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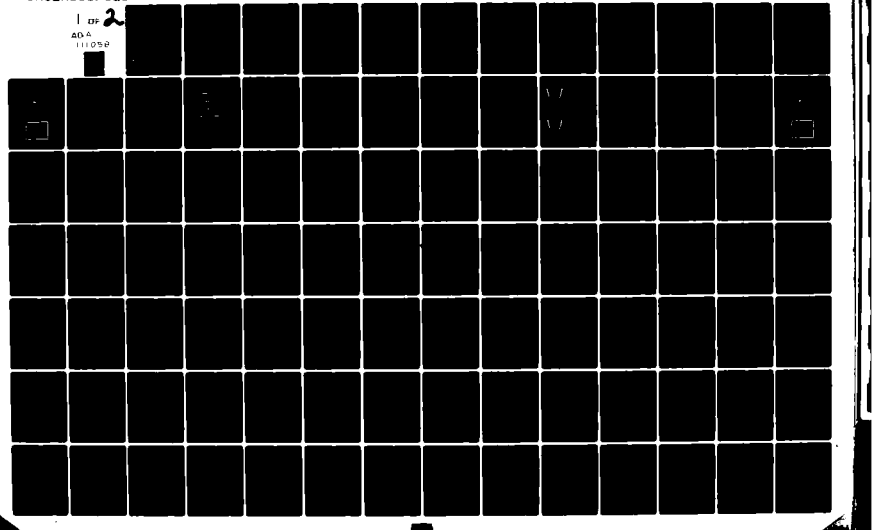

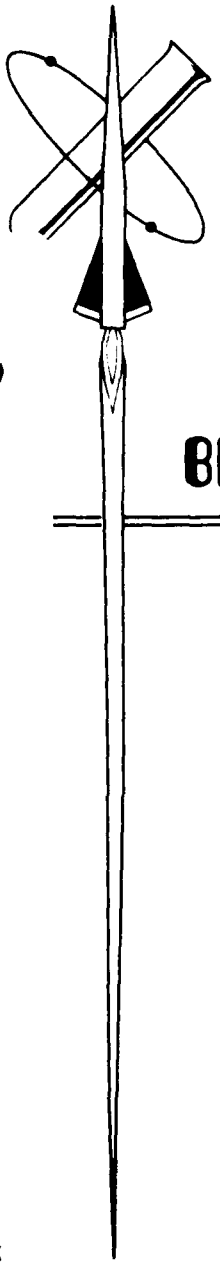

BMD ADVANCED TECHNOLOGY CENTER

PROPOSAL AND JUSTIFICATION FOR ESTABLISHING STRATEGIC TECHNOLOGY INFORMATION ANALYSIS CENTER

4 December 1981

Prepared by:

Optics Directorate
Ballistic Missile Defense Advanced Technology Center
P. O. Box 1500
Huntsville, Alabama 35807

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FOREWORD

This document is intended to provide the Defense Logistics Agency (DLA) with the information needed to support a decision to establish a Strategic Technology Information Analysis Center (STIAC). This Center would provide a mission-oriented focus for Strategic Technology, operating similar to the highly successful DLA-managed centers for other disciplines. The need for this activity has been endorsed by the appropriate Government and industry managers. We believe this plan is responsive to needs articulated by the strategic community; timely in terms of technology growth, system maturity, and national strategic policy; and complete with regard to DLA criteria. We would be pleased to discuss any aspects of the plan or implementation. If there are any questions on this document, feel free to call Shelba J. Proffitt, 205/895-4570.

W O Davies

WILLIAM O. DAVIES
Director
Optics Directorate
BMDATC

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LIST OF ACRONYMS

BMD	Ballistic Missile Defense
BMDATC	Ballistic Missile Defense Advanced Technology Center
CBD	Commerce Business Daily
CEIAC	Coastal Engineers Information Analysis Center
CPIA	Chemical Propulsion Information Agency
CRSTIAC	Cold Regions Science and Technology Information Analysis Center
CTIAC	Concrete Technology Information Analysis Center
DACS	Data and Analysis Center for Software
DAL	Dissemination Authority List
DASIAC	DoD Nuclear Information Analysis Center
DDC	Defense Documentation Center
DLA	Defense Logistics Agency
DNA	Defense Nuclear Agency
DoD	Department of Defense
DTIC	Defense Technical Information Center
GACIAC	Guidance and Control Information Analysis Center
G&C	Guidance and Control
GFE	Government Furnished Equipment
GSA	General Services Administration
HEIAC	Hydraulic Engineering Information Analysis Center
IAC	Information Analysis Center
ICBM	Intercontinental Ballistic Missile
IR	Infrared
IRIA	Infrared Information and Analysis Center
MMCIAC	Metal Matrix Composites Information Analysis Center
MMW	Millimeter Wave
NTIAC	Nondestructive Testing Information Analysis Center
NTIS	National Technical Information Service
OSC	Optical Signatures Code
PLASTEC	Plastics Technical Evaluation Center
PSTIAC	Pavement and Soils Trafficability Information Analysis Center
R&D	Research and Development
RDT&E	Research, Development, Test and Evaluation
SLBM	Soviet Launched Ballistic Missile
STIAC	Strategic Technology Information Analysis Center
TACTEC	Tactical Technology Center
TEPIAC	Thermophysical and Electronic Properties Information Analysis Center

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ABSTRACT

This document provides the data and plans to assist the Defense Logistics Agency in establishing a Strategic Technology Information Analysis Center. The objective of the STIAC is to establish (1) a centralized strategic information and analysis center that would provide a repository and centralized focal point for strategic data and analysis; (2) a cost effective and timely dissemination of strategic data; and (3) an available service center to the user community. The mission and scope for the STIAC covers (1) critical U.S. strategic missions such as Ballistic Missile Defense, Space Defense, Strategic Surveillance, and Strategic Offense and (2) the supporting technology (optics, radar, countermeasures, etc.) required for research and development of these missions.

The need for an STIAC evolved from changes in numerous areas which have affected the strategic community during the past two years. These include (1) revitalization of the strategic forces by President Reagan; (2) a loss of strategic data due to the lack of a centralized mission-oriented repository; (3) no existing efficient and rapid service center for strategic data and analysis; and (4) a change in DoD acquisition and procurement policy to multiyear contracts with increased industrial competition. The presurvey, user survey, and IAC survey conducted by BMDATC confirmed this need and provided a strong endorsement for proceeding with the STIAC. The review of the information networks and interviews of IAC's determined that no centralized system existed for acquiring and disseminating DoD strategic systems and technology information. Only one IAC, TACTEC, is mission-oriented in the tactical area and does not cover any of the strategic missions. Therefore, the STIAC does not duplicate any existing IAC.

EXECUTIVE SUMMARY

STIAC OBJECTIVE

The objective of this proposal is to provide the information necessary to assist in establishing a Strategic Technology Information Analysis Center that provides a centralized information and analysis service for DoD strategic programs. This center will be service-oriented for accurate and rapid disbursement of strategic data and analysis to the Government and non-Government users in the strategic community.

IAC BACKGROUND

The purpose of an Information Analysis Center (IAC) is to provide scientific and technical information and support services to both Government and industry in a specialized technical area or for a specific mission. There are 20 DoD supported IAC's. The IAC's are similar in operation, but dissimilar in subject matter, service, and output. Only one of these centers, Tactical Technology Center (TACTEC), is military mission oriented in the tactical area while the others are highly specialized in science and technology areas. Six of the centers are technology/phenomenology oriented centers, seven centers relate to materials development and performance, and six specialize in construction engineering. Each center collects, reviews, analyzes, appraises, summarizes, and stores available information on subjects of specialized technical areas or missions of concern.

The Defense Logistics Agency and Defense Technical Information Center (DTIC) administers and funds 9 contractor-operated IAC's and 11 others are managed by other DoD activities. These IAC's receive technical management from DoD laboratories and agencies who are leaders in the field of science and technology corresponding to the center's function.

PROPOSAL APPROACH SUMMARY

The methodology utilized to determine the justification for the STIAC and provide a well defined plan to establish the STIAC is illustrated in Figure 1. The approach consists of a step-wise sequence to ensure that the need and requirements are accurately determined. The need for STIAC

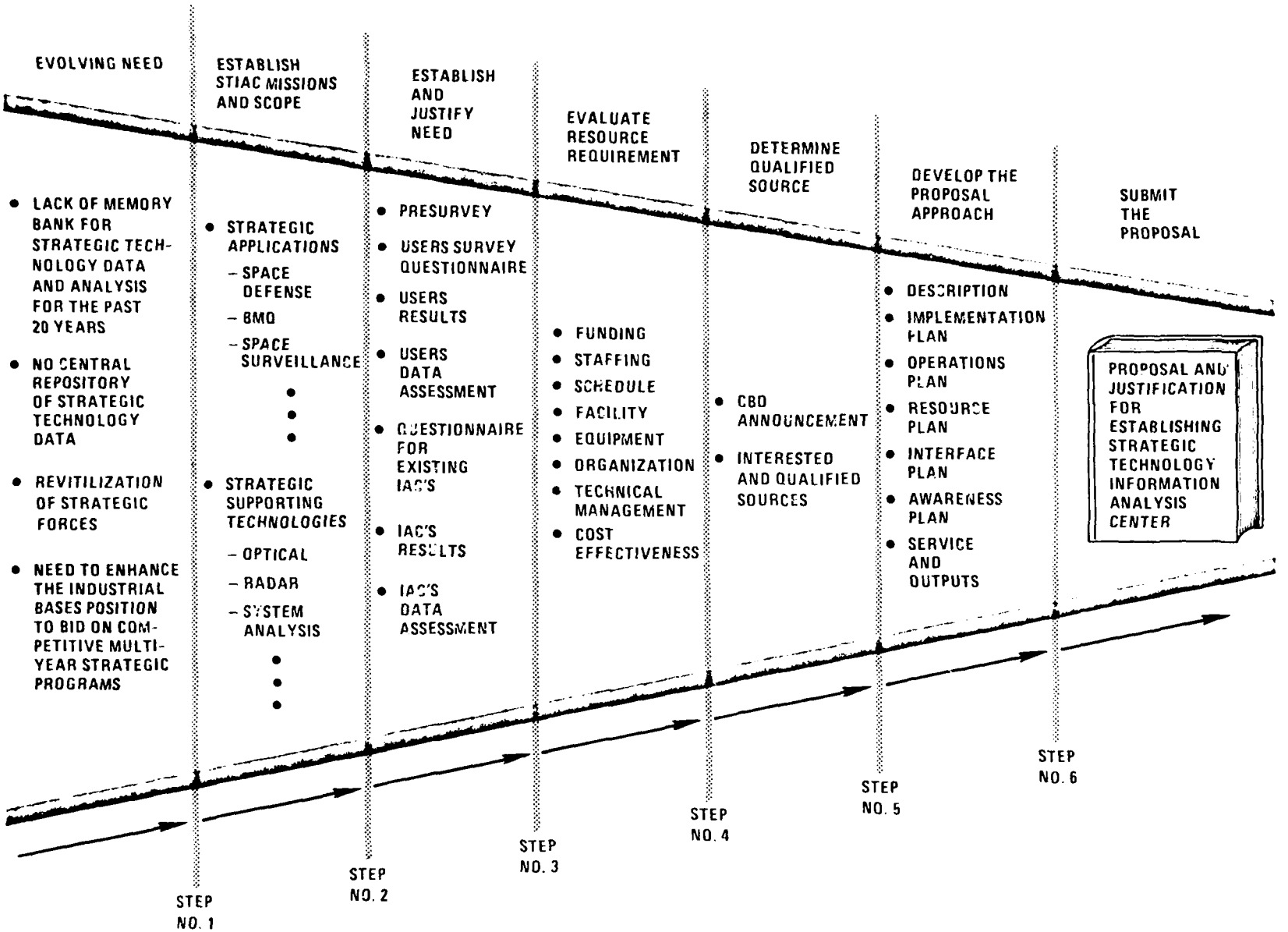


FIGURE 1. STEP-WISE SEQUENCE FOR DEVELOPING THE JUSTIFICATION AND DATA FOR THE STIAC PROPOSAL

evolved out of changes in numerous areas which have affected the strategic community during the past two years. These events are shown in *Step 1* (Figure 1). These include (1) revitalization of the strategic forces by President Reagan; (2) a loss of strategic data due to a lack of a centralized mission-oriented repository; (3) no existing efficient and rapid service center for strategic data and analysis; and (4) a change in DoD acquisition and procurement policy to multiyear contracts with increased industrial competition.

Step 2 established the mission and scope for STIAC as illustrated in Figure 2. The mission covers both the critical U.S. strategic missions as well as the supporting technology required for research, development, test and evaluation of these applications.

Step 3 assessed and established the need for the STIAC by conducting and evaluating surveys, interviews, and reviews of existing information services within the user community (IAC's, OOC's, technical library, etc.). A presurvey utilizing telephone interviews with key managers was performed within the Army (BMD); Air Force (SD AFGL); ARPA (ST); and strategic contractors to explain the STIAC concept and to solicit their views. The response of the managers was positive and provided the foundation for justifying a wider population written survey. The written survey was made up of a sample of DoD strategic RDT&E community. *The results of this user survey provided a strong endorsement and concern on the need for establishing the STIAC.* The user survey and interviews provided a profile of potential STIAC users and contributors. The majority of the respondents were DoD contractor personnel (84 percent), working in a management position (85 percent) in the strategic defense community. Sixty-three percent said they expected to use the facility at least 1 to 6 times per year and 25 percent expected to use it between 7 to 12 times per year. The preferred response time to inquiries was less than a week with only 4 percent specifying a response time of over two weeks. The preferred modes of information sources were written reports and personal contact. The most desired services were in the categories of state-of-the-art reports (80 percent), technology assessments (65 percent), and current awareness reports (63 percent). There was no clear preference for a particular type of organization to operate the STIAC; 24 percent specified a Government agency, 56 percent

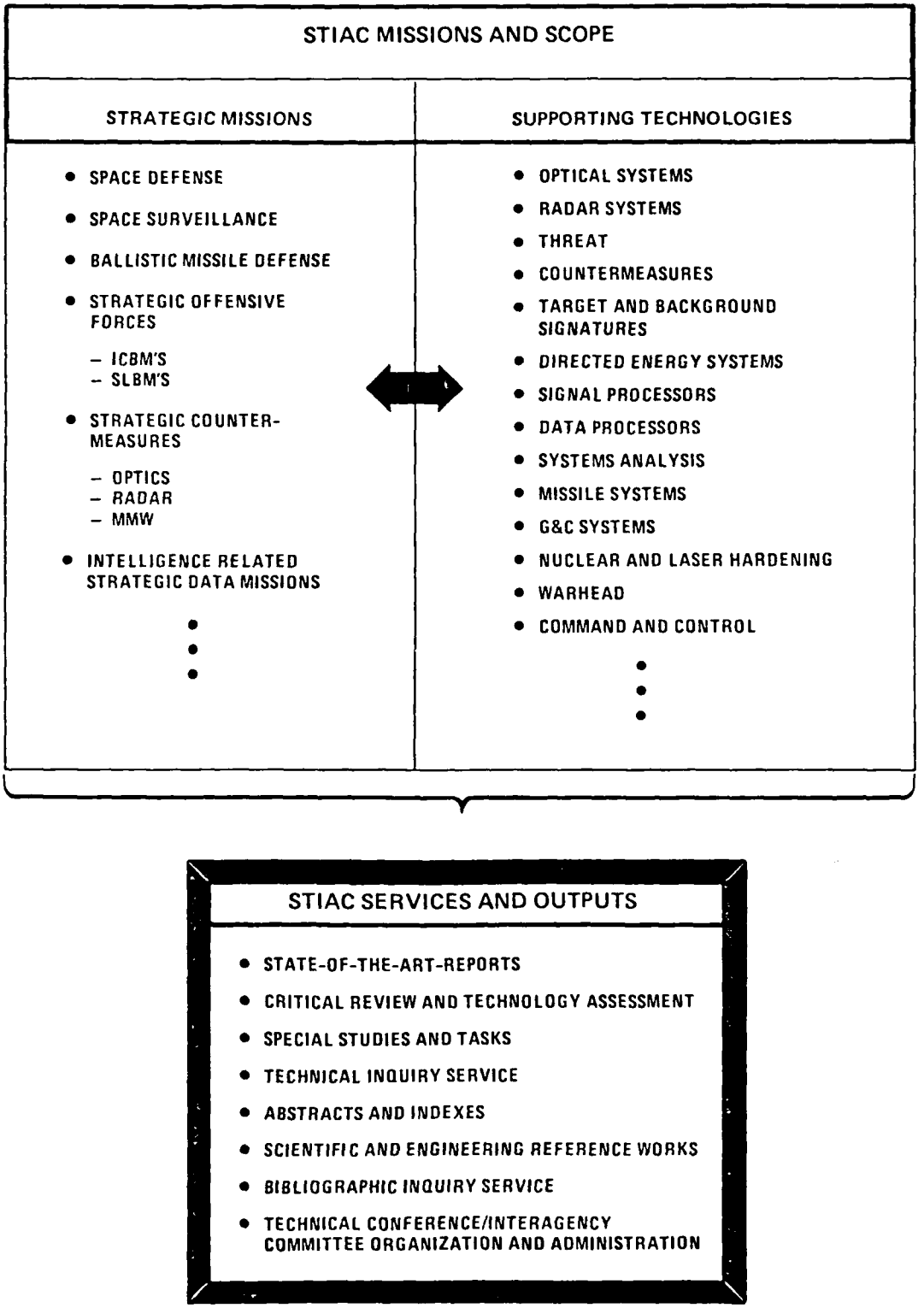


FIGURE 2. STIAC MISSION AND SCOPE

specified a contractor, not-for-profit organization or university, and 20 percent had no preference. Approximately 60 percent preferred a funding arrangement that involved a basic membership fee plus charge for special services.

The review of the information networks, survey, and interviews of existing IAC's determined that no centralized system existed for acquiring and disseminating DoD strategic systems and technology information. The potential source for strategic data is fragmented in terms of concerns and interests, which results in services dedicated to highly specialized technical areas and many data bases being misplaced or not available. It appears that the primary means of information transfer in the existing system for strategic technology data is through the informal investigator-to-investigator route and limited strategic symposiums. This unstructured data flow is ineffective for strategic technology transfer and imposes a severe penalty on DoD programs.

Figure 3 shows the general categories and subject area for the existing IAC's, TACTEC, and the proposed STIAC. Six technology-oriented centers contain data that have some relevance to the STIAC. TACTEC is a mission-oriented charter; its role is tactical and does not cover any of the strategic missions. Therefore, the STIAC does not duplicate any existing IAC. Furthermore, it will provide a solution to the tremendous DoD data gap and time gap in the strategic area. Figure 4 illustrates those IAC's which will have useful but limited data exchanges with the STIAC.

Step 4 developed the organizational and resource requirements for the STIAC. The key elements proposed include:

- Center to be administered by DLA and technically monitored by BMDATC.
- Center to be operated and managed by a competitively selected contractor or university.
- Establish a steering committee that includes a representative of each branch of military service, three private industry representatives, and the STIAC technical director.
- A projected operational date in FY83.
- An FY83 fiscal year requirement of $250,000 with a five-year funding profile as illustrated in Figure 5.

GENERAL CATEGORY	IAC'S	SUBJECT
TECHNOLOGY/ PHENOMENOLOGY	IRIAC	IR SENSOR COMPONENTS, TECHNOLOGY, AND DATA
	DASIAC	NUCLEAR WEAPONS/EFFECTS/ANALYSIS
	TEPIAC	THERMOPHYSICAL AND ELECTRONIC PROPERTIES
	CEPIA	ROCKETS/FUELS/HARDWARE
	GACIAC	GUIDANCE AND CONTROL AND TACTICAL WEAPONS
	DACS	SOFTWARE ENGINEERING AND TECHNOLOGY
MATERIALS DEVELOPMENT AND PERFORMANCE	MCIAC	FABRICATION AND UTILIZATION OF METALS AND CERAMICS
	MMCIAC	METAL MATRIX COMPOSITES
	MPDC	MECHANICAL PROPERTIES OF MATERIALS
	NTIAC	NDT OF MATERIALS/FAILURE PREVENTION
	PLASTEC	PLASTICS/ADHESIVES/ORGANIC COMPOSITES
	SVIC	SHOCK AND VIBRATION DATA ON MATERIALS
	RAC	RELIABILITY AND ANALYSIS
CONSTRUCTION ENGINEERING	CEIAC	COASTAL REGIONS/OCEANOGRAPHY/ENVIRONMENTS
	CRSTIAC	COLD REGION ENVIRONMENTS/FACILITIES
	CTIAC	CONCRETE CONSTRUCTION INFORMATION
	HEIAC	FLOOD CONTROL/NAVIGATION
	PSTIAC	MILITARY VEHICLE MOBILITY/PAVEMENT AND SOIL
	SMIAC	GEOLOGY ENGINEERING DATA
MILITARY MISSION	TACTEC	TACTICAL TECHNOLOGY
	STIAC	STRATEGIC TECHNOLOGY

FIGURE 3. INTERRELATIONSHIP OF MISSION ORIENTED IAC'S TO TECHNOLOGY ORIENTED IAC'S

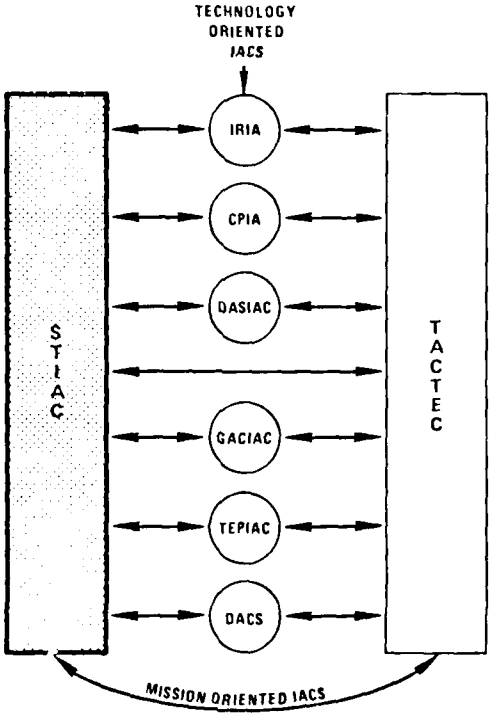


FIGURE 4. DATA TRANSFER BETWEEN STIAC AND OTHER EXISTING IAC'S

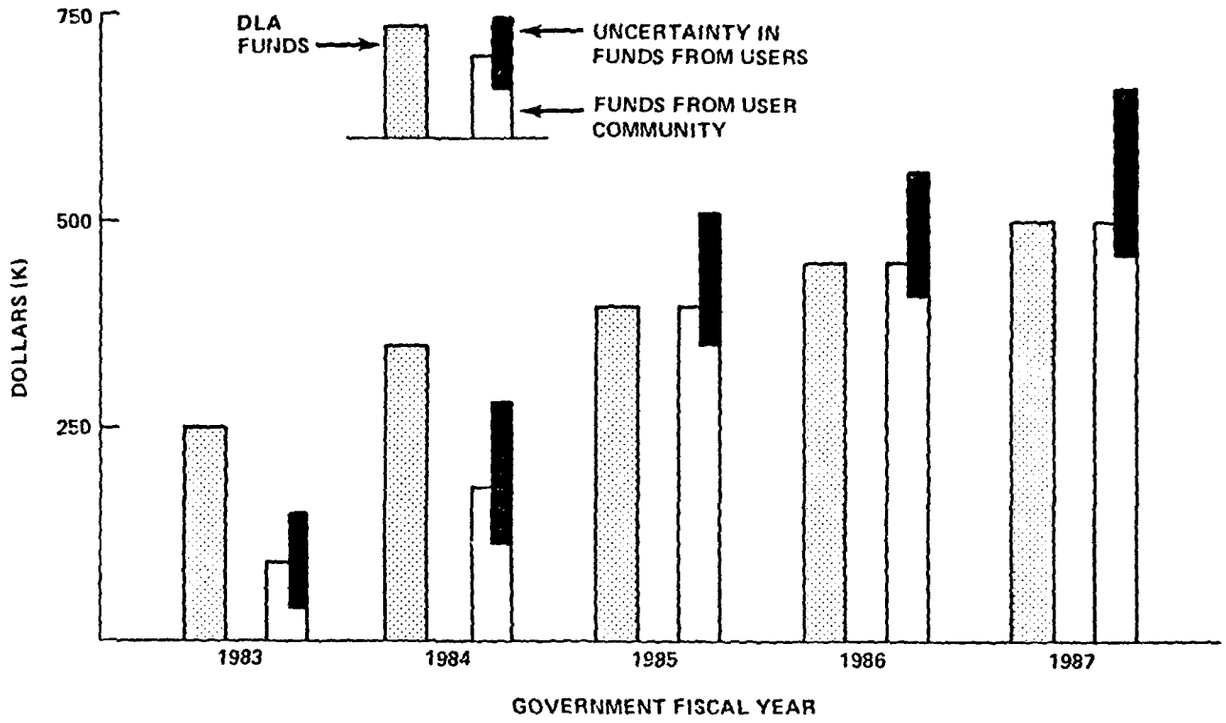


FIGURE 5. PROFILE FOR FUNDING REQUIREMENTS FOR STRATEGIC TECHNOLOGY INFORMATION ANALYSIS CENTER

- Funding from users obtained through a basic membership fee plus special service charge. A projected user funding of $100,000 in FY83 and 50 percent rate of reimbursement by FY85. Charges and fee will be derived to ensure a 50 percent rate of reimbursement after the second year.
- Numerous services, which have been identified as critical by the user community, will be available during the first year of operation. These include newsletters, handbooks, computer codes, symposiums and reports.
- A documented feedback system utilizing follow-up contact with individual users and a periodic written survey of the strategic marketplace.
- The contractor shall possess technical capabilities, publications, security, reproduction, and computer equipment to perform this type of program.
- The STIAC will have a facility requirement of approximately 8300 square feet which allows for growth over the 3-year period.
- Technical and administrative personnel requirements are a 7 man-year level during the first year of operation.
- The cost effectiveness of STIAC is justified by serving the strategic community, programs, and technology base. The STIAC will assist in preventing duplication of research and development programs and providing informational synthesis for planning and redirecting strategic programs. A National Science Foundation Study in 1977 substantiated the cost effectiveness of IAC's in a precise analysis.

