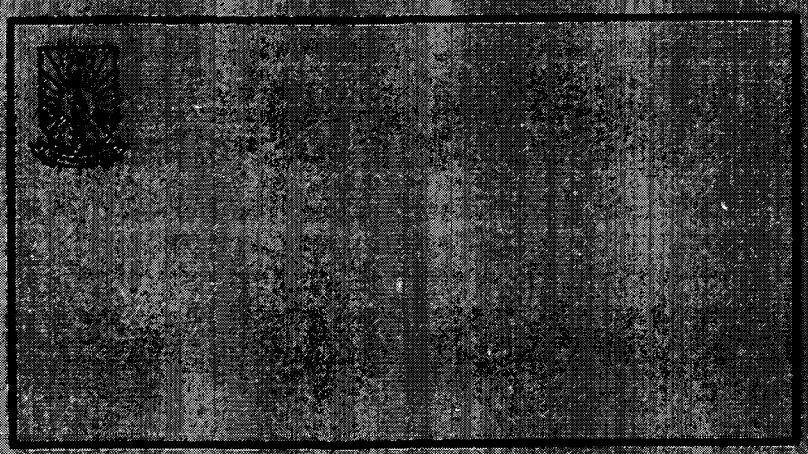
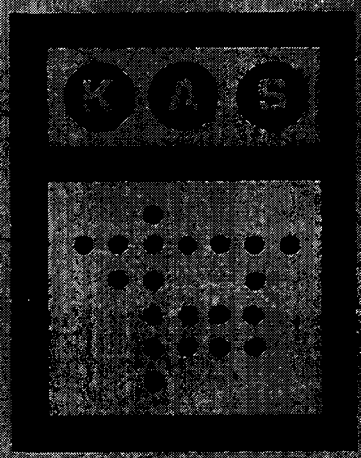
KASC
INFORMATION SERVICES





KNOWLEDGE AVAILABILITY SYSTEMS CENTER

UNIVERSITY OF PITTSBURGH • PITTSBURGH, PENNSYLVANIA 15213

THE KNOWLEDGE AVAILABILITY SYSTEMS CENTER
UNIVERSITY OF PITTSBURGH • PITTSBURGH, PENNSYLVANIA 15213 • PHONE 621-3500

WHAT IS KASC?

The Knowledge Availability Systems Center is the nonprofit, computerized information center at the University of Pittsburgh. KASC was founded in 1962, and was one of the first of the NASA Regional Dissemination Centers. Although the NASA file was the original source of information, the KASC Data Base now includes five major computer tape-indexed files.

KASC provides literature searching and referral services designed to identify useful scientific and technical data for its clients. These services utilize a computer to match the interest profiles of clients to information resources. Basically, two types of service are available. The first, called the Retrospective Search Service, is a search of an entire file to date, beginning with the first issue. This is commonly used for state-of-the-art studies, for building reference files, and is particularly valuable for special project evaluations and the preparation of proposals.

The second service, Current Awareness, is intended for those who want to be kept abreast of new developments and work being done by others in related fields. KASC searches each new tape as it arrives and sends the results to clients for a year. Custom Individual Profiles are the most popular because each one represents exactly the needs of a particular person or company. However, Standard Interest Profiles are available at a lower cost because they cover general areas which are useful to many individuals.

Participation is initiated by an agreement between KASC and client. A meeting or telephone call is then arranged between company representatives and University of Pittsburgh subject specialists. These KASC consultants are members of the School of Engineering faculty or staff. They discuss interest areas in order to thoroughly understand client needs and to prepare for the construction of the computer search strategies. The subject specialists can also review the search results in order to identify those items which merit immediate attention, saving valuable time for the information user.

KASC clients are not required to phrase profiles, to know the files in detail, or to pay special membership fees. Services are available as required, and samples and fee schedules are available on request.

KASC does not sell technology, but provides search and evaluation services to create and maintain an awareness of technology. Through these services, KASC helps to reduce the needless duplication of expensive research, and to aid the movement of new knowledge across industrial, regional and disciplinary boundaries.

The NASA Scientific and Technical Information Facility receives hundreds of documents daily. These are promptly checked to avoid duplication, examined for relevance, and cataloged descriptively. Each document accepted as a potentially valuable addition to this information bank is then given an accession number and, if appropriate, is recorded on microfiche. The accession number serves as a unique identification tag for the document henceforth, and both compact and full-size copies of every page can be made from the microform for storage and distribution as needed.

Professional indexers examine each item when it is deposited in the system, document the bibliographic data that accompanies it, and select terms under which it is listed in subject and other indexes.

Trained abstractors read the abstracts submitted with documents, sometimes edit and condense these summaries, and write abstracts of documents which have been received without them. Then, after further reviewing, complete bibliographic records are placed on computer tape to provide ready access to the citations of all documents for all users.

