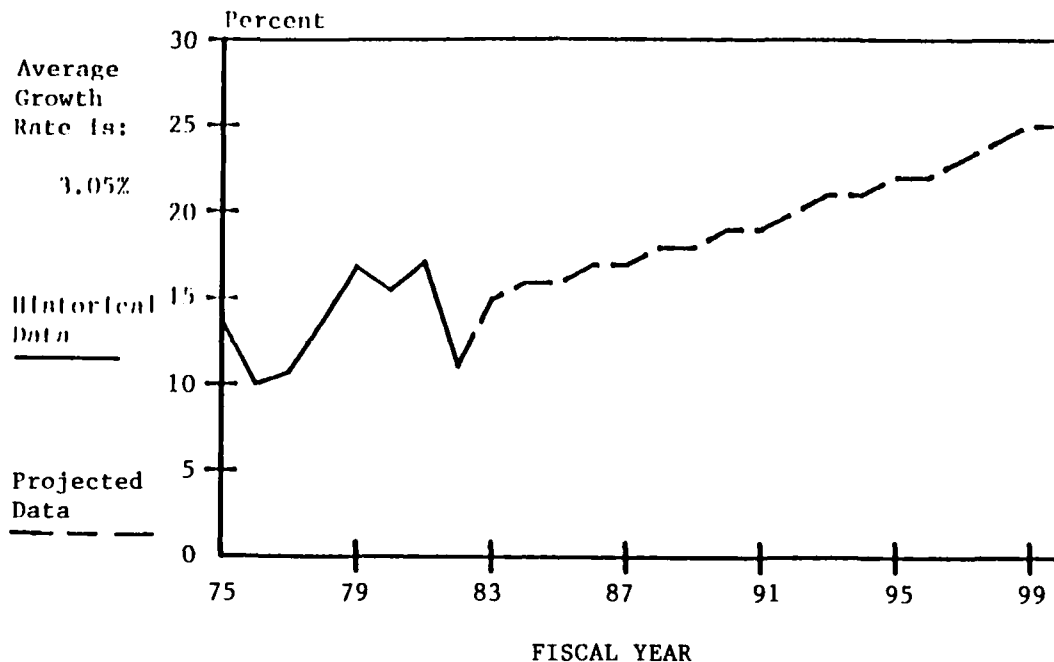


Figure 8.7

TRAINING

When positions requiring restructuring, reduction, or elimination have been identified, specific plans should be developed to retrain those employees who are able and interested to perform new or restructured positions. Of course, not all employees can be afforded this opportunity; however, plans should be made to alleviate the impact of change as much as possible. Retraining programs include both on-the-job and formal training. Retraining efforts started now will facilitate change with minimum psychological and economic effects on employees.

If DTIC is to effectively change from a product-oriented organization to an information-oriented organization, the attitudes of our current employees must change too. Training should not only be used for those employees who must meet the challenges of a new or restructured job but

also for those employees whose positions remain basically the same. Managers represent a significant group needing training. They must become more knowledgeable of how the changes in technology and focus will affect the organization. They must also learn to manage different kinds of employees — with different attitudes and expectations. Other employees can be trained in the expertise needed to effect product and service goals. This could be used in addition to hiring people with needed expertise.

DTIC must determine what kinds of training will be needed now and in the future. Resources must be provided to meet an increasing need for training. Policies must be changed to allow for training to meet needs of future jobs instead of current jobs. Training represents an important factor in facilitating the achievement of product and service goals.

PERSONNEL SUPPORT

DTIC's success in effecting personnel goals (see pages 8-10 and 8-11) hinges on our ability to improve our relationship with the DLA Administrative Support Center's Office of Civilian Personnel (DASC-Z) which handles our personnel actions.

An important factor in getting the personnel needed for the future is the promptness and methods used for filling vacancies. Figure 8.8 shows that it takes 60 to 90 days for DTIC supervisors to receive a list of job candidates. Once a selection is made, the supervisor must wait 40 to 70 days to get the employee on the job. These figures do not include the attempts at filling a vacancy only to cancel the announcement because of insufficient or poorly qualified candidates. Conservatively, the entire process can take 3 to 5 months. Part of this time can be attributed to the security clearance process.

AVERAGE DAYS TO FILL VACANCIES

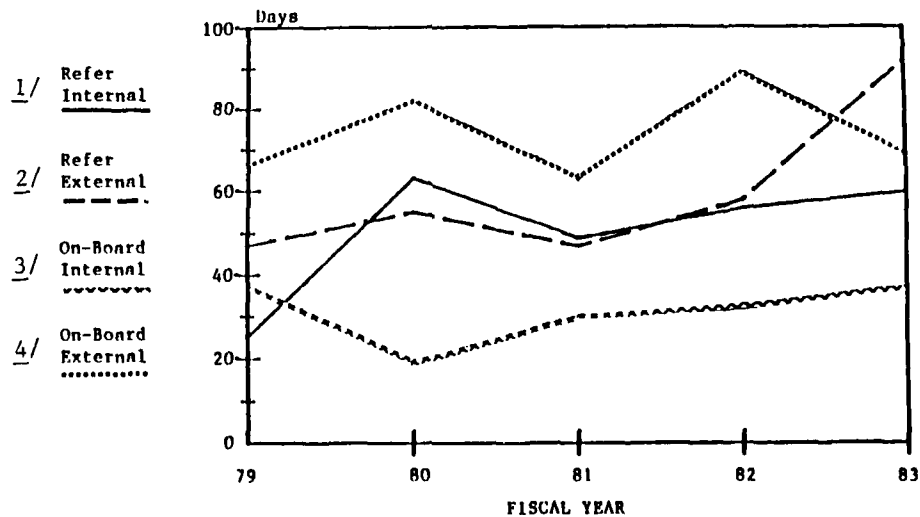
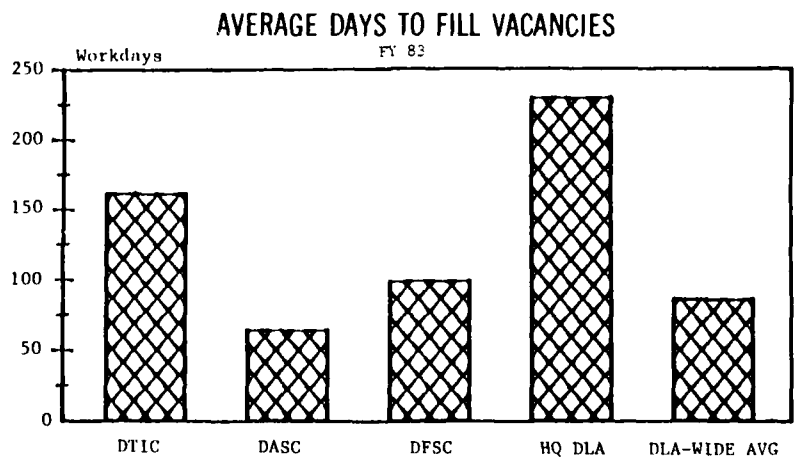


Figure 8.8

- 1/ No. of days to refer candidate, serviced by DASC-Z, to selecting office
- 2/ No. of days to refer candidate, not serviced by DASC-Z, to selecting office
- 3/ No. of days to get employee, serviced by DASC-Z, on the job after selection
- 4/ No. of days to get employee, not serviced by DASC-Z, on the job after selection

However, figure 8.9 shows that it currently takes from 2 to 7 1/2 months to get employees on the job for other organizations. This is over the current DLA-wide average, except in one case. Delays in filling vacancies result in low productivity and the inability of DTIC to get highly qualified personnel. Qualified people generally do not wait months to be hired when other positions are available.



¹ Average days to fill vacancies with employees not serviced by DASC-Z

Source: DLA Civilian Personnel Management Statistical Indicators Report, DLA-K

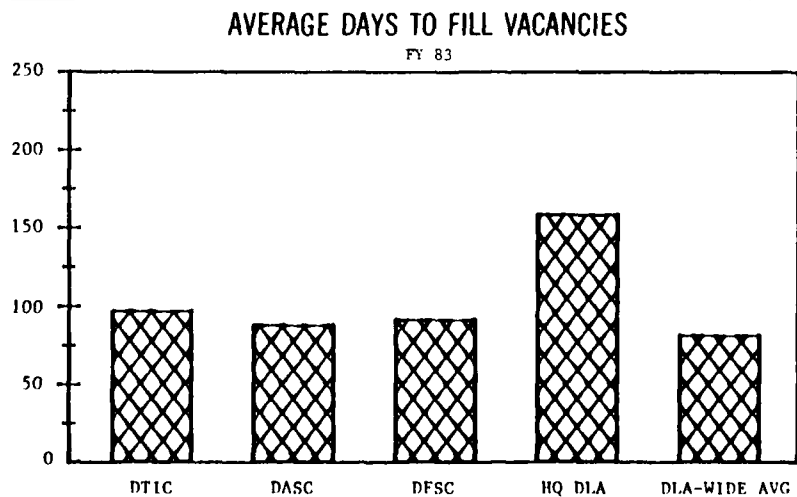


Figure 8.9

² Average days to fill vacancies with employees serviced by DASC-Z

DTIC must also pursue creative methods for filling positions with talented people. Currently, job vacancies are announced by sending paper descriptions of the job requirements, pay, etc., to organizations and listing available jobs in publications. The positions of the future will require different methods of job announcement than those currently used. Aggressive selling of DTIC to potential employees at colleges, universities, technical schools, and high schools is one method to consider.

DTIC must get more involved in getting better personnel services. We must accept that we are part of the problem and do all we can internally to facilitate quicker and better services. Where problems lie outside DTIC, we must take firm and immediate steps to resolve them. A subordinate plan on personnel should be developed to address these problems so that DTIC can get and keep the people needed for the future.

SUMMARY

Setting and implementing personnel goals are integral parts of any long-range plan. However, many of the plans reviewed by the Long-Range Planning group did not contain this important factor. Of the plans that set personnel goals, some were a brief restatement of current policies and others detailed significant changes in personnel policies and types of people needed in the future. The Department of Energy Technical Information Center established a task group responsible for implementing their personnel plan. The group prepares new position descriptions and organization changes and takes other steps necessary to prepare for future changes in personnel goals. This is being done to reduce the time to fill vacancies and make organizational changes and to reduce the impact of change on personnel. DTIC may want to consider a similar effort to effect our personnel goals. DTIC must prepare for our personnel needs today so that we can meet the challenges of the future.

PERSONNEL GOALS

6. DTIC will identify the types and number of skills required to run DTIC in the future.
 - 6.1 Use the following guidance in preparing subordinate plans:
 - a. Increase scientists, engineers, and contractors.
 - b. Redefine and increase information specialists.
 - c. Redefine and reduce clerical and administrative support.
 - d. Redefine and determine strength requirements for computer specialists.
 - 6.2 Maintain authorized personnel strength in short term and prepare for decrease in long term.
 - 6.3 Prepare for increase in grade requirements.
 - 6.4 Obtain better statistics on current education and experience levels in DTIC and determine what levels will be needed in the future.
7. DTIC will identify positions that may be restructured, reduced, or eliminated because of new technologies.
 - 7.1 Use the following guidance in preparing subordinate plans:
 - a. Reduce or eliminate microform and printing positions.
 - b. Reduce and restructure clerical, administrative, and technical support positions.
 - c. Restructure information and computer specialist positions.
 - 7.2 Use turnover to reduce the impact of technological changes on current employees.
8. DTIC will identify future training needs.
 - 8.1 Develop retraining programs to prepare employees whose jobs are restructured or eliminated for new or restructured jobs.
 - 8.2 Develop individual training plans to prepare current staff to change with the future.
 - 8.3 Secure approval and resources to fulfill training needs.

9. DTIC will seek improved administrative systems and programs to enhance its Civilian Personnel support services.

9.1 Prepare subordinate plan to:

- a. Identify what DTIC can do to improve personnel office support.
- b. Identify what our personnel office can do to improve personnel support.
- c. Fulfill our personnel requirements as an information-oriented organization.

9.0 FINANCE AND BUDGET

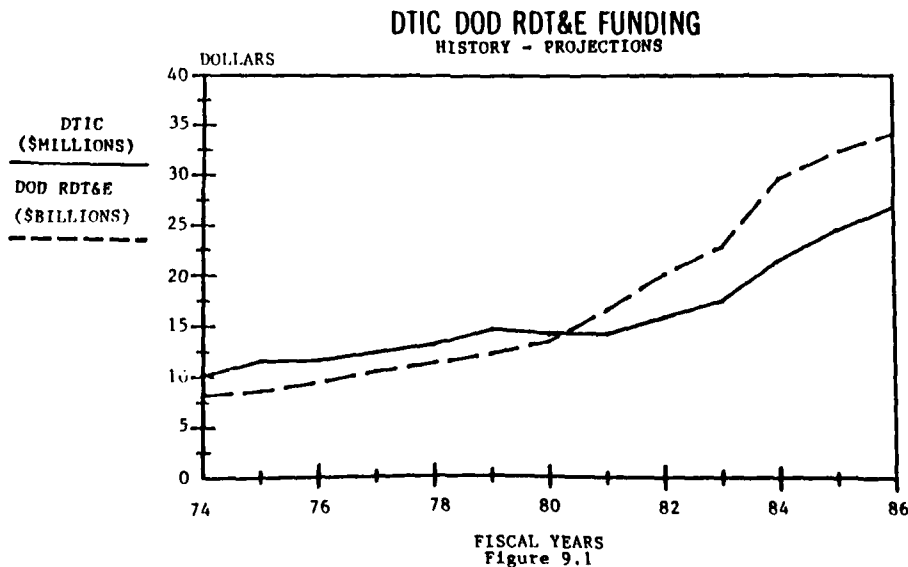
INTRODUCTION

Funding is a very important part of any planning process. Without adequate funds and proper utilization of funds long-range objectives cannot be accomplished and important new technologies cannot be investigated. This section describes DTIC's funding trends and projects future DTIC funding requirements to support development of new systems and technologies. DTIC is funded with DoD Research, Development, Test, and Evaluation (RDT&E) funds furnished under the operational control of the Director, DLA. These funds provide for the operation of DTIC and also for administrative management of contractor-operated Information Analysis Centers (IACs). IAC funding, however, is not addressed here.

FUNDING HISTORY AND PROJECTIONS

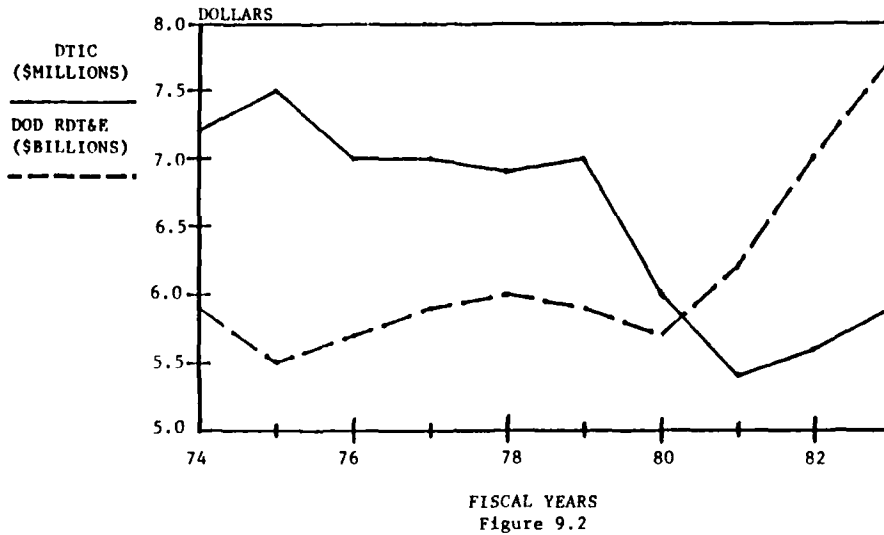
An analysis of DTIC funding along with a comparison of the growth rate of DTIC funding with the growth rate of DoD, DoD RDT&E, and DLA Operations and Maintenance (O&M) funding is provided. Comparison is made with DoD since DTIC is a Defense agency; with DoD RDT&E since DTIC is DoD RDT&E funded; and with DLA(O&M) since DTIC is a primary level field activity of DLA. These funds, which finance the costs of operating and maintaining DLA, are more reflective of the DTIC funding than the total DLA funding. Backup data sets for all charts in this section are at appendix F.

Figure 9.1 shows the DTIC and DoD RDT&E history and planning projections in actual dollars. DTIC funds have grown from \$10.1 million in FY 74 to an estimated \$21.5 million in FY 84 with a current projection of \$26.9 million in FY 86. DoD RDT&E funds have grown from \$8.2 billion in FY 74 with a current projection of \$34.1 billion in FY 86.



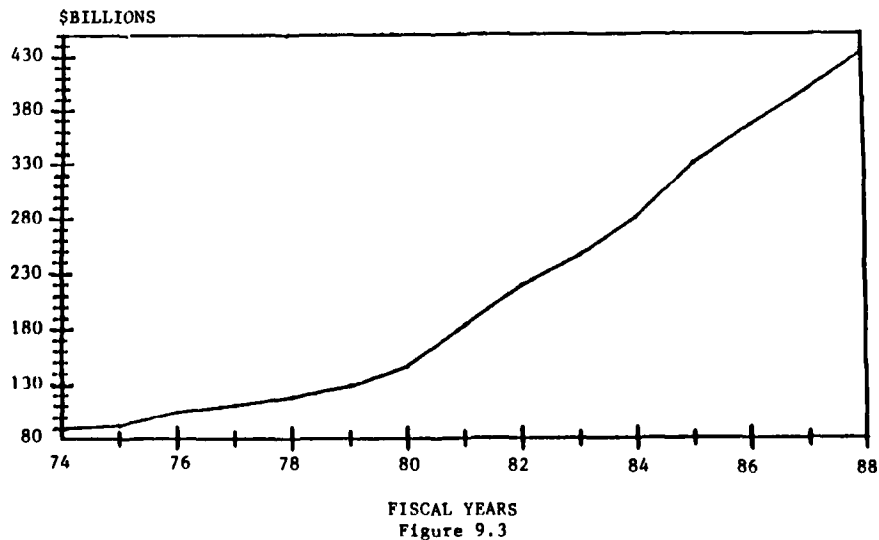
When the funding dollars have been adjusted to the 1967 Consumer Price Index, DTIC funding has been reduced from \$7.2 million in FY 74 to \$5.9 million in FY 83 while DoD RDT&E funds have grown from \$5.9 billion in FY 74 to \$7.7 billion in FY 83 (figure 9.2).

DTIC/DOD RDT&E FUNDING ADJUSTED (1967 CPI=100)



Figures 9.3 and 9.4 show the total DoD funding in both actual and 1967 dollars. The actual dollars show a 214 percent increase from FY 74's \$89.3 billion to FY 84's \$280.5 billion. The estimated FY 86 budget of \$364.8 billion reflects a figure more than four times that of FY 74.

DEFENSE FUNDING



When DoD funding is expressed in constant 1967 dollars, the FY 83 figure of \$83.2 billion reflects a budget 130 percent greater than FY 74's \$63.9 billion.