Several interested and potentially qualified organizations to operate the STIAC have been identified from responses from a sources sought announcement in the Commerce Business Daily in *Step 5*. Twenty-one contractors and university/research centers have responded with their qualifications.

The development and documentation of the description, operation, resources, awareness, and four-phase implementation plans for the STIAC is illustrated in *Step 6*. The specific service and outputs for the STIAC are illustrated in Figure 2.

CONCLUSION

The personnel contacted in the user community and informational service community provided strong support and endorsement for establishing a strategic technology mission oriented IAC to serve as a centralized data

and analysis center. The formation of the STIAC is needed by the DoD strategic RDT&E community and should proceed as rapidly as possible in order to facilitate more efficient and cost effective development of DoD strategic weapons.

SECTION 1. INTRODUCTION

This proposal provides the Defense Logistic Agency with the following critical data to assist them in making the decision on establishing a Strategic Technology Information Analysis Center (STIAC).

1) Determination of the need for a STIAC.
2) Definition of mission and scope for the center.
3) Identification of the potential STIAC user community.
4) Identification and assessment of existing information sources.
5) Demonstration of non-duplication with other IAC's.
6) Delineation of interfaces with existing IAC's and other information sources.
7) Implementation and operational plans.
8) Determination of cost effectiveness and continuing financial support.
9) Determination of qualified organizations that are available and interested in managing and operating a strategic technology oriented IAC.

1.1 BACKGROUND

The purpose of an Information Analysis Center (IAC) is to provide scientific and technical information and support services to both government and industry in a specialized technical area or for a specific mission. There are 20 DoD supported IAC's. The IAC's are similar in operation, but dissimilar in subject matter, service, and output. Only one of these centers, Tactical Technology Center (TACTEC), is mission oriented while the others are highly specialized in science and technology areas (i.e., infrared - IRIA, guidance and control - GACIAC). Each center collects, reviews, analyzes, appraises, summarizes, and stores available information on subjects of specialized technical areas of concern. Using current computerized data management methodologies, the collections are expanded on a continuing basis to incorporate the most current research information. The synthesized information in selected subject areas is then packaged and disseminated according to expressed or anticipated needs.

The IAC performs analysis of the information, in the form of summarizing the data, preparing critical reviews, and preparing compilations of various sources in a particular field. Information centers of this type place emphasis on maintaining a relevant data bank and providing the user community with analytical summaries of this data. In this service an IAC is significantly different from a documentation center or a library. An additional mission relates to technical and administrative support to interservice DoD committees to review and coordinate R&D efforts concerning interservice compatibility of technological programs, and to promote the exchange of technical information in specialized subject areas.

The Defense Logistic Agency and Defense Technical Information Center (DTIC) presently administers and funds 9 contractor-operated IAC's and 11 others are managed by other DoD activities. These IAC's receive technical management from DoD laboratories and agencies with leading capability in the field of science and technology corresponding to the center's function.

The need for establishing a strategic mission oriented IAC has become increasingly more apparent to Ballistic Missile Defense (BMD) during the past two years with increased emphasis for developing a viable cost effective ballistic missile defense system for our land-based strategic forces. Critical data from other related non-BMD programs is difficult and time consuming for the strategic BMD community to acquire.

1.2 EVOLVING NEED FOR STIAC

The need for a STIAC has been surfacing along multiple paths. First, current IAC's and information systems do not provide a centralized repository for the enormous amount of strategic information that has been accumulating during the escalating growth in strategic DOD programs. The impact of this situation is that there is a critical need for data on a multitude of current and projected strategic systems.

Second, the strategic system areas have been developing crucial data bases and analysis during the past 20 years. Due to the imposed structure of strategic efforts, retirement and then changes of critical personnel, and no centralized data collection system, data and analysis have been effectively lost to the strategic community.

Third, during October 1980, President Reagan issued a new DoD policy that provides a significant resurgence to our strategic posture and program. This policy not only includes new strategic programs, but also includes necessary funding commitments for achieving President Reagan's goals. Highlights of this policy include:

- A comprehensive plan for revitalizing our strategic deterrent.
- An improvement in communication and control systems for support of strategic systems.
- Step-by-step plans to improve the strength and accuracy of new land-based missiles, and to reduce their vulnerability.
- Continued pursuit of an operational Antisatellite System.
- Increased emphasis on research and development for Ballistic Missile Defense.
- Emphasis on development of technologies for Space-Based Missile Defense.
- Deployment of MX's (100).

Fourth, a major change is occuring in DoD acquisition and procurement policies to multiyear contracts with increased competition. This places a renewed responsibility on the Government to make available critical data on related programs and technologies in a timely and cost effective manner. This STIAC service will assist in providing a more competitive marketplace for strategic programs. The resurgence of strategic programs, with a large number of competitive actions, strengthens the need for a STIAC.

One example of this changing need is typlified in the strategic optical program area. Since the mid-1960's the use of optical sensors in strategic systems has been expanding due to the significant advantages and effectiveness of such systems. Figures 6 and 7 show both previous and projected R&D and system programs for strategic optical areas. Also, shown on this chart are potential optical systems that have been proposed for strategic operations. The approximate funding profiles for R&D and system areas shown in Figures 8 and 9. The funding level for the proposed programs show relative growth trends. This mushrooming effect in programs and funds is occurring within numerous strategic missions.

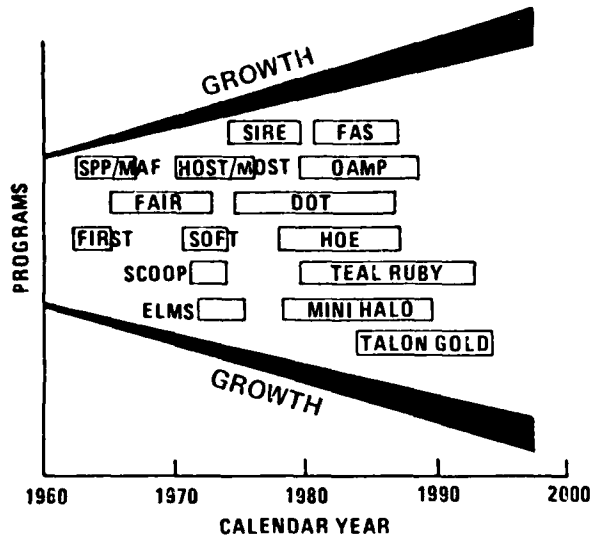


FIGURE 6. STRATEGIC OPTICAL R&D PROGRAMS

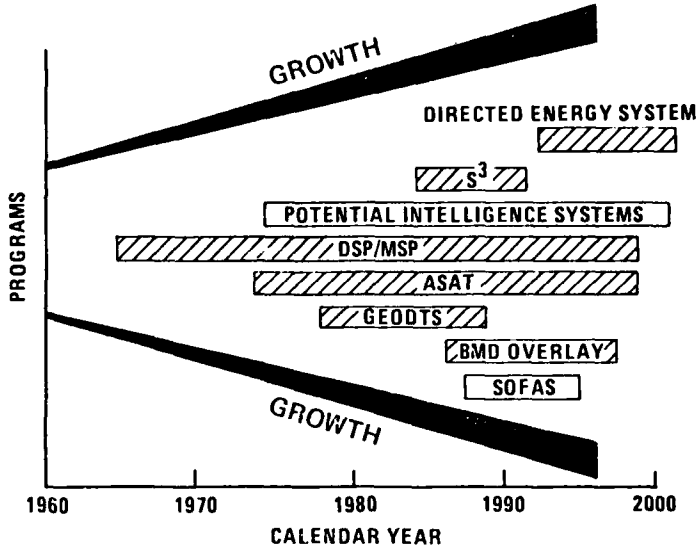


FIGURE 7. POTENTIAL STRATEGIC OPTICAL SYSTEM

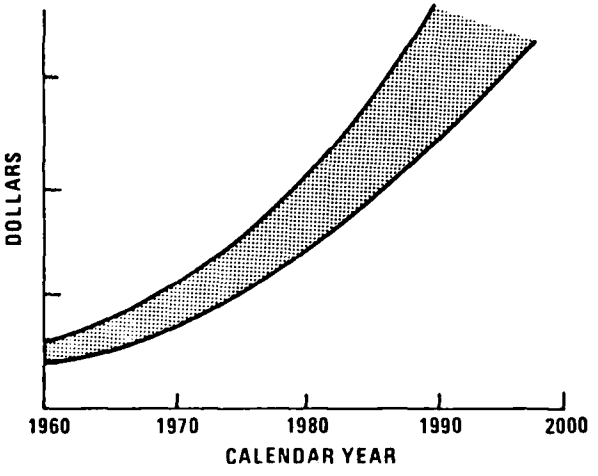


FIGURE 8. RELATIVE TRENDS OF STRATEGIC OPTICAL R&D COSTS

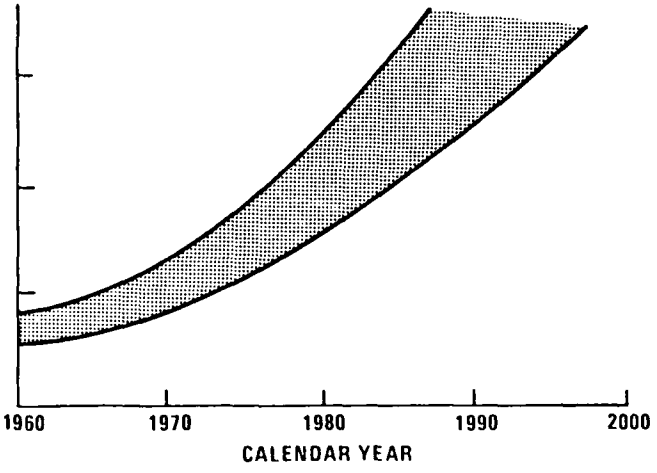


FIGURE 9. RELATIVE TRENDS OF STRATEGIC OPTICAL SYSTEM COSTS

1.3 STIAC OBJECTIVE

The objective of the STIAC is to establish (1) a centralized strategic information and analysis center that would provide a repository and centralized focal point for strategic data and analysis; (2) a cost effective and timely dissemination of strategic data; and (3) an available service center to the user community. This STIAC will be in direct support of all DoD strategic related programs. Critical services that the STIAC will provide include state-of-the-art survey, interdisciplinary analysis and studies, and specific technical informational requirements.

1.4 PROPOSAL ORGANIZATION

The proposal is organized into an Executive Summary, six major sections, and Appendices A through G, as illustrated in Figure 10. Section 1 provides the background, the rationale for the STIAC, and the STIAC objective. Section 2 is a summary of the mission and scope of the STIAC. An identification and discussion of strategic applications and supporting technologies to be provided by the STIAC are located in this section. The justification, including the supporting data, is found in Section 3. This

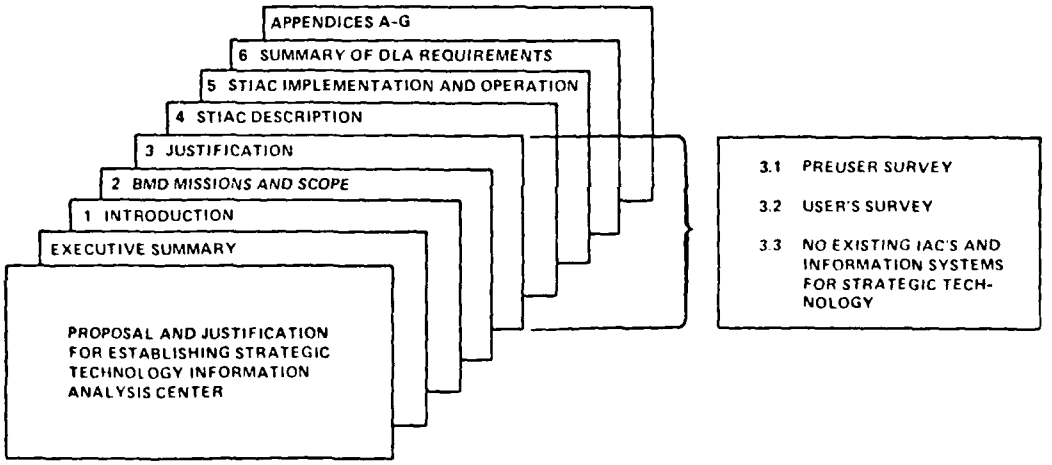


FIGURE 10. PROPOSAL ORGANIZATION

section is subdivided into results of the Presurvey (3.1), User Survey (3.2), and Information on Existing IAC's (3.3). The detailed description, services, and outputs for the proposed STIAC is provided in Section 4. Section 5 outlines the implementation and operation of the STIAC including profiles and resource requirements. Section 6 summarizes in succinct and concise form the information required by DLA in evaluating a request for a new IAC.

Appendices A and B provide a sample letter and questionnaire sent to the potential users (A) and the existing IAC's (B). Appendix C provides the existing system components and potential information sources. Appendix D provides a representative sample of significant comments from the prospective user survey respondents. Appendix E is background data on IAC's service and funding levels. Appendix F itemizes the additional subject areas for the STIAC that were specifically requested by the user community. Appendix G provides a listing of interested and potentially qualified organizations which responded to the Commerce Business Daily accouncement.

SECTION 2. STIAC MISSIONS AND SCOPE

The primary mission of the STIAC is to collect, catalog, analyze and disseminate information to support DoD strategic missions and technologies. The mission includes, but is not limited to, BMD systems for strategic defense, space surveillance, space defense and the definition of the strategic threats against which these systems must function. To accomplish the STIAC mission, information is required in a number of technology areas which have overlapping applications with the various DoD strategic missions. For example, while the threats against which a BMD system must operate are different from the space defense threats, there is a commonality in the types of optical systems which would be deployed, the background signatures against which they must operate, the signal and data processing which must be accomplished, and the potential requirements for hardening the focal plane and electronics against nuclear effects.

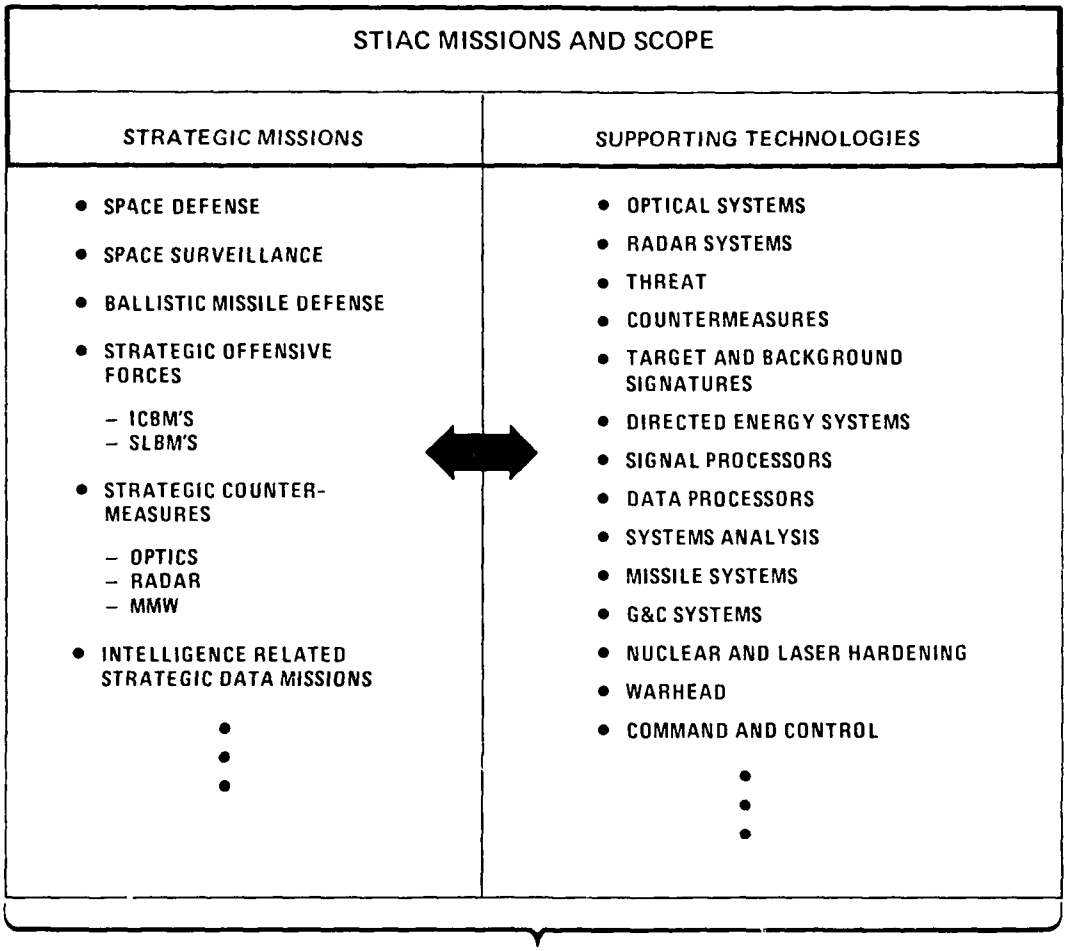
The DoD strategic missions and technology areas which will be included in the proposed STIAC are listed in Figure 11. This list is not considered to be at all inclusive, nor is there any attempt to rank the technology areas by user required in terms of their relative importance.

In support of strategic missions, the STIAC will provide the following types of services to managers and project engineers of DoD (or other government agencies) programs:

1) State-of-the-art surveys and analyses in the various technology areas
2) Symposia and workshops on current programs and technology
3) Synthesis of models, codes, and data

These services will enable Program Managers (both government and contractor) to:

1) Establish the technological bases and points of departure for new programs
2) Evaluate alternative approaches and concepts in order to identify productive and non-productive technical options



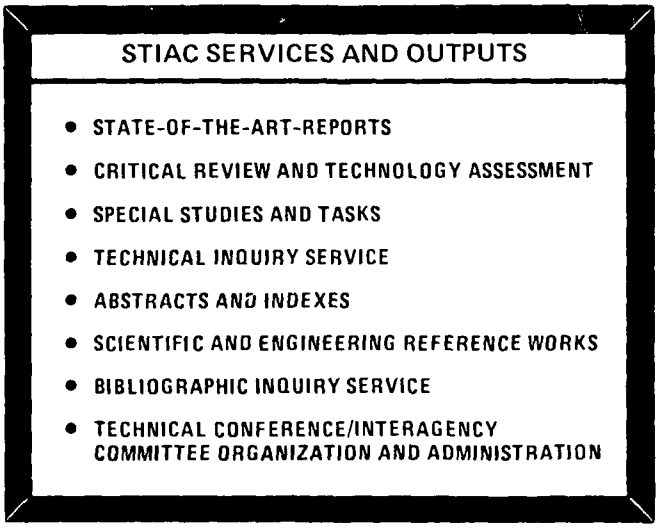


FIGURE 11. STIAC MISSION AND SCOPE

3) Conduct feasibility studies concerning the initiation or continuation of research programs

4) Make timely decisions regarding alternative courses of action and the redirection of technical efforts as necessary.

The following services and activities will be provided to user's of STIAC:

1) State-of-the-Art Reports - These reports will summarize the status and progress of technologies that are pertinent to current research, development, and test and evaluation (RDT&E) decision making with usefulness extending from bench level to all levels of RDT&E program.

2) Critical Reviews and Technology Assessments - The latest scientific and engineering information will be presented on subjects of significant interest to the DoD RDT&E community. These reviews and assessments will provide comparative analyses of technologies based on technical, national, and/or geographic considerations.

3) Current Awareness - Newsletters and reviews will be issued to keep the users appraised of the most significant technologocial devlopments in optical systems.

4) Special Studies/Tasks - Detailed problem solution assistance will be available to users in selected highly specialized fields.

5) Technical Inquiry Service - Specialists will be on call to provide authoritative advice in response to user technical questions.

6) Abstracts and Indexes - Announcements in the form of abstracts and indexes of pertinent reports will be issued in the STIAC's fields of interest.

7) Scientific and Engineering Reference Works - The STIAC will compile useful and authoritative information with generic applications for the user community. These handbooks will be designed, prepared, and maintained by the center.

8) Bibliographic Inquiry Service - Extensive data search capabilities will provide references to the latest and most relevant reports in the various technology areas.

9) Technical Conference/Interagency Committee Organization and Administration - The STIAC will provide administrative and technical support to technical conferences and joint committees of the DoD. The purpose of these committees is to solve problems, coordinate technology programs, and promote the exchange of technical information.

SECTION 3. JUSTIFICATION

The rapid advancements occurring in the technology areas associated with strategic defense have significantly affected BMDATC and have brought about a need for the establishment of an information analysis center to collect, catalog, analyze, and disseminate information to support DoD strategic missions and technologies. This need was further confirmed by BMDATC from the results of a survey of approximately 300 prospective users, a review of existing data bases and information retrieval systems and a review of existing information analysis centers funded by DoD. The paragraphs which follow present the results of these surveys.