To help industrial firms, research organizations, and others not connected with NASA get and use data and information acquired by NASA, the Office of Technology Utilization has helped to establish Regional Dissemination Centers, such as the Knowledge Availability Systems Center at the University of Pittsburgh. Technically qualified people at these centers translate nonaerospace problems into the aerospace vocabulary and use computers to locate pertinent documents in the NASA information bank. These centers provide the contact between NASA and industry to fulfill the goal of the Technology Utilization Program--to ensure that developments resulting from NASA's scientific and technological programs be retrieved and made available to the maximum extent for the Nation's industrial benefit in the shortest possible time, thus strengthening the bridge between technical research and marketable end use.

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SAMPLE SUBJECT AREAS

The following is a list of some of the subjects for which information has been prepared by computer searches for KASC clients.

- Joining, welding, brazing, soldering and fastening.
- Coatings, corrosion, surface finishes.
- Metal properties and testing, including nondestructive testing.
- Metal forming, deformation and wear.
- Nonferrous metallurgy, particularly as related to refractory metals.
- Composite materials.
- Ceramics, refractories, glass.
- Pumps, filters, tubing, valves.
- Lubrication, lubricants, petroleum chemistry.
- Ferrous metallurgy, as related to casting, heat treatment, etc.
- Mechanical engineering and design.
- Analysis and spectroscopy.
- Inorganic chemistry as, for instance, foamed inorganics, insulating materials, preparation of inorganic compounds.
- Chemical processing, catalysis, chemical engineering.
- Fluid flow, fluid mechanics, heat transfer.
- Control, computers.
- Electrical engineering, magnetics, electronics.
- Polymers, elastomers, plastics.
- Physical metallurgy and solid state physics.
- Sound, acoustics, radio.
- Physical chemistry.
- Optics, lasers, masers, infrared and ultraviolet radiation.
- Powder metallurgy.
- Photography.
- Mathematics, statistics.
- Management, psychology.
- Biology, medicine.
- Adaptive systems.
- Pattern recognition.
- Information systems.
- Systems management engineering and operations research.

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DEFINITIONS

File: a collection of data items.

Profile: a detailed statement describing interest in a specific field or subject area.

Custom Individual Profile: a profile tailored to suit the interest of a single user. All results are confidential.

Standard Interest Profile (SIP): a profile sufficiently general but important enough to be of interest to more than one user. Search results are made available to anyone at a lower cost than for custom service. All Standard Interest Profiles receive Engineering Review.

Search Strategy: the array of index terms, or Key words, and Boolean connectors which is created by KASC specialists to represent the profile in the computer search procedure.

Search: a computer run is used to identify items from a file which are related by index terms to each strategy, or profile. KASC search services can be retrospective or current awareness, or a combination of the two.

Engineering Review: the same technical specialist who prepares the search strategy is available to review the results of the search. This review identifies the most pertinent references in order to save the valuable time of the user. The reviewer will also supply information from other sources when available. All material retrieved as a result of the search is sent to the client so that it can all be checked if time becomes available.

Retrospective Search Service: a search of an entire file, beginning with the first issue for which a computer tape index was prepared, and ending with the most recently received issue. This is commonly used for state-of-the-art studies, for building data files, and for special project and proposal preparation studies.

Current Awareness Service: an annual service which provides twelve consecutive searches on any profile as the new monthly tapes become available. This service is extremely valuable for those who want to be kept abreast of new developments and work being done by others in related fields.

Combination Service: both retrospective and current awareness searching can be provided on most custom profiles at a reduced cost.

Document: the original information source, which might be a journal article, a book, conference proceedings, government report, or a paper presented to a technical society. Each document accepted as a potentially valuable addition to a file is examined by a professional indexer, who documents the bibliographic data and selects the terms under which it is listed in subject and other indexes.

Abstract: a paragraph describing the Key elements of a document.

Search Results: the end product, which includes accession number, title, author, and source for each item cited by the search. The format and presentation vary somewhat from one file to another. An abstract is included for most files.

Data Base: the entire collection of files and supplementary sources maintained by KASC to provide pertinent, timely information to clients.

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THE KASC/NASA/INDUSTRY

TECHNOLOGY UTILIZATION PROGRAM

Since 1958 the National Aeronautics and Space Administration has been discovering new things about materials, machinery and human beings, as well as about the Earth, the Moon and the universe. Mankind's gain would be slight if these many discoveries were not widely shared. From the beginning, therefore, the information and data acquired have been collected and made available to prospective users both within and outside of the aerospace community.

This is the primary function of NASA's scientific and technical information system. It assembles the results of worldwide research and development activities. It summarizes, indexes and stores this wealth of knowledge. It helps individual persons find and benefit from the particular parts of this great mass of technical literature that are most likely to help them solve their problems.