DEFENSE FUNDING
ADJUSTED (1967 CPI=100)

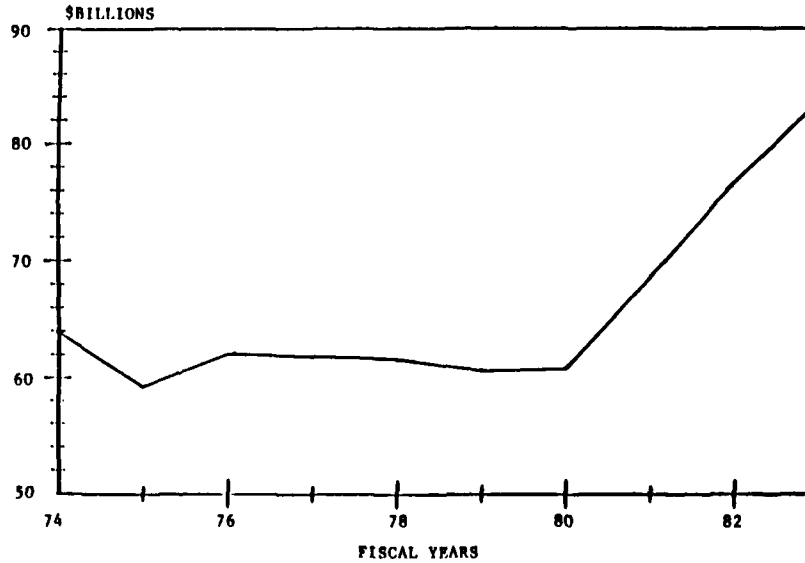


Figure 9.4

To get a better perspective, DoD RDT&E funding is compared to DTIC funding as shown in figure 9.5. In actual dollars, DoD RDT&E funds have increased 261 percent from FY 74 to FY 84. DTIC's funds have only increased 113 percent. This is a 41 percent decrease in DTIC's portion of the DoD RDT&E funds over the 11-year period.

	1974	1984	INCREASE
DOD RDT&E BUDGET	8.2B	29.6B	+261%
DTIC BUDGET	10.1M	21.5M	+113%
PERCENT OF DTIC BUDGET TO DOD RDT&E BUDGET	.123%	.073%	-41%

Figure 9.5

Figure 9.6 shows that the DoD RDT&E portion of Defense Funds has increased 15 percent over the same 11-year period.

COMPARISON OF DOD TO DOD RDT&E FUNDING FY 74 - FY 84 (BILLIONS)			
	<u>1974</u>	<u>1984</u>	<u>INCREASE</u>
DOD BUDGET	89.3	280.5	+214%
DOD RDT&E BUDGET	8.2	29.6	+261%
PERCENT OF DOD RDT&E BUDGET TO DOD BUDGET	9.18%	10.55%	+15%

Figure 9.6

The rate of growth in DTIC funds is also compared against the DLA Operations and Maintenance (O&M) funds. The rate of increase for DTIC and DLA(O&M) is just about the same (see figure 9.7).

DTIC/DLA (O&M) FUNDING HISTORY

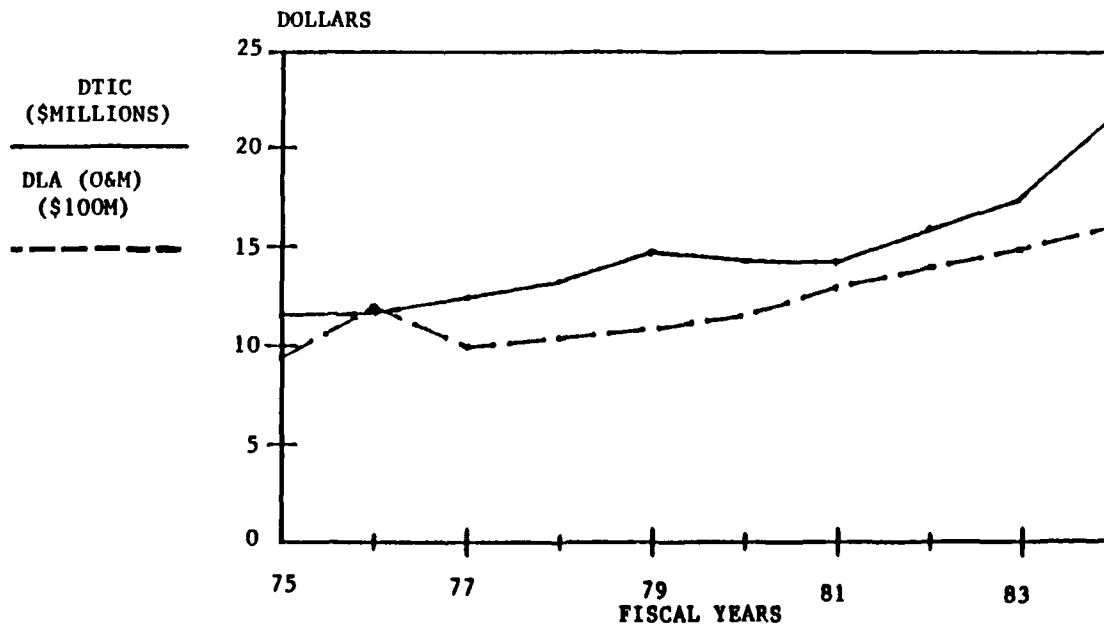


Figure 9.7

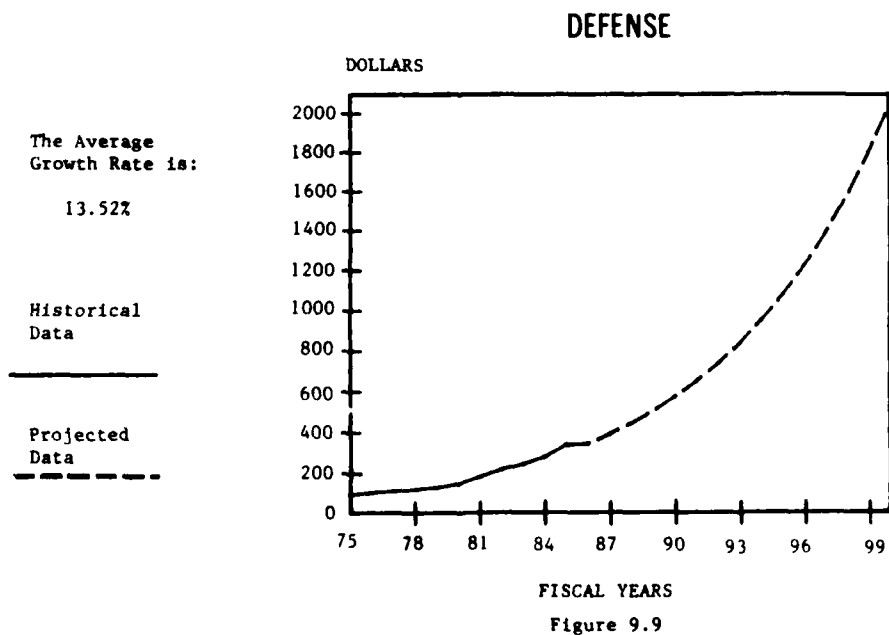
A comparison of the average growth rates of DLA(O&M), DTIC, DoD, and DoD RDT&E funds is presented in figure 9.8.

AVERAGE GROWTH RATE FY 75-84	
	<u>PERCENT</u>
DLA(O&M)	6.2
DTIC	7.4
DoD	13.4
DoD RDT&E	15.0

Figure 9.8

This comparison reveals that the growth rate for DoD RDT&E funds parallels DoD while the growth rate for DTIC parallels that of DLA(O&M). Since DTIC is DoD RDT&E funded, we believe that the growth rate for DTIC should be similar to that of DoD RDT&E and not DLA(O&M).

Projections to the year 2000 for DoD, DoD RDT&E, DTIC, and DLA(O&M) funding have been made based on funding history. Figures 9.9 through 9.12 depict these projections.

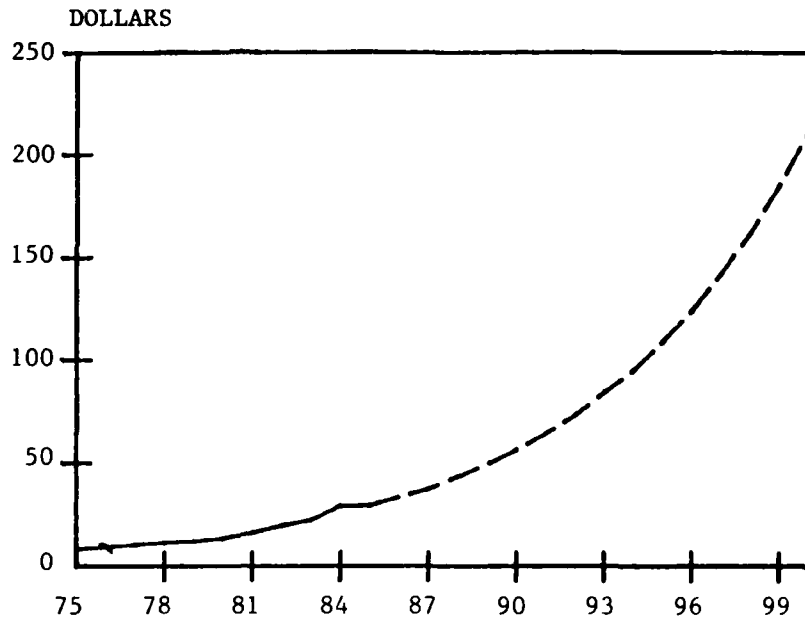


DOD RDT&E

The Average
Growth Rate is:
14.02%

Historical
Data

Projected
Data



FISCAL YEARS

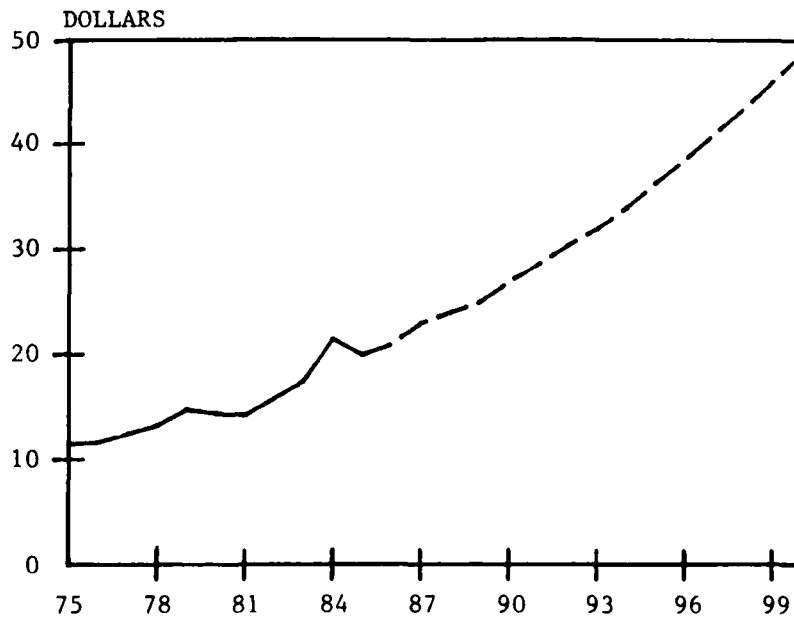
Figure 9.10

DTIC

The Average
Growth Rate is:
6.1%

Historical
Data

Projected
Data



FISCAL YEARS

Figure 9.11

DLA (O&M)

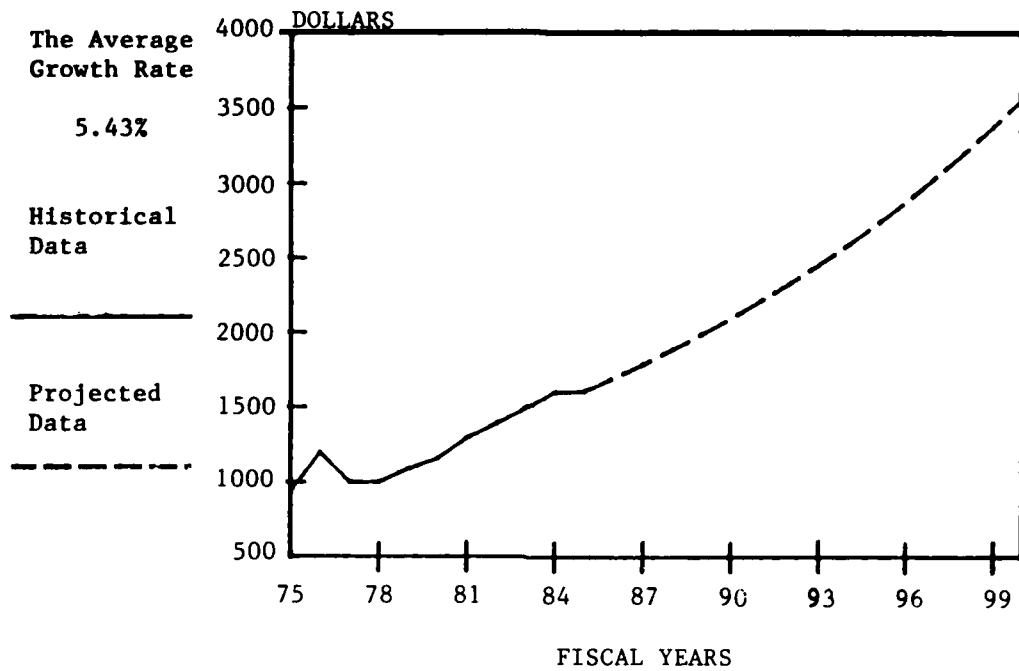


Figure 9.12

Again, the similarity in the growth rates of DoD and DoD RDT&E and those of DTIC and DLA(O&M) is shown.

If DTIC is to provide the support requested by the Office of the Under Secretary of Defense for Research and Engineering (OUSDR&E) and the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics) (OASD(MI&L)) for the Scientific and Technical Information Program (STIP) in meeting needs of the DoD and contractor R&D community, we must receive the required resources to meet recurring workload requirements and replace obsolete systems and facilities with systems capable of coping with increased demand for products and services.

FUNDING PROFILE

An analysis of how DTIC spends its money is shown on figures 9.13 and 9.14.

DTIC FUNDING PROFILE

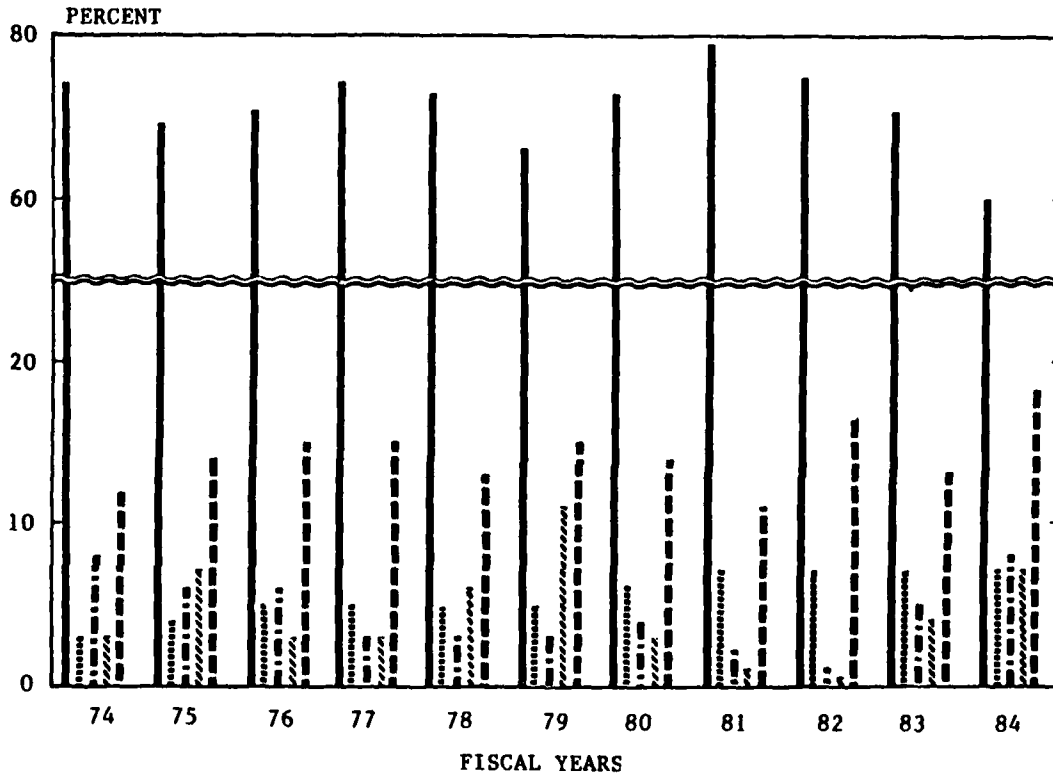


Figure 9.13

—————	//////////
Personnel	Equip Purchases
.....	-----
Main of Gov't Owned Equip	Other

Other Purch Service	

From FY 74 to FY 82 an average of 72.7 percent of DTIC's funds were expended for personnel-related costs (see figure 9.13). In FY 82, Other Purchase Services (contractual services with the exception of maintenance of government-owned equipment) and Equipment Purchases dropped to a low of 1 percent and .5 percent, respectively. In FY 83, this trend started to change with DTIC expending larger portions of its funds in the areas of Other Purchase Services and Equipment Purchases. In FY 84 it is estimated that Other Purchase Services, Equipment Purchases, and Other (supplies, rents, communications, travel, transportation of things, and printing) will increase with Personnel decreasing to an estimated 60 percent. The increase in Other in FY 84 is largely due to increased mailing costs resulting from postal accountability. It is projected that the current trend of increasing funding in Other Purchase Services and Equipment Purchases will continue.

The upward trend for Other Purchase Services is further illustrated in figure 9.14 where funding for DTIC's Office of Information Systems and Technology has increased from 4 to 10 percent, with 57 percent of these funds being expended for contractual services. DTIC's Office of Information Systems and Technology formulates the research and development objectives and programs which concern the scientific and technical information requirements needed to support the military departments and Defense agencies.

DTIC FUNDING BY PSE			
	(Percent)		
	<u>FY 81</u>	<u>FY 82</u>	<u>FY 83</u>
ADMINISTRATOR'S STAFF	2	2	2
SECURITY	3	3	2
USER SERVICES	1	3	2
SUPPORT SERVICES	4	4	4
INFORMATION SYSTEMS AND TECHNOLOGY	4	4	10
PLANNING AND MANAGEMENT	5	4	4
DATA BASE SERVICES	19	18	16
TELECOMMUNICATIONS AND ADP	29	30	29
DOCUMENT SERVICES	33	32	29
MATRIS			2

Figure 9.14

COMPARISON OF DTIC TO OTHER TECHNICAL INFORMATION CENTERS

A comparison of the growth rate of DTIC and other technical information centers (Department of Energy Technical Information Center, National Library of Medicine, and National Aeronautics and Space Administration Technical Information Center) is shown in figure 9.15.