3.1 PRESURVEY

A presurvey utilizing telephone interviews was conducted with key managers from the Army (BMD), the Air Force (SD, AFGL), ARPA (ST), and several strategic technology oriented DoD contractors to solicit their views on the need for an STIAC. The preliminary telephone interviews confirmed the urgent need for an STIAC and the fact that the strategic technology community would support a center of this type. This presurvey provided the foundation that justified a wider population survey.

3.2 USER SURVEY

The user survey consisted of a poll of a representative sample of the potential STIAC user population to determine the views and information needs of this community. The people and organizations included in the poll were determined on the basis of previous or ongoing work on strategic defensive systems for BMD and other DoD agencies, and on other technologies related to strategic systems applications. The questionnaire used in the survey was designed to elicit information on the following major points:

1) User community's need for a STIAC
2) Services needed by user community
3) Expected interface frequency of STIAC user
4) Current information sources
5) Prioritized technical needs of user community

6) Preferred information format

7) Preferred STIAC response time

8) Preference for STIAC operating organization

9) Preferred operational and funding modes.

Copies of the questionnaire and transmittal letter prepared for the user survey are included in Appendix A.

3.2.1 IDENTIFICATION OF REPRESENTATIVE USERS

From a very large and diverse user community, four distinct groups of potential users were contacted for the survey. These groups are listed as follows:

1) DoD Agencies, including the Military Services

2) Non-DoD Government Agencies, such as NASA

3) DoD Contractors

4) Universities and other IAC's.

More than 300 questionnaires were sent, with nearly 60 percent of those polled responding. Figure 12 shows a bar graph indicating the number of questionnaires sent to the various groups, the number of responses from each group, the percent response within the group, and the percent of the total response. Two factors are evident from Figure 12: (1) the response from each group within the survey was in excess of 40 percent, indicating that a good statistical sample was obtained, and (2) the large number of contractors included in the total response was due to the fact that many more (approximately 78 percent of the total) questionnaires were sent to DoD contractors. In addition, out of the seven questionnaires sent to universities and other IAC's, six responded. Thus the results of the survey should be representative of the requirements of the user community.

3.2.2 DESCRIPTION OF SURVEY

The survey questionnaire consisted of 18 multiple choice and numerical rating questions designed primarily to:

1) Assess the need for an STIAC.

2) Identify prospective users and contributors to an STIAC.

3) Ascertain the current sources of technical information relating to strategic defensive systems technology and the adequacy of these sources.

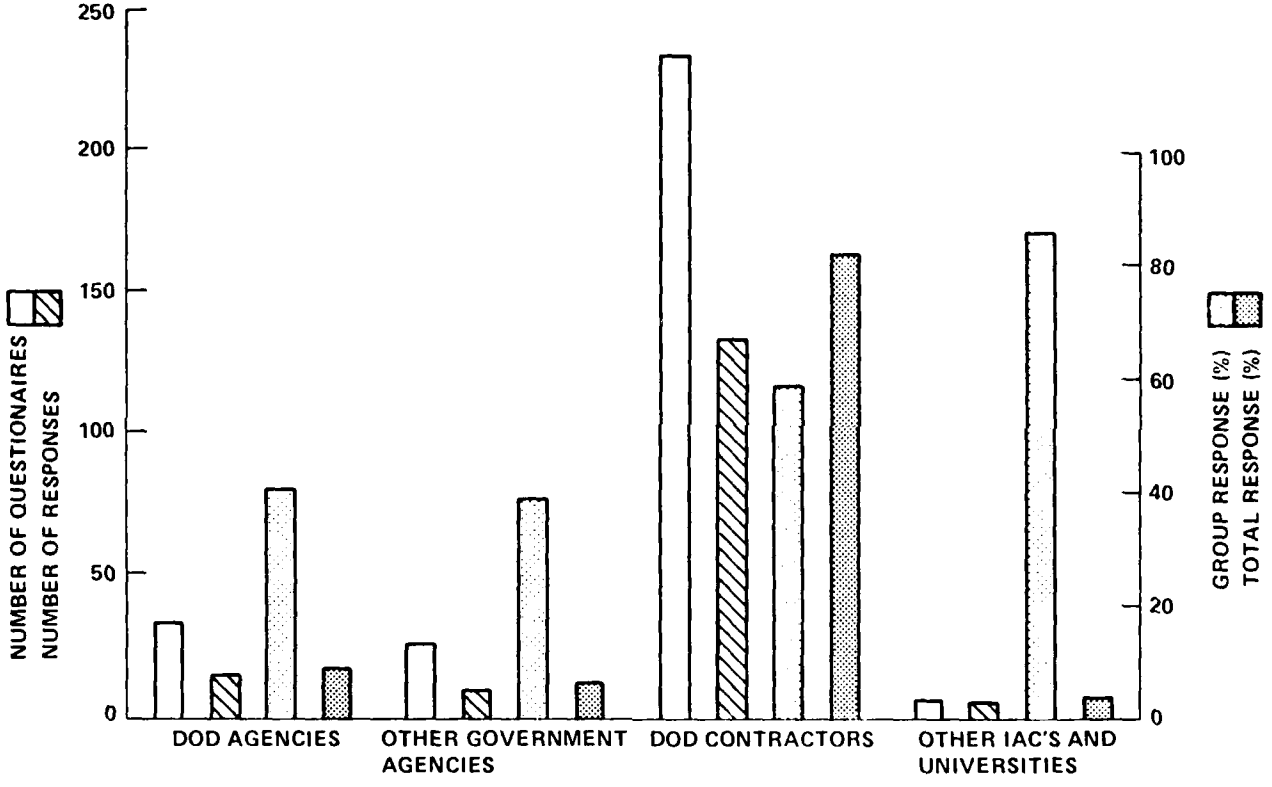


FIGURE 12. QUESTIONNAIRE RESPONSES BY USER ORGANIZATIONS

4) Define the requirements of the user community.

5) Define the scope of activities that the STIAC should undertake.

In addition to the survey questionnaire, existing IAC's were queried to:

1) Assess the potential for the STIAC to interface with other DLA funded IAC's to preclude potential duplication of facilities.

2) Determine mechanisms for such interfacing.

Copies of the transmittal letter and questionnaire sent to existing IAC's are included in Appendix B.

Other important considerations addressed in the survey were the anticipated frequency of use by the strategic community, response time requirements, reporting media, preferred funding arrangements and the type of organization which should operate the STIAC. The final questions in the survey addressed the demographic profile of the potential user community in terms of field of interest, organizational position and the strategic defense area of involvement.

3.2.3 SURVEY RESULTS

The response of the user community strongly confirmed and endorsed the need for an IAC for strategic defense systems technology. One of the major areas of concern involved the lack of a focal point for storage and retrieval of information and data relevant to strategic R&D programs. This community also expressed the hope that a center of this type could make a major contribution to more efficient and cost effective weapons by assisting in more realistic planning by the DoD strategic defense community.

The vast majority of the responses were positive (94 percent) and enthusiastic (see Appendix D for comments) support for the proposed STIAC. The majority of the respondents were DoD contractor personnel (82 percent), working in a management position (85 percent) in the BMD strategic defense community. Sixty-three percent said they expected to use the STIAC from 1 to 6 times per year and an additional 25 percent expected to use it from 7 to 12 times per year. The preferred response time was one week or less (62 percent) with only 4 percent specifying a response time of over two weeks. The preferred modes of information transfer were written

reports and personal contacts, with the most desired services falling into the categories of state-of-the-art reports (80 percent), technology assessments (65 percent), and current awareness reports (63 percent).

There was no clear preference for a particular type of organization to operate the STIAC; 24 percent specified a government agency, 33 percent specified a not-for-profit organization, and 20 percent had no preference. Approximately 60 percent of the respondents preferred a funding arrangement consisting of a basic membership fee plus a charge for special services. Practically all of the respondents included additional comments expressing a need for information on strategic technologies or systems not specifically included in the survey but which would be logical areas to include in the STIAC (see Appendix F).

3.2.4 SURVEY DATA ASSESSMENT

The data collected during the survey was used to assess four major issues: (1) the requirements of the user community, (2) the current sources of technical information relating to strategic defense, (3) the scope of activities that the STIAC should undertake, and (4) the identification of prospective STIAC users and contributors.

3.2.4.1 Requirements of the User Community

Two areas in which the potential user community could express a desire for improved exchange of technology were addressed in the survey. These areas addressed the need for additional information on specific technologies and the need for centralization of technology data for specific strategic missions. The respondents were allowed multiple answers to these questions. The survey results on the need for additional information are shown in Table 1. Two major areas in which the user community expressed a need for additional information are target/background and sensor technology signatures. The proposed STIAC would be the focal point for the collection and dissemination of this information. The survey results on the need for centralization of technology data are shown in Table 2. The user community expressed an overwhelming need for the centralization of data in the three major areas of strategic defense. Since many of the technologies associated with these areas of strategic defense are similar, maintaining this information base under the proposed STIAC would result in more efficient dissemination of information to the user.

TABLE 1. NEED FOR ADDITIONAL INFORMATION

INFORMATION AREA	PERCENT
TARGET/BACKGROUND SIGNATURES	60.1
SENSOR TECHNOLOGY	45.4
SYSTEMS ANALYSIS	13.9
SIMULATIONS AND MODELS	13.9
OTHER	13.9

TABLE 2. NEED FOR CENTRALIZATION OF TECHNOLOGY AREA

TECHNOLOGY AREA	PERCENT
BALLISTIC MISSILE DEFENSE	93.7
SPACE DEFENSE	86.0
SPACE SURVEILLANCE	85.3
OTHER	12.5

The survey results which address the priority of STIAC services desired by the user community are listed in Table 3. The three services which are most desirable are state-of-the-art reports (80 percent), technology assessments (65 percent), and current awareness newsletters (63 percent). The survey responses indicated a preference of written reports as the primary means of answering user inquiries, with oral briefings ranked second.

TABLE 3. PRIORITY OF STIAC SERVICES

STIAC SERVICES	PERCENT
STATE-OF-THE-ART REPORTS	80.4
TECHNOLOGY ASSESSMENTS	65.0
CURRENT AWARENESS	62.9
TECHNICAL INQUIRY SERVICES	47.5
ABSTRACTS AND INDICES	39.8
BIBLIOGRAPHIC INQUIRY SERVICES	32.1
SCIENTIFIC AND ENGINEERING REFERENCE WORK	29.3
SPECIAL STUDIES/TASKS	20.9
SPONSOR FOR TECHNICAL CONFERENCE	19.5

The types of services needed by the user are listed in Table 4. The major service requirement is for specific technical surveys in a particular area of technology. This type of service would require that the STIAC utilize specialists in the various technology areas to prepare these types of reports.

TABLE 4. SERVICES NEEDED BY USER

SERVICE	PERCENT
SPECIFIC TECHNICAL SURVEY	78.3
GENERAL TECHNICAL SURVEY	44.0
SYNTHESIS OF MODELS AND DATA	37.7
ANALYSIS	26.5
OTHER	12.5

The estimated use of the STIAC, had it existed in FY81, and the anticipated STIAC use per year is tabulated in Table 5. In both cases, approximately 90 percent of the respondents would use the STIAC between 1 to 12 times per year, with 30 percent anticipating a use between 7 to 12 times per year.

A major consideration must be given to the timeliness of the response by the STIAC to inquiries from the user community. The survey results on the question of response time are listed in Table 6. Approximately 62 percent of the respondents expressed the desire for a response time of one week or less. This implies that the STIAC might require some type of computer terminal operation.

TABLE 5. USE OF STIAC

REQUESTS/YEAR	ESTIMATED USE (FY81) (%)	ANTICIPATED USE (%)
1 TO 6	62.9	58.7
7 TO 12	25.1	30.0
13 TO 18	5.5	4.1
>18	5.5	6.9

TABLE 6. REQUIRED STIAC RESPONSE TIME

RESPONSE TIME	PERCENT
LESS THAN 1 DAY	6.9
1 WEEK OR LESS	55.2
2 WEEKS	32.8
>2 WEEKS	4.1

The user preference for the STIAC operating organization and the preferred funding arrangement are listed in Tables 7 and 8, respectively. While the results indicate that there is no overwhelming preference for an operating organization, a not-for-profit company appears to be the most preferred choice for an operating organization. The preferred funding arrangement is a basic membership fee plus a charge for special services. This strongly suggests that the success of the STIAC will be dependent upon the quality and timeliness of its services.

TABLE 7. USER PREFERENCE FOR STIAC OPERATING ORGANIZATION

ORGANIZATION	PERCENT
NOT-FOR-PROFIT ORGANIZATION	32.8
GOVERNMENT	24.4
NO PREFERENCE	19.5
OTHER	12.5
UNIVERSITY	10.4

TABLE 8. PREFERRED FUNDING ARRANGEMENT

FUNDING TYPE	PERCENT
BASIC MEMBERSHIP/SPECIAL SERVICE CHARGE	59.4
SERVICE CHARGES	18.8
MEMBERSHIP	13.2
OTHER	8.3

3.2.4.2 Current Sources of Technical Information

The current information sources of the user community and the problems associated with obtaining strategic technical information from these sources are addressed in Tables 9 and 10, respectively. The sources and problems were ranked by the users, with 1 = most important. The results from Table 9 shows that the most important sources of information are personal contacts, briefings, and DoD/government reports. The major problem areas are that the needed information is unavailable or difficult to locate, potential users are unaware of available information, and the information is not oriented to the needs of the user. By concentrating all of the technological data related to strategic defense in the STIAC, the potential user would know that all the information was in one place and could be

TABLE 9. CURRENT MAJOR SOURCES OF STRATEGIC TECHNOLOGY INFORMATION

INFORMATION SOURCE	RANK*
PERSONAL CONTACTS	1
BRIEFINGS	2
DoD/GOVERNMENT REPORTS	3
CONFERENCES	4
JOURNALS/PERIODICALS/NEWSLETTERS	5
HANDBOOKS/DATA BOOKS	6
DOCUMENTATION SERVICES	7

*1 = MOST IMPORTANT

TABLE 10. PROBLEMS IN OBTAINING INFORMATION

PROBLEM	RANK*
INFORMATION UNAVAILABLE/DIFFICULT TO LOCATE	1
UNAWARE OF AVAILABLE INFORMATION	2
INFORMATION NOT ORIENTED TO NEEDS	3
POOR QUALITY (UNRELIABLE, DATED, etc.) INFORMATION	4
INCONVENIENT FORMAT	5
TOO EXPENSIVE TO GATHER	6

*1 = MOST IMPORTANT

3.2.4.3 Scope of Activities that the STIAC Should Undertake

The mission and technical scope of the proposed center are of major importance in planning the initial operation of the STIAC. The list of technology fields and their relative ranking importance (as indicated by the percentage of users considering them to be of primary importance) are shown in Figure 13. Users were allowed to consider more than one subject to be of primary importance. The results of the survey show that there are nine technology areas which more than 50 percent of the user community feel are of primary importance to be included in the STIAC. These strategic technology areas are:

- Threat Definition
- Sensor Design
- Focal Plane Technology
- Nuclear Hardening
- Target Signatures

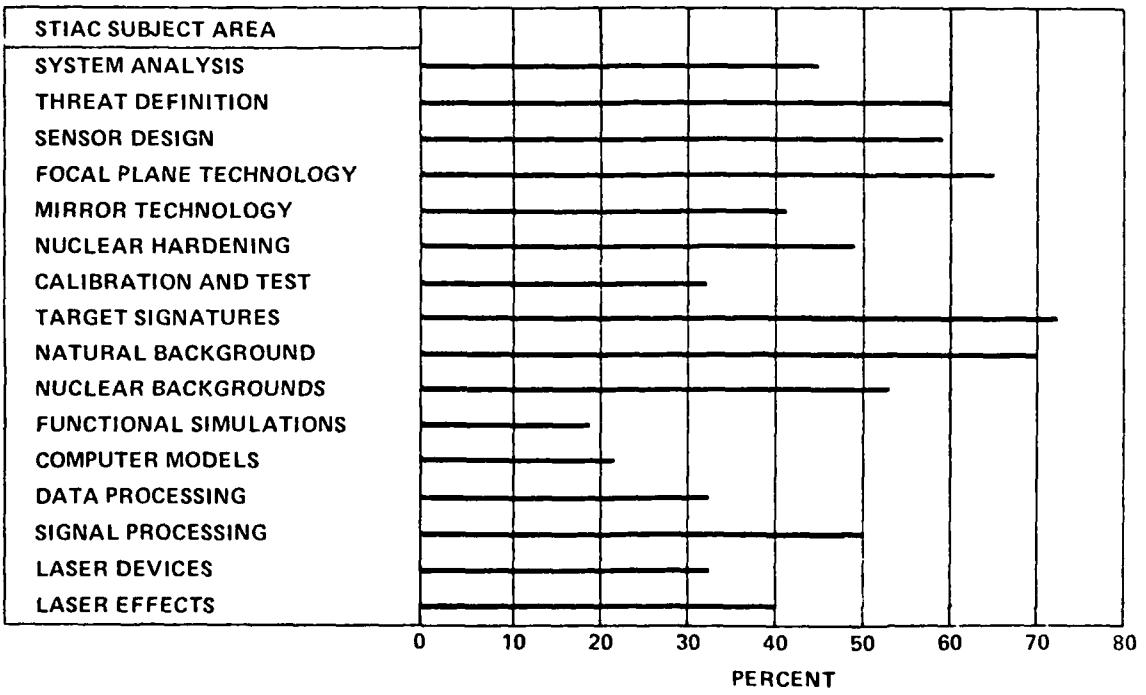


FIGURE 13. TECHNOLOGY AREAS OF PRIMARY IMPORTANCE TO STIAC USER COMMUNITY

- Natural Backgrounds
- Nuclear Backgrounds
- Laser Effects
- Signal Processing.

The proposed STIAC will consider these nine technologies during its start-up process to provide the most desired services as early as possible. An important function of the STIAC will be to conduct periodic surveys of the users to determine their current and future needs.

3.2.4.4 Prospective STIAC Users and Contributors

The demographic profile of prospective users and contributors to the proposed STIAC was determined from three major groupings: fields of interest, area of involvement in strategic defense, and professional position. The fields of interest of the respondees is displayed in Table 11. It should be noted that multiple responses were allowed on this question. The results show a fairly broad range of interests. Their major field of interest was in system analysis. The area of involvement in strategic defense is shown in Table 12. Multiple responses were allowed.

TABLE 11. USER FIELD OF INTEREST

FIELD	PERCENT
SYSTEMS ANALYSIS	53.8
SENSOR/DEVICE DEVELOPMENT	44.7
TECHNOLOGY/COMPONENT DEVELOPMENT	39.8
SIGNATURE/BACKGROUND PHENOMENOLOGY	38.4
FIELD MEASUREMENTS	21.6
OTHER	13.9

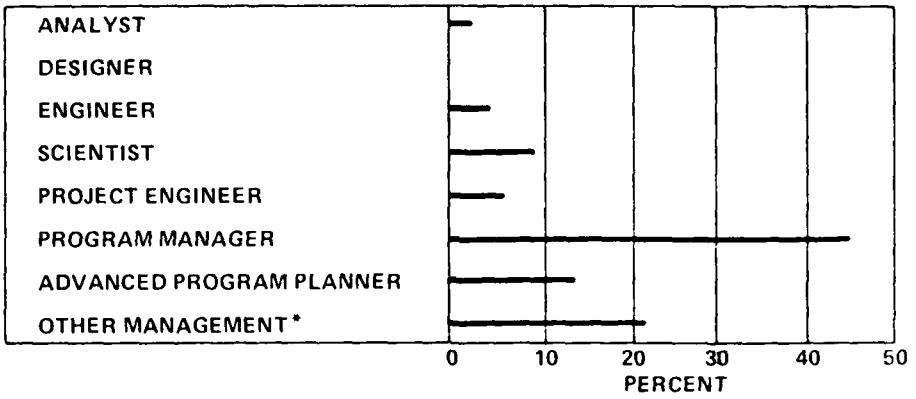
TABLE 12. STRATEGIC DEFENSE AREA OF INVOLVEMENT

AREA	PERCENT
BALLISTIC MISSILE DEFENSE	69.9
SPACE SURVEILLANCE	38.4
SPACE DEFENSE	32.8
OTHER	8.3

The potential users were involved in the area of BMD by about a ratio of 2 to 1. The percentage of users engaged in Space Defense and Space Surveillance was about equal, which would indicate that most of these users were probably involved with both activities. These survey results reconfirm the need of a central source on strategic missions and systems.

The professional positions of the survey respondents are shown in Figure 14. It should be noted that most people checked several responses to this questionnaire item but only the position of highest rank was used. For example, Program Managers are also scientists and engineers but were only considered as managers in the tabulation. The category Other Management includes owners of companies, corporate presidents and vice presidents, and others who influence corporate strategy and decisions. It is noteworthy that nearly 90 percent of the potential users are in positions of management, since it is also management who will make the decision to utilize the services of the STIAC. In addition, it is apparent that management wants to keep abreast of current technology in order to:

- Establish the technological bases and points of departure for new programs
- Evaluate alternative approaches and concepts in order to identify productive and non-productive technical options
- Conduct feasibility studies concerning the initiation or continuation of research programs
- Make timely decisions regarding alternative courses of action and the redirection of technical effort as necessary.



* OTHER MANAGEMENT INCLUDES OWNERS, CORPORATE PRESIDENTS AND VICE PRESIDENTS, AND OTHERS WHO INFLUENCE CORPORATE STRATEGY.

FIGURE 14. PROFESSIONAL POSITIONS OF SURVEY RESPONDENTS

3.3 NO EXISTING IAC'S AND INFORMATION SYSTEMS FOR STRATEGIC TECHNOLOGY

The review of the informational networks and survey and/or interviews of existing IAC's determined serious deficiencies in existing systems for acquiring and disseminating DoD strategic technology information. The present system is fragmented in terms of concerns and interests, which results in services being devoted to highly specialized technical areas and the potential for data relevant bases being difficult to locate or lost. It appears that the primary means of information transfer in the existing system for strategic technology data is through the informal investigator-to-investigator route and limited strategic symposiums.

The results of the user survey described in subsection 3.2 showed that the existing information system does not satisfy user needs for strategic systems technology information. The most urgent need is to acquire a comprehensive collection of strategic technology data in one place and under one system of analysis. No currently operating facility collects information related specifically to strategic technology. This situation creates both a critical time gap and data gap in the collection and dissemination of strategic information. The proposed STIAC would close that gap, prevent further loss of relevant data, and improve the efficiency of information transfer which would, in turn, promote efficient and effective operation of strategic programs.

One of the high priority needs of the strategic defense community is for better mechanisms for maintaining current awareness of research and development efforts. The time lag between the announcement of research results and the availability of those results may range from months to years. A similar delay occurs between the time a paper is presented at a professional society meeting/conference and the publication of the proceedings. Security classification presents another problem for professional societies that would be more easily handled by the proposed STIAC.

3.3.1 INFORMATION SOURCES STATUS

The existing information network acquiring and disseminating technology information can be categorized by the following seven groups:

- DLA-administered IAC's
- Professional societies and trade associations
- Military service data bases
- Other federal agency data bases (including DTIC and NTIS)
- Commercial data bases
- Private industry data bases
- Universities and trade schools.
- Foreign literature.

These groups of organizations would serve as both potential sources and users of STIAC information.