COMPARISON OF DTIC TO OTHER TECHNICAL INFORMATION CENTERS (\$ MILLIONS)			
	<u>1980</u>	<u>1983</u>	<u>INCREASE</u>
DTIC	14.4	17.5	22%
DOE TIC	11.3	14.9	32%
NLM	44.0	46.0	5%
NASA TIC	7.8	9.0	15%

Figure 9.15

This comparison illustrates that while we may decry DTIC's lack of funds, it is helpful to remember that we are not alone.

SUMMARY

The issues most needing resolution in the financial area concern the rate of growth of DTIC's budget and how DTIC should spend the funds that are available. DTIC's budget is growing at the same rate as the DLA(O&M) budget — and at only half the rate of the DoD RDT&E budget. As an RDT&E-funded organization, our growth rate should be similar to that of DoD RDT&E. DTIC must do a better job of justifying its funding needs and make its usefulness to DoD better known in order to obtain required funds.

As we have seen in the previous sections, the DTIC of tomorrow will be a highly automated, information service organization. Our personnel needs and skills will be different in the future to accommodate the changes which will take place. Contract assistance may increase. Only with careful use of our resource allocations can DTIC be effective and support future requirements.

FINANCIAL GOALS

10. DTIC will strive to have the rate of increase in DTIC funding parallel the rate of increase in the DoD RDT&E funding.
 - 10.1 Make DTIC's usefulness to DoD more visible in order to get more support for DTIC's funding needs.
 - 10.2 Better justify our funding needs.
11. DTIC will determine how to do better with its funds.
 - 11.1 Determine where high technology systems can be utilized to provide a more effective and efficient operation at lower operating costs.
 - 11.2 Determine where contractor services can be utilized to provide a more effective and efficient operation at lower operating costs.

10.0 CONCLUSIONS AND FOLLOW-ON ACTIONS

The completion of this corporate plan for DTIC marks a major milestone in an ongoing process. While the publication of the plan is important and necessary to properly structure subsequent actions, the most important portion of the plan is the planning process itself. To develop a meaningful plan, we at DTIC have been forced to take a hard look at what we are doing and how (and how well) we're doing it. We have confronted basic issues dealing with the kind of organization we are, and want to be, and with the community we are, and should be, serving.

This review has been a very salutary experience. The data gathering phase has documented some long-held suppositions, but it provided a few surprises too. Perhaps the most pleasant surprise was the near unanimity among the staff both as to the direction DTIC should take and the pace at which we should seek to reach our goals. The points of view and the methods may and do differ, but the consensus is real.

One of the objectives of this corporate planning process was to develop and promulgate guidance from which subordinate plans could be developed. Another is the "institutionalizing" of the process by the establishment of a formal planning process to replace this ad hoc effort. The last action of the Long-Range Planning group will be the development of a DTIC planning regulation which will set out specific areas of responsibility within DTIC for the maintenance of the corporate plan and other subordinate plans. The regulation will also dictate the plans' updating cycles. This regulation is now in draft and will be circulated at DTIC and higher headquarters prior to implementation.

The other area of continuing effort is the development of individual plans for each Directorate/Office within DTIC. Each Director/Office Head will be responsible for drafting more detailed midrange plans delineating how his/her organizational element will work toward meeting DTIC's corporate goals. As an aid to that phase of the planning process, another planning seminar will be scheduled for early FY 85 to focus on subordinate plans for such areas as Marketing, ADP, Resources, and the DTIC Development Program.

In summary, this plan describes the environment in which DTIC will be operating in the future, highlights needed services and suggests ways to fulfill these needs. The most important thing this plan can and, to be successful, must do is define DTIC's corporate image, goals and overall direction. Only when these things are clearly defined can individual Directorates and Offices develop operating plans that are mutually supportive and have a reasonable chance to meet their goals. We are now ready for that next step.

APPENDIX A

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APPENDIX B

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CDR R. Robinson Harris
CDR Robert A. Kamran
Long-Range Planning Group (OP-00K)
Center for Naval Analyses Building
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Alexandria, VA 22311
(202) 694-8404

Naval Material Command
George Swiggum
DCNM for Labs./Dir. of Navy Labs.
Lab. Planning and Facilities Division (053)
Washington, D.C. 20360
(202) 692-2136

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Elizabeth Buffum
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Office of External Relations
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(202) 453-8339

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J. Timothy Sprehe
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(202) 395-4814

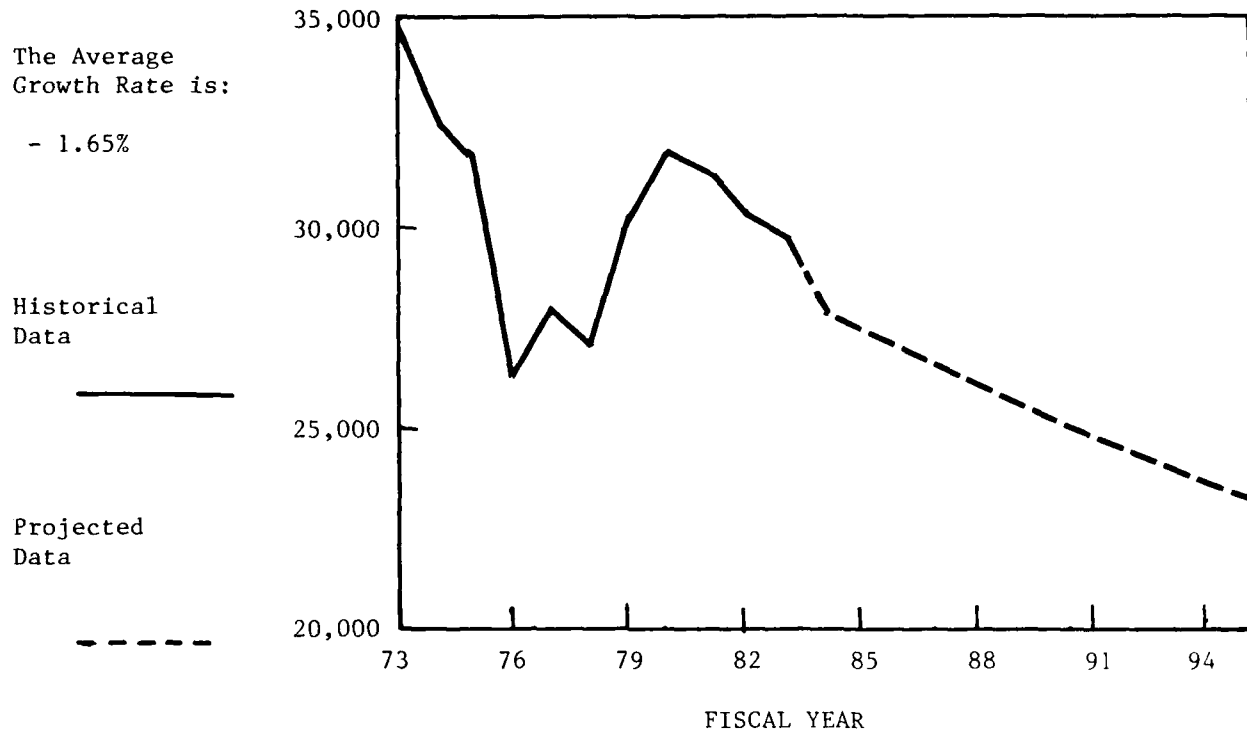
APPENDIX C

DTIC STAFF INTERVIEW GUIDE

1. Where do you see DTIC going in the future?
2. What goals do you have for the future of your Directorate? How does your office fit into what you see as DTIC's future?
3. What changes do you feel we need to make to keep up with our changing environment? (What specific actions do we need to take to meet future needs?)
4. How do you see the personnel mix in the long-range — in your Directorate? — in DTIC? — What are you doing in this regard?
5. How do you feel we should be expending funds now and for future needs? (specifically equipment, personnel resources, contracting, etc.)
6. What DTIC products should be kept, discontinued, enhanced? What products/services do you feel we should create? (focus on discontinued)
7. What type of long-range plans are you involved in now?
8. What other kinds of items would you like to see included in a long-range plan for DTIC?

Appendix D Products & Services Data Sets

TECHNICAL REPORT INPUT REVIEW AND PROJECTION



<u>FY</u>	<u>TREND</u>	<u>FY</u>	<u>PROJECTION</u>
73	34,899	84	27,803
74	32,335	85	27,343
75	31,521	86	26,980
76	26,221	87	26,445
77	27,732	88	26,007
78	26,941	89	25,577
79	30,015	90	25,154
80	31,540	91	24,737
81	31,170	92	24,329
82	30,119	93	23,926
83	29,625	94	23,530
		95	23,140

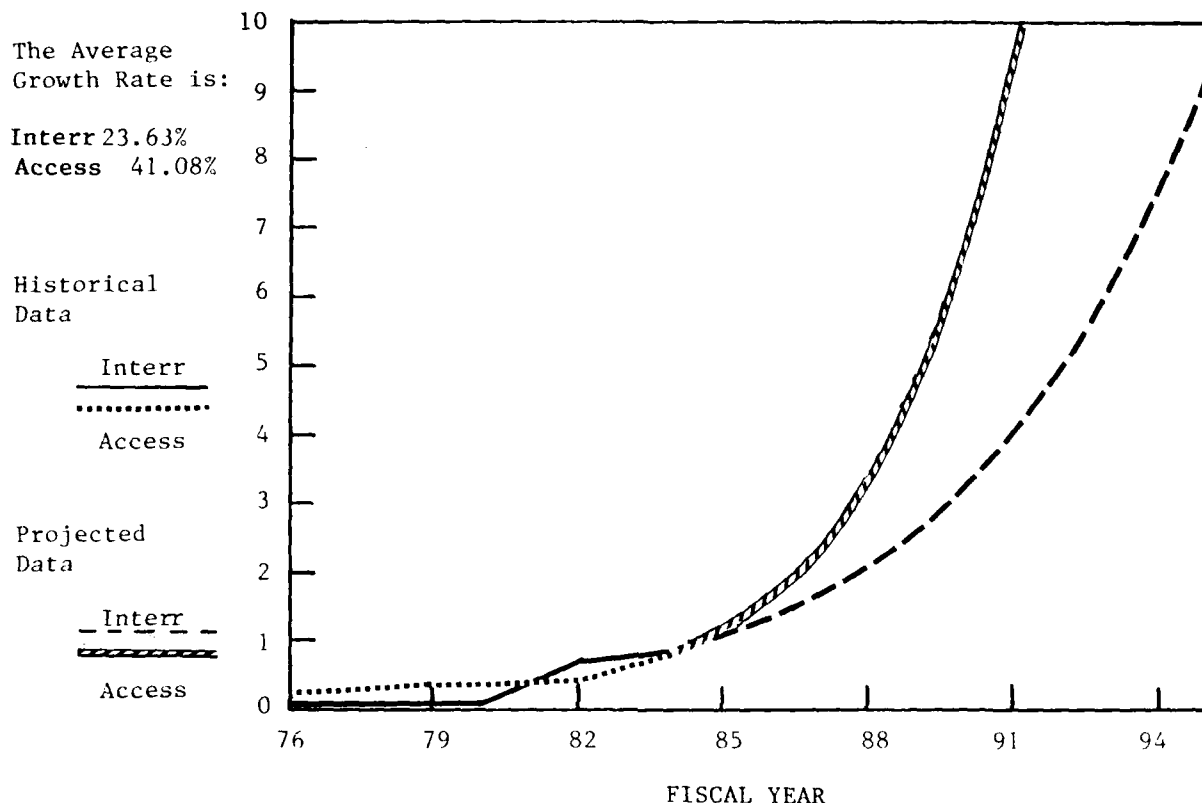
Source:

Trends -- Defense Technical Information Center, Office of Planning and Management, Summary Management Data Report, (FY 1973 - FY 1983)

Projections -- Warren Gilchrist, Statistical Forecasting, New York: John Wiley and Sons, 1976

DROLS INTERROGATIONS & ONLINE ACCESS

INTERROGATIONS = 1M
ACCESS = 1K



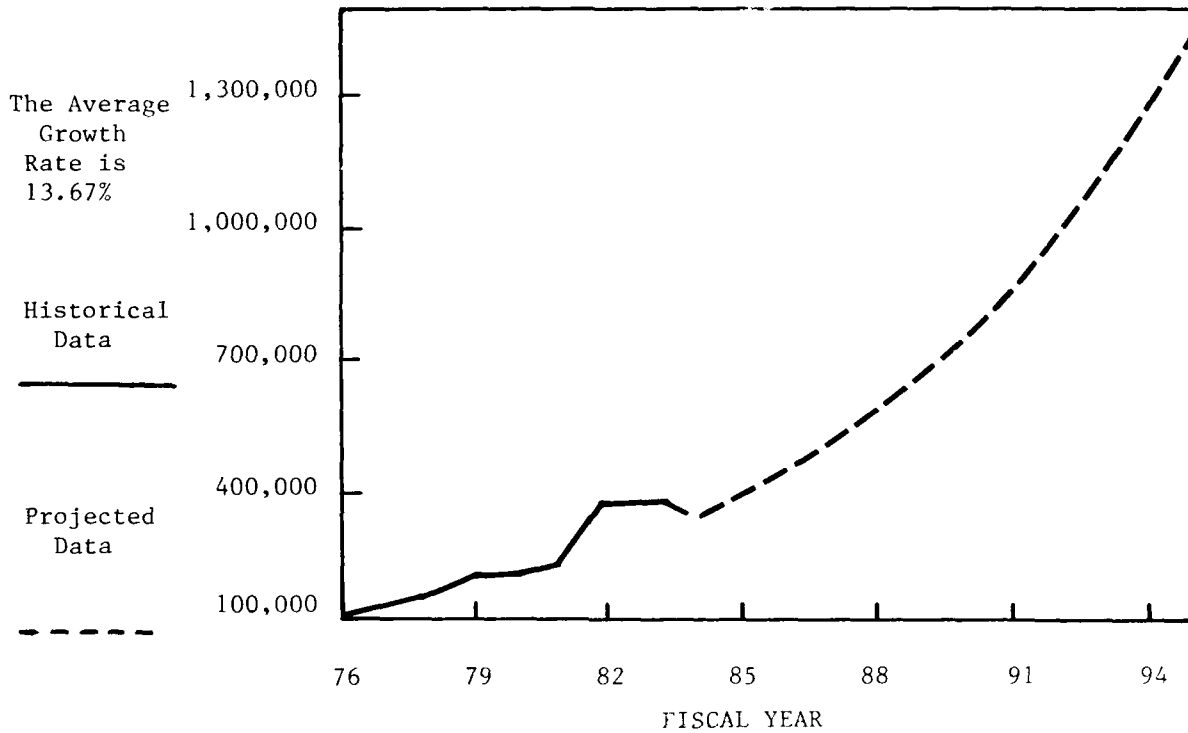
<u>DROLS INTERROGATIONS</u>				<u>ON-LINE ACCESS</u>			
<u>FY</u>	<u>TREND</u>	<u>FY</u>	<u>PROJECTION</u>	<u>FY</u>	<u>TREND</u>	<u>FY</u>	<u>PROJECTION</u>
76	181,699	84	913,428	76	72	84	853
77	233,840	85	1.12932E+06	77	87	85	1,204
78	241,767	86	1.39623E+06	78	93	86	1,699
79	262,342	87	1.72623E+06	79	112	87	2,397
80	353,325	88	2.13422E+06	80	128	88	3,381
81	453,530	89	2.63864E+06	81	422	89	4,770
82	691,823	90	3.26227E+06	82	541	90	6,730
83	781,629	91	3.03331E+06	83	646	91	9,495
		92	4.98658E+06			92	13,396
		93	6.16515E+06			93	18,900
		94	7.62228E+06			94	26,665
		95	9.4238E+06			95	37,619

Source:

Trends -- Defense Technical Information Center, Office of Planning and Management, Summary Management Data Report, (FY 1976 - FY 1983)

Projections -- Warren Gilchrist, Statistical Forecasting, New York: John Wiley and Sons, 1976

TECHNICAL REPORT HARDCOPY DEMAND



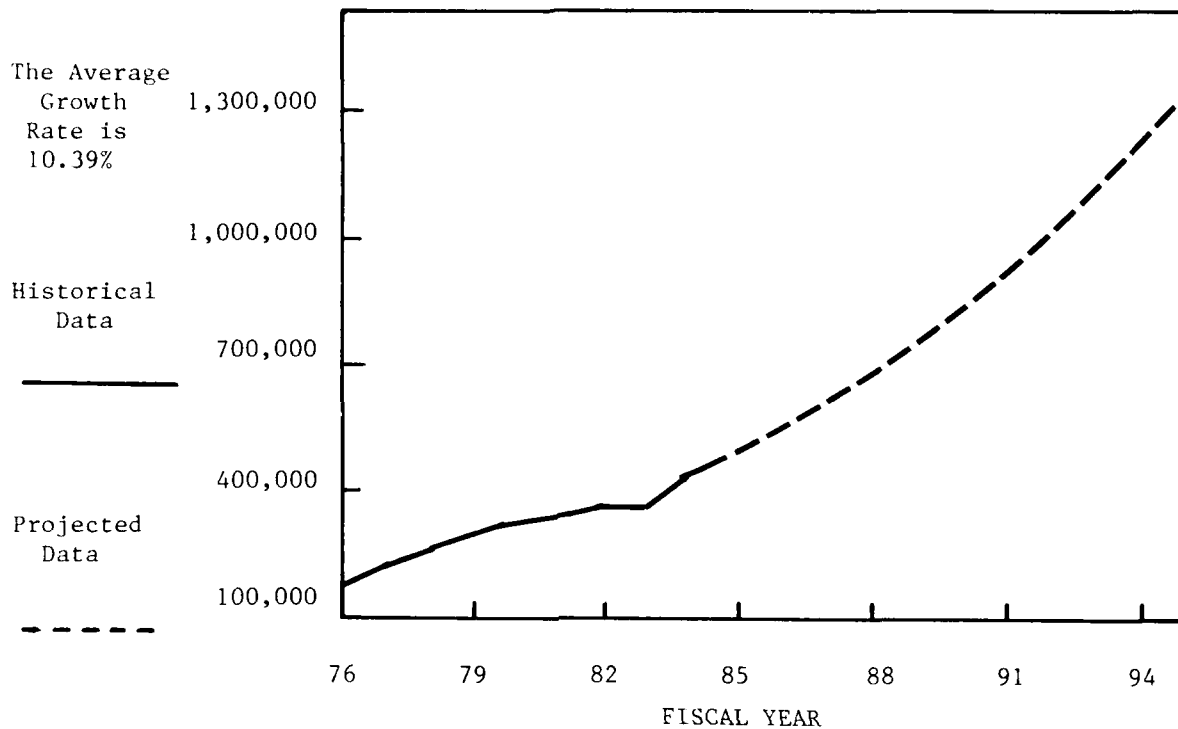
<u>FY</u>	<u>TREND</u>	<u>FY</u>	<u>PROJECTION</u>
76	109,384	84	346,727
77	141,948	85	394,048
78	168,412	86	447,827
79	209,828	87	508,946
80	216,348	88	578,407
81	236,712	89	657,347
82	267,074	90	747,061
83	278,202	91	849,019
		92	964,893
		93	1.09658E+06
		94	1.24624E+06
		95	1.41633E+06

Source:

Trends -- Defense Technical Information Center, Office of Planning and Management, Summary Management Data Report, (FY 1976 - FY 1983)

Projections -- Warren Gilchrist, Statistical Forecasting, New York: John Wiley and Sons, 1976

TECHNICAL REPORT DEMAND (TOTAL)



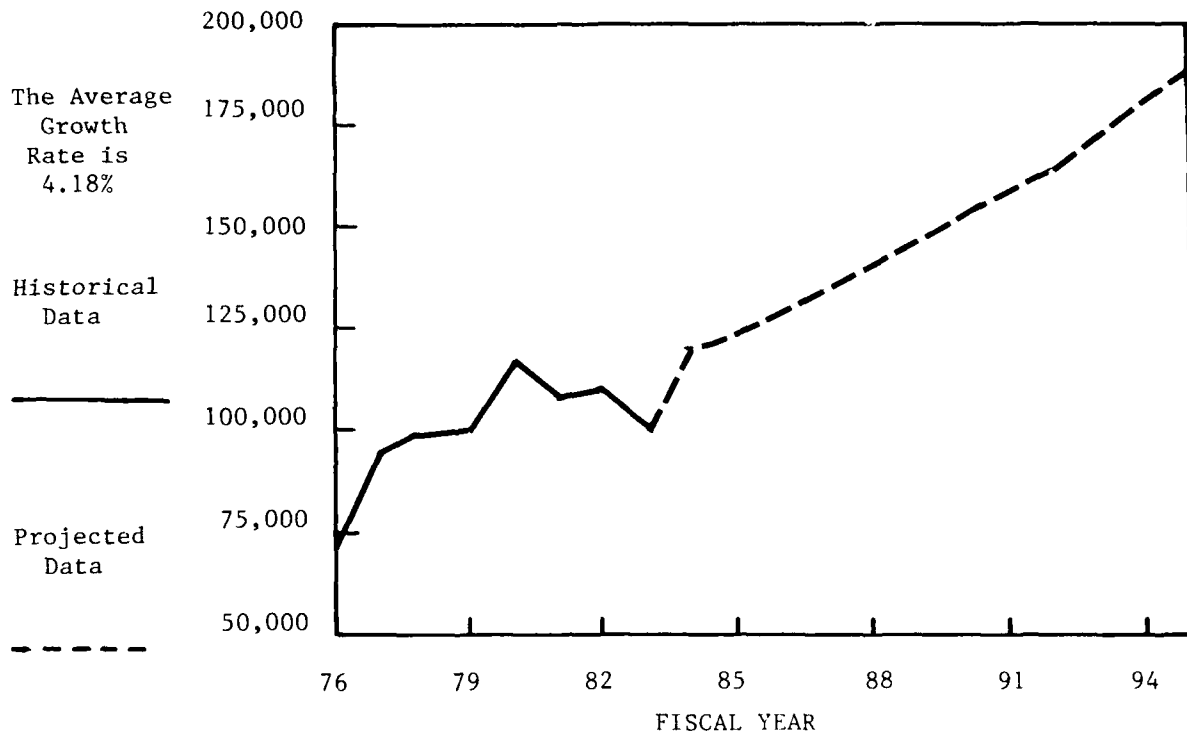
<u>FY</u>	<u>TREND</u>	<u>FY</u>	<u>PROJECTION</u>
76	180,804	84	461,019
77	236,816	85	508,917
78	268,007	86	561,791
79	310,656	87	620,158
80	332,387	88	684,589
81	344,923	89	755,714
82	376,297	90	834,228
83	378,047	91	920,900
		92	1.01658E+06
		93	1.12219E+06
		94	1.23878E+06
		95	1.36749E+06

Source:

Trends -- Defense Technical Information Center, Office of Planning and Management, Summary Management Data Report, (FY 1976 - FY 1983)

Projections -- Warren Gilchrist, Statistical Forecasting, New York: John Wiley and Sons, 1976

TECHNICAL REPORT MICROFICHE DEMAND



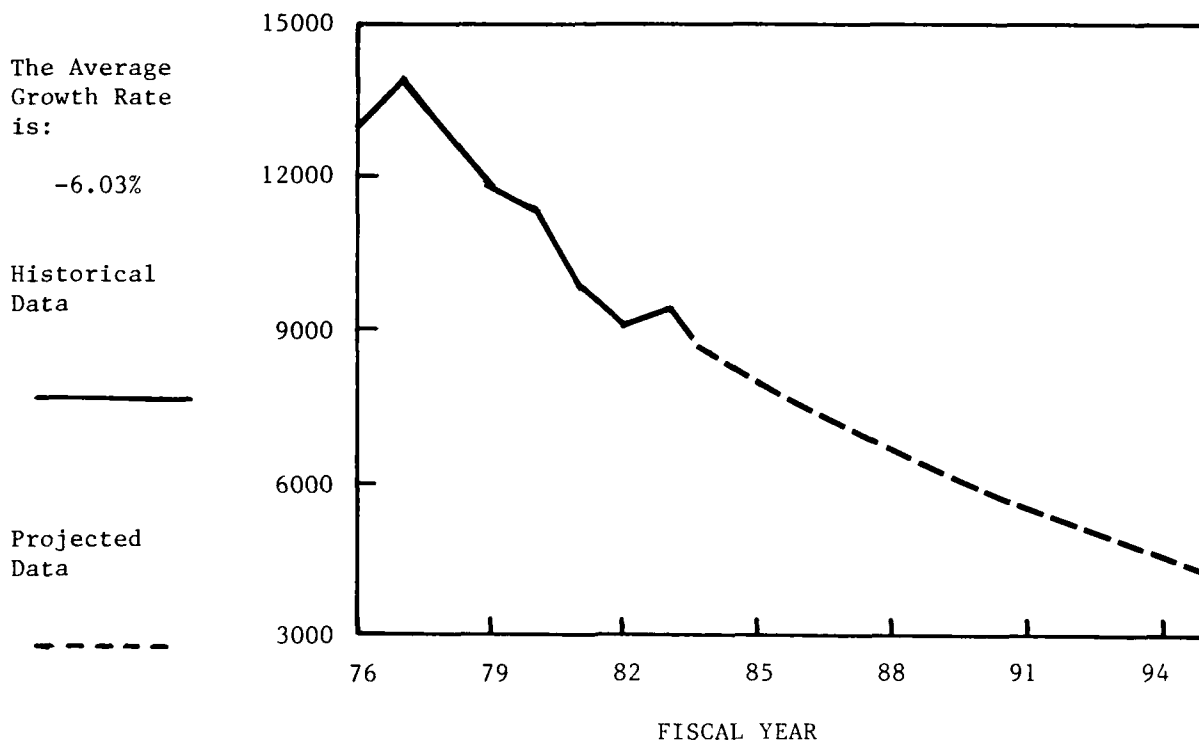
<u>FY</u>	<u>TREND</u>	<u>FY</u>	<u>PROJECTION</u>
76	71,419	84	119,189
77	94,868	85	124,173
78	99,595	86	129,366
79	100,828	87	134,775
80	116,039	88	140,411
81	108,211	89	146,283
82	109,223	90	152,400
83	99,872	91	158,773
		92	165,413
		93	172,330
		94	179,536
		95	187,044

Source:

Trends -- Defense Technical Information Center, Office of Planning and Management, Summary Management Data Report, (FY 1976 - 1983)

Projections -- Warren Gilchrist, Statistical Forecasting, New York: John Wiley and Sons, 1976

TECHNICAL REPORT BIBLIOGRAPHIES



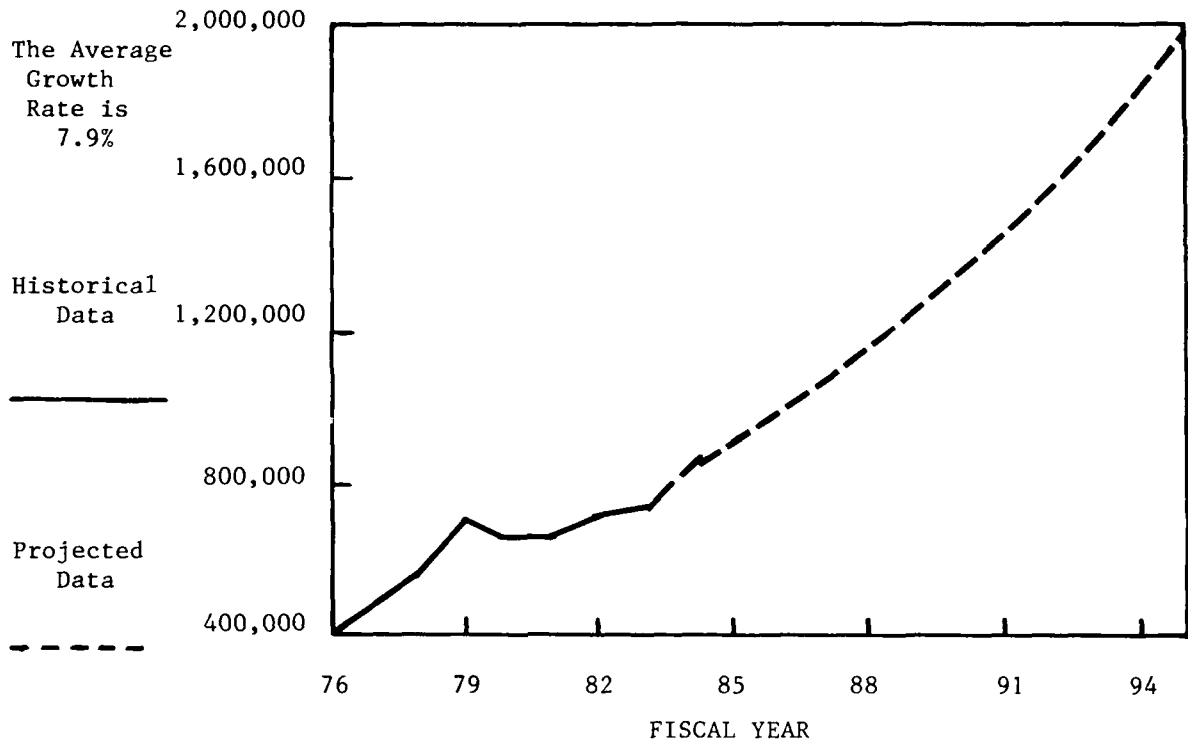
<u>FY</u>	<u>TREND</u>	<u>FY</u>	<u>PROJECTION</u>
76	12,943	84	8,488
77	13,840	85	7,977
78	12,844	86	7,495
79	11,761	87	7,044
80	11,198	88	6,619
81	9,798	89	6,220
82	9,047	90	5,846
83	9,405	91	5,493
		92	5,162
		93	4,851
		94	4,559
		95	4,284

Source:

Trends -- Defense Technical Information Center, Office of Planning and Management, Summary Management Data Report, (FY 1976 - FY 1983)

Projections -- Warren Gilchrist, Statistical Forecasting, New York: John Wiley and Sons, 1976

AUTOMATIC DOCUMENT DISTRIBUTION (ADD)



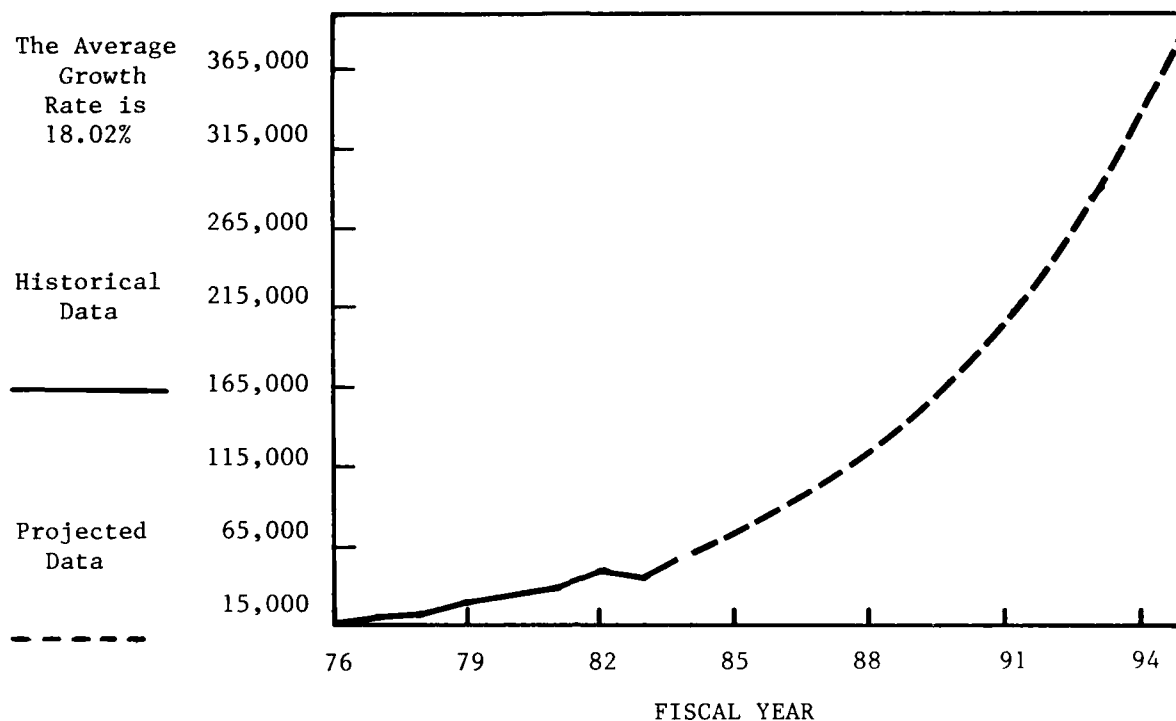
<u>FY</u>	<u>TREND</u>	<u>FY</u>	<u>PROJECTION</u>
76	415,940	84	863,352
77	492,961	85	931,434
78	579,664	86	1.00488E+06
79	710,846	87	1.08413E+06
80	662,427	88	1.16962E+06
81	660,745	89	1.26185E+06
82	722,281	90	1.36136E+06
83	751,823	91	1.46871E+06
		92	1.58453E+06
		93	1.70949E+06
		94	1.84429E+06
		95	1.9873E+06

Source:

Trends -- Defense Technical Information Center, Office of Planning and Management, Summary Management Data Report, (FY 1976 - FY 1983)

Projections -- Warren Gilchrist, Statistical Forecasting, New York: John Wiley and Sons, 1976

CURRENT AWARENESS BIBLIOGRAPHIES (CAB)



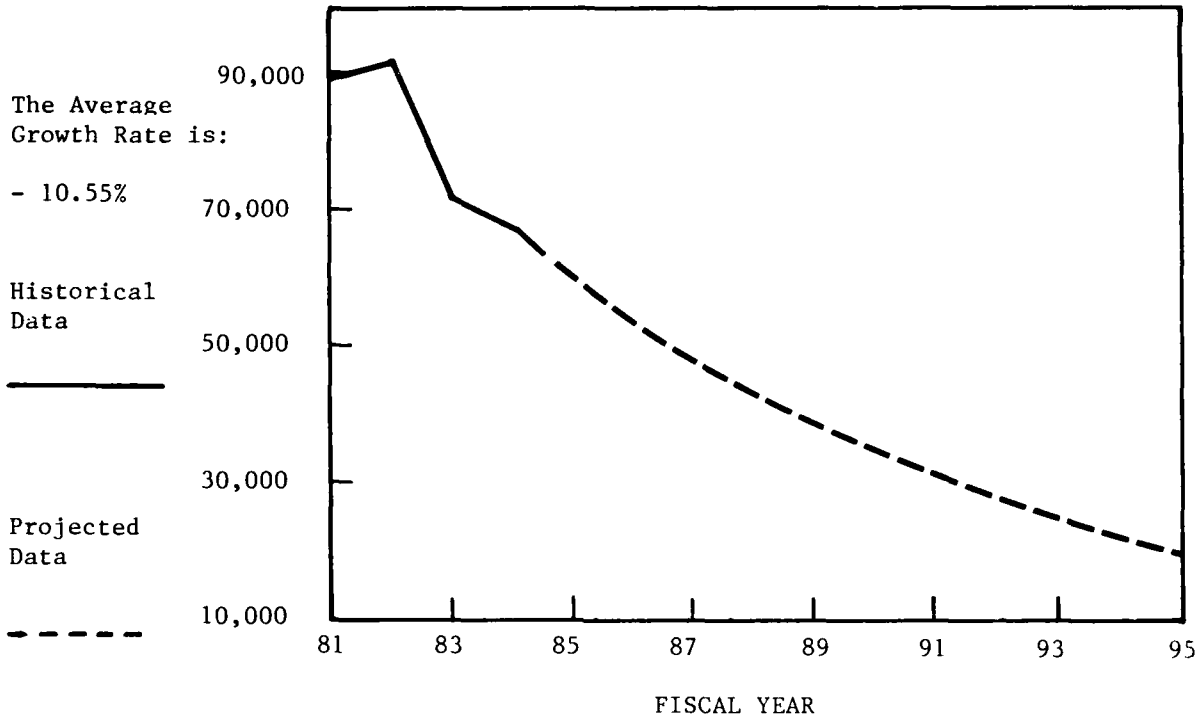
<u>FY</u>	<u>TREND</u>	<u>FY</u>	<u>PROJECTION</u>
76	15,608	84	63,477
77	20,483	85	74,913
78	22,565	86	88,410
79	29,832	87	104,337
80	34,626	88	123,135
81	39,034	89	145,319
82	49,595	90	171,500
83	46,901	91	202,397
		92	238,861
		93	281,894
		94	332,680
		95	392,616

Source:

Trends -- Defense Technical Information Center, Office of Planning and Management, Summary Management Data Report, (FY 1976 - FY 1983)

Projections -- Warren Gilchrist, Statistical Forecasting, New York: John Wiley and Sons, 1976

TAB SUBSCRIPTION (FY COUNT)