DLA ADMINISTERED IAC'S

The purpose of an Information Analysis Center (IAC) is to provide scientific and technical information and support services to both government and industry in a specialized technical area or for a specific mission. There are 20 DoD supported IAC's. The IAC's are similar in operation, but dissimilar in subject matter, service, and output. Figure 15 lists the existing IAC's and their general categories and subject areas. Six of the centers are technology-oriented, seven centers relate to materials development and performance, and six involve construction engineering. Only one of these centers, Tactical Technology Center (TACTEC), is mission oriented while the others are highly specialized in science and technology areas. Each center collects, reviews, analyzes, appraises, summarizes, and stores available information on subjects of specialized technical areas of concern.

The Defense Logistic Agency and Defense Technical Information Center (DTIC) administers and funds 9 contractor-operated IAC's and 11 others are managed by other DoD activities. These IAC's receive technical management from DoD laboratories and agencies with leading competence in the field of science and technology corresponding to the center's function.

GENERAL CATEGORY	IAC'S	SUBJECT
TECHNOLOGY/ PHENOMENOLOGY	IRIAC	IR SENSOR COMPONENTS, TECHNOLOGY, AND DATA
	DASIAC	NUCLEAR WEAPONS/EFFECTS/ANALYSIS
	TEPIAC	THERMOPHYSICAL AND ELECTRONIC PROPERTIES
	CEPIA	ROCKETS/FUELS/HARDWARE
	GACIAC	GUIDANCE AND CONTROL AND TACTICAL WEAPONS
	DACS	SOFTWARE ENGINEERING AND TECHNOLOGY
MATERIALS DEVELOPMENT AND PERFORMANCE	MCIAC	FABRICATION AND UTILIZATION OF METALS AND CERAMICS
	MMCIAC	METAL MATRIX COMPOSITES
	MPDC	MECHANICAL PROPERTIES OF MATERIALS
	NTIAC	NDT OF MATERIALS/FAILURE PREVENTION
	PLASTEC	PLASTICS/ADHESIVES/ORGANIC COMPOSITES
	SVIC	SHOCK AND VIBRATION DATA ON MATERIALS
	RAC	RELIABILITY AND ANALYSIS
CONSTRUCTION ENGINEERING	CEIAC	COASTAL REGIONS/OCEANOGRAPHY/ENVIRONMENTS
	CRSTIAC	COLD REGION ENVIRONMENTS/FACILITIES
	CTIAC	CONCRETE CONSTRUCTION INFORMATION
	HEIAC	FLOOD CONTROL/NAVIGATION
	PSTIAC	MILITARY VEHICLE MOBILITY/PAVEMENT AND SOIL
	SMIAC	GEOLOGY ENGINEERING DATA
MILITARY MISSION	TACTEC	TACTICAL TECHNOLOGY
	STIAC	STRATEGIC TECHNOLOGY

FIGURE 15. INTERRELATIONSHIP OF MISSION-ORIENTED IAC'S TO TECHNOLOGY-ORIENTED DAC'S

PROFESSIONAL SOCIETY DATA BASES

Professional societies, private industry, and advisory organizations with possible STIAC interfaces are listed in Table C-2 in Appendix C. Essentially all of these organizations expressed interest in possibly using the STIAC as a technology information base for their members. They expressed a willingness to include the proposed STIAC on their mailing lists of publications. They also indicated that perhaps their most useful role is diffusing strategic systems technology information would be to ensure that their members are aware of the STIAC.

DTIC BIBLIOGRAPHIC DATA FILE

During the planning and implementation phase of the STIAC, the feasibility of installating an STIAC bibliographic data file on the DTIC computer should be considered. The STIAC would probably benefit by using software and computer equipment that is currently operational thus avoiding duplication of work already performed by DTIC. There would be a government furnished equipment (GFE) cost for the in-house terminal to access the DTIC computer system. Hardware specified by DTIC for remote site access to its RDT&E On-Line System is a Uniscope 200 terminal and a high-speed printer. Another cost factor to consider is that of a dedicated communication line for classified data and interface with other DoD IAC's appears to be with the central computer of the DTIC RDT&E system. Discussions will be held with DTIC to determine if future system developments will allow IAC files to be "merged" for a single search of all files and preparation of unified bibliographic outputs conducted. This could pose some operational difficulties because of different indexing and classified data handling schemes used by other centers.

DTIC DATA BANK (DD FORM 1643)

In 1970, the data bank for Research and Development Program Planning was established to provide an overview of DoD-wide R&D planning. Information available from this source includes program start/completion dates, RDT&E funding, and the responsible contracting organizations responsible for the research. This data bank may prove useful to the STIAC for supporting program reviews and identification of duplication or gaps in DoD funded research programs.

DTIC WORK UNIT DATA BANK (DD FORM 1498)

This data bank consists of a periodically updated file of DoD R&D program-in-progress reports on project status, plans for next period of work, and reports in preparation. Its usefulness to the STIAC should be evaluated during the center's first year of operation.

DTIC DOD REPORTS FILE (DD FORM 1473)

DTIC provides authorized DoD IAC activities with a current-awareness bibliography of recently received DoD-funded research classified and unclassified reports which match a field of interest profile filed by each center. In addition, hard copy of microfiche copies of desired reports can be ordered from DTIC for retention by the center. A preliminary assessment of this data bank indicates that it could serve a useful purpose to the STIAC.

NATIONAL TECHNICAL INFORMATION SERVICE (NTIS)

The NTIS is the central point for the public sale of government-funded R&D reports and other analyses prepared by federal agencies, their contractors, or grantees. While no federal agency has the responsibility for collecting and translating or writing about strategic systems technology developments in the private sector in the United States, NTIS has a readymade organizational structure to absorb, organize, and distribute the literature to American industry. However, security considerations would severely limit this interface.

NTIS TECH NOTES

The Tech Briefs Series is a subscription service initiated by NTIS to alert the user community to current applied technology development. The NASA Tech Briefs have been converted to a computer-based file and cover 11 major technical categories including:

- Computers
- Electrotechnology
- Energy
- Engineering
- Life Sciences
- Machinery
- Manufacturing
- Materials
- Ordnance
- Physical Sciences
- Testing and Instrumentation

COMMERCIAL DATA BASES AND INFORMATION SERVICES

A number of commercial data bases were reviewed and evaluated during this study. Among the most important ones, in terms of significant strategic systems technology data sources, are:

- DIALOG
  Lockheed Missiles and Space Center
  Palo Alto, California
- ORBIT
  System Development Corporation (SDC)
  Santa Monica, California
- ISMEC
  Data Courier, Inc.
  Louisville, Kentucky

These services obtain and process data bases for computer retrieval, furnish back-up documentation, train subscribers in search methods, provide special "update" user seminars, and offer subscribers special help with difficult search problems. Both DIALOG and ORBIT are commercial systems marketed to many organizations with strategic systems technology interests.

Currently, there is a $200 million commercial industry of remote data base publishing, consisting of terminal-based services offering financial and brokerage news, and legal, technical, and scientific data bases. The DIALOG and ORBIT systems are representative of remote terminal information retrieval services which are relatively new but spreading rapidly. Some of the significant advantages of these data bases are:

- Up date capability - a computerized data base can be updated continuously with current information.
- Interactive search capability - the computer user dialog search process is extremely fast, since the computer can respond in seconds. Compared to manual or batch computer searching, there is far greater search selectivity in response to individual search needs. Modern search logic enables high selectivity of information items and an ability to reject irrelevant information.
- Storage capability - millions of items can be searched, the equivalence of looking through entire library shelves.

ISMEC is a machine readable data base which cites, indexes, and indicates major topics in international literature on scientific research. Approximately half of the data base content are journal article citations, and the remainder are conference paper and book citations. This data base can be accessed on the Lockheed DIALOG and the SDC ORBIT on-line systems, or it can be leased on magnetic tape directly from Data Courier. This data base would be a significant source of information for the STIAC.

3.3.2 IAC'S INTERFACES AND NON-DUPLICATION

There are several DLA-administered IAC's which collect and disseminate some limited information relevant to strategic technology. These IAC's include six highly specialized technology/phenomenology oriented IAC's (IRIA, TEPIAC, GOCIAC, DACS, DASIAC, CPIA) and one tactical mission oriented IAC (TACTEC). Since only one IAC Has a mission oriented charter, the STIAC does not duplicate any existing IAC charters. Furthermore, it provides a solution to the tremendous data gap and time gap in DoD information systems in the strategic system technology area. Figure 16 illustrates those IAC's which will have limited data exchanges with the STIAC.

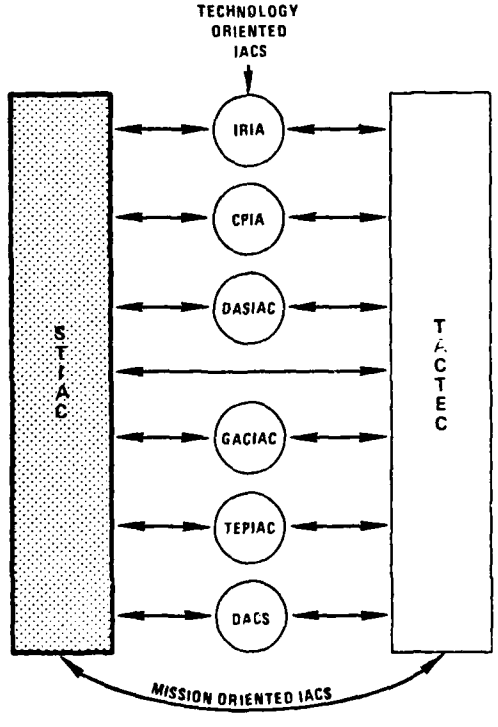


FIGURE 16. DATA TRANSFER BETWEEN STIAC AND OTHER EXISTING IAC'S

The TACTEC processes significant amounts of tactical technology data, which will be useful for some strategic systems. Major differences between tactical and strategic applications are in altitude, range, performance, field-of-view, classification of target, environment, and flight time.

The IRIA, which maintains a comprehensive infrared data base relevant to all military optical systems, will be a valuable source and interface for the STIAC. However, it is (1) incomplete in that it does not encompass all the strategic-relevant technology nor focus on a systems approach and (2) is inefficient for strategic analysis because the majority of military infrared systems operate at higher backgrounds than the strategic systems - a fact that tends to minimize the emphasis on facets of the technology peculiar to strategic systems.

The DASIAC will provide useful information on nuclear devices and weapon-induced environments, but will not provide the sensor and component response to such environments that ultimately determine system performance. Similarly, the TEPIAC will provide the data base on thermal and radiative properties of materials, but will not deliver these in the strategic context of system responses, kill mechanisms, and vulnerabilities.

The CPIA will provide some data on missiles and fuels for strategic systems but does not provide the codes for calculating plume effects nor the level of validation of the plume codes.

The GACIAC will have data exchanges with the STIAC in the area of missile system guidance and control technology, but primarily will provide spin-offs from the tactical missile G&C subsystem. The DACS will provide data on software engineering technology but not specifically oriented to strategic software.

The IAC's most relevant to the STIAC were surveyed and interviewed to determine any potential duplication and/or interface problems. The survey for the IAC's are illustrated in Appendix C. These IAC's included DACS, DASIAC, GACIAC, TEPIAC, CPIA, IRIA, and TACTEC. All IAC's contacted provided a strong endorsement and substantiated the need for formation of an STIAC. Several centers indicated a useful, but limited, data interface however they foresaw no problems in this interface. Numerous IAC's

presently have an informal interfacing arrangement. The results of the survey and personal interviews with existing IAC's indicate that no duplications exist between STIAC and other IAC's.

All the IAC's contacted supported the formation of the STIAC. They expressed the opinion that there was a need for a focal point for strategic systems technology.

In order to ensure proper data interfaces and no duplication of effort with other IAC's, the STIAC will:

- Develop a through knowledge of the scope, content, and accessibility of existing IAC data bases in developing its own.
- Establish procedures for access to existing external data banks and information sources, in order to eliminate duplicating data collection efforts and costs.
- Serve as a reference point for technology information, as an integrator of existing data bases, and as a guide to organizations and personnel available for consultation.
- Provide awareness of STIAC activities by newsletters, bulletins, and feedback surveys to other IAC's.

The key to the interface system is based on the fact that in order to perform the strategic missions, technological information is required from many different fields of interest. No current organization provides the type of information uniquely required by the strategic community. The proposed STIAC will provide that service to the community.

SECTION 4. STIAC DESCRIPTION

4.1 STIAC FRAMEWORK

The framework of the proposed STIAC (Figure 17) is structured to address the issues associated with its formation and operation, namely:

- Who are the prospective users of the STIAC?
- What services will these users require of the STIAC?
- What information does the STIAC require to provide those services?
- Where is the information and how does STIAC obtain it?
- What operations must the STIAC perform to transform the information into user required forms?
- What are the desired products of the STIAC, and is their generation cost effective for DoD?
- How is user feedback generated to ensure continued satisfaction of community needs?

Operation within this framework will ensure that the STIAC maintain its status as a user-oriented service organization, playing a key role as a dynamic member of the strategic community.

4.2 STIAC DESCRIPTION

The key to the success of the STIAC in satisfying its roles and missions is developing a methodology for operation within the above framework. In this context, the major functions of the STIAC will then consist of the following:

- Acquiring information and data relevant to strategic missions.
- Extracting pertinent information from data inputs.
- Maintaining a cumulative store of extracted data and information.
- Disseminating information to the strategic community.
- Providing information services in anticipation and response to strategic community needs.

The proposed methodology for performing these functions is described in the following subsections.

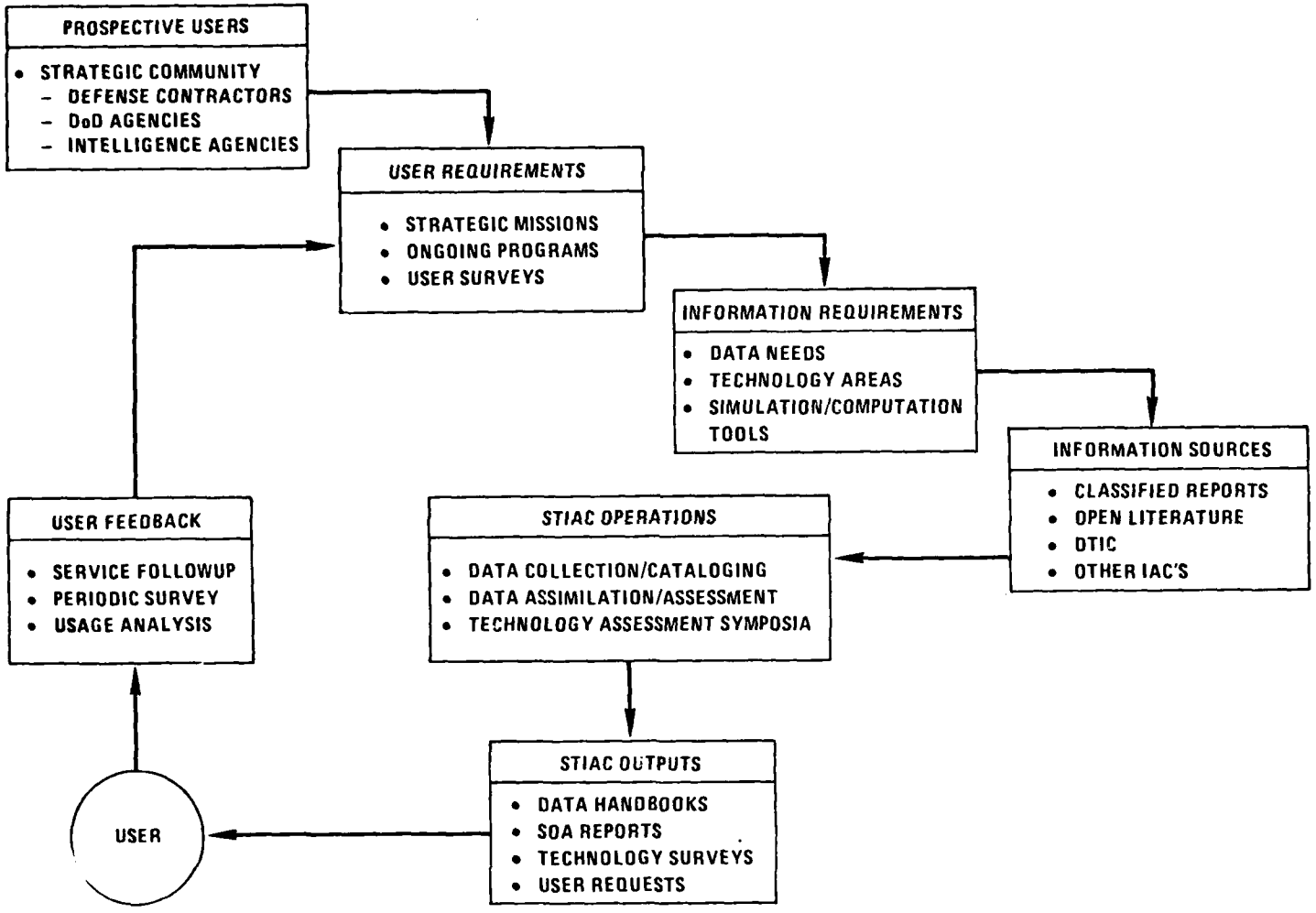


FIGURE 17. STIAC FRAMEWORK

4.2.1 IDENTIFICATION OF PROSPECTIVE USERS

The prospective users of the STIAC consist of the organizations and personnel dealing with strategic missions and the associated technologies. A preliminary identification of these users was performed during the preparation of the user survey discussed in Section 3. However, prospective users will change as strategic missions and applications evolve through shifts in national policy or emphasis. Figure 18 represents a typical set of applications and users and indicates a critical element for STIAC in maintaining an awareness of current strategic applications and the community which is addressing the issues associated with those applications. The STIAC will achieve this through a continuing review of national priorities in the strategic area and the current programs in that area. An important element in this review will be periodic symposia conducted by the STIAC. The attendance list of this symposia will be an excellent list of prospective users.

4.2.2 USER REQUIREMENTS

Periodic user surveys, such as the one conducted by BMDATC in preparation for this proposal, will be an important tool to determining user requirements. Other examples of user surveys identifying specific user needs were those also conducted by BMDATC and which led to the development of the Optical Signatures Code (OSC) and the Hardened Components Handbook. In addition, the STIAC will anticipate user requirements by maintaining a continuing awareness of strategic applications and relevant technology issues. This process will be augmented by monitoring paid user requests for services and soliciting feedback from STIAC users. The feedback system will assess both the degree of satisfaction from the users and the degree of use in the marketplace.

4.2.3 INFORMATION/DATA REQUIREMENTS

With the user requirements established, the STIAC must identify the information or data which it needs to compile and assimilate in order to produce desired outputs to the user. To a large extent, this will be established through interaction with the user community, with user surveys again playing a key role. It is very important that the STIAC possess the capability to independently assess information and data requirements, based

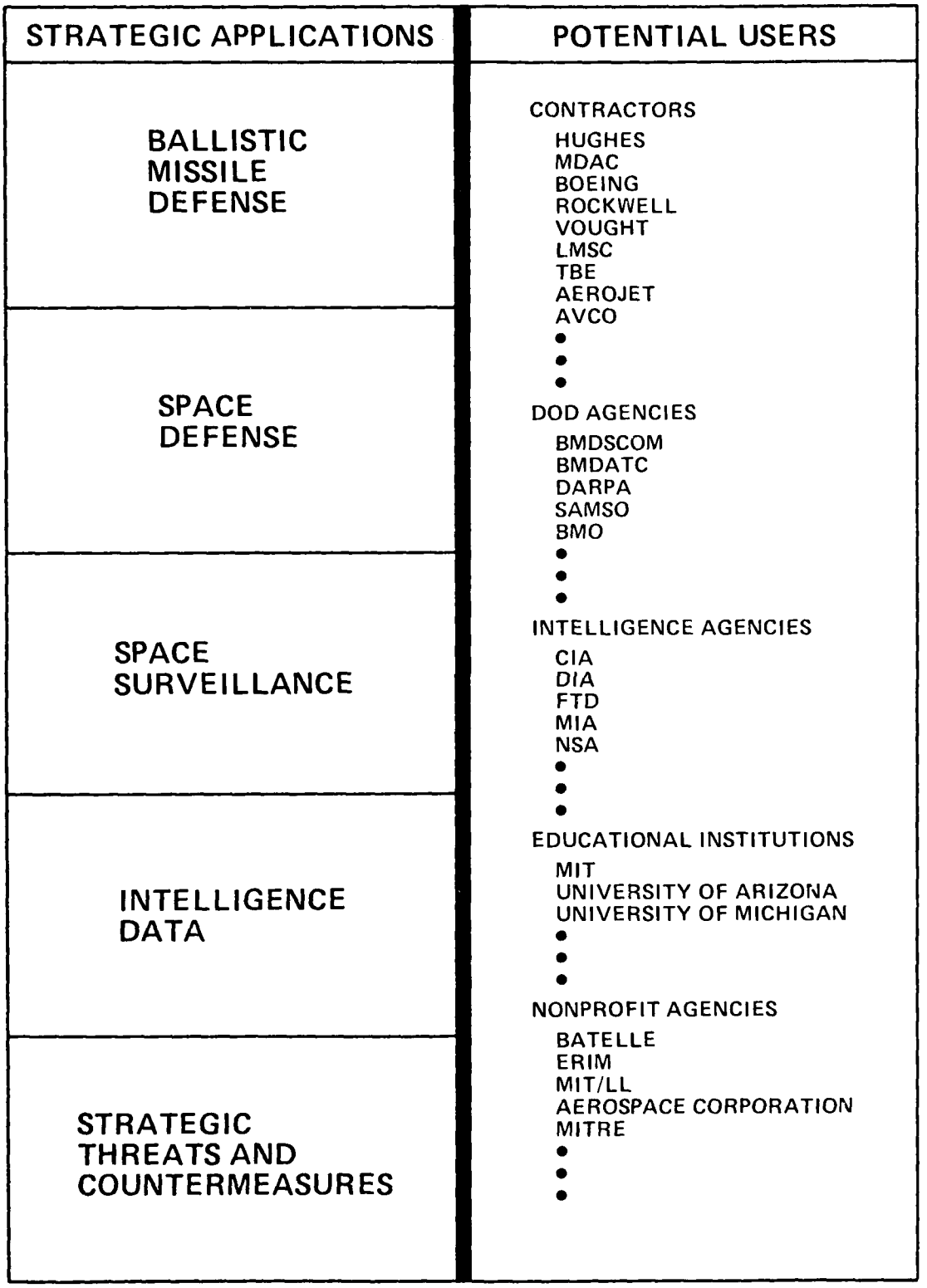


FIGURE 18. STRATEGIC APPLICATIONS AND POTENTIAL USERS

upon a current awareness of ongoing strategic programs and potential applications, since being able to recognize and anticipate information and data requirements is critical to the capability of the STIAC to provide timely services to users. The types of information/data to be obtained by STIAC will be determined by catagorizing strategic missions and relevant technology areas as illustrated in Table 13. The specific information/data requirements will be determined through analysis of current system and technology issues.

4.2.4 INFORMATION/DATA SOURCES

Technical reports resulting from DoD sponsored projects will represent the largest information sources of the STIAC. Because of the nature of the mission of the STIAC, the majority of these reports will be classified, some at the Top Secret level. Thus, the STIAC must be capable of receiving, storing, and transmitting data at that level of classification. Another major source of information/data for the STIAC is DTIC. Open literature and other IAC's will constitute the remaining sources.