TAB SUBSCRIPTION (FY Count)*

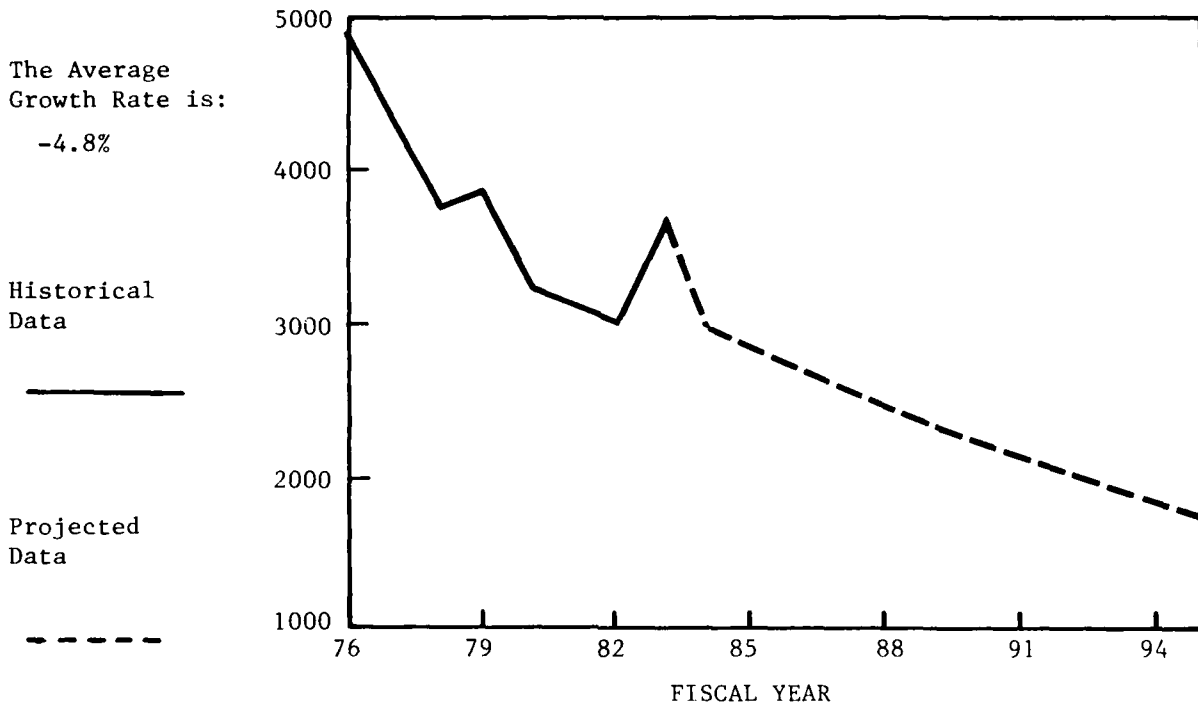
<u>FY</u>	<u>TREND</u>	<u>FY</u>	<u>PROJECTION</u>	<u>FY</u>	<u>PROJECTION</u>
81	89,651	84	66,971	90	34,309
82	91,167	85	59,906	91	30,690
83	71,735	86	53,587	92	27,453
		87	47,934	93	24,557
		88	42,878	94	21,967
		89	38,355	95	19,650

Source:

83 -- DTIC-DDRB**
82 and back -- DTIC-DP***

- * Total number of copies distributed annually
- ** Subscription number
- *** Print order - 200 = subscription number

WORK UNIT SUMMARY REPORTS



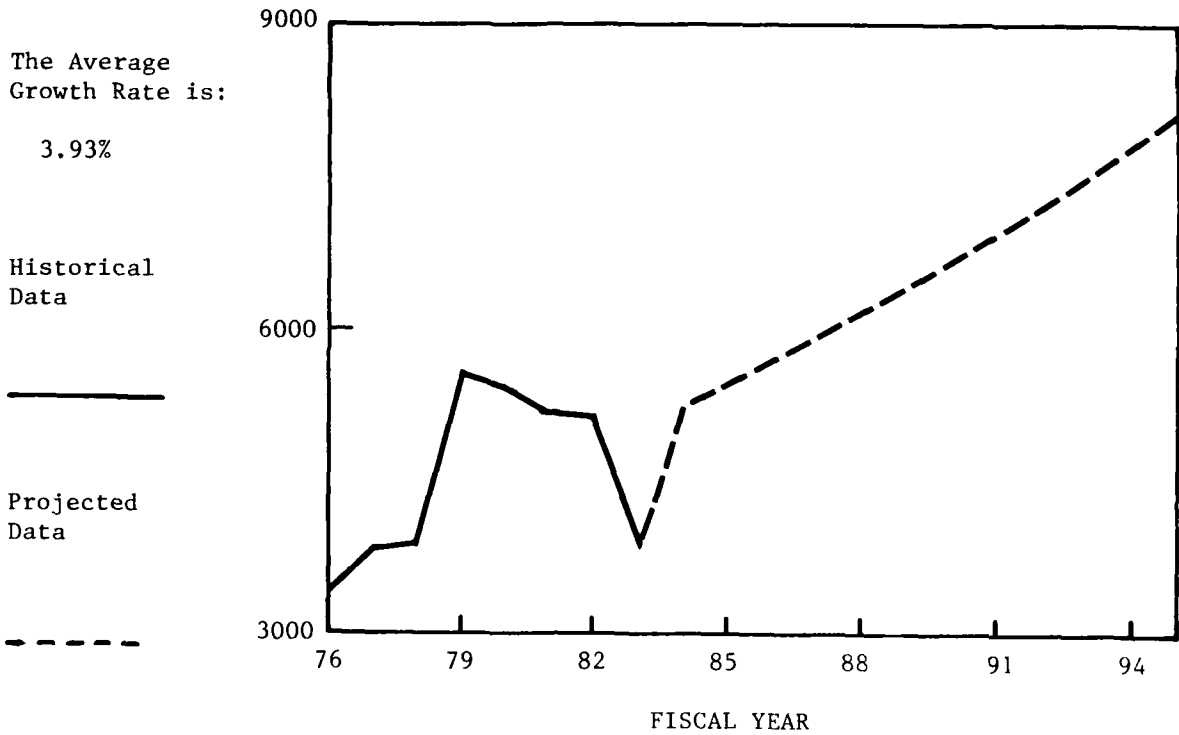
<u>FY</u>	<u>TREND</u>	<u>FY</u>	<u>PROJECTION</u>
76	4,871	84	2,984
77	4,283	85	2,841
78	3,733	86	2,705
79	3,822	87	2,575
80	3,270	88	2,452
81	3,142	89	2,334
82	3,009	90	2,222
83	3,621	91	2,116
		92	2,014
		93	1,917
		94	1,826
		95	1,738

Source:

Trends -- Defense Technical Information Center, Office of Planning and Management, Summary Management Data Report, (FY 1976 - FY 1983)

Projections -- Warren Gilchrist, Statistical Forecasting, New York: John Wiley and Sons, 1976

WORK UNIT RECURRING REPORTS



<u>FY</u>	<u>TREND</u>	<u>FY</u>	<u>PROJECTION</u>
76	3,450	84	5,300
77	3,807	85	5,508
78	3,908	86	5,725
79	5,558	87	5,950
80	5,412	88	6,184
81	5,169	89	6,427
82	5,119	90	6,679
83	3,905	91	6,942
		92	7,214
		93	7,498
		94	7,793
		95	8,099

Source:

Trends -- Defense Technical Information Center, Office of Planning and Management, Summary Management Data Report, (FY 1976 - FY 1983)

Projections -- Warren Gilchrist, Statistical Forecasting, New York: John Wiley and Sons, 1976

IR&D SUMMARY REPORTS

The Average
Growth Rate is:

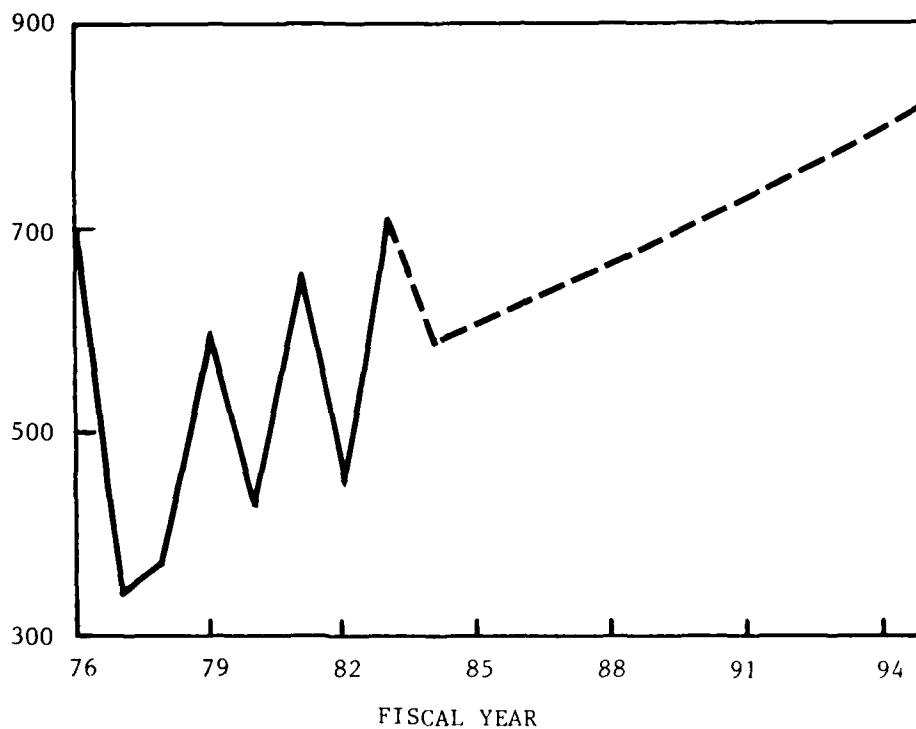
3.01%

Historical
Data

—————

Projected
Data

- - - - -



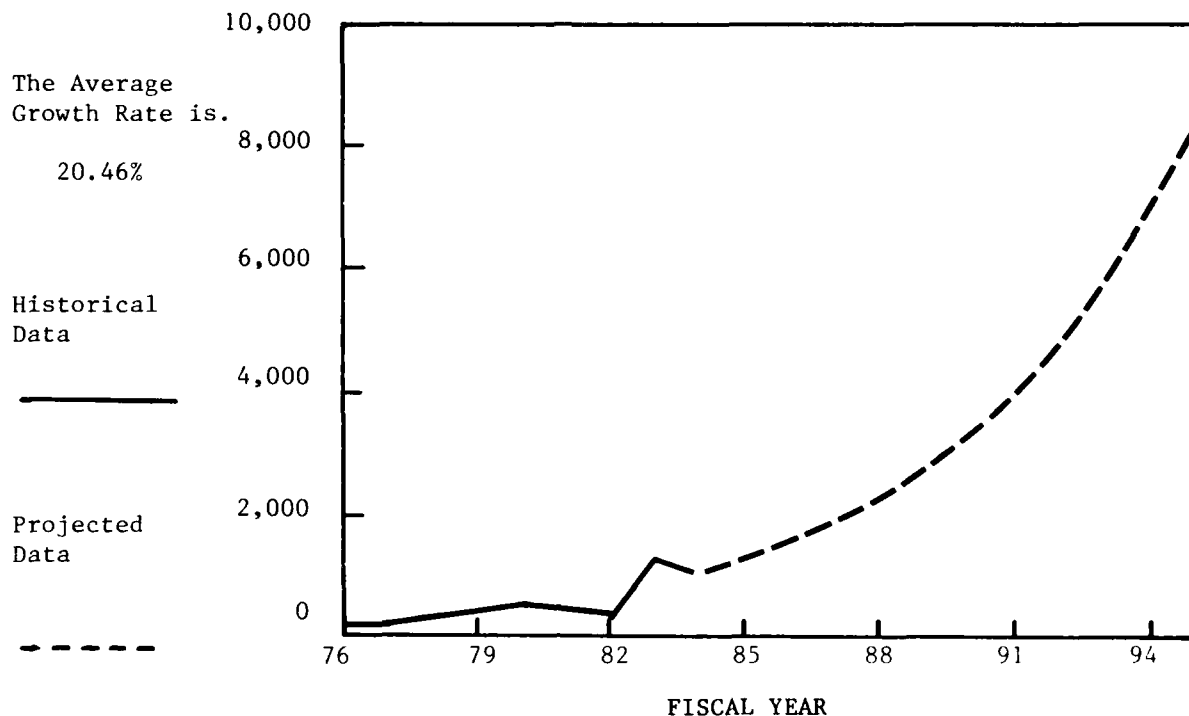
<u>FY</u>	<u>TREND</u>	<u>FY</u>	<u>PROJECTION</u>
76	727	84	594
77	348	85	611
78	382	86	630
79	602	87	649
80	431	88	668
81	652	89	688
82	451	90	709
83	719	91	730
		92	752
		93	775
		94	798
		95	822

Source:

Trends -- Defense Technical Information Center, Office of Planning and Management, Summary Management Data Report, (FY 1976 - FY 1983)

Projections -- Warren Gilchrist, Statistical Forecasting, New York: John Wiley and Sons, 1976

IR&D RECURRING REPORTS



<u>FY</u>	<u>TREND</u>	<u>FY</u>	<u>PROJECTION</u>
76	223	84	1,081
77	275	85	1,302
78	412	86	1,569
79	497	87	1,890
80	590	88	2,277
81	550	89	2,742
82	434	90	3,304
83	1,296	91	3,980
		92	4,794
		93	5,775
		94	6,957
		95	8,381

Source:

Trends -- Defense Technical Information Center, Office of Planning and Management, Summary Management Data Report, (FY 1976 - FY 1983)

Projections -- Warren Gilchrist, Statistical Forecasting, New York: John Wiley and Sons, 1976

APPENDIX E

PERSONNEL DATA SETS

DTIC DISCIPLINE LEVELS

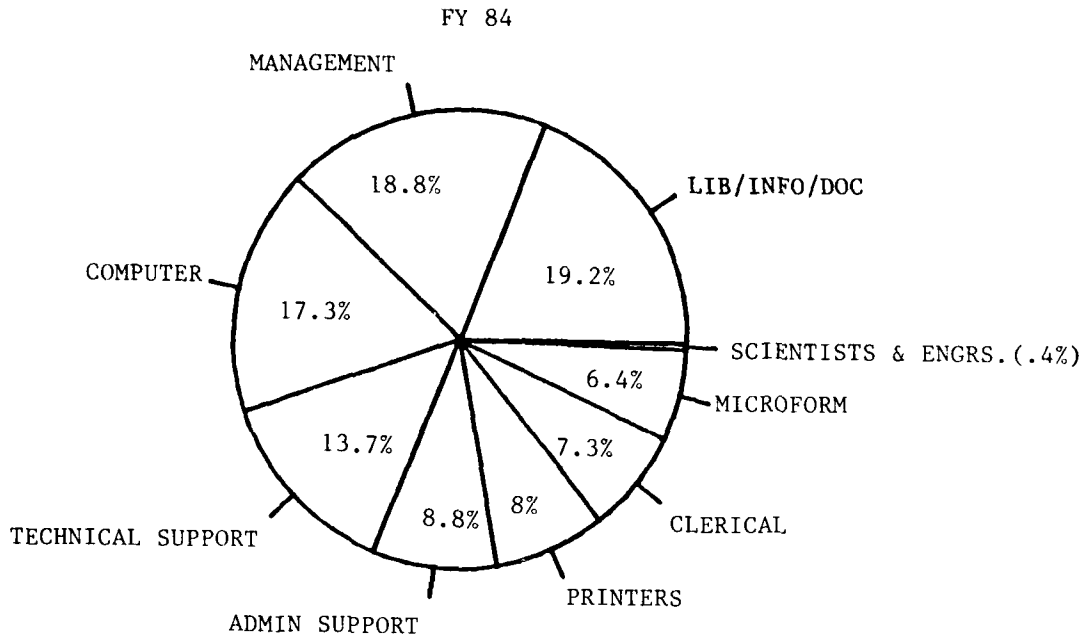


Figure 8.1

DISCIPLINE CATEGORIES

NUMBER OF PERSONNEL

Scientists and Engineers	2
Microform	29
Clerical	33
Printers	36
Administrative Support	40
Technical Support	62
Computer	78
Management	85
Librarian/Information/Documentation	87

DTIC PERSONNEL STRENGTH

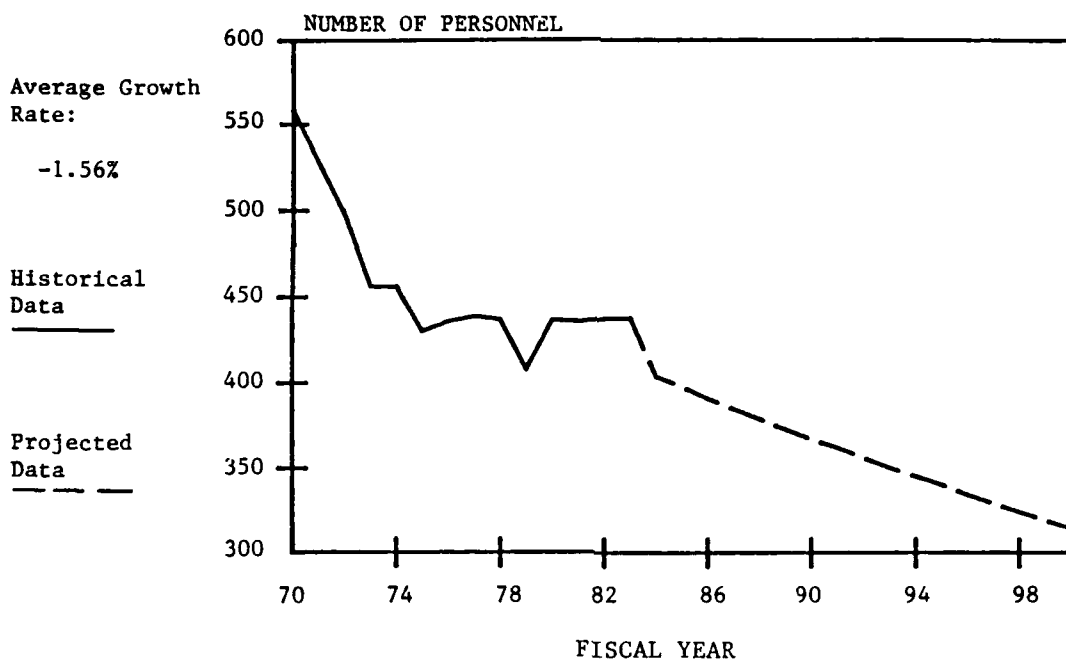


Figure 8.2

<u>FISCAL YEAR</u>	<u>NUMBER OF PERSONNEL</u>	<u>FISCAL YEAR</u>	<u>NUMBER OF PERSONNEL</u>
70	558	86	391
71	527	87	385
72	497	88	379
73	456	89	373
74	456	90	367
75	430	91	362
76	436	92	356
77	439	93	350
78	437	94	345
79	408	95	340
80	437	96	334
81	436	97	329
82	438	98	324
83	438	99	319
84	404	2000	314
85	398		

Source:

Data for FY 70-83 -- DLA Civilian Personnel Management Statistical Indicators Report, DLA-K

Data for FY 84-2000 -- Statistical Forecasting by Warren Gilchrist, published by John Wiley and Sons, 1976