4.2.5 STIAC OPERATING SYSTEM

Although the preceding activities are essential to the operation of the STIAC, the principal activities of the STIAC will consist of: data acquisition; data classification; document and data cataloging; publication preparation; data base maintenance; conducting conferences and symposia; and maintaining user awareness (Figure 19).

4.2.5.1 Data Acquisition

The acquisition of data and documents for the STIAC will be an ongoing activity and enlarging the data base must be performed in an organized, efficient manner. Data acquisition will be guided by experience gained through contacts with key individuals (such as program managers for strategic programs) in the user community. Knowledgeable specialists in specific technical areas will also be consulted for recommendations of key data and information sources. In view of the broad scope of the STIAC, data acquisition will form a large part of its activities and it will be more efficient to perform collection of data and information on a time-phased basis, beginning with areas of immediate interest to the community.

TABLE 13. STIAC INFORMATION AREAS

- OPTICAL SYSTEMS
  - SENSOR DESIGN
  - COMPONENT TECHNOLOGIES
  - FOCAL PLANE ARRAYS
  - COOLING TECHNOLOGIES
  - GIMBAL SYSTEMS
  - WINDOWS/ANTIFROST
  - FIBRE OPTICS
  - ADVANCED MIRRORS
  - CALIBRATION AND TEST SYSTEMS
  - DESIGNATING AND TRACKING SYSTEMS
  - COMMUNICATIONS
- RADAR SYSTEMS
  - RADAR DESIGN
  - MM DESIGN
  - COMPONENT TECHNOLOGIES
- THREAT AND COUNTERMEASURES
  - TARGET PARAMETERS
  - CLASSES, MIXES, NUMBER
  - LAYDOWN STRATEGIC
  - SIZE AND YIELD
- TARGET AND BACKGROUND SIGNATURES
  - TARGET MEASUREMENT
  - COMPUTER SIMULATIONS AND MODELS
- DIRECTED ENERGY SYSTEMS
  - HIGH ENERGY LASERS
  - BEAM WEAPONS
  - LOW ENERGY TRACKING SYSTEMS
- SIGNAL PROCESSING
  - ON FOCAL PLANE PROCESSING
  - FOCAL PLANE READOUT
  - SIGNAL CONDITIONING
  - REAL-TIME APPLICATIONS
- DATA PROCESSING
  - SIZE, VOLUME, WEIGHT
  - ARCHITECTURES
  - THROUGHPUT
- SYSTEM ANALYSIS
  - MISSION/CONSTRUCTS DEFINITION
  - SYSTEM FUNCTION AND REQUIREMENTS
  - BATTLE MANAGEMENT
- MISSILE SYSTEMS
  - BOOSTERS DESIGNS/PERFORMANCE
  - KV DESIGNS
  - PROPULSION SYSTEMS
- GUIDANCE AND CONTROL SYSTEMS
  - NAVIGATION SCHEME
  - FEEDBACK LOOPS/REACTION TIMES
- NUCLEAR HARDENING
  - SPACE MATERIALS
  - CIRCUMVENTION
  - SHIELDING
  - DETECTOR DESIGNS
- COMMAND AND CONTROL SYSTEMS
  - FREQUENCY/BANDS/LINKS
  - NUCLEAR EFFECT
  - WEATHER EFFECTS
- WARHEADS
  - NUCLEAR
  - CONVENTIONAL
  - LETHALITY
- LASER HARDENING
  - ENVIRONMENT
  - THERMAL EFFECTS
  - HARDENING TECHNIQUES

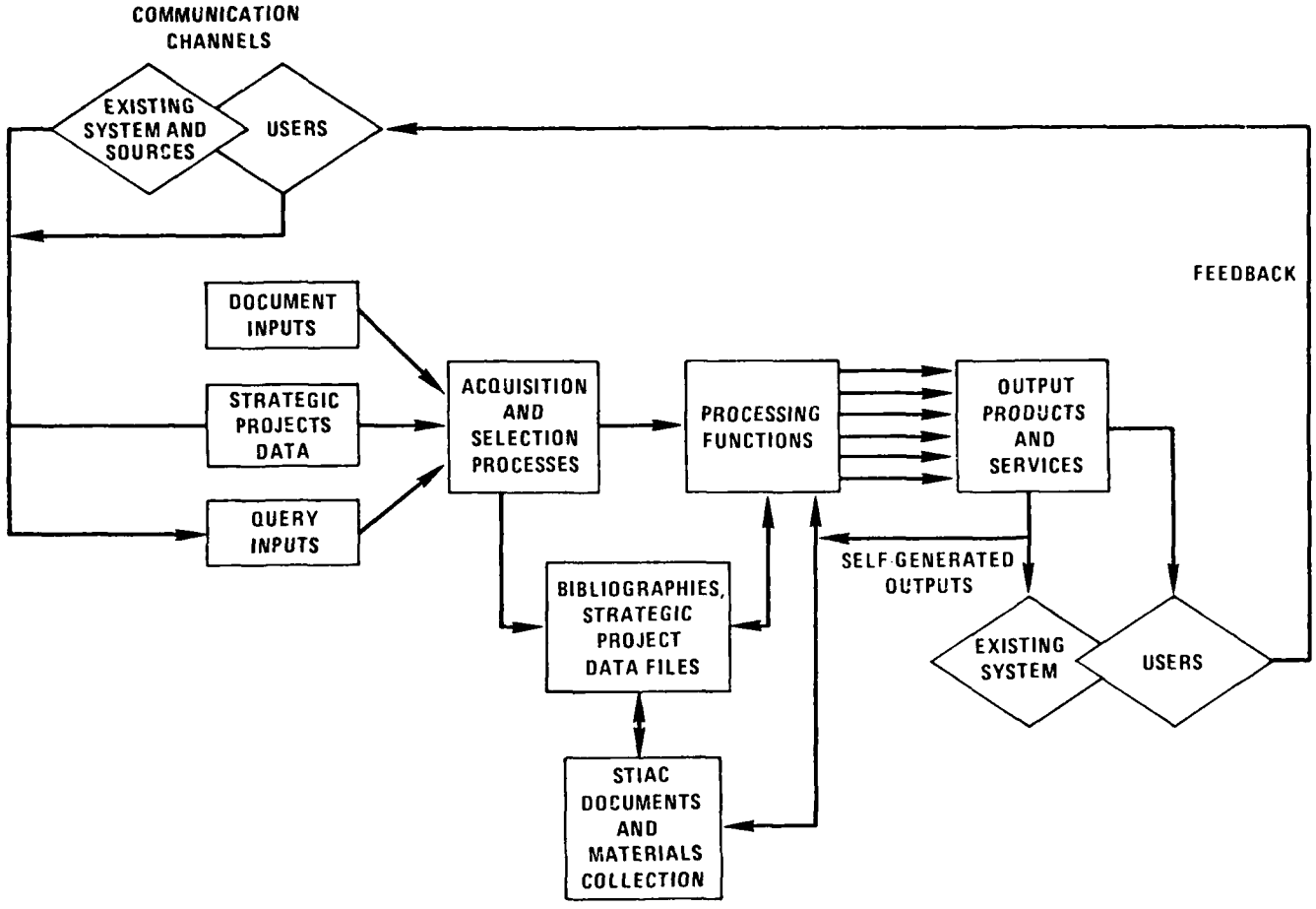


FIGURE 19. STIAC OPERATING SYSTEM

Based upon the results of the initial user survey, collection of strategic target and background data will have first priority for acquisition. BMDATC will be the principal source for target data, AFGL for background data.

4.2.5.2 Information Classification

A fundamental requirement in an information analysis center is the maintenance of a terminology or subject classification for information input (indexing and cataloging) and output (retrieval) operations. The STIAC will develop a standardized set of terminology (key words or phrases) which is designed to facilitate analysis by STIAC personnel and user access.

4.2.5.3 Cataloging

Operation of the STIAC will require cataloging and retrieval of reports, other documents, and data. Input of information into the data file involves cataloging (1) descriptive information (titles, report numbers, abstracts, etc.) and (2) technical subject analysis. Subject analysis will be performed by STIAC staff to ensure compatibility with the classification terminology and ready retrieval.

4.2.5.4 Publications

To assist in achieving the implementation and dissemination of new developments, the STIAC will publish newsletters, "technology opportunity bulletins," special compilations of information, and other products discussed in subsection 4.4.

4.2.5.5 Data Base Maintenance

In addition to the development and maintenance of the bibliographic data base, the center will play a vital role as a data base repository and disseminator. This role will include:

- Developing and maintaining a computerized data base on relevant technology, including data on past, ongoing, and future developments. The results of laboratory and field measurements programs will be included in this data base, including data tapes. (Specialized computer codes, such as the BMD developed Optical Signatures Code will be maintained and distributed by the STIAC; as appropriate).
- Developing and maintaing a data base on strategic systems resources, containing information on relevant capabilities of DoD agencies and names/telephone numbers of key personnel at each agency.

4.2.5.6 Conferences and Symposia

The STIAC will sponsor and/or conduct technical meetings on developments in strategic application and related subjects of interest to the user community.

4.2.6.7 User Awareness Program

It is important that prospective users be made aware of the STIAC, its resources, and available services. The conferences conducted by STIAC will play a part in user awareness, but the principal method will be a periodic newsletter and/or bulletin distributed to the community. Typical content of the newsletter/bulletin will include synopsis of newly acquired information, announcements or summaries of new strategic programs, technological developments, and calendars of strategic meetings.

4.3 STIAC UTILIZATION

The STIAC must provide ready access to the user community in terms of physical access and information access. It is desirable that the STIAC be centrally located geographically, and it is essential that adequate transportation facilities be available for convenient visits to the STIAC. Procedures for individual requests, such as bibliograph or technical inquiries, will be established with a goal of providing a response within seven days after receipt of the user request. The STIAC will be capable of responding to requests by telephone, correspondence, or personal visit. The STIAC will have facilities for personal visits of a classified nature and will provide user access to the catalog system, reading rooms, and conference rooms for consultation with STIAC staff or consultants.

To maintain effectiveness of its services, the STIAC will ensure that user feedback is solicited, evaluated, and utilized. This will be performed by documenting user requests and service performed as well as follow-up contact with users who have requested STIAC services. Periodic surveys of the strategic community will also be conducted. A key measure of STIAC effectiveness will be the degree to which financial support is provided by users.

4.4 STIAC SERVICES AND OUTPUTS

Services and outputs of the STIAC will be designed to meet the current and future activities of the strategic community and will be modified as national priorities change. The basic STIAC services and outputs can be defined, however, and are described in the following subsections.

4.4.1 TECHNICAL HANDBOOKS AND DATA BOOKS

In any IAC, handbook preparation represents a major technical task. An example of an initial output of the STIAC is a data handbook representing the body of measurement data taken by the strategic community to date, with emphasis on target data. The production of this handbook would be initiated upon formation of the STIAC and issued during the first year of operation. As user requirements direct, the STIAC will issue and maintain Technical and Data Handbooks dealing with specialized areas of strategic applications.

4.4.2 STATE-OF-THE-ART REPORTS

The STIAC will issue reports summarizing the current state-of-the-art in technology areas relevant to strategic applications. An example of such a report would be the status of mosaic focal plane arrays. State-of-the-art reports will normally be written by specialists in the area under commission from STIAC. State-of-the-art reports would be available during the first year of STIAC operation.

4.4.3 TECHNOLOGY ASSESSMENTS

Technology assessments are more general in nature than state-of-the-art reports and normally will be issued by the STIAC in response to specific requests. An example of a technology assessment subject that would be relevant to strategic technology is the status of LWIR sensor systems. Technology assessments will usually be produced by STIAC staff, with consultant assistance as necessary. Technology assessments in specialized areas will be offered by the STIAC during the first year of operation and on a broader scale as the center's data base is established in succeeding years. Technology assessments will normally be funded by the requestor.

4.4.4 CURRENT AWARENESS

Current awareness reports will normally be incorporated in the STIAC newsletter/bulletin. These reports should report recent developments and program results. Current awareness reports will be initiated during the first year of STIAC operation.

4.4.5 TECHNICAL INQUIRIES

An important service of the STIAC operations will be to answer technical inquiries. Such inquiries may be for technical consultation searches and current research summaries. Inquiries to the STAIC are expected to be directed by telephone, correspondence, or personal visit. It should be the policy of the STIAC to respond to technical inquiries by mail within seven working days, except in those cases where users may require more immediate service via telephone or telegraph. To satisfy periodic IAC audit requirements, as well as a need to maintain some statistical record of all technical contacts, a contact record or consultation report will be prepared for each inquiry.

4.4.6 ABSTRACTS AND INDEXES

The STIAC bibliographic data base will be established on the DTIC IAC Support System during the first year of its operation. The STIAC can then initiate an "abstracts and indexes program" to be developed from outputs of the STIAC portion of the DTIC data base.

Other products that will be generated from the STIAC bibliographic data include: (1) Alert Bulletins which are bibliographic listings of recent acquisitions; (2) a thesaurus for terminology control and subject classification; (3) user interest profiles for selective dissemination of information; (4) literature bibliographies to respond to user inquiries; (5) Digests, or periodic abstract listings in highly specialized areas and new research results; and (6) Strategic Systems Applications.

4.4.7 BIBLIOGRAPHIC INQUIRIES

Bibliographic inquiries are expected to be the most frequent form of interaction between the STIAC and its user communities. Some bibliographic inquiry services are expected to begin during the formative period of the STIAC. Depending on the nature of the inquiry, the center staff,

through their experience and judgment, will advise the user of the probable response time, which should normally be within seven working days. In some instances, the desired or required response data may be specified by the user. The form of response may be by telephone, letter, memorandum, or quick-look report. In every case, a record of the inquiry and response will be made and filed for audit purposes.

4.4.7 SPECIAL STUDIES AND TASKS

An important function of the STIAC will be to provide problem solution information to DoD and other government agency users. Such tasks will be treated by the center as special studies with limited scope. Approval by the center's sponsor will be obtained before work on such studies or any additional tasks are undertaken by the center. Funding for such special studies and tasks will be the responsibility of the requesting agency.

Quick-look studies should be initiated in response to inquiries from DoD members of the user community. The technical effort required may typically run from a few days to a few weeks. These studies will be documented as technical memoranda, with copies distributed to principal program monitoring offices and to the original requestor.

Program summaries are detailed reviews of research and development programs currently in progress. Such summaries are useful in evaluating the levels of work and technical objectives of programs funded by DoD and other Federal agencies. Complementary studies, or potentially duplicating efforts, will be identified in such studies. The first-year technical effort should be limited to no more that two program summaries, since much of the available staff time should be devoted to the acquisition and development of a working data base on priority areas.

4.4.8 CONFERENCES AND SYMPOSIA

As mentioned previously, periodic conferences dealing with areas of interest to the strategic community will be conducted by the STIAC. Since these conferences will (1) provide efficient technical interchange and (2) play an important role in generating user awareness of the STIAC's services and capabilities. At least one conference will be scheduled by the STIAC during its initial year of operation.

SECTION 5. STIAC IMPLEMENTATION AND OPERATIONS

The proposed approach to the implementation, operation and resources for an STIAC is presented in this section. A framework for the STIAC was developed in Section 4. This same framework is being used as the basis for the implementation and development plan. A four-phased development is proposed covering the first 5 years of operation. Particular emphasis is placed on the first 3 years. The plan is developed so that the STIAC will immediately provide effective and valuable service to the user community during the first year of operation.

5.1 IMPLEMENTATION PLAN

The proposed schedule for the STIAC development and operation is shown in Figure 20. Upon receipt of DLA approval and funding authorization for the STIAC, this plan envisions that a "Request for Proposal" will be issued to a list of qualified contractors. Proposals will be received and evaluated by a source selection team and a contract issued promptly so that the STIAC can initiate operation 6 months after DLA approvals. A suitable facility will be made ready for occupancy by the operator within a two month period after award.

Once the operator is under contract a time-phased plan will be defined while at the same time initial phases are being implemented. The implementation plan will be divided into four phases. Priorities will be assigned in developing services and output for strategic and technology areas during the first 3 years. Phase I covers the first 6 months where the majority of the effort will be focused on (1) establishing interfaces with libraries, DDC's, and other IAC's; (2) establishing data base priorities and information sources; (3) establishing the data base on priority one technologies; (4) developing user contacts and establishing a membership base; (5) developing detailed methods and procedures for STIAC as specific technical surveys, general technical surveys, synthesis, newsletters, bibliographies, etc., of models and data.

Phase II covers the second 6 months of operation. During this phase STIAC development will concentrate on expanding the user service area to

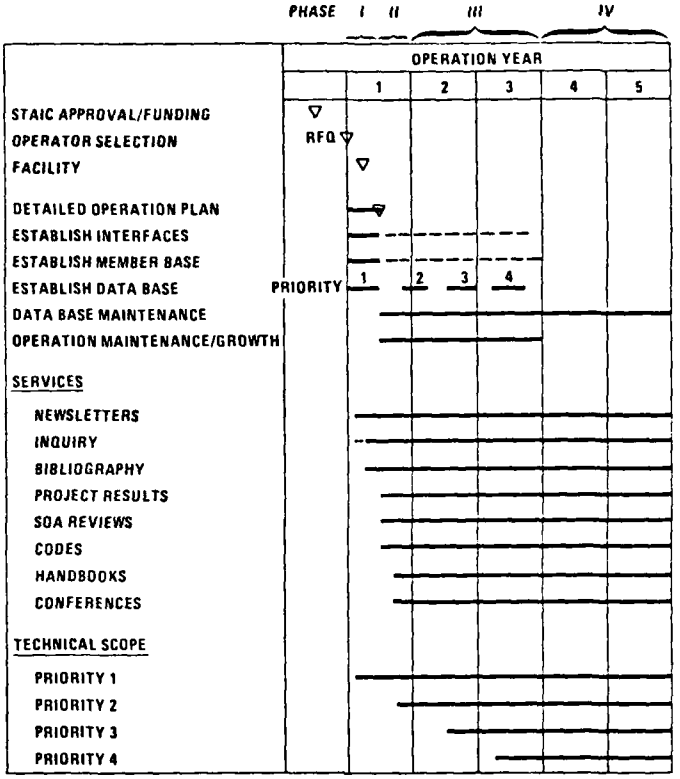


FIGURE 20. STIAC DEVELOPMENT/OPERATION SCHEDULE (5-YEAR PLAN)

cover all key services identified at this time, including reports on project results, state-of-the-art reviews, handbooks, and dissemination of existing computer codes. The first conference/symposium will also be conducted. One key STIAC objective for this meeting will be to establish user contacts and obtain user feedback.

Phase III covers the second and third year of operation and concentrates on expansion of technology areas to cover all identified strategic disciplines according to the assigned priorities. The STIAC will expand its conduct of conferences and symposia on strategic technology areas. At the end of this phase, the STIAC will have excellent capabilities in all areas currently proposed.

Phase IV is full-up operation phase for the STIAC. Emphasis will be on the continuation and improvement of operations and services already established. Operations and user needs will continually be reviewed for future expansion or deletions. Modification to operations and services will be effected as required.

5.2 ORGANIZATON

The center will be responsive to the priority requirements of potential users, and the STIAC will assume full responsibility for accomplishing its mission and objectives. In order to be effective, it must develop good relations and assist in the coordination of information activities with the DoD, other government agencies, and the private sector.

The proposed organization for the STIAC is shown in Figure 21 and consists of four line branches: Referral Services, Acquisition, Technical Processing, and Technical Staff. A Management Services group, reporting to the STIAC Director, is included as a staff position. A Steering Group will be appointed during the initial startup phase of the IAC. A seven member steering committee is proposed consisting of: one representative from each of the military services, 3 representatives from private industry, and the technical monitor for the STIAC. This committee will provide guidance during the development of the STIAC to maximize its utility to the community as a whole.

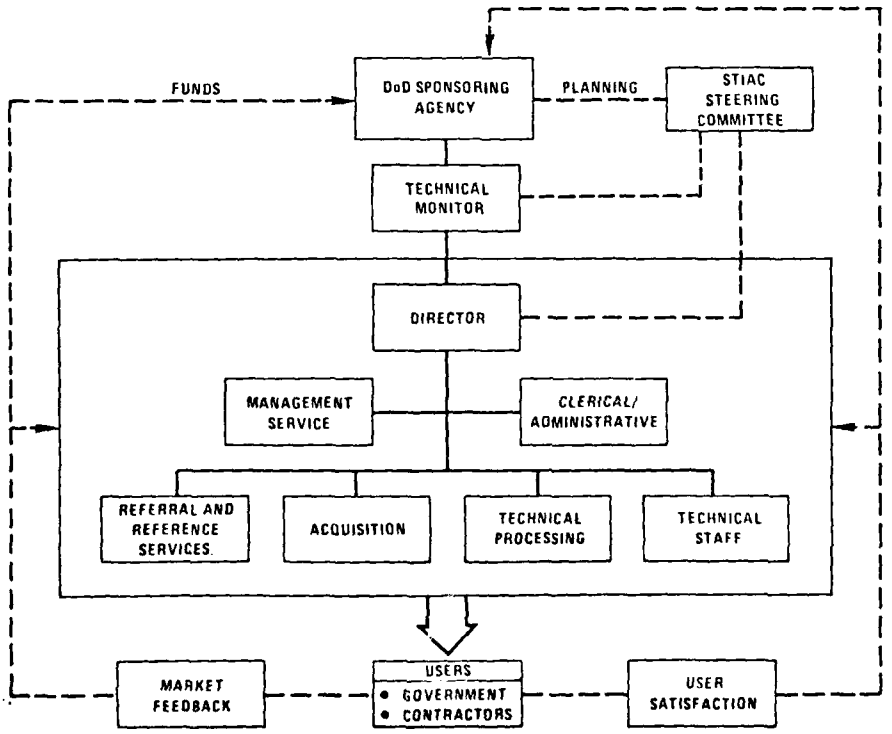


FIGURE 20. PROPOSED ORGANIZATIONAL STRUCTURE AND OPERATION

The STIAC will be operated and staffed by a organization under contract to DoD. The IAC contractor will report to and take technical direction from a technical monitor. This contractor could be a private corporation, a nonprofit institution or not-for-profit organization. The center could represent either part or all of the organization's business operations. There are a number of organizations with an interest and potential capabilities to establish and operate an STIAC for the DoD (see Appendix G). A competitive procurement is recommended for determining the most suitable contractor for establishing and operating the STIAC.

The technical monitor of the STIAC will provide technical direction to the IAC contractor. The Defense Logistic Agency will appoint a DoD agency to serve in this capacity. This agency must be heavily involved in a key strategic development role (e.g., BMD) and must have a high interest and commitment in developing the STIAC. The technical monitor will direct the STIAC contractor in the implementation of Steering Committee decisions.

The Management Services group will coordinate the management information system and contract control, and develop systems and procedures for the STIAC. Other duties will include intergovernmental coordination with DLA-administered IAC's, information centers of other federal agencies, and other documentation services such as DTIC and NTIS.

A staff of personnel will be developed by the STIAC contractor to acquire and catalog data/reports and to provide user service as shown in Figure 21. The technical staff will be composed of physicists, engineering specialists, et al. The technical staff will perform the analysis of STIAC information to answer requests, write SOA reports and handbooks, and provide referral service. The technical staff will primarily be local to the STIAC for quick response, but nonlocal consultants will be used to provide a broad range of expertise especially in the preparation of SOA reports or handbooks.

5.3 RESOURCE REQUIREMENTS

5.3.1 FUNDING PROFILE

Funding of the STIAC will be based on DLA funds and funds from the user community supporting the strategic systems. A 5-year funding profile is projected for the STIAC (Figure 22). Both user community and DLA

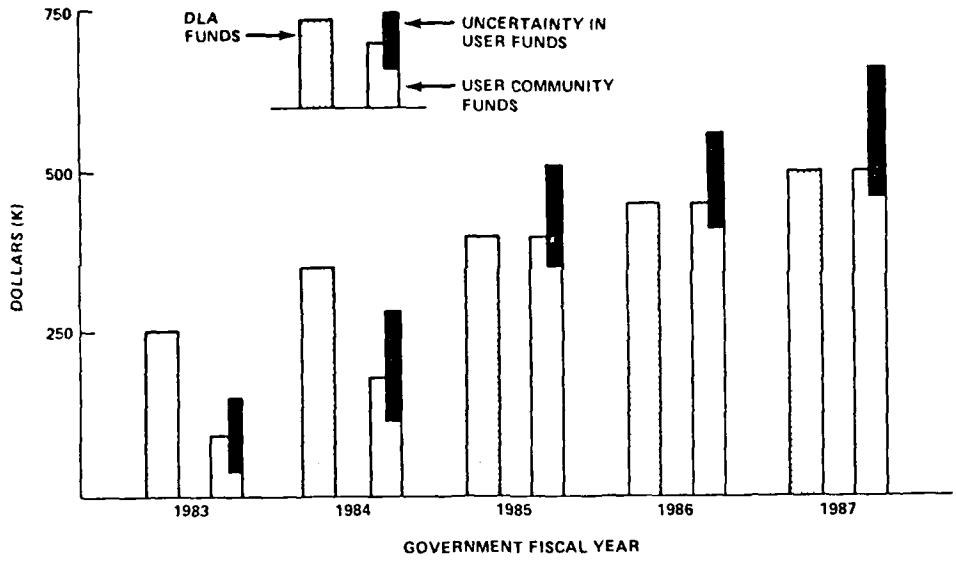


FIGURE 22. PROFILE FOR FUNDING REQUIREMENTS FOR STRATEGIC TECHNOLOGY INFORMATION ANALYSIS CENTER

requirements are given by year. The plan is based on DLA providing $250,000 the first year supplemented by subscriber fees of approximately $100,000 giving a total of $350,000 for the first year. Potential uncertainties in the user community funding is also shown. Funding is shown to increase from the user community, and DLA for the 5-year period until a total support level of approximately $1M is reached. After the second year the user community is expected to share equally in support. Funding levels proposed here will be updated on a yearly basis and justified by user needs and information availability.

5.3.2 STAFFING

The time phased staffing requirements for the STIAC are estimated and shown by the bar chart in Figure 23. These requirements are based on the organization defined in subsection 5.2 (see Figure 21) and can be met by a mix of personnel in the following categories: Director, technical analyst and advisor, clerical, librarian, technical editor, computer programmers, business manager/special affairs coordinator. Details of staffing personnel by year will be defined by contractor proposals and must be flexible in order to meet uncertainties in user requirements.

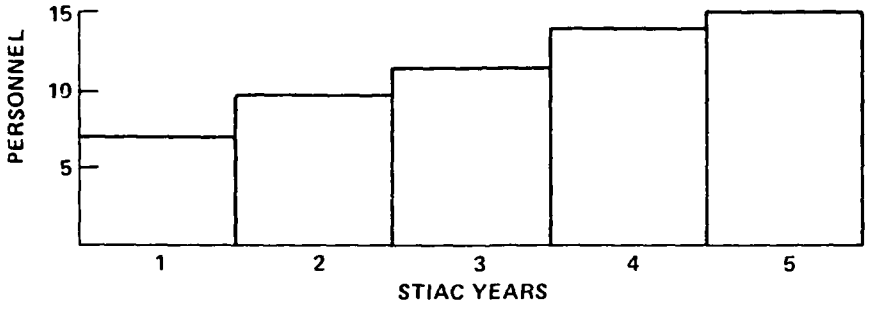


FIGURE 23. MANLEVEL LOADING FOR STIAC

5.3.3 FACILITIES AND EQUIPMENT

5.3.3.1 Building Facilities

The General Services Administration (GSA) issues data pertinent to the minimum requirement of floor space (GSA Requirement 405.70) in government facilities. Table 14 gives an estimate of the floor space requirements for the initial STIAC facilities along with expected growth requirements during the first 3 years based on GSA guidelines.

Information centers tend to outgrow their physical facilities much sooner than expected and, therefore, careful planning will go into the development of the facilities plan. This applies especially to those floor space areas sensitive to the growth of the collection in hard copy and bibliographic file forms, and to the document (hard copy) storage and clerical work areas.

TABLE 14. ESTIMATED FLOOR SPACE REQUIREMENTS FOR THE STIAC

SQUARE FOOTAGE OF PHYSICAL ELEMENTS (OFFICES, ROOMS, AREAS, etc.)	FLOOR SPACE ALLOCATION (ft^2)
MANAGERIAL (5 X 150) OFFICES	750
PROFESSIONAL (14 X 100) OFFICES	1400
CLERICAL (9 X 80) AREAS	720
WORK SPACE AND REPRODUCTION EQUIPMENT (10 X 80) ROOMS	800
CONFERENCE AREA (12 X 15) OR ROOM(S)	180
READING ROOM (30 X 40 ROOM INCLUDING SHELVES, TABLES, etc.)	1200
STORAGE AREA (30 X 70 ROOM WITH DENSELY-SPACED VERTICAL SHELVING)	2100
20 PERCENT ADDITIONAL FLOOR SPACE TO PROVIDE FOR HALLWAYS, EXPANSION, etc.	1430
TOTAL FLOOR SPACE	8580*

*APPROXIMATELY 300 ft^2 PER STAFF MEMBER.

Careful consideration will also be given to the space required for classified information and to the design of a temperature-controlled storage area for storing and safekeeping of films, magnetic tapes, and other temperature-sensitive materials.

The important design parameters which must be considered in development of the facilities plan for the STIAC are:

1) Available facilities with proper facility security clearances.
2) Facility growth potential.
3) Site, facility, and floor(s) assigned to house the center.
4) Availability and compatibility of utility services and maintenance.
5) Plans for moving to future sites, buildings, etc.
6) Funding available and budgetary constraints.
7) Users being served and in-house traffic
   a) Number and type of individuals to be served at the facility
   b) Number and type of organizations comprising community at large
   c) Range of interests, concerns, disciplines, and subject areas.
8) Information functions and operations
   a) Document collection size and growth
   b) Information services and products
   c) Information specialists for special services.

5.3.3.2 Equipment

The STIAC operator must provide high quality reproduction and publication equipment for distribution of strategic related data. Special library equipment such as film readers and rapid retrieval indexing equipment is required. Furniture and fixtures required for STIAC staff and visitors are necessary. Computer facilities capable of (1) storing and retrieving large quantities of raw and calibrated data, and (2) performing analysis, are required. This computer capability does not need to be collocated with the STIAC facility.

5.3.4 QUALIFIED SOURCES (STIAC OPERATION)

A Commerce Business Daily (CBD) request for sources qualified to operate the STIAC was issued on 2 September 1981. Twenty-one responses were received that demonstrated capabilities and interests sufficient for use as a basis for developing a bidders list for the STIAC operator RFQ. The number of respondents categorized by two different methods is shown in Table 15.

Locations of respondees varied to cover most of the contiguous U.S. as shown in Figure 24. The most centrally located responses came from Alabama (Huntsville), Ohio, Michigan, and Illinois (Chicago).

The CBD responses clearly indicate that good capabilities exist in industry and institutions which can be used to operate the STIAC. A competitive procurement process will provide the best means for selecting the operator with the best balance of capabilities and minimized cost. A 3-year incrementally funded contract will provide continuity during the critical STIAC development stage.

TABLE 15. CBD RESPONSE BY CLASS OF ORGANIZATION

CLASS OF ORGANIZATION	RESPONSES (NO.)	QUESTIONNAIRE PREFERENCE (%)
1. UNIVERSITIES	2	10
2. NOT-FOR-PROFIT ORGANIZATION	5	32
3. PRIVATE COMPANY	14	12.5
1. UNIVERSITIES	2	–
2. SMALL BUSINESS	7	–
3. LARGE BUSINESS	12	–

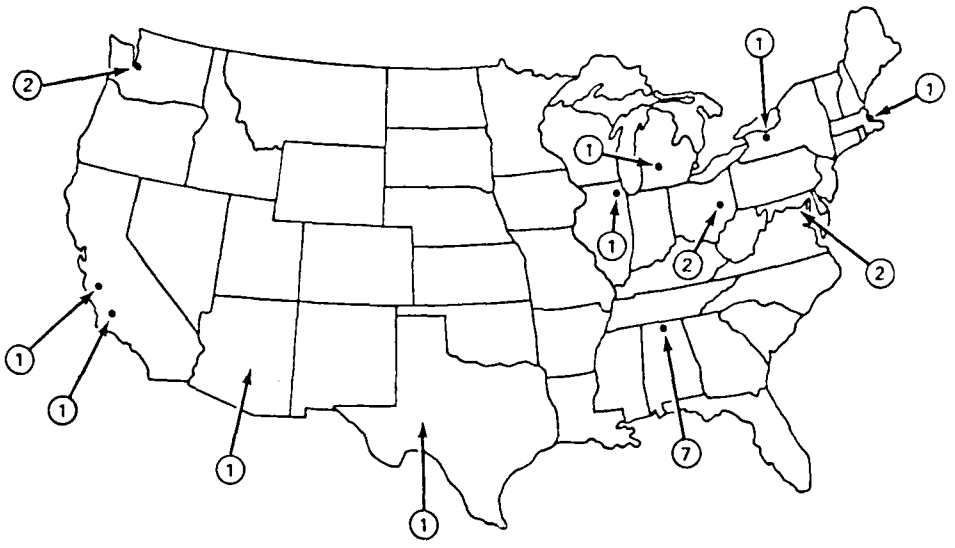


FIGURE 24. POTENTIAL STIAC OPERATOR LOCATIONS

5.3.5 TECHNICAL MONITOR

It is recommended that BMDATC serve as the Technical Monitor of the STIAC and its operation contractor. BMDATC, located in Huntsville, Alabama, is central to the strategic systems community as illustrated by Figure 25 and has the following excellent key qualifications.

- BMDATC demonstrated (1) a recognition of the STIAC need and (2) a commitment by conducting user surveys, developing a plan and documenting the material in this proposal and justification.
- BMDATC has established technical expertise in strategic areas with their experienced project engineers. Continuity of monitor personnel can best be assured by an agency that does not require periodic reassignments.
- BMDATC is a primary center for strategic technology development and has a broad knowledge of strategic applications. Many personnel have over 10 years of continuous and outstanding service on strategic programs with extensive interaction with the military services, the DoD, other government agencies, and DoD contractors. Interaction with NASA and all the major aerospace contractors and numerous small businesses provides BMDATC with an even more comprehensive view of strategic technologies.

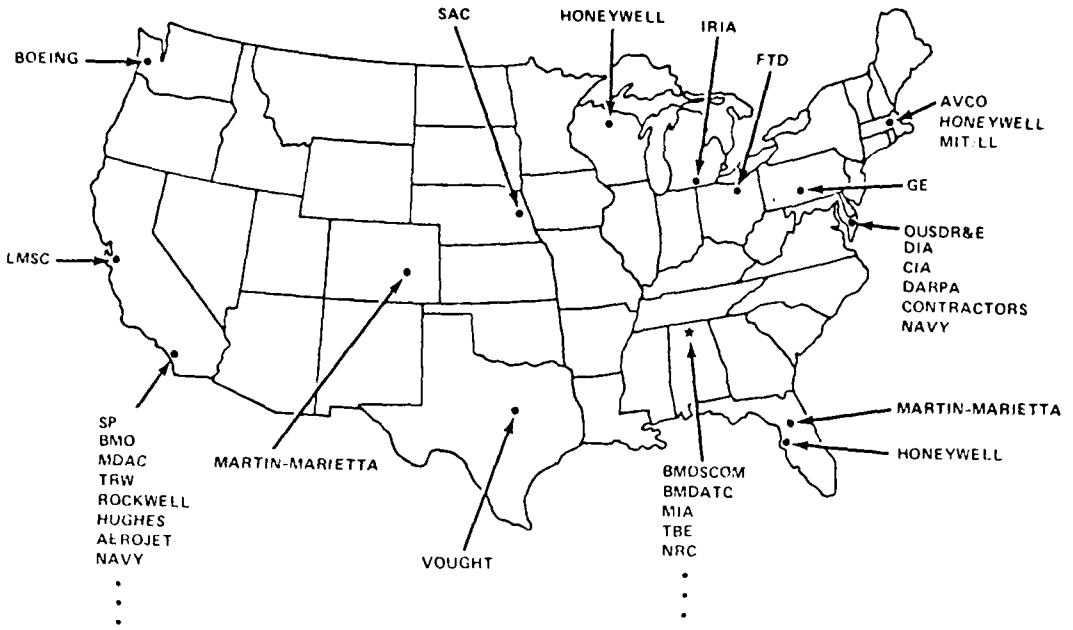


FIGURE 25. STIAC USER LOCATIONS

- BMDATC has demonstrated an awareness of a need for BMD technology development and distribution by successfully conducting cost-effective programs such as, Optical Signatures Code (30 paid users); Hardening Capabilities Handbook (150 users); Symposium on Hardening Capabilities and Sensor Calibration; and dissemination of program results from DOT, FAIR, GBM to the DoD community.
- BMDATC has broad experience in technology development with requirements based upon system concepts. Success of these developments demonstrates knowledge of system integration issues and capability to evaluate and project the strategic technology base. These existing BMDATC capabilities and resources commitment with a desire to promote a self-sufficient center will ensure a dedicated and efficient monitor for the STIAC.
- The BMDATC Advanced Research Center (ARC) has existing computer capacities and retrieval systems (CDC 6600, 7600, VAX 11/780 net, remote terminal interfaces, security procedures) for storage and quick access of data bases and codes. BMDATC will commit these resources at a significant cost savings to the STIAC operator. BMD will also be a major contributor to the data base of data tapes and computer programs. Much of the BMD contribution is already resident on the ARC and ready for access.

5.4 OPERATIONS/DATA HANDLING

The center will provide the means for handling information with access or dissemination restrictions. The center's management will use current practice pertaining to security data control and dissemination. Procedures for visits and document distribution to STIAC users are included as part of this control.

5.4.1 VISITOR CONTROL

Classified information controls are a routine procedure for many IAC operations (such as DASIAC, the DoD Nuclear Information Analysis Center). In accordance with the Industrial Security Manual, all visitors to an IAC who may need access to classified information are required to file official visit clearances, and be appropriately certified for need-to-know by the visitor's Contracting Officer's Representative. This may be an authorization for a single visit, or a standing clearance for an extended period consistent with the performance period of the visitor's basic contract. Visitor discussions and the information accessed are controlled according to need-to-know and clearance level.

Classified notes, or copies of selected material from classified documents, are provided to the visitor (with courier status) or mailed to his approved classified mailing address. Copies of complete documents are not usually provided (a current restriction by DoD), but a visitor can be given the appropriate AD number for ordering from DTIC if complete and permanent retention is desired.

5.4.2 DOCUMENT DISTRIBUTION

Special reports and handbooks prepared by the STIAC will be submitted in final draft form along with the recommended distribution list to the sponsor for review and approval before final distribution by the STIAC. Other normal publications such as newsletters and bibliographies will be handled by the STIAC without approvals.

When the STIAC is required to generate classified technical responses to an official user inquiry, distribution will be handled directly by the center. The user will be requested to provide an authorized classified mailing address that is verified by the center by cross reference to the

to the DTIC Dissemination Authority List (DAL) if the user is registered with the DTIC. If this is not the case, the user's mailing address will be verified fhrough the office of the user's contracting officer or the local DCASR office.

Unclassified materials may be disseminated without the previously mentioned controls. Some unclassified reports may also have other types of distribution limitations. In these cases, the STIAC will be responsible for establishing a distribution list based on the restrictions for unclassified documents. When is doubt, approval will be obtained.

5.5 COST EFFECTIVENESS ASSESSMENT

A primary justification for establishment and operation of an IAC is its cost effectiveness; a study funded by the National Science Foundation in 1977 reached this conclusion. The goal of the research project, "Development of Cost Benefit Methodology for Scientific and Technical Information Communication and Application to Information Analysis Centers" (NSF Grant SIS 75-12741) was to develop a set of concepts and procedures that could be used to perform cost benefit studies of information analysis centers. This study was successful in developing mathematical models capable of generating cost benefit descriptors for functioning IAC's. The study concluded that the apparent benefits of existing IAC's far exceeds their costs.

The cost benefit from the STIAC is achieved by preventing duplication of efforts in research and development programs and by providing a strategic technological information synthesis to aid in planning and redirecting strategic programs. Research and development programs are established on a base of existing information, and the quantity and quality of that information impacts research productivity and relevant technical innovation. National defense dollars can be more effectively used than in duplicating research for technological development already achieved but almost inaccessibly documented. Interservice research and development redundancy is a problem particularly amenable to the informational services of a functioning mission oriented IAC. In this connection, the availability of information on unsuccessful, as well as on successful programs, can have a definite,

cost benefit. Unsuccessful research and development efforts costing much more than the annual funding of an IAC have the potential for being unproductively repeated under other programs.

The Optical Signatures Code (OSC) is an example of how BMDATC-O recognized the need, developed, and distributed this comprehensive computer analysis tool to the strategic community. This tool has proved to be valuable not only to BMD but to other government agency contractors as demonstrated by the users list shown in Table 16. This code has been packaged and distributed for a fee for 7 years. User satisfaction

TABLE 16. OPTICAL SIGNATURES CODE USERS

CONTRACTORS/PURCHASERS	GOVERNMENT USERS
AEROSPACE	ARPA
BALL BROTHERS	AFSC
CALSPAN	BMDATC
BAC (WASHINGTON)	MICOM/MIA
AERODYNE RESEARCH	RADC
CENTER FOR ANALYSIS	SAMSO
Avco	SANDIA
DYNETICS	WPAFB/FTD
ESL	ASL/WSMR
FACC	NAVSURWEACEN
GE (RESD, SSL, TEMPO)	
GRUMMAN	
GENERAL DYNAMICS	
B-K DYNAMICS	
GRC (WASHINGTON, HUNTSVILLE, SANTA BARBARA)	
HUGHES	
HONEYWELL (AEROSPACE, SYSTEMS, ELECTRO-OPTICS)	
HRC	
KAMAN SCIENCE	
LMSC (PALO ALTO, SUNNYVALE)	
MIT/LL	
MRC	
MDAC (HUNTINGTON BEACH, HUNTSVILLE)	
MARTIN MARIETTA	
NORTHROP	
NRC (NICHOLS RESEARCH CORPORATION)	
LTV	
OPTICAL SCIENCES CORPORATION	
PHYSICAL SCIENCES	
PERKIN ELMER	
RI	
R&D ASSOCIATES	
RRI (RIVERSIDE RESEARCH INSTITUTE)	
SAI (SCIENCE APPLICATIONS, INC.)	
SPECTRON DEVELOPMENT	
TRW	
UNIVERSITY OF ARIZONA, OSC	

has been assured by an active questionnaire program to obtain feedback which results in correction to codes or documentation. The distribution of this code has prevented much unnecessary duplication throughout the strategic community. By not having to use less accurate and unvalidated codes in the evaluation of signature related problems, users outside of BMD have obtained cost benefits that result from a program success rather than a program failure.

An estimate of OSC development and distribution cost savings to the strategic community is $10M. This is based on an estimate of four duplications within the community of 30 models contained within the OSC, or in essence four duplications of the entire code. The development and validation of the OSC cost is $2.5M. When the cost of developing the OSC is divided among its approximately 50 users, the average per user cost is $50K. This compares with $250K per user if independent developments were done. Figure 26 shows the estimate of cost savings accumulated since program initiation. Comparable cost saving examples could be provided covering BMDATC development and distribution of the Hardening Components Handbook and Symposium (100 users) and Signature Handbooks.

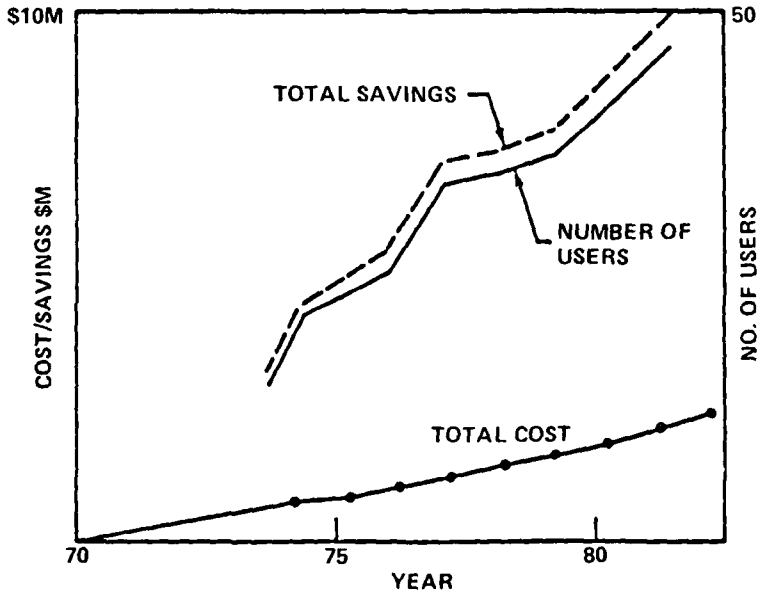


FIGURE 26. OSC COST SAVINGS SCHEDULE

Savings under one program could easily be equivalent to the entire investment in the STIAC. Based on the previous mentioned examples, it is apparent that an efficiently operated STIAC would provide a significant cost benefit to the entire strategic community. The accompanying increase in research productivity and the accelerated rate of technological innovation would provide an invaluable benefit to national defense.

5.6 COST CONTROLS FOR 50 PERCENT SELF SUSTAINMENT

The STIAC operator will implement cost controls and cost monitoring techniques on the services offered. The ultimate goal of these techniques will be to assure that the center has a 50 percent rate of reimbursement while still maintaining all the high payoff services which aid in strategic technology development. Figure 27 illustrates a hypothetical example of a series of controls and monitors that, at a minimum, shall be provided by the STIAC operator. Figure 27a illustrates a simple accounting scheme for monitoring service utilization by each individual service. Figure 27b illustrates a monitor for cost per unit service. Figure 27c illustrates a control on charges and fees to aid in ensuring a 50 percent rate of reimbursement. Finally, numerous subjective factors involving the benefit to technology development will be factored along with rate of reimbursement to finally determine whether a service should be retained (i.e., Figure 27d).

5.7 GROWTH OPTIONS

Planning considerations for the intermediate and future development periods (Table 17) provide the basis for organizing a program to respond in a meaningful way to the effects of future events with minimum disruption to the STIAC. By the mid-1980's, the STIAC high usage will have an increasing role as the focal point of strategic systems information for DoD. At that time, the center will be expected to improve and expand its services and prepare special information products for the user community that will be changing in nature and number.