DOD R&D PERSONNEL STRENGTH

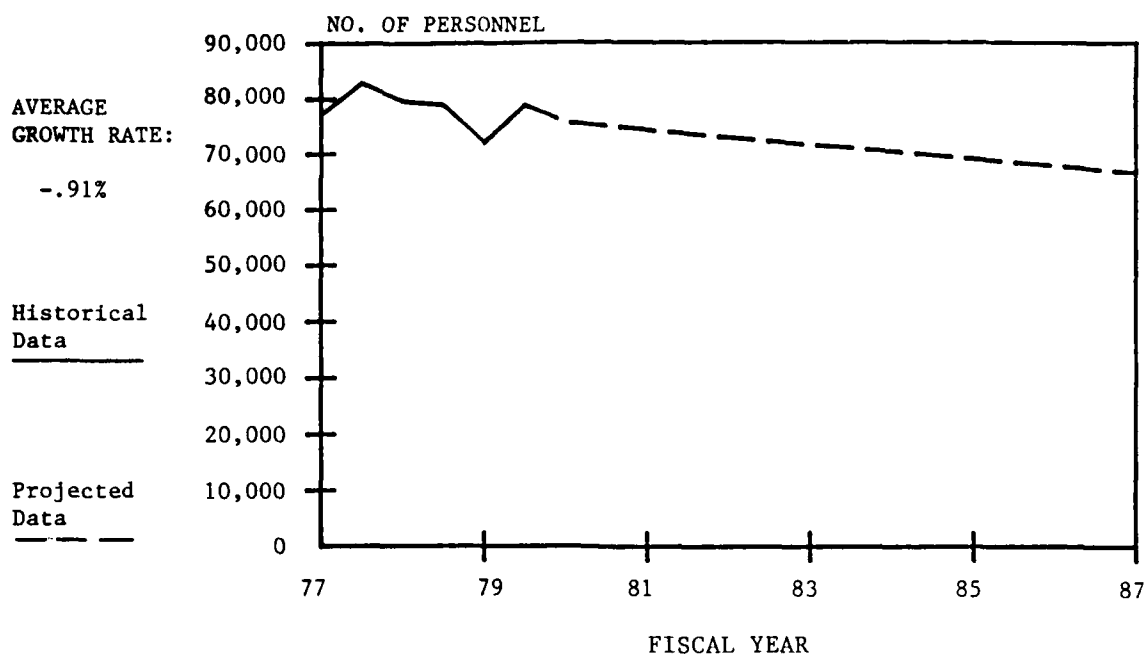


Figure 8.3

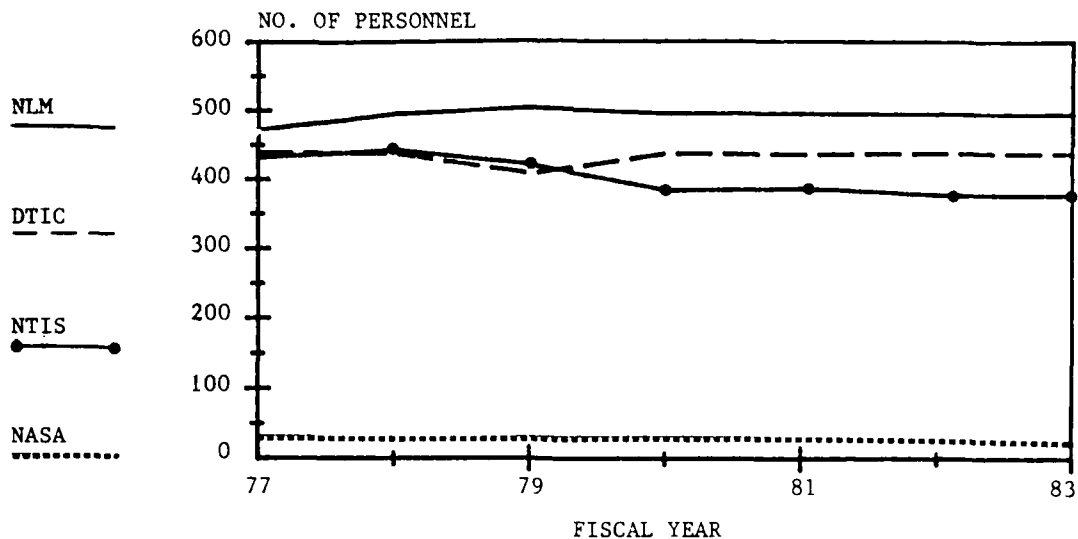
<u>FISCAL YEAR</u>	<u>NUMBER OF PERSONNEL</u>	<u>FISCAL YEAR</u>	<u>NUMBER OF PERSONNEL</u>
77	77,094	89	71,614
78	82,817	90	70,964
79	79,500	91	70,319
80	78,821	92	69,680
81	72,012	93	69,047
82	78,785	94	68,419
83	75,647	95	67,798
84	74,959	96	67,182
85	74,278	97	66,571
86	73,603	98	65,966
87	72,934	99	65,367
88	72,271	2000	64,773

Source:

Washington Headquarters Services, Janet Wisenfond, 697-1880

PERSONNEL STRENGTH COMPARISONS

TECHNICAL INFORMATION CENTERS



NOTE: Contract personnel not included

Figure 8.4

National Lib. of Medicine (NLM) ^{1/}

<u>FISCAL YEAR</u>	<u>NO. OF PERSONNEL</u>
77	472
78	495
79	503
80	495
81	495
82	495
83	495

Defense Tech. Info. Center (DTIC) ^{2/}

<u>FISCAL YEAR</u>	<u>NO. OF PERSONNEL</u>
77	439
78	437
79	408
80	437
81	436
82	438
83	438

Nat. Tech. Info. Service (NTIS) ^{3/}

<u>FISCAL YEAR</u>	<u>NO. OF PERSONNEL</u>
77	439
78	437
79	408
80	437
81	436
82	438
83	378

Nat. Aero. & Space Admin. (NASA) ^{4/}

<u>FISCAL YEAR</u>	<u>NO. OF PERSONNEL</u>
77	30
78	26
79	29
80	29
81	28
82	25
83	22

Source:

^{1/} NLM, Planning, Bethesda, MD 20209

^{2/} DLA, Civilian Personnel, Alexandria, VA 22314

^{3/} NTIS, Office of Policy and Planning, Springfield, VA 22161

^{4/} NASA, Scientific and Technical Information Branch, Wash., D.C. 20546

DTIC AVERAGE GRADE

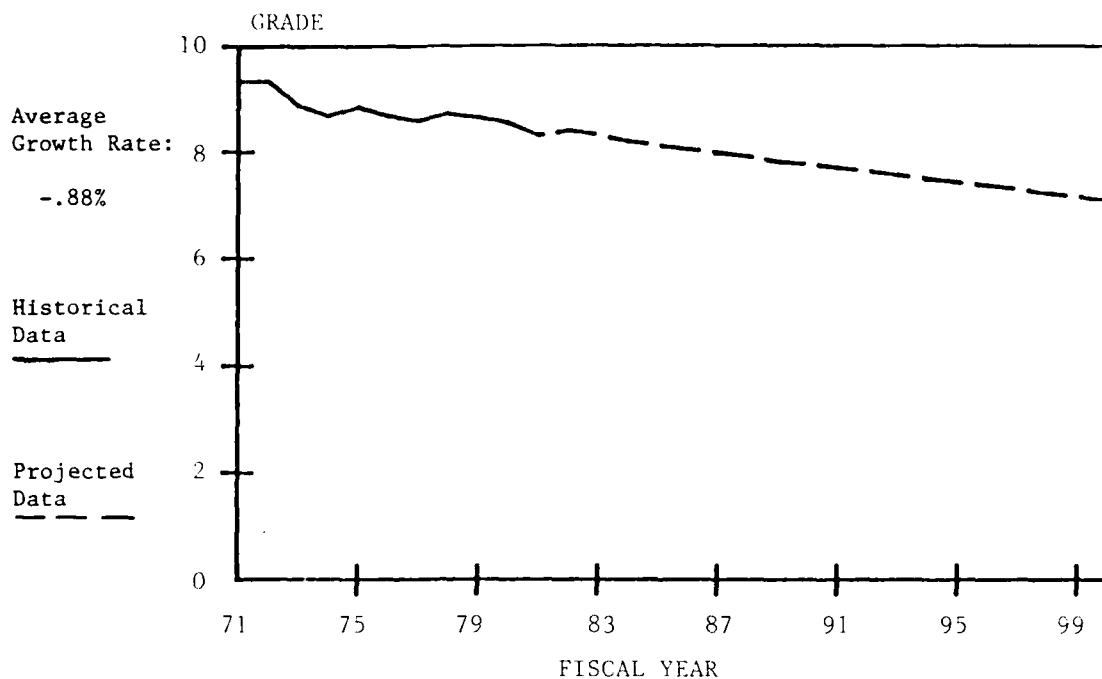


Figure 8.5

<u>FISCAL YEAR</u>	<u>AVERAGE GRADE</u>	<u>FISCAL YEAR</u>	<u>AVERAGE GRADE</u>
71	9.34	86	8.04
72	9.93	87	7.97
73	8.88	88	7.90
74	8.68	89	7.80
75	8.85	90	7.76
76	8.68	91	7.69
77	8.59	92	7.63
78	8.72	93	7.56
79	8.64	94	7.49
80	8.54	95	7.43
81	8.30	96	7.37
82	8.39	97	7.30
83	8.31	98	7.23
84	8.18	99	7.17
85	8.11	2000	7.11

Source:

Data for FY 71-83 -- DTIC-M Average Grade records

Data for FY 84-2000 -- Statistical Forecasting by Warren Gilchrist, published by John Wiley and Sons, 1976

DTIC COLLEGE CALIBER HIRES

(HIRED IN GS-5/9 TRAINEE, SPEC., POS.)

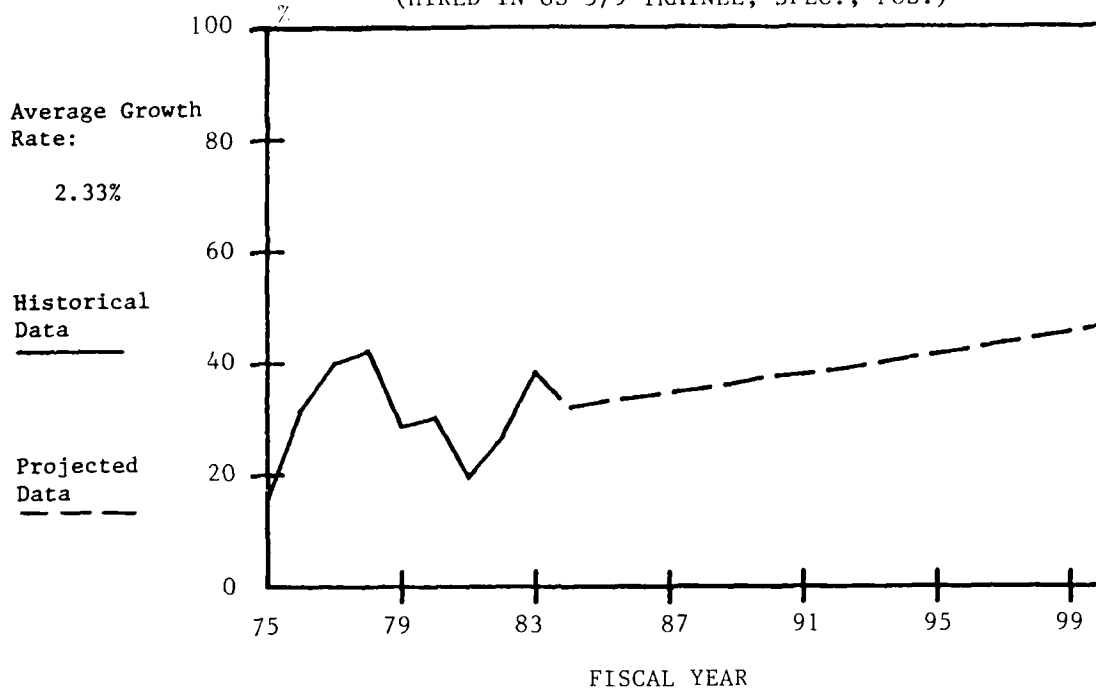


Figure 8.6

<u>FISCAL YEAR</u>	<u>PERCENT</u>	<u>FISCAL YEAR</u>	<u>PERCENT</u>
75	15.4	88	35.5
76	31.3	89	36.4
77	40.0	90	37.7
78	42.2	91	38.0
79	28.6	92	38.9
80	30.2	93	39.8
81	19.4	94	40.8
82	26.6	95	41.7
83	38.4	96	42.7
84	32.0	97	43.7
85	33.1	98	44.7
86	33.9	99	45.8
87	34.7	2000	46.8

Source:

Data for FY 75-83 -- DLA Civilian Personnel Management Statistical Indicators Report, DLA-K

Data for FY 84-2000 -- Statistical Forecasting by Warren Gilchrist published by John Wiley and Sons, 1976

DTIC TURNOVER

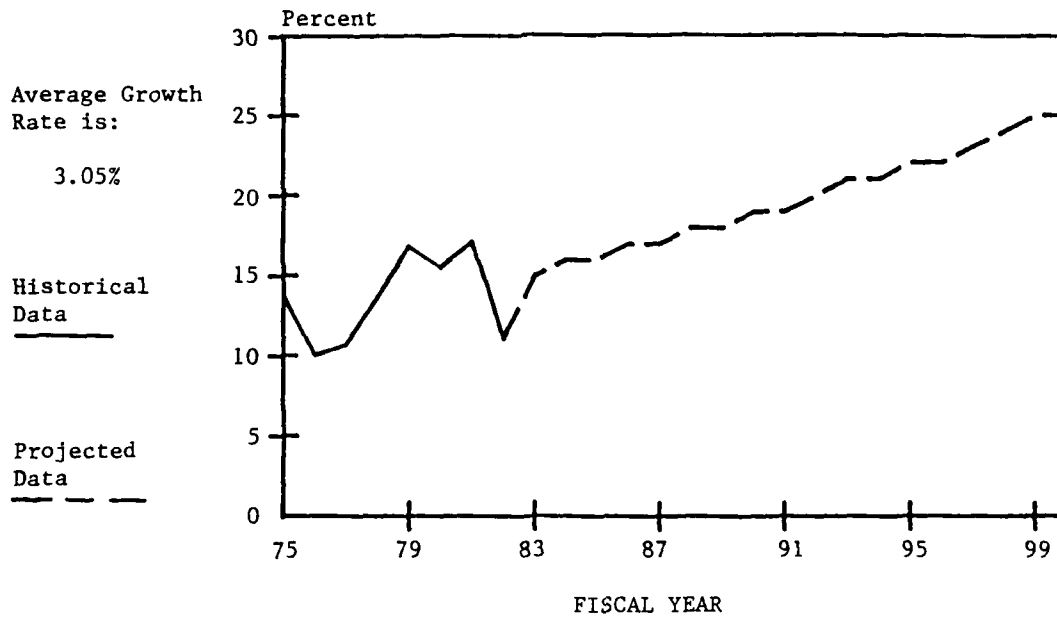


Figure 8.7

<u>FISCAL YEAR</u>	<u>RATE</u>	<u>FISCAL YEAR</u>	<u>RATE</u>
75	13	88	18
76	10	89	18
77	10	90	19
78	13	91	19
79	16	92	20
80	15	93	21
81	17	94	21
82	11	95	22
83	15	96	22
84	16	97	23
85	16	98	24
86	17	99	25
87	17	2000	26

Source:

Data for FY 75-82 -- DLA Civilian Personnel Management Statistical Indicators Report, DLA-K

Data for FY 83-2000 -- Statistical Forecasting by Warren Gilchrist published by John Wiley and Sons, 1976

AVERAGE DAYS TO FILL VACANCIES

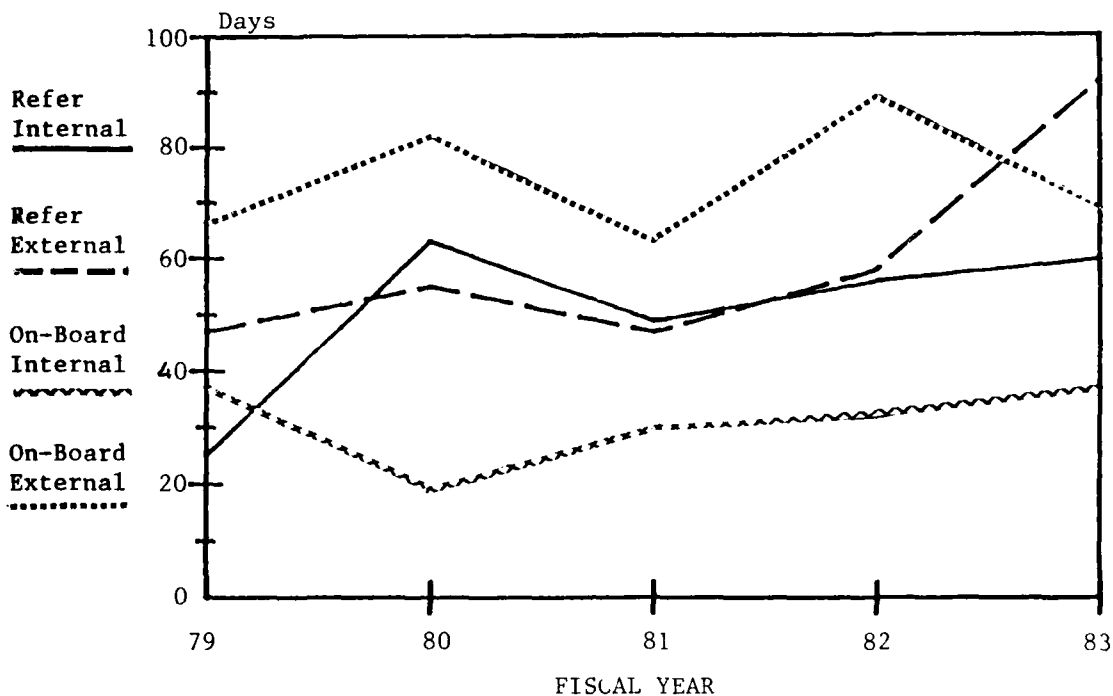


Figure 8.8

Refer Internal ^{1/}

<u>FY</u>	<u>DAYS</u>
83	60
82	56
81	49
80	63
79	25

Refer External ^{2/}

<u>FY</u>	<u>DAYS</u>
83	92
82	58
81	47
80	55
79	47

On-board Internal ^{3/}

<u>FY</u>	<u>DAYS</u>
83	37
82	32
81	30
80	19
79	37

On-Board External ^{4/}

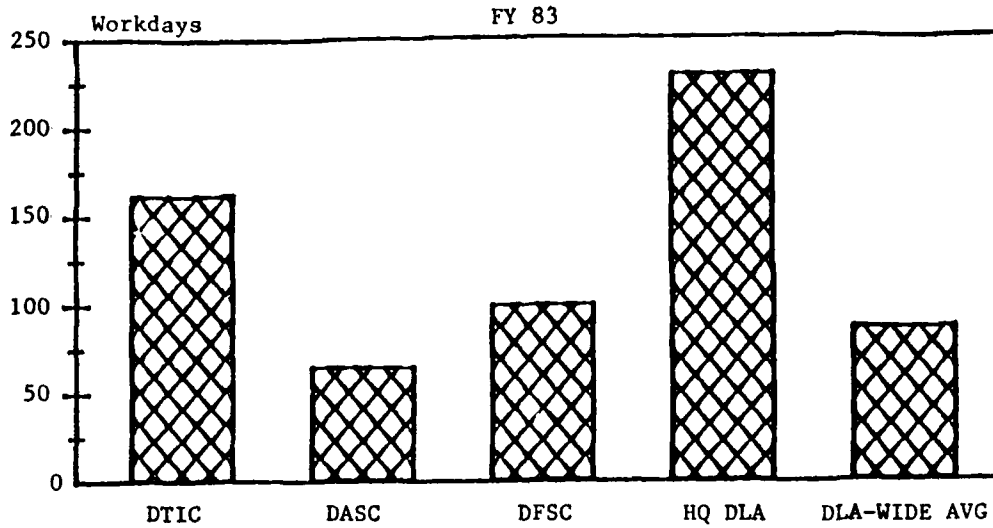
<u>FY</u>	<u>DAYS</u>
83	69
82	89
81	63
80	82
79	66