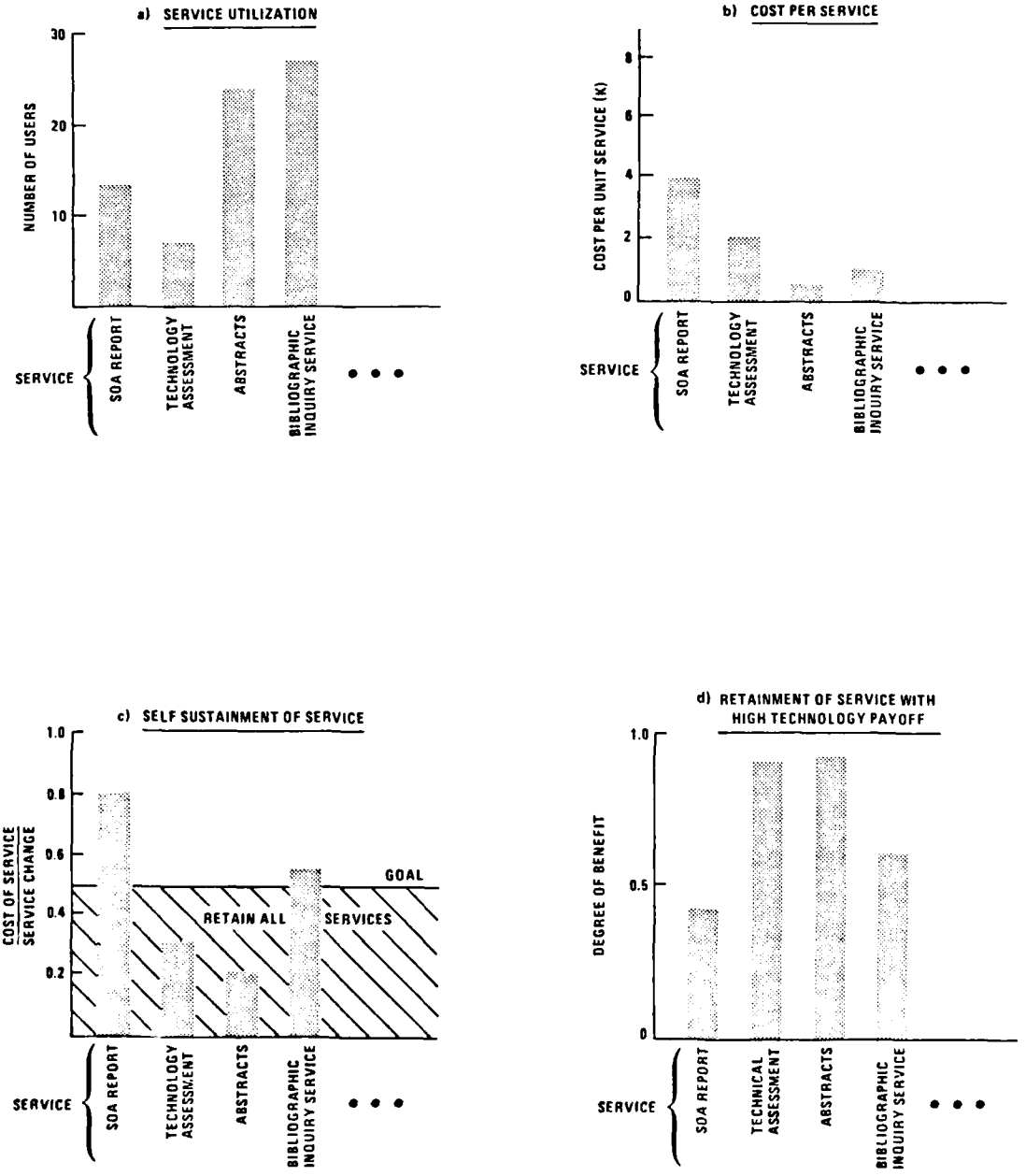


FIGURE 27. COST CONTROLS AND MONITORS FOR STIAC SERVICES

TABLE 17. STIAC DEVELOPMENT PLANNING CONSIDERATIONS

STIAC DEVELOPMENT FACTORS	PLANNING CONSIDERATIONS	
	FOR INITIAL DEVELOPMENT PERIOD	FOR FUTURE DEVELOPMENT PERIOD
1. SIGNIFICANT EVENTS	1. INVESTIGATE FEASIBILITY OF A DoD STIAC 2. ESTABLISHMENT OF A DoD STRATEGIC SYSTEMS ADVISORY GROUP 3. DEVELOP/SOLICIT IAC CONCEPTS 4. EVALUATION OF IAC CONCEPTS 5. SELECTION OF PREFERRED CENTER CONFIGURATION 6. DESIGN AND IMPLEMENTATION OF INITIAL PRODUCTS/SERVICES 7. INITIAL PHASE OF OPERATION 8. INITIAL ACQUISITION PROGRAM	1. MATURING OF CENTER 2. MATURING OF DATA BASE 3. GOVERNMENT ACTIVITIES DUE TO STRATEGIC SYSTEMS CONCERNS 4. REEVALUATION OF SYSTEM AND ORGANIZATION 5. OTHER
2. POLITICAL, ECONOMIC, AND TECHNOLOGICAL ENVIRONMENT	1. ADMINISTRATION AND CONGRESSIONAL POLICIES 2. DoD, DLA, OTHER POLICIES 3. CLIMATE OF PUBLIC AND PRIVATE OPINION 4. AVAILABILITY OF FEDERAL FUNDS 5. SIZE OF DLA BUDGET 6. BUDGETARY ALLOCATION TO PLAN AND ESTABLISH CENTER 7. ORGANIZATIONAL AND STAFFING CONSTRAINTS 8. AVAILABLE SYSTEMS AND EQUIPMENT	1. SAME AS FOR INITIAL PERIOD, IN ADDITION 2. NEW, FEASIBLE TECHNOLOGICAL DEVELOPMENTS 3. AVAILABILITY OF OTHER FUNDS 4. ORGANIZATION AND STAFFING CHANGES 5. OTHER
3. STIAC USERS AND THEIR INFORMATION NEEDS	1. IDENTIFICATION AND DESCRIPTION OF USERS 2. NUMBER OF USER COMMUNITIES 3. ESTABLISHED GROWTH OF USER COMMUNITIES 4. GEOGRAPHIC LOCATIONS OF USERS 5. PRIORITY USERS TO BE SERVED 6. STATED AND IMPLIED USER NEEDS 7. USER COMMUNITY PRIORITIES 8. STIAC PROMOTIONAL PROGRAM	1. CONFIRM NEEDS OF RESEARCHERS 2. CONFIRM NEEDS OF DATA BASE 3. NEW NEEDS OF DoD AND GOVERNMENT AGENCIES 4. PROGRAM TO SOLICIT USER SATISFACTION DATA FROM USER ORGANIZATIONS 5. ESTABLISH COMMUNICATION WITH NEW ORGANIZATIONAL USERS 6. USER CHARGE PROGRAM (COST RECOVERY)
4. LITERATURE BODY, BIBLIOGRAPHIC RECORD, AND OUTPUT PRODUCTS/SERVICES	1. TYPE OF LITERATURE AVAILABLE 2. FORM OF AVAILABLE LITERATURE AND MATERIALS 3. SUBJECT CONTENT OF LITERATURE 4. SIZE OF LITERATURE BODY/TRANSFER OF COLLECTIONS 5. ESTIMATED GROWTH OF LITERATURE BODY 6. STIAC GENERATED PRODUCTS PRIORITIES 7. DEVELOPMENT OF BIBLIOGRAPHIC USER FILE 8. CONTINUING ACQUISITION PROGRAM	1. ADJUSTED ESTIMATE OF LITERATURE BODY GROWTH 2. BIBLIOGRAPHIC ACTIVITY 3. EFFECTIVENESS OF VOCABULARY CONTROL AIDS 4. ADJUSTED STIAC GENERATED PRODUCTS WORKLOAD 5. ADDITIONAL SERVICE NEEDS
5. OTHER RELATED INFORMATION	1. EXISTING SYSTEMS AND CENTERS 2. EXISTING SYSTEMS INTERACTION/NEEDS 3. FREEDOM OF INFORMATION ACT 4. EXISTING COMMUNICATION PATTERNS 5. EXISTING SYSTEM PROCESSING 6. CHARACTERISTICS OF EXISTING COLLECTIONS 7. INFORMATION ACTIVITIES OF PROFESSIONAL ASSOCIATIONS AND EQUIPMENT MANUFACTURERS	1. RESOURCE SHARING AGREEMENTS 2. INCREASE IN COOPERATIVE SERVICES 3. ESTABLISHMENT OF UNION LIST OF HOLDINGS 4. INTERACTION WITH OTHER RESEARCH AND DATA CENTERS (IAC'S) 5. OTHER

5.7.1 FUTURE LITERATURE BASE

The literature base for research and development in various disciplines of strategic technology will undoubtedly undergo rapid change both in quality and quantity after the STIAC has been operating for a period of time. The center will have to acquire information on highly specialized disciplines, and must be capable of making changes to these disciplines as dictated by user needs. Moreover, it is highly probable that by 1990 the continuing rapid pace of scientific and technological research and development will introduce a factor of substantive obsolescence in many kinds of literature retained in the STIAC collection. The center must be able to anticipate these changes in user needs in order to provide these new services in a timely manner. Therefore, the STIAC must provide a means for continuous review, evaluation and prediction of user needs in order to accommodate data base changes and service emphasis.

5.7.2 COOPERATIVE SERVICES AND STANDARDIZATION

To accommodate the expected steady increasing STIAC user population and the concurrent increase in the size of the literature base, the center will have to conduct a continuous program to facilitate the interaction between new users and its collection. A beginning in this area may be for the STIAC to encourage new users to establish inexpensive, small, private (desk-drawer) libraries of microfiche covering special areas which they can obtain through a service that may be offered by the STIAC. For the long-range development period, improvement in the user/collections interface by becoming a more integral part of an interactive national network, must be actively pursued.

SECTION 6. SUMMARY OF DLA REQUIREMENTS

This section provides a summary of the key points presented in this proposal to assist the Defense Logistic Agency in making a determination for establishing a Strategic Technology Information Analysis Center. Based on the data presented, it is recommended that DoD sponsor and initiate the administrative procedures to establish a Strategic Technology Information Analysis Center.

6.1 STIAC NEED

The results of the presurvey, user survey, and the IAC survey were totally positive in expressing a need for the establishment of a STIAC as soon as possible.

6.2 STIAC MISSION AND SCOPE

The primary mission of the STIAC is to collect, catalog, analyze, and disseminate information relevant to DoD strategic missions and technologies. The strategic applications covered in the mission oriented center will, at a minimum, include space defense, space surveillance, ballistic missile defense, strategic offense, and strategic countermeasures. The center will supply the information in the critical technology supporting strategic applications. These will include, but not be limited to, (1) optics systems, (2) radar systems, (3) threat, (4) countermeasures, (5) target signatures, (6) background signatures, (7) directed energy systems, (8) data processing, (9) signal processing, (10) system analysis, (11) guidance and control systems, (12) command and control systems, (13) missile systems, (14) warheads, and (15) hardening (nuclear and laser).

6.3 STIAC USER COMMUNITY

The user community would include DoD agencies, military services, non-DoD government agencies (i.e., intelligence agencies, NASA), DoD contractors, and university/research centers. It is projected that over 100 memberships would be established during the first year and approximately 300 after the third year. The survey and interviews provided a

profile of potential STIAC users and contributors. The majority of the respondents were DoD contractor personnel (84 percent), working in a management position (85 percent) in the strategic defense community. Sixty three percent expected to use the facility at least 1 to 6 times per year and 25 percent expected to use it between 7 to 12 times per year. The preferred response time was less than a week with only 4 percent specifying a response time of over two weeks. The preferred modes of information sources were written reports and personal contacts with the most desired services falling into the categories of state-of-the-art reports (80 percent), technology assessments (65 percent), and current awareness reports (63 percent). There was no clear preference for a particular type of organization to operate the STIAC; 24 percent specified a government agency, 56 percent specified a contractor or non-for-profit organization or university, and 20 percent had no preference. Approximately 60 percent preferred a funding arrangement that involved a basic membership fee plus a charge for special services.

6.4 EXISTING INFORMATION SOURCES

The existing information network for acquiring and disseminating DoD strategic systems technology information can be grouped into the following seven major components: DLA-funded IAC's; professional societies; military service data bases; other federal agency data bases (including DTIC and NTIS); commercial data bases; private industry data bases; and universities.

The primary means of information transfer in the existing system for strategic technology data is through the informal investigator-to-investigator route and a limited number of strategic related symposiums. There is no existing information system that is concerned with the complete spectrum of strategic systems technology. The available sources are fragmented in terms of complexity and interest, which results in specialized technical data bases, incomplete data bases, and data bases difficult to utilize.

6.5 NON-DUPLICATION OF OTHER IAC'S

Since only one IAC, TACTEC, has a mission oriented charter, the STIAC does not duplicate any existing IAC. Furthermore, it provides a solution to the data gap and time gap for information on strategic system technology.

6.6 INTERFACES WITH IAC'S AND INFORMATION SOURCES

The IAC's with potential interfaces with STIAC were contacted and provided strong support and endorsement for the formation of a mission oriented center to serve as a focal point for strategic system technology. Seven IAC's appear to have useful, but limited interfaces and data exchanges with the STIAC. These include DASAC, CPIA, GACIAC, IRIA, DACS, TEPIAC, and TACTEC.

6.7 IMPLEMENTATION AND OPERATIONAL PLAN

Key elements in the implementation and operational plan for STIAC would include the following:

- Administered by DLA and technically monitored by BMDATC.
- Operated and managed by a contractor selected competitively.
- Establish a steering committee that includes a representative of each branch of military service, three private industry representatives, and the STIAC technical director.
- A projected operational date in FY83.
- An FY83 fiscal year DLA funding requirement of $250,000 and growth to $500,000 in FY87.
- A basic membership fee plus special service charge funding for users. A projected user's funding of $100,000 in FY83 and 50 percent rate of reimbursement by FY85. Charges and fee will be derived to ensure a 50 percent rate of reimbursement after the second year.
- Numerous services, which have been identified as critical by the user community, will be available during the first year of operation.
- A four phase implementation plan which provide for the data and analysis for most of the strategic missions of importance to the United States by the third year.
- A documented feedback system utilizing follow-up contact with individual users and a periodic written survey of the strategic marketplace.

6.8 COST EFFECTIVENESS ASSESSMENT

STIAC would assist in preventing duplication of effort in research and development program and would provide a strategic technological information synthesis to aid for planning and redirecting strategic programs. This information center would have a significant cost benefit to the entire strategic community. Also, The National Science Foundation Study performed in 1977 was a more precise analysis that determined that IAC's were cost effective.

The self sustainment evaluation of the proposed STIAC indicates that an efficiently operated STIAC would have 50 percent rate of reimbursement after 2 years. Implementation of sufficient cost control and monitor systems will help to ensure the maintenance of this 50 percent self sustainment for STIAC. The lack of any existing information system to provide the strategic data and the overwhelming immediate need for such a system ensures partial industrial funding during the first year.

The OSC code is a cost effective example of how BMDATC-O recognized the need, developed, and distributed a comprehensive code for the strategic community. A cost effectiveness of this code has shown a savings of up to $10M to the strategic community.

6.9 QUALIFIED SOURCES

A set of interested and potentially qualified sources has been determined by placing a sources sought announcement in the Commerce Business Daily. Twnety-one contractors and university/research centers have responded with qualifications.

6.10 SUMMARY

This proposal has provided the data information and plans to assist DLA in establishing a Strategic Technology Information Analysis Center. All sampled users and IAC's provided a strong endorsement for proceeding with the STIAC. BMDATC-O will be pleased to provide any additional assistance to DLA for pursuing the establishment of this center.

APPENDIX A

SAMPLE LETTER AND QUESTIONNAIRE

FOR USER COMMUNITY

DEPARTMENT OF THE ARMY
BALLISTIC MISSILE DEFENSE ADVANCED TECHNOLOGY CENTER
P.O. BOX 1500
HUNTSVILLE, ALABAMA 35807

August 3, 1981

Dear

The Optics Directorate of the Ballistic Missile Defense Advanced Technology Center (BMDATC) is performing a study to determine the need and desirability of establishing an Information Analysis Center for strategic optical systems technology. The Defense Technical Information Center (DTIC) administers and partially funds a small number of Information Analysis Centers (IAC's) that are dedicated to providing specialized technical services to both government agencies and private industry. The general concept of an IAC is described in Enclosure 1. A unique feature of an IAC is that it collects, reviews, analyzes, and provides summary reports on specialized technologies, based on the most thorough and current data compilation available. The existence of such a center could provide a centralized source of knowledge on optical phenomena and technology that could be drawn upon by the technical community to ensure completeness and an objective analysis.

The initial part of this assessment is a survey questionnaire (Enclosure 2) directed toward the strategic optical systems research and development community to

1) identify prospective users and contributors to a center of this type,

2) ascertain the current sources of technical information and the adequacy of these sources,

3) define the needs of the user community, and

4) define the scope of activities that a center of this type should undertake.

Information relevant to strategic optical systems technology is increasing with the complexity of this technology, and an IAC for strategic optical systems technology could serve a vital role in the cost effective and timely dissemination of specialized data on strategic optical systems research and development activities. A continually updated information center would be available to the user community, and facets of technology that would otherwise be lost would be compiled in a useable format.

We are soliciting the opinions of individuals and organizations involved in strategic optical technology research and development, and therefore request your participation in this survey. Your answers to these questions will help determine the need for an IAC for strategic optical systems technology and will help shape the scope and services that will be available to you in the future. While your views will be of interest at any time, in order for your responses to be factored in our survey we would encourage your returning the completed questionnaire by 18 August.

Your participation in this survey will be greatly appreciated. If you have any questions concerning this questionnaire, feel free to contact Dr. Shelba Proffitt at (205)895-4570. A self-addressed envelope is enclosed for your convenience.

Sincerely,

W O Davies

William O. Davies
Director
Optics Directorate
BMDATC

Enclosure 1

INFORMATION ANALYSIS CENTER

IAC MISSION

The purpose of an Information Analysis Center (IAC) is to provide scientific and technical information and support services to both government and industry in a specialized technical area.

There are nineteen DOD supported IAC's. The IAC's are basically similar in operation but dissimilar in subject matter. Each center collects, reviews, analyzes, appraises, summarizes, and stores available information on subjects of highly specialized technical areas of concern. Using current computerized data management methodologies, the collections are expanded on a continuing basis to incorporate the most current international research information. The synthesized information in selected subject areas is then packaged and disseminated according to expressed or anticipated needs.

It should be noted that the IAC performs analysis on the information, in the form of summarizing the data, preparing critical reviews, and preparing compilations of various sources in a particular area. Information centers of this type place emphasis on maintaining a complete-as-possible data bank and providing the user community with analytical summaries of this data. In this service, an IAC differs from a documentation center or a library. An additional mission relates to technical and administrative support to joining DOD committees to: review and coordinate R&D efforts concerning interservice compatibility of technology programs, and promote the exchange of technical information in specialized subject areas.

PRODUCTS/SERVICES

The Centers generally offer the following categories of products/services:

State of the Art Reports - summaries of the status of technologies that are pertinent to current research, development, test, and evaluation (RDT&E) decision making with usefulness extending from the bench level to all levels of TDT&E management.

Critical Reviews and Technology Assessments - The latest scientific or engineering information is the most useful format on subjects of significant interest to the Defense RDT&E community. Those reviews and assessments may provide comparative analyses of technologies based on technical, national and/or geographic considerations.

Current Awareness - Newsletters and reviews to keep the Center's users appraised on the latest and most significant technological development within the Center's field of interest.

Special Studies/Tasks - Detailed problem solution information which is narrow in scope.

Technical Inquiry Services - Authoritative advice in response to technical questions posed by the user.

Abstracts and Indexes - Announcements in the form of abstracts and indexes of pertinent reports in the IAC's field of interest.

Scientific and Engineering Reference Works - Useful and authoritative information applicable to on-going work through design, preparation and maintenance of handbooks and data books.

Bibliographic Inquiry Service - References to the latest and most relevant authoritative reports covering user's inquiry.

Technical Conference/Interagency Committee Organization and Administration - Administrative and technical support to technical conferences and joint committees in the Department of Defense. The purpose of these committees is to solve problems, coordinate technology programs, and promote exchange of technical information.

COST

To offset costs incurred in preparing materials or responses corporate membership can be made available or charges can be imposed on products and services.

Enclosure 2

QUESTIONNAIRE ON ESTABLISHING AN INFORMATION ANALYSIS CENTER FOR STRATEGIC OPTICAL SYSTEMS

INSTRUCTIONS FOR COMPLETING QUESTIONNAIRE

For convenience, most of the questions are multiple choice, some ask for a numerical rating, and one asks for your suggestions for potential growth areas. We are very interested in your opinions and encourage you to use the area provided under "Comments" on the last page to give us your suggestions on how the proposed IAC can best meet your needs.

1. Which type of services do you feel would best satisfy your needs for strategic optical technology information?

   _____ General Technical Survey

   _____ Specific Technical Survey

   _____ Analysis

   _____ Synthesis of Models and Data

   _____ Other: _____

2. Please indicate the subject areas you consider of primary importance, of secondary importance, or of no importance for initial inclusion in the proposed IAC.

	PRIMARY	SECONDARY	UNIMPORTANT
a. Systems Analysis			
b. Threat Definition			
c. Sensor Design			
d. Focal Plane Technology			
e. Mirror Technology			
f. Nuclear Hardening			
g. Calibration and Test			
h. Target Signatures			

2. Concluded

	PRIMARY	SECONDARY	UNIMPORTANT
i. Natural Background			
j. Nuclear Background			
k. Functional Simulations			
l. Computer Models			
m. Data Processing			
n. Signal Processing			
o. Laser Devices			
p. Laser Effects			
q. Other ( )			
r. Other ( )			
s. Other ( )			

3. What are your current major sources of information for strategic technology (rank in numerical order of importance, 1 - most important)?

_____ Briefings
_____ Personal Contacts
_____ Journals/Periodicals/ Newsletters
_____ DOD/Government Reports
_____ Conferences
_____ Handbooks/Databooks
_____ Documentation Services (specify in Comments)
_____ Others

4. Which of the following problems do you encounter with respect to strategic technology information (in numerical order of difficulty, 1 = most difficult)?

_____ Unaware of available information
_____ Needed information unavailable/difficult to locate
_____ Inconvenient format
_____ Poor quality (unreliable, dated, etc.) information
_____ Information not oriented/slanted to needs
_____ Too expensive to gather
_____ Other: _____

5. Please rank your need for additional information in the following areas. (1 = most urgent; 4 = no need)

	1	2	3	4
a. Target and Background Signatures				
b. Sensor Technology				
c. Systems Analysis				
d. Simulations and Models				
e. Other: _____				

6. How many times would you anticipate using the IAC per year, if it existed?

_____ 1 to 6

_____ 7 to 12

_____ 13 to 18

_____ More than 18

7. Considering your efforts over the past year, how many times would you have used the IAC?

_____ 1 to 6

_____ 7 to 12

_____ 13 to 18

_____ More than 18

8. In which area of strategic technology do you feel there is a need for centralization of tehcnology to promote better information distribution?

a. Ballistic Missile Defense Yes No

b. Space Defense Yes No

c. Space Surveillance Yes No

d. Other: _____

9. Please list additional areas which you feel should be considered for growth options for the IAC.

   a. _____

   b. _____

   c. _____

   d. _____

10. Please rate the following IAC services for their importance to your organization.

	PRIMARY	SECONDARY	UNIMPORTANT
a. State-of-the-Art Reports			
b. Technology Assessments			
c. Abstracts and Indices			
d. Technical Inquiry Services			
e. Bibliographic Inquiry Services			
f. Scientific and Engineering Reference Works			
g. Current Awareness			
h. Special Studies/Tasks			
i. Sponsor for Technical Conference			
j. Other: _____			

11. What is your estimate of the response time required to meet most of your needs from an IAC?

   _____ Less than 1 working day

   _____ 1 week

   _____ 2 weeks

   _____ More than 2 weeks

12. What type of reporting media would you expect to use (rank in numerical order of importance, 1 = most important)?

_____ Written Report

_____ Oral Briefing

_____ Data Tapes

_____ Other: _____

13. The most appropriate type of organization to operate a center of this type is: (check one)

a. Government Agency _____

b. University _____

c. Not-for-Profit Company _____

d. Other: _____ _____

e. No Preference _____

14. What organization would you recommend as best qualified to manage a center of this type?

15. What funding arrangement would you prefer?

a. Membership _____

b. Service Charges _____

c. Basic Membership plus Charge for Special Services _____

d. Other: _____ _____

16. Which of the following areas best describes your field of interest?

_____ System Analysis

_____ Signature/Background Phenomenology

_____ Field Measurements

_____ Technology/Component Development

_____ Sensor/Device Development

_____ Other: _____

17. What of the following would best describe your position in your organization?

_____ Analyst

_____ Designer

_____ Engineer

_____ Scientist

_____ Project Engineer

_____ Program Manager

_____ Advanced Program Planner

_____ Other: _____

18. What Strategic Defense Area are you most involved in?

_____ Space Defense

_____ Space Surveillance

_____ BMD

_____ Other: _____

COMMENTS:

NAME _____

ADDRESS _____

_____

PHONE _____

APPENDIX B

SAMPLE LETTER AND QUESTIONNAIRE

FOR EXISTING IAC'S

DEPARTMENT OF THE ARMY
BALLISTIC MISSILE DEFENSE ADVANCED TECHNOLOGY CENTER
P.O. BOX 1500
HUNTSVILLE, ALABAMA 35807

August 3, 1981

Dear

The Optics Directorate of the Ballistic Missile Defense Advanced Technology Center (BMDATC) is performing a study to determine the need and desirability of establishing an Information Analysis Center (IAC) for strategic optical systems technology. An important aspect of this initial study is to

1) assess the potential for an IAC for strategic optical systems technology to interface with other Defense Logistics Agency (DLA) funded information centers to preclude potential duplication of facilities, and

2) determine mechanisms for such interfacing.

Therefore, your views and opinions on the following questions (Enclosure A) would provide valuable information and meaningful guidance in our assessment.

We are also conducting a survey of the strategic optical technology research and development community to

1) identify prospective users and contributors to a center of this type,

2) ascertain the current sources of technical information and the adequacy of these sources,

3) define the user community, and

4) define the scope of activities that a center of this type should undertake.

A copy of this survey questionnaire package (Enclosure B) is included for your information. This package includes the general concept of an Information Analysis Center (IAC) and a survey questionnaire.

AD-A111 058 BALLISTIC MISSILE DEFENSE ADVANCED TECHNOLOGY CENTER --ETC F/6 15/3
PROPOSAL AND JUSTIFICATION FOR ESTABLISHING STRATEGIC TECHNOLOG--ETC(U)
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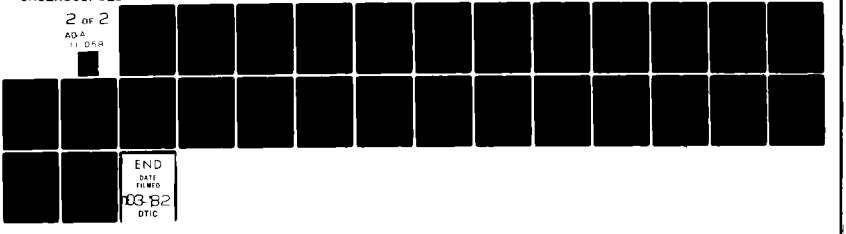

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Information relevant to strategic optical systems technology is increasing with the complexity of this technology, and an IAC for strategic optical systems technology could serve a vital role in the cost effective and timely dissemination of specialized data on strategic optical systems research and development activities. A continually updated information center would be available to the user community, and facets of technology that would otherwise be lost would be compiled in a useable format.

We are soliciting the opinions of individuals and organizations involved in strategic optical technology research and development, and therefore request your participation in this survey. Your answers to these questions will help determine the need for an IAC for strategic optical systems technology and will help shape the scope and services that will be available to you in the future. While your views will be of interest at any time, in order for your responses to be factored in our survey we would encourage your returning the completed questionnaire by 18 August.

Your participation in this survey will be greatly appreciated. If you have any questions concerning this questionnaire, feel free to contact Dr. Shelba Proffitt at (205)895-4570. A self-addressed envelope is enclosed for your convenience.

Sincerely,

W O Davies

William O. Davies
Director
Optics Directorate
BMDATC

Enclosure A

QUESTIONNAIRE

1. Would the primary users of your center be potential users of an IAC for stratetgic optical systems technology? If yes, would the IAC for strategic optical systems technology be duplicative or complementary in nature?

2. What is your estimate of the amount of strategic optical systems technology information now available in existing DLA-funded information centers?

3. What products/services/activities of your information center should an IAC for strategic optical systems technology avoid as duplicative or unnecessary?

4. Which of the DLA-funded information centers have the greatest potential for interfacing with an IAC for strategic optical systems technology? In what way? In what subject areas?

5. Assuming feasible interfacing with your center, what would be the nature, manner, and form of such interfacing (e.g., computer terminals, director referal, etc.)?

6. What would be the technical and logistics requirements for such interfacing (e.g., response time needs, communication lines, etc.)?

7. What are the potential incompatibilities, redundancies, or problems that an IAC for strategic optical systems technology might encounter in interfacing with your center?

8. Please give us your professional comments on the need for an IAC for strategic optical systems technology that would collect, review, analyze, summarize, and disseminate strategic optical technology.

COMMENTS:

NAME _____

ADDRESS _____

_____

PHONE _____

ENCLOSURE B

STRATEGIC OPTICAL SYSTEMS

SURVEY QUESTIONNAIRE PACKAGE

Enclosure 1

INFORMATION ANALYSIS CENTER

See Appendix A, Enclosure 1.

Enclosure 2

QUESTIONNAIRE ON ESTABLISHING AN INFORMATION ANALYSIS CENTER FOR STRATEGIC OPTICAL SYSTEMS

See Appendix A, Enclosure 2.

APPENDIX C
EXISTING SYSTEM COMPONENTS AND POTENTIAL INFORMATION SOURCES

This appendix provides supporting material resulting from the review of existing information resources discussed in Section 3. The appendix is organized in a series of tables to provide a convenient reference aid relevant to the potential information sources for a STIAC. The tables are categorized by source as follows:

Table C-1 Existing IACs with STIAC interests

Table C-2 Professional societies, industry and trade associations, and advisory organizations

Table C-3 Existing relevant military service data bases

Table C-4 Other federal data bases

Table C-1. Existing IACs with STIAC Interests

Center	Contact
Cold Regions Science and Technology Information Analysis Center (CRSTIAC)	Mr. Wesley Pietkiewicz
Chemical Propulsion Information Agency (CPIA)	Mr. Ronald D. Brown Director
Data and Analysis Center for Software (DACS)	Mr. Gary Caron Director
DOD Nuclear Information and Analysis Center (DASIAC)	Dr. Warren W. Chan Director
Infrared Information and Analysis Center (IRIA)	Dr. George J. Zissis Director
Mechanical Properties Data Center (MPDC)	Mr. Harold Mindlin Director
Metal Matrix Composites Information Analysis Center (MMIAC)	Mr. Lewis Gonzalez
Metals and Ceramics Information Center (MCIAC)	Dr. Harold Mindlin Director
Nondestructive Testing Information Analysis Center (NTIAC)	Dr. Richard Smith Director
Reliability Analysis Center (RAC)	Dr. Charles E. Ehrenfried
Shock and Viberation Information Center (SVIC)	Mr. Henry C. Pusey
Tactical Technology Center (TACTEC)	Mr. J. Tuck Brown Director
Tactical Weapon Guidance and Control Information Analysis Center (GACIAC)	Mr. Charles Smoots Director
Thermophysical and Electronic Properties Information Analysis Center (TEPIAC)	Mr. Wade H. Shafer Assistant Director

Table C-2.
Professional Societies, Industry and Trade Associations,
and Advisory Organizations

Organization	Contact
Advisory Group on Electron Devices	Mr. David Slater
Aerospace Industries Association	Mr. Walter Weitner Director, Aerospace Operations Service
American Institute of Chemical Engineers (AIChE)	Mr. Ken Wood
American Institute of Industrial Engineers (AIIE)	Mr. Mikell Grover
American Institute of Physics	Dr. H. W. Koch
American Society of Mechanical Engineers (ASME)	Ms. Ellen Lanman Director of Technical Programs
Electronic Industries Association (EIA)	Mr. Jean Caffiaux
Institute of Electrical and Electronics Engineers (IEEE)	Mr. John Powers
Numerical Control Society	Mr. John C. Williams
Optical Society of America	Dr. Anthony J. Demaria
Society of Photo-optical Instrumentation Engineers (SPIE)	Dr. Andrew G. Tescher

Table C-3.

Existing Military Service Data Bases

Aerospace Structures Information and Analysis Center (ASIAC)
Wright-Patterson AFB, Ohio

Air Force Wright Aeronautical Laboratories
Wright-Patterson AFB, Ohio

Army Material Readiness Command
Technical Library
Rock Island, Illinois

Army Armament Research and Development Command
Scientific/Technical Information
Management Information Directorate
Ft. Monmouth, New Jersey

Army Electronics Technology and Devices Laboratory
Ft. Monmouth, New Jersey

Army Materials and Mechanics Research Center (AMMRC)
Technical Library
Watertown, Massachussetts

Army Material Development and Readiness Command (AMDRC)
Technical Library
Alexandria, Virginia

Army Research and Development Command
Benet Weapons Laboratory
Technical Library
Watervliet Arsenal
Watervliet, New York

Naval Research Laboratory
Technical Information Division
Washington, D.C.

Naval Surface Weapons Center
White Oak Laboratory
Silver Spring, Maryland

Naval Weapons Center
Technical Information Center
China Lake, California

Source: Defense Documentation Center Referral Data Bank Directory, DDC/TR-78/2, AD-A055 700. June 1978.

Table C-4.

Other Federal Data Bases

Computer Software Management and Information Center (COSMIC)
University of Georgia
Athens, Georgia

Harry Diamond Laboratories (HDL)
Scientific and Technical Information Office
Adelphi, Maryland

Institute for Computer Science and Technology
National Bureau of Standards (NBS)
Washington, D.C.

National Referral Center
Science and Technology Division
Library of Congress
Washington, D.C.

Technology Application Center (TAC)
University of New Mexico
Albuquerque, New Mexico

Sources: 1. Defense Documentation Center Referral Data Bank Directory, DDC/TR-78/2, AD-A055 700, June 1978.
2. Directory of Federally Supported Information Analysis Centers, National Referral Center, Library of Congress, 1979

APPENDIX D
SIGNIFICANT COMMENTS FROM PROSPECTIVE USERS SURVEY RESPONDENTS

This appendix presents comments that are representative of those received from potential STIAC users as documented in their completed survey questionnaires and interview notes. Only those comments considered to be of some significance to the STIAC planning study are included. The comments are divided into the following general categories:

- Positive Comments Concerning the Establishment of a STIAC
- Negative Comments Concerning the Establishment of a STIAC

POSITIVE COMMENTS CONCERNING THE ESTABLISHMENT OF A STIAC

1. Excellent idea - please implement as soon as possible!

2. I think this is an excellent idea - an offering whose time has come.

3. An extremely good idea. I hope it comes to fruition (and hopefully, with a minimum of politics between agencies).

4. A centralized repository of Strategic Optical Systems R&D Data would provide cost-effective, timely support to all participants in need of this kind of data.

5. This is an idea long overdue.

6. The IAC idea is a good one and should be very valuable to both industry government agencies.

7. This center is an excellent idea, let's get on with it.

8. There is a significant gap between the offense and defense communities in strategic optic systems. The Air Force strategic surveillance and defense organizations are distinctly unaware of major defensive optical system programs and signature data bases. An IAC will serve to bridge that gap and will save literally millions of dollars in government funds.

As a former Air Force officer now working for a firm whose primary customers are BMD organizations, I am painfully aware of the need for much greater transfer of information across the offense/defense boundary and for greater cross-assignments, and the like.

In the meantime, I'd settle for a wellfunded IAC.

9. I strongly support this proposed effort for I feel it will be very useful to the strategic commurity and strengthen our nation's strategic programs. I am looking forward to participating in the IAC which I am hopeful will be established.

10. The IAC for strategic technology appears to be an excellent idea, and one which should yield increasingly important benefits - not only to industry but to the ultimate recipiant, the government.

11. The ability to identify and obtain various computer program implementations developed for analysis and modeling in a large number of fields would cut down on the "reinvention of the wheel" syndrome so rampant in the DOD industry at the scientific level. A good scientist will not use a program he does not understand and will certainly not rely on its results as a major portion of a new analysis. If programs were available with detailed descriptions of the algorithms and approximations used as well as an honest assessment of its shortcomings, a significant amount of time that is usually lost to duplication could be saved.

12. I'm excited by the prospect and interested in it!

13. It would be very useful to have a central repository of field data, both targets and signatures of backgrounds of interest to BMD. A general description of the programs and specific characteristics of the sensors employed in obtaining the data would also be of great value. Up to date state-of-the-art reports on device technology should be of great interest to the strategic defense community also.

14. The IAC is a good idea. It could become a great idea if the IAC personnel could keep track of the current, ongoing, unpublished efforts.

15. Awareness of current state-of-the-art program technology is difficult to obtain. Information having a direct bearing on current work is unavailable due to lack of knowledge, proprietary or need to know. Inter agency information is only available through Government/Nonprofit organizations. There is a definite need for a central agency (clearing house) to provide an overview and exchange of information for both government and industry.

16. An IAC would be of use to us, particularly in the very high specialty areas of target, background and nuclear phenomenology, and threat or mission definition. The utility of the Center will, of course, be greatly enhanced by the ease and completeness of cross referencing, and organization of the material in order to pull out the needed knowledge

in diverse fields or reports to not overlook something of importance without necessarily being saturated with irrelevant data.

17. In my opinion, an information analysis center can perform a great service to those who are working with strategic optical systems technology.

18. I support the IAC because the strategic optical systems community has a wealth of data. We need a mechanism to effectively distribute the information.

19. More cost effective use of government sponsored research can be made by collecting the results (classified and unclassified) and making them available to legitimate users. I think this is the most basic and valuable service an IAC for strategic optical systems could provide. All other services mentioned in the enclosures follow from the ability to collect relevant research results in a timely manner.

NEGATIVE USER COMMENTS CONCERNING THE

ESTABLISHMENT OF A STIAC

1. I think information is reasonably available already. It seems that highly technical qualified personnel would be required for the business of technology assessment in many of the areas.

2. a. Models, especially atmospheric and background, are probably not best handled by an IAC - But need to be centralized somewhere.

   b. Likewise, Threat Definition, Signatures.

   c. Primary function of benefit to us would be as a clearinghouse for various government funded R&D (including corporate IR & D and First Level Subcontracts by industry) from DARPA, Air Force, Army (BMDATC, NVL) etc.

APPENDIX E
IACs SERVICE AND FUNDING LEVELS SUPPORT DATA

A summary of the cost and other data used to derive the recommended service and funding levels for an SIAC, based upon a comparative evaluation of other IACs for fiscal years 1975 and 1979, is contained in Table E-1. This summary is intended to provide baseline data of direct and reimburseable funding levels and the staff size corresponding to the levels.

Table E-1. Summary of IAC Personnel and Funding Data

DOD Component/Information Analysis Center	Number of Personnel	Type of Operation	FY 1975 Funding		Total Percent of Operating Costs	FY 1979 Funding[a]		
			Direct	Reimbursable		Direct	Reimbursable	Total
DEFENSE SUPPLY AGENCY								
Chemical Propulsion Information Agency	22	Contract	$ 323,000	$ 435,000	57	$385,000	$465,000	$ 850,000
Thermophysical and Electronic Properties Information Analysis Center	17	Contract	312,000	50,000	14	485,000	67,000	552,000
Infrared Information and Analysis Center	10	Contract	212,000	210,000	50	393,000	402,000	795,000
Machinability Data Center	5	Contract	180,000	158,000	47	162,000	270,000	432,000
Mechanical Properties Data Center	8	Contract	139,000	130,000	48	210,000	62,000	272,000
Metals and Ceramics Information Center	21	Contract	791,000	325,000	29	784,000	600,000	1,384,000
Nondestructive Testing Data Support Center	9	Contract	291,000	125,000	30	300,000	78,000	378,000
Reliability Analysis Center	21	Contract	474,000	301,000	39	420,000	780,000	1,200,000
Subtotal	113		2,722,000	1,734,000	39			
DEPARTMENT OF THE ARMY								
Plastics Technical Evaluation Center	11	In-House	240,000	365,000	60			
Concrete Technology Information Analysis Center	2	In-House	50,000	0	0[b]			
Soil Mechanics Information Analysis Center	2	In-House	50,000	0	0[b]			
Pavements and Soils Trafficability Information Analysis Center	2	In-House	50,000	0	0[b]			
Hydraulic Engineering Information Analysis Center	2	In-House	50,000	0	0[b]			
Cold Regions Science and Technology Information Center	4	In-House	50,000	0	0[b]			
Coastal Engineering Information Analysis Center	3	In-House	20,000	0	0[b]			
Chemical Information Data System	4	In-House	127,000	0	0[b]			
Nondestructive Testing Information Analysis Center	3	In-House	50,000	0	0[b]			
Subtotal	33		687,000	365,000	35			
DEPARTMENT OF THE AIR FORCE								
Aerospace Structures Information Analysis Center	4	Contract	77,000	80,000	51[c]			
Nonnuclear Munitions Information Analysis Center	4	Contract	70,000	50,000	42[c]			
Subtotal	8		147,000	130,000	47			
DEPARTMENT OF THE NAVY								
Shock and Vibration Information Center	6	Contract/ In-House	220,000	192,000	47			
DEFENSE ADVANCED RESEARCH PROJECTS AGENCY								
Tactical Technology Center	6	Contract	100,000	0	0[b]			
DEFENSE NUCLEAR AGENCY								
Defense Atomic Support Information Analysis Center	25	Contract	997,000	0	0[b]			
TOTAL	191		$4,873,000	$2,421,000	33			

Source: Report on the Review of the DOD Information Analysis Centers, DTIC, Alexandria, Virginia.

[a] As furnished data as of August 1980.

[b] These centers had not implemented the DOD user charge program.

[c] These centers had only partially implemented the user charge program.

APPENDIX F

EXPANDED SCOPE

STIAC EXPANDED SCOPE

The user community took the opportunity to utilize the space for comments in question 2 to suggest additional technical areas that should be included in the STIAC technical scope. Many of the technical areas were suggested 5-10 times by individual respondents.

1. Optical Components
2. Cryogenic Technology
3. Laser Information
4. State-of-the-Art Symposia on Optics
5. Particle Beam Technology
6. Flight Test/Field Measurements
7. Tactical Optical Technology
8. Strategic Sensor Technology
9. Foreign Technology
10. Discrimination Technology
11. Sensor Environments
12. Strategic Systems Design Requirements
13. Gimbal/Servo Systems
14. Threat Definition
15. Command, Control, and Communications
16. NNK Warhead Design Technology
17. Space Structures
18. Material Properties
19. Sensor Performance Standards
20. Signal/Data Processing Algorithms

21. Fiber Optics
22. LWIR Detectors
23. Nuclear Effects/Hardening
24. Test and Calibration Technology
25. Pen-aid Technology
26. Air Defense
27. Data Links for Users
28. Optical Testing Data Base
29. Computer Models
30. Standardized Analysis Procedures
31. Technology Trends and Forecasts
32. Technology Reliability/Costs
33. Infrared Data
34. DOD Data Base on Flight Experiments
35. MMW Strategic Technology
36. Stabilization
37. Alignment Systems
38. Target Models
39. Information on Signal Source Ambiguity
40. Charge-Coupled Devices
41. Plume Effects
42. Space Chamber Data
43. Active Optics
44. Productibility Manufacturing Technology
45. Laser Hardening
46. Survivability/Vulnerability

47. Target Definition
48. Component Test Data
49. Specific Mission Requirements of Current Programs
50. Improved Nuclear Phenomenology Data
51. Data Management
52. ABM Countermeasures
53. Ground Surveillance from Space
54. Focal Plane Array Data Base
55. Centralized Data Processing/Analysis
56. Surface Phenomenology
57. Computer Software Data Bank
58. Computer Modeling of Radiation
59. Weapon Applications (Optics)
60. Space-Based Radar Systems
61. Tactical Weapons Systems Data Bank
62. Stellar Background Data
63. Space Contamination Data
64. Data on Atmospheric Measurements from Shuttle
65. Radar Data on Optical Test Targets
66. Countermeasures
67. Nuclear Effects Data Base
68. Integrated Optics & Optical Processing
69. Carrier Task Force Defense
70. Early Warning Systems
71. ICBM Defense
72. Tactical Missile Systems

73. Data on Anti-Submarine Warfare Systems

74. Inertial Navigation/Guidance & Control

75. Advanced BMD Concept Definitions

76. Sanitized Information on Classified Sensor Technology

APPENDIX G

INTERESTED SOURCES BASED ON COMMERCE BUSINESS DAILY RESPONSES

COMMERCE DAILY BULLETIN RESPONSES

The following organizations responded to an advertisement in the Commerce Business Daily (September 2, 1981) for qualified sources to operate a strategic systems oriented IAC:

1. General Research Corporation
   307 Wynn Drive
   Huntsville, AL 35805

2. Arvin/Calspan
   P. O. Box 400
   Buffalo, NY 14225

3. Information Systems and Network (ISN)
   5454 Wisconsin Avenue
   Chevy Chase, MD 20840

4. Boeing Aerospace Company
   P. O. Box 3999
   Seattle, WA 98124

5. Southwest Research Inst.
   P. O. Drawer 28510
   6220 Culebra Rd.
   San Antonio, TX 78284

6. Dynetics Inc.
   P. O. Drawer B
   Huntsville, AL 35805

7. Rockwell International
   6633 Canoga Avenue
   Canoga Park, CA 91304

8. The University of Arizona
   Optical Sciences Center
   Tucson, AZ 85721

9. Teledyne Brown Engineering
   300 Sparkman Drive
   Huntsville, AL 35807

10. Systems and Applied Sciences, Inc. (SASC)
    6811 Kenworth Avenue
    Riverdale, MD 20840

11. Environmental Research Institute of Michigan (ERIM)
    P. O. Box 8618
    Ann Arbor, MI 48107

12. Applied Research, Inc.
    P. O. Box 194
    Huntsville, AL 35804

13. Battelle, Pacific Northwest Laboratories
P. O. Box 999
Richmond, WA 99352

14. The University of Dayton
300 College Park
Dayton, OH 45469

15. Battelle
505 King Avenue
Columbus, OH 43201

16. The Analytical Science Corp. (TASC)
One Jacob Way
Reading, MA 01867

17. Nichols Research Corp.
4040 Memorial Parkway
Huntsville, AL 35802

18. Lockheed Missiles and Space Co., Inc.
P. O. Box 1103
Huntsville, AL 35807

19. BDM Corp.
Suite 32
Holiday Office Center
3322 Memorial Parkway
Huntsville, AL 35801

20. Kaman Tempo
816 State Street
P. O. Drawer QQ
Santa Barbara, CA 93102

21. IIT Research Institute
10 West 35 Street
Chicago, IL 60616


DATE
FILME
3-8