- ^{1/} No. of days to refer candidate, serviced by DASC-Z, to selecting office
^{2/} No. of days to refer candidate, not serviced by DASC-Z, to selecting office
^{3/} No. of days to get employee, serviced by DASC-Z, on the job after selection
^{4/} No. of days to get employee, not serviced by DASC-Z, on the job after selection

Source:

DLA Civilian Personnel Management Statistical Indicators Report, DLA-K

AVERAGE DAYS TO FILL VACANCIES

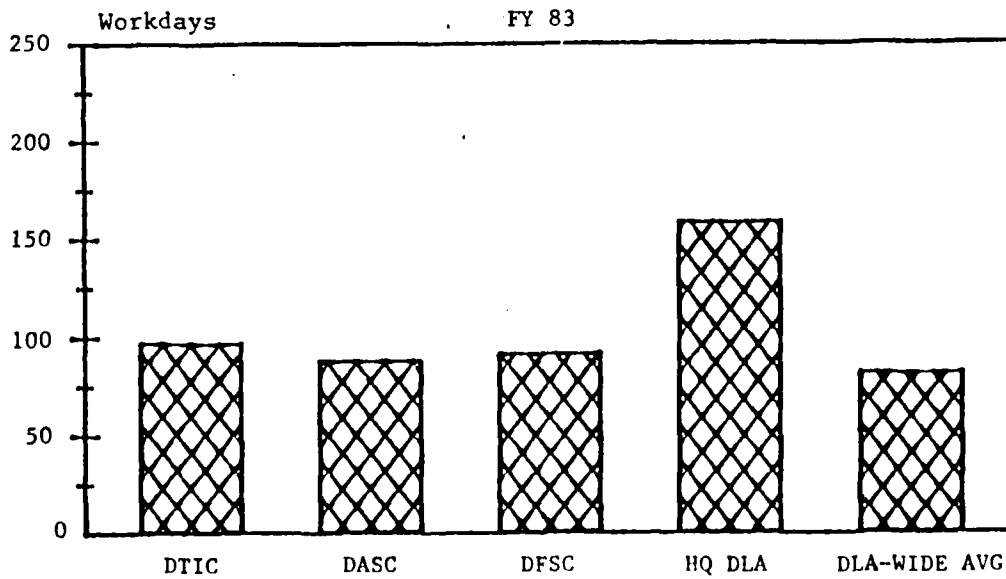


1 Average days to fill vacancies with employees not serviced by DASC-Z

<u>FY</u>	<u>DTIC</u>	<u>DASC</u>	<u>DFSC</u>	<u>HQ DLA</u>	<u>DLA-WIDE AVERAGE</u>
83	161	64	99	229	86

Source: DLA Civilian Personnel Management Statistical Indicators Report, DLA-K

AVERAGE DAYS TO FILL VACANCIES



2 Average days to fill vacancies with employees serviced by DASC-Z

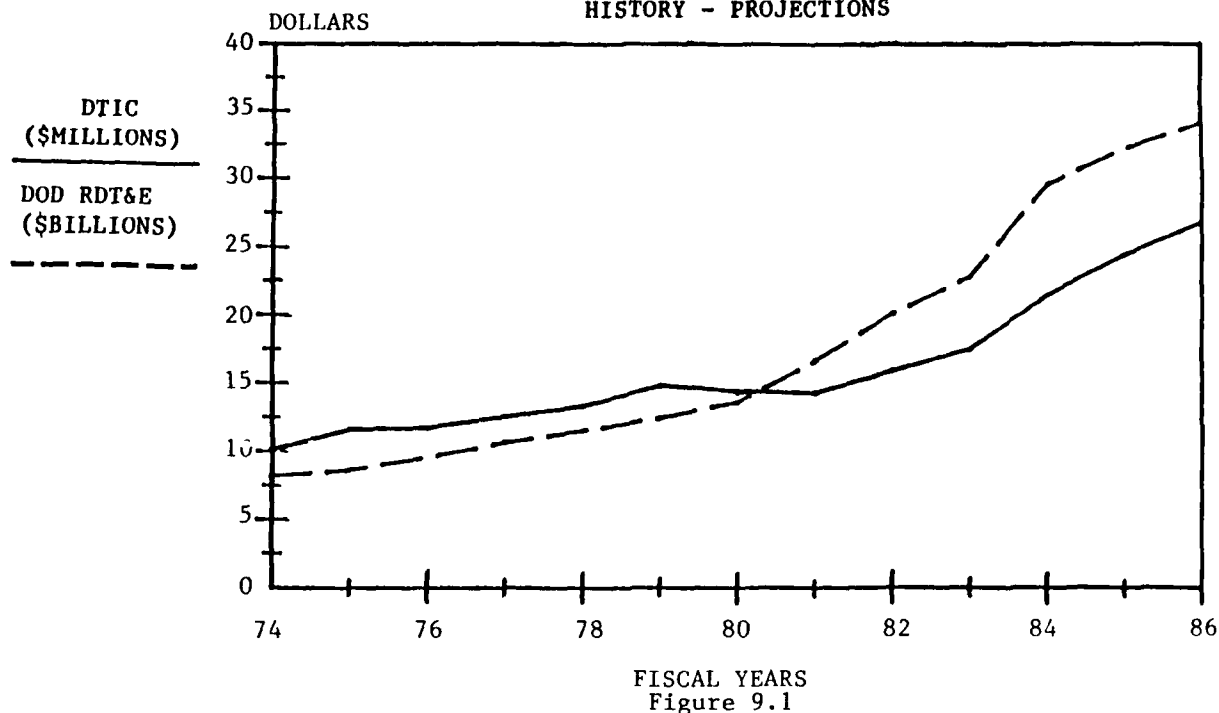
<u>FY</u>	<u>DTIC</u>	<u>DASC</u>	<u>DFSC</u>	<u>HQ DLA</u>	<u>DLA-WIDE AVERAGE</u>
83	97	88	92	159	82

Source: DLA Civilian Personnel Management Statistical Indicators Report, DLA-K

Figure 8.9

APPENDIX F
FINANCE AND BUDGET DATA SETS

DTIC DOD RDT&E FUNDING
HISTORY - PROJECTIONS

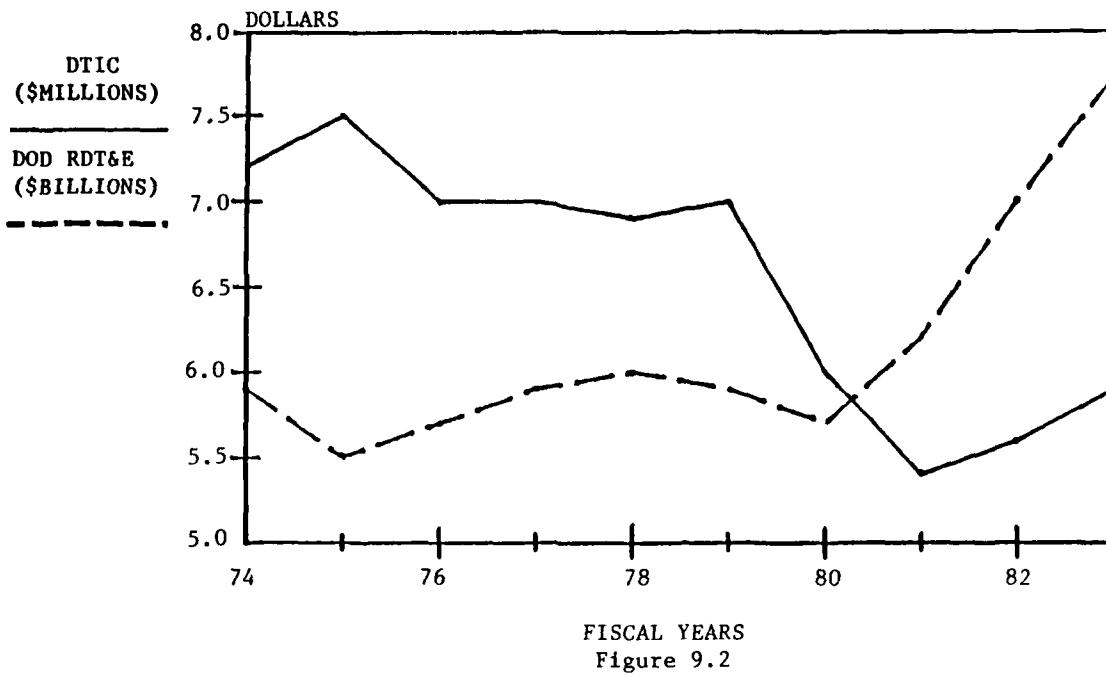


<u>DTIC</u>	<u>\$M</u>	<u>DoD RDT&E</u>	<u>\$B</u>
FY 74	10.1 ^{1/}	FY 74	8.2 ^{3/}
FY 75	11.6 ^{1/}	FY 75	8.6 ^{3/}
FY 76	11.7 ^{1/}	FY 76	9.5 ^{3/}
FY 77	12.5 ^{1/}	FY 77	10.6 ^{3/}
FY 78	13.3 ^{1/}	FY 78	11.5 ^{3/}
FY 79	14.8 ^{1/}	FY 79	12.4 ^{3/}
FY 80	14.4 ^{1/}	FY 80	13.6 ^{4/}
FY 81	14.3 ^{1/}	FY 81	16.6 ^{4/}
FY 82	15.9 ^{1/}	FY 82	20.1 ^{5/}
FY 83	17.5 ^{1/}	FY 83	22.8 ^{5/}
FY 84	21.5 ^{2/}	FY 84	29.6 ^{3/}
FY 85	24.5 ^{2/}	FY 85	32.2 ^{6/}
FY 86	26.9 ^{2/}	FY 86	34.1 ^{6/}

Source:

- ^{1/} Schedule of Manpower and Financial Authority
- ^{2/} DTIC FY 84 Budget Submission to HQ DLA
- ^{3/} The Budget of the U.S. Government, FYs 76-84
- ^{4/} FYs 1981 and 1983 Defense RDT&E Budget
- ^{5/} Annual Report to the Congress - FY 1984
- ^{6/} Public Affairs Office, Office of Management and Budget

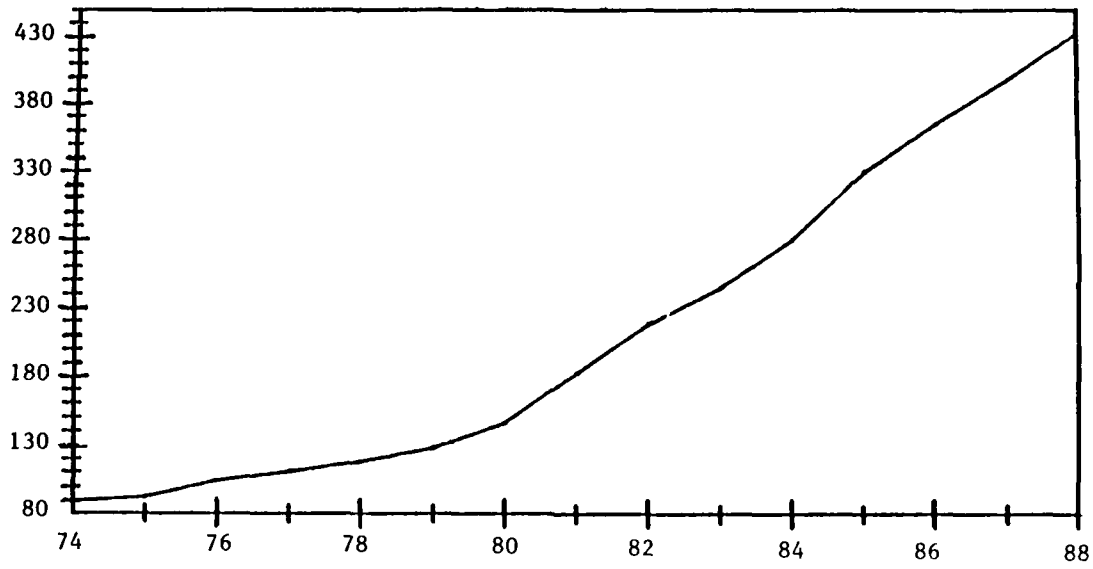
DTIC/DOD RDT&E FUNDING
 ADJUSTED (1967 CPI=100)



The figures contained in Figure 9.1 have been adjusted to the Consumer Price Index, provided by the U.S. Department of Labor, Bureau of Labor Statistics.

<u>DTIC</u>	<u>\$M</u>	<u>DoD RDT&E</u>	<u>\$B</u>
FY 74	7.2	FY 74	5.9
FY 75	7.5	FY 75	5.5
FY 76	7.0	FY 76	5.7
FY 77	7.0	FY 77	5.9
FY 78	6.9	FY 78	6.0
FY 79	7.0	FY 79	5.9
FY 80	6.0	FY 80	5.7
FY 81	5.4	FY 81	6.2
FY 82	5.6	FY 82	7.0
FY 83	5.9	FY 83	7.7

DEFENSE FUNDING



FISCAL YEARS
Figure 9.3

<u>FY</u>	<u>\$B</u>
74	89.3
75	91.9
76	103.8
77	110.4
78	117.9
79	127.8
80	145.8
81	182.4
82	218.7
83	245.5
84	280.5
85	330.0
86	364.8
87	397.0
88	432.7

Source:
The Budget of the U.S. Government

DEFENSE FUNDING
ADJUSTED (1967 CPI=100)

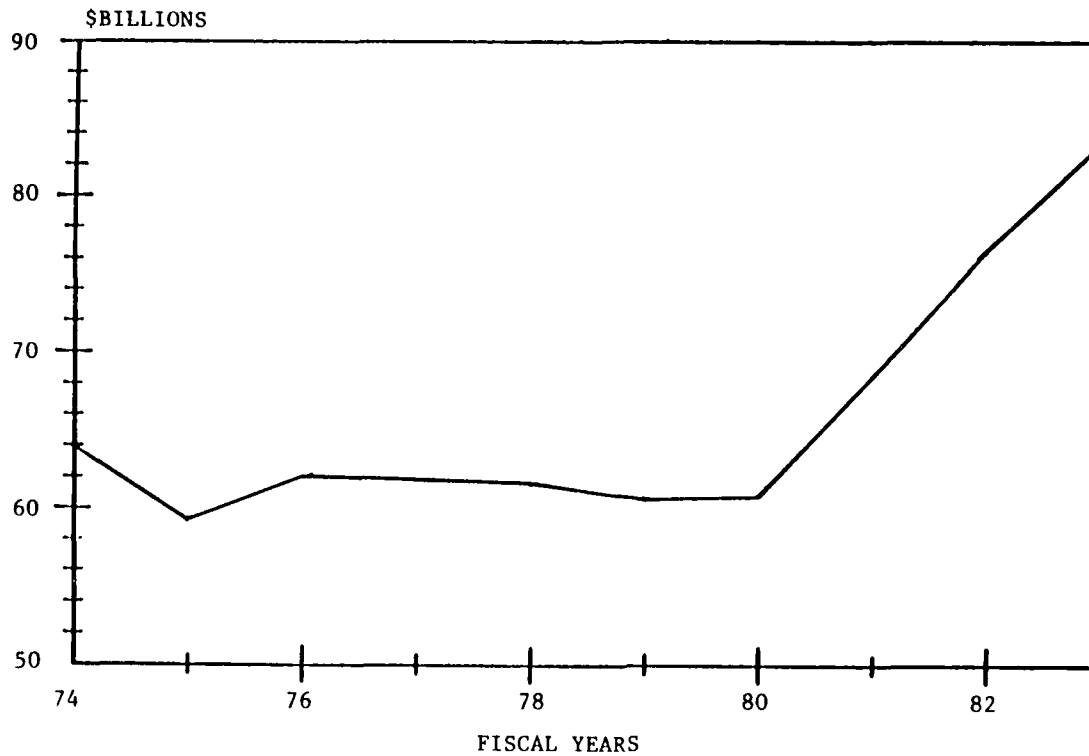


Figure 9.4

The figures contained in Figure 9.3 have been adjusted to the Consumer Price Index, provided by the U.S. Department of Labor, Bureau of Labor Statistics.

<u>FY</u>	<u>\$B</u>
74	63.9
75	59.2
76	62.0
77	61.8
78	61.6
79	60.6
80	60.8
81	68.5
82	76.5
83	83.2

COMPARISON OF DOD RDT&E TO DTIC FUNDING
FY74 - FY84

	<u>1974</u>	<u>1984</u>	<u>INCREASE</u>
DOD RDT&E BUDGET	8.2B	29.6B	+ 261%
DTIC BUDGET	10.1M	21.5M	+ 113%
PERCENT OF DTIC BUDGET TO DOD RDT&E BUDGET	.123%	.073%	- 41%

Figure 9.5

<u>DoD RDT&E</u>		<u>DTIC</u>	
<u>FY</u>	<u>\$B</u>	<u>FY</u>	<u>\$M</u>
74	8.2	74	10.1
75	8.6	75	11.6
76	9.5	76	11.7
77	10.6	77	12.5
78	11.5	78	13.3
79	12.4	79	14.8
80	13.6	80	14.4
81	16.6	81	14.3
82	20.1	82	15.9
83	22.8	83	17.5
84	29.6	84	21.5

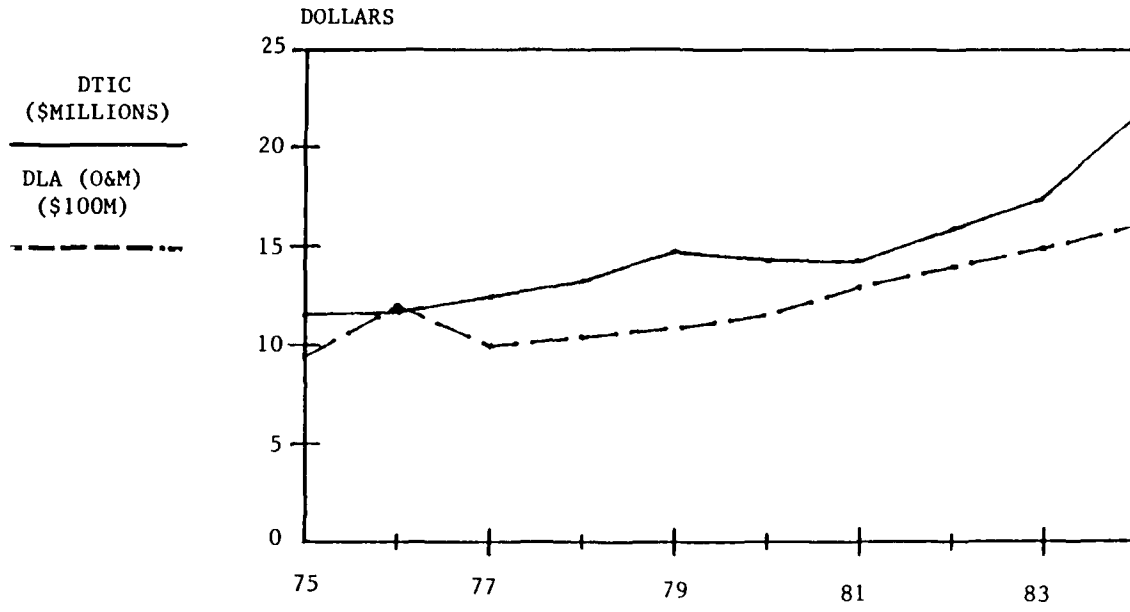
COMPARISON OF DOD TO DOD RDT&E FUNDING
 FY74 - FY84
 (BILLIONS)

	<u>1974</u>	<u>1984</u>	<u>INCREASE</u>
DOD BUDGET	89.3	280.5	+ 214%
DOD RDT&E BUDGET	8.2	29.6	+ 261%
PERCENT OF DOD RDT&E BUDGET TO DOD BUDGET	9.18%	10.55%	+ 15%

Figure 9.6

<u>DoD</u>		<u>DoD RDT&E</u>	
<u>FY</u>	<u>\$B</u>	<u>FY</u>	<u>\$B</u>
74	89.3	74	8.2
75	91.9	75	8.6
76	103.8	76	9.5
77	110.4	77	10.6
78	117.9	78	11.5
79	127.8	79	12.4
80	145.8	80	13.6
81	182.4	81	16.6
82	218.7	82	20.1
83	245.5	83	22.8
84	280.5	84	29.6

DTIC/DLA (O&M) FUNDING HISTORY



FISCAL YEARS

Figure 9.7

<u>DTIC</u>		<u>DLA(O&M)*</u>	
<u>FY</u>	<u>\$M</u>	<u>FY</u>	<u>\$100M</u>
75	11.6	75	9.4
76	11.7	76	12.0
77	12.5	77	10.0
78	13.3	78	10.4
79	14.8	79	10.9
80	14.4	80	11.6
81	14.3	81	13.0
82	15.9	82	14.0
83	17.5	83	15.0
84	21.5	84	16.1

*Source:

HQ DLA Comptroller's Office, Accounting and Finance Division

AVERAGE GROWTH RATE

FY 75 - 84

	PERCENT
DLA (O&M)	6.2
DTIC	7.4
DoD	13.4
DoD RDT&E	15.0

Figure 9.8

<u>DLA(O&M)</u>		<u>DTIC</u>		<u>DoD</u>		<u>DoD RDT&E</u>	
<u>FY</u>	<u>\$M</u>	<u>FY</u>	<u>\$M</u>	<u>FY</u>	<u>\$B</u>	<u>FY</u>	<u>\$B</u>
75	943.7	75	11.6	75	91.9	75	8.6
76	1,204.0	76	11.7	76	103.8	76	9.5
77	1,003.6	77	12.5	77	110.4	77	10.6
78	1,044.0	78	13.3	78	117.9	78	11.5
79	1,093.6	79	14.8	79	127.8	79	12.4
80	1,162.6	80	14.4	80	145.8	80	13.6
81	1,301.2	81	14.3	81	182.4	81	16.6
82	1,396.8	82	15.9	82	218.7	82	20.1
83	1,499.0	83	17.5	83	245.5	83	22.8
84	1,612.0	84	21.5	84	280.5	84	29.6

DEFENSE

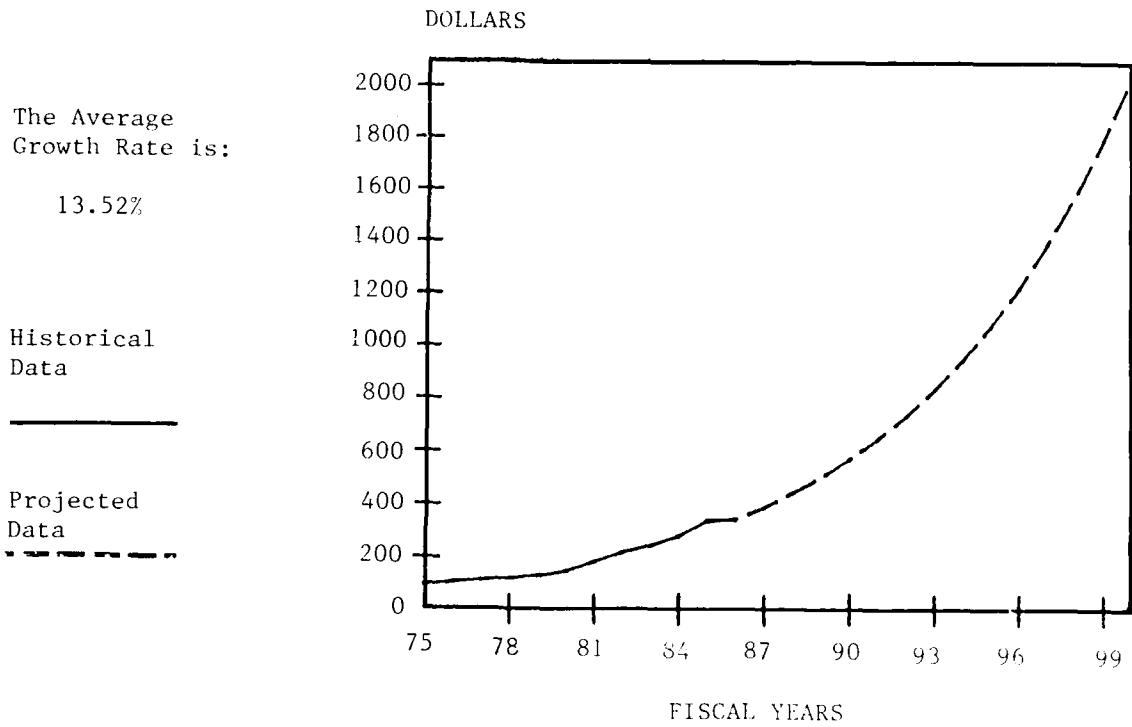


Figure 9.9

<u>FY</u>	<u>\$B</u>	<u>FY</u>	<u>\$B</u>
75	91.9	88	445.0
76	103.8	89	505.0
77	110.4	90	573.0
78	117.9	91	651.0
79	127.8	92	739.0
80	145.8	93	839.0
81	182.4	94	952.0
82	218.7	95	1,081.0
83	245.5	96	1,228.0
84	280.5	97	1,394.0
85	340.0	98	1,582.0
86	345.0	99	1,796.0
87	392.0	2000	2,039.0

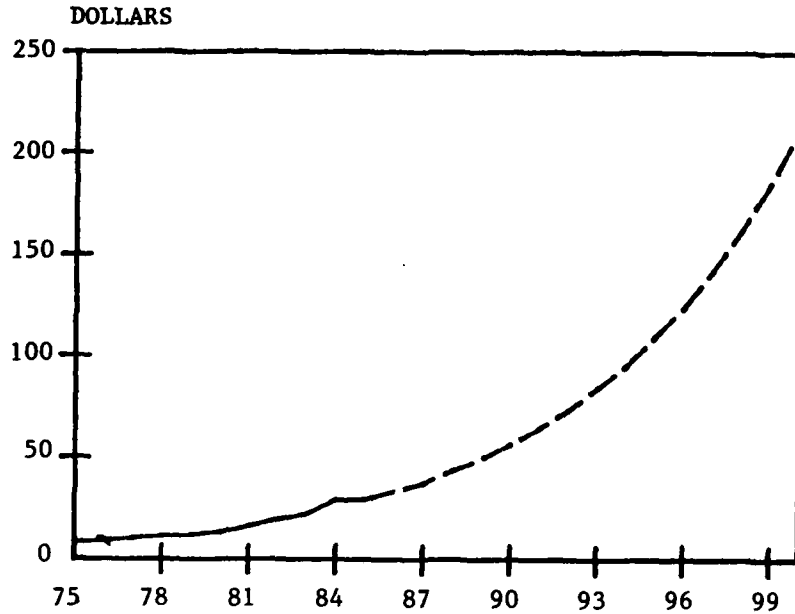
Projections were made by exponential smoothing technique. Source: Statistical Forecasting, by Warren Gilchrist, published by John Wiley and Sons, 1976.

DOD RDT&E

The Average
Growth Rate is:
14.02%

Historical
Data

Projected
Data



FISCAL YEARS

Figure 9.10

<u>FY</u>	<u>\$B</u>	<u>FY</u>	<u>\$B</u>
75	8.6	88	44.0
76	9.5	89	50.0
77	10.6	90	57.0
78	11.5	91	65.0
79	12.4	92	74.0
80	13.6	93	85.0
81	16.6	94	96.0
82	20.1	95	110.0
83	22.8	96	125.0
84	29.6	97	143.0
85	30.0	98	163.0
86	34.0	99	186.0
87	38.0	2000	212.0

Projections were made by exponential smoothing technique. Source:
Statistical Forecasting, by Warren Gilchrist, published by John Wiley and
Sons, 1976.

DTIC

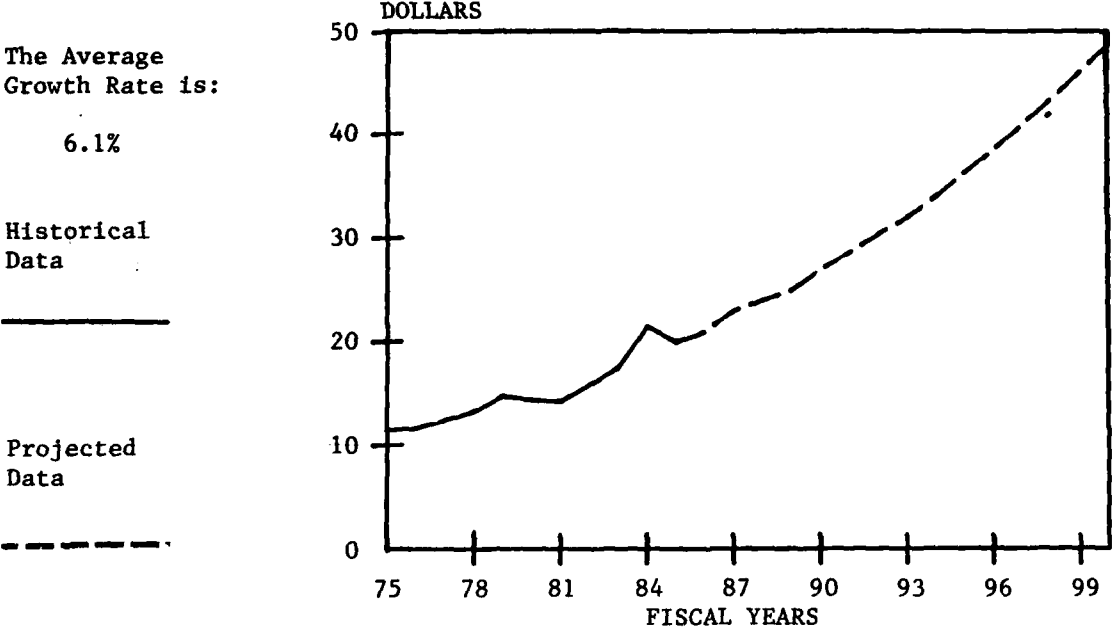


Figure 9.11

<u>FY</u>	<u>\$M</u>	<u>FY</u>	<u>\$M</u>
75	11.6	88	24.0
76	11.7	89	25.0
77	12.5	90	27.0
78	13.3	91	28.6
79	14.8	92	30.4
80	14.4	93	32.0
81	14.3	94	34.0
82	15.9	95	36.3
83	17.5	96	38.5
84	21.5	97	40.9
85	20.0	98	43.3
86	21.0	99	46.0
87	23.0	2000	48.8

Projections were made by exponential smoothing technique. Source: Statistical Forecasting, by Warren Gilchrist, published by John Wiley and Sons, 1976.

DLA (O&M)

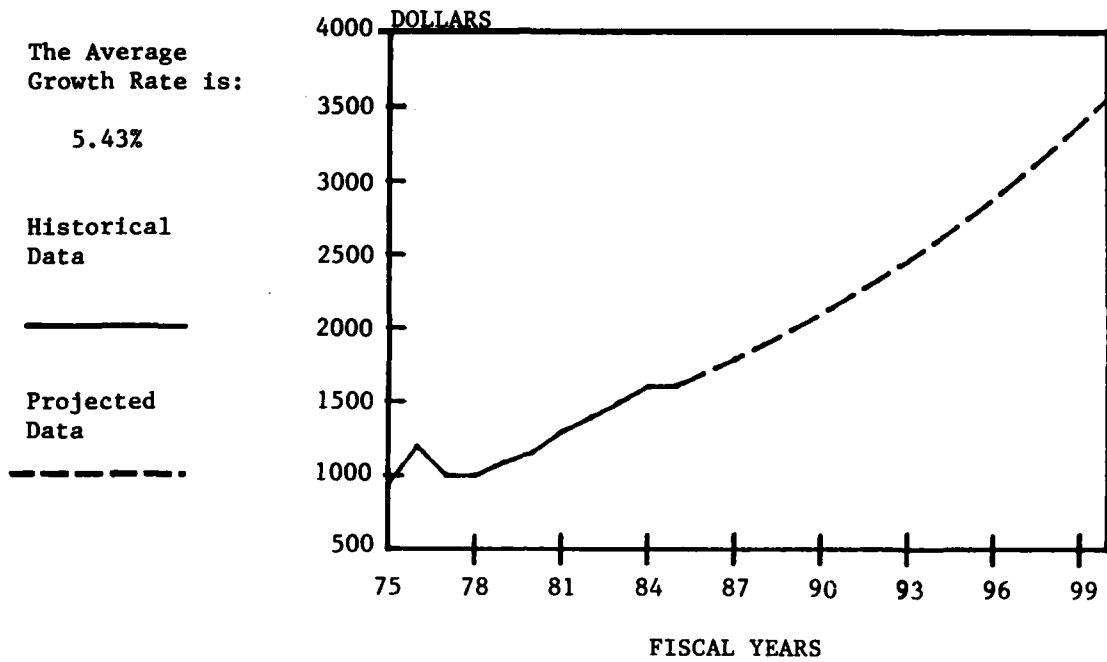
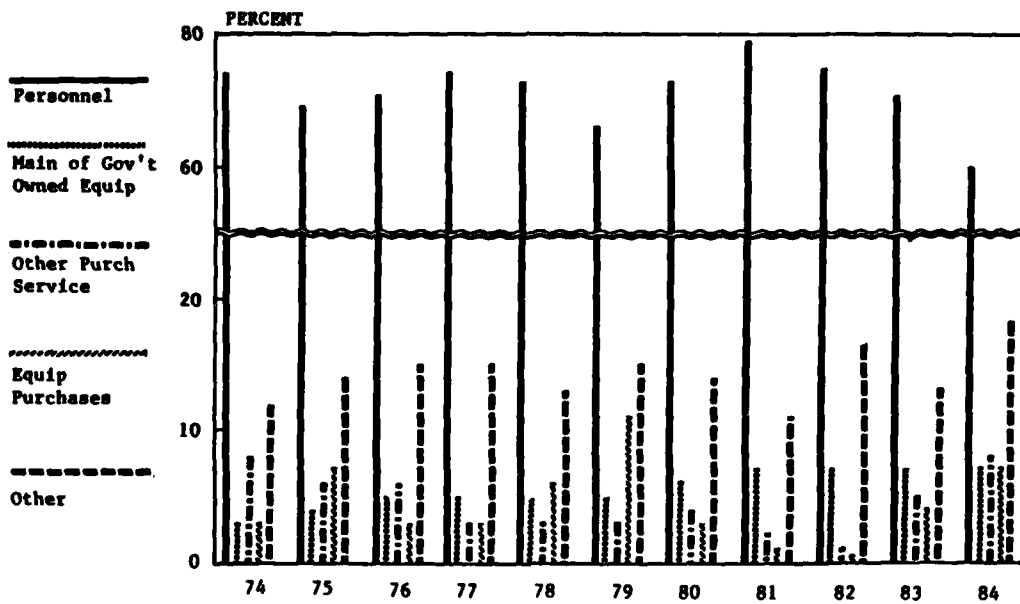


Figure 9.12

<u>FY</u>	<u>\$M</u>	<u>FY</u>	<u>\$M</u>
75	943.7	88	1,894.6
76	1,204.0	89	1,997.6
77	1,003.6	90	2,106.0
78	1,044.0	91	2,220.5
79	1,093.6	92	2,341.1
80	1,162.6	93	2,468.0
81	1,301.2	94	2,602.0
82	1,396.8	95	2,743.7
83	1,499.0	96	2,892.7
84	1,612.0	97	3,049.8
85	1,616.6	98	3,215.5
86	1,704.4	99	3,390.0
87	1,797.0	2000	3,574.0

Projections were made by exponential smoothing technique. Source: Statistical Forecasting, by Warren Gilchrist, published by John Wiley and Sons, 1976.

DTIC FUNDING PROFILE



FISCAL YEARS
Figure 9.13

Category	Fiscal Year (Percentages)										
	74	75	76	77	78	79	80	81	82	83	84
Personnel	74	69	71	74	73	66	73	79	75	71	60
Purchased Equip. Maintenance	3	4	5	5	5	5	6	7	7	7	7
Other Purchase Services	8	6	6	3	3	3	4	2	1	5	8
Equip. Purchases	3	7	3	3	6	11	3	1	.5	4	7
Other (Supplies & Materials; Rents & Utilities; Communications; Travel; Transportation of Things; Printing)	12	14	15	15	13	15	14	11	16.5	13	18

Source:
DTIC Budget Submissions

DTIC FUNDING BY PSE
BY PSE

	(PERCENT)		
	<u>FY 81</u>	<u>FY 82</u>	<u>FY 83</u>
ADMINISTRATOR'S STAFF	2	2	2
SECURITY	3	3	2
USER SERVICES	1	3	2
SUPPORT SERVICES	4	4	4
INFORMATION SYSTEMS AND TECHNOLOGY	4	4	10
PLANNING AND MANAGEMENT	5	4	4
DATA BASE SERVICES	19	18	16
TELECOMMUNICATIONS AND ADP	29	30	29
DOCUMENT SERVICES	33	32	29
MATRIS			2

Figure 9.14

SOURCE: OBLIGATIONS REPORT RCS DLA(M)48(C) LISTING OF UNDELIVERED ORDERS

COMPARISON OF DTIC TO
OTHER TECHNICAL INFORMATION CENTERS
(\$ MILLIONS)

	<u>1980</u>	<u>1983</u>	<u>INCREASE</u>
DTIC	14.4	17.5	22%
DOE TIC	11.3	14.9	32%
NLM	44.0	46.0	5%
NASA TIC	7.8	9.0	15%

Figure 9.15

	<u>Fiscal Year</u> (<u>\$ Millions</u>)			
	<u>80</u>	<u>81</u>	<u>82</u>	<u>83</u>
DTIC	14.4	14.3	15.9	17.5
DoE TIC	11.3	12.9	15.8	14.9
NLM	44.0	44.7	45.0	46.0
NASA TIC	7.8	8.1	8.5	9.0