The NASA information bank now contains more than 600,000 documents. Thousands more are added to it every month. The most widely used guides to the NASA scientific and technical information system's contents are two complementary abstract journals: Scientific and Technical Aerospace Reports (STAR) and International Aerospace Abstracts (IAA). The abstracts in STAR cover worldwide report literature, while the abstracts in IAA provide similar coverage of scientific and trade journals, books, and papers presented at meetings.

These government, industry, research institute, and university reports, journal articles, and reviews, contain the details of findings of NASA personnel, contractors, subcontractors, and grant-holders. Along with these items the information bank regularly receives new technical literature and specialized reports, such as project records and patents, from other U. S. Government agencies, laboratories and institutions supported by private industry, and other major sources of knowledge throughout the world.

Many significant items are received routinely from other countries in exchange for information from NASA; others are specifically requested for interested users of the NASA system, and copies of these are kept for possible further dissemination.

VOL. CLXXV NO. 60

Space Fallout

Data Banks Containing NASA Research Fruits Help Many Companies

Results of $35 Billion Effort Available at a Low Cost; Lockheed, Litton Use Files

Building a Better Oscilloscope

By A. RICHARD IMMEL
Staff Reporter of THE WALL STREET JOURNAL

William Ferwalt runs a seven-man company that makes oscilloscopes on the Nez Perce Indian Reservation in Idaho. He wants to know everything he can about oscilloscopes, so last fall he paid $190 for a computer search of the National Aeronautics and Space Administration's technical data bank.

For his money, he got the fruits of five years of oscilloscope research done by Bendix Corp. under Government contract. The data included hitherto overlooked techniques for building a special type of instrument.

Mr. Ferwalt expects to parlay his $190 into $100,000 in sales, thereby doubling his company's business over the next several years.

Ferwalt Inc. is one of an increasing number of businesses taking advantage of the $35 billion spent on research for the nation's space program. The companies get their information at any of six data dissemination centers designed to open NASA's extensive technical data resources to private industry.

600,000 Documents

The first center was established seven years ago at Indiana University. Since then, centers have opened at the universities of Connecticut, New Mexico, Pittsburgh and Southern California and at North Carolina Science and Technology Research Center. The centers are financed by NASA and the money coming in from clients.

By NASA estimate, the data centers bulge with nearly 600,000 research documents; 6,000 documents are being added every month. Much of the data is generated by a clause in NASA contracts that requires companies to report to NASA any inventions and technology developed in the course of their Government work. But the data bank taps other sources, too, including the Department of Defense research files and professional journals and technical papers from around the world, including Communist countries.

Although the benefits are most striking for small companies with little research capability of their own, such large firms as Litton Industries and Alcan Aluminum are paying $1,000 to $5,000 a year to use the data banks. Even giant Lockheed Aircraft, a major aerospace contractor, is finding it can get some technical information faster through a dissemination center's computers than from its own voluminous research library. For several years, Lockheed has been going to the center at the University of Southern California to keep up with new techniques in metal welding and nondestructive testing.

A Major Misconception

In all, some 400 companies used the centers last year. That's up considerably from a few years earlier, but it is still far too small a number, NASA officials say. The nonprofit centers could easily handle work for thousands of clients, the officials say.

NASA officials caution that the data banks aren't the answer to every struggling businessman' dreams. "A big misconception we have to fight is that we're a grab bag of treasures," says an official. "We can only tell if an idea is feasible, if it can be done within the realm of costs. The idea has to be in the client's head before he comes to us."

A. Kendall Oulie, director of the center at Southern California, agrees. "What we're selling here is access—the use of computer and search capabilities," he says.

The centers employ a small full-time staff of engineers and clerical help and hire engineers and scientists on a part-time basis to sit down with clients and develop a computer search strategy. It is this personal attention that is at the heart of the centers' effectiveness, clients say.

Personal Contact

"We have access to the same NASA tapes through Washington," says Horace Jacobs, a Lockheed official. But, he says, the data centers' advantage is that they assign a person or two to discuss and work with a scientist. "There's more personal contact."

Although it is possible to get a one-shot computer search similar to the one the oscilloscope maker got, the centers encourage clients to sign up for a full year's services, drawing against the retainer of $1,000 to $5,000.

The most popular service for clients is a retrospective computer search of the entire data bank, tailored to answer a client's specific question. For $190 the computer will spew out condensations of technical reports describing all the work that has ever been recorded in the data bank on that particular subject. Then, for another $300, the client can get a "current awareness" search each month, which keeps him up to date on new material being added to the bank.

For $80, a company with less specific needs can, order a "standard interest profile," a list of condensations printed up periodically by the centers on a wide range of topics of fairly general interest.

Clients say the service is often fruitful. Dart Industries, a manufacturer of housewares, plastics and drugs, says it is developing high-temperature coatings for its consumer cookware as a result of a retrospective computer search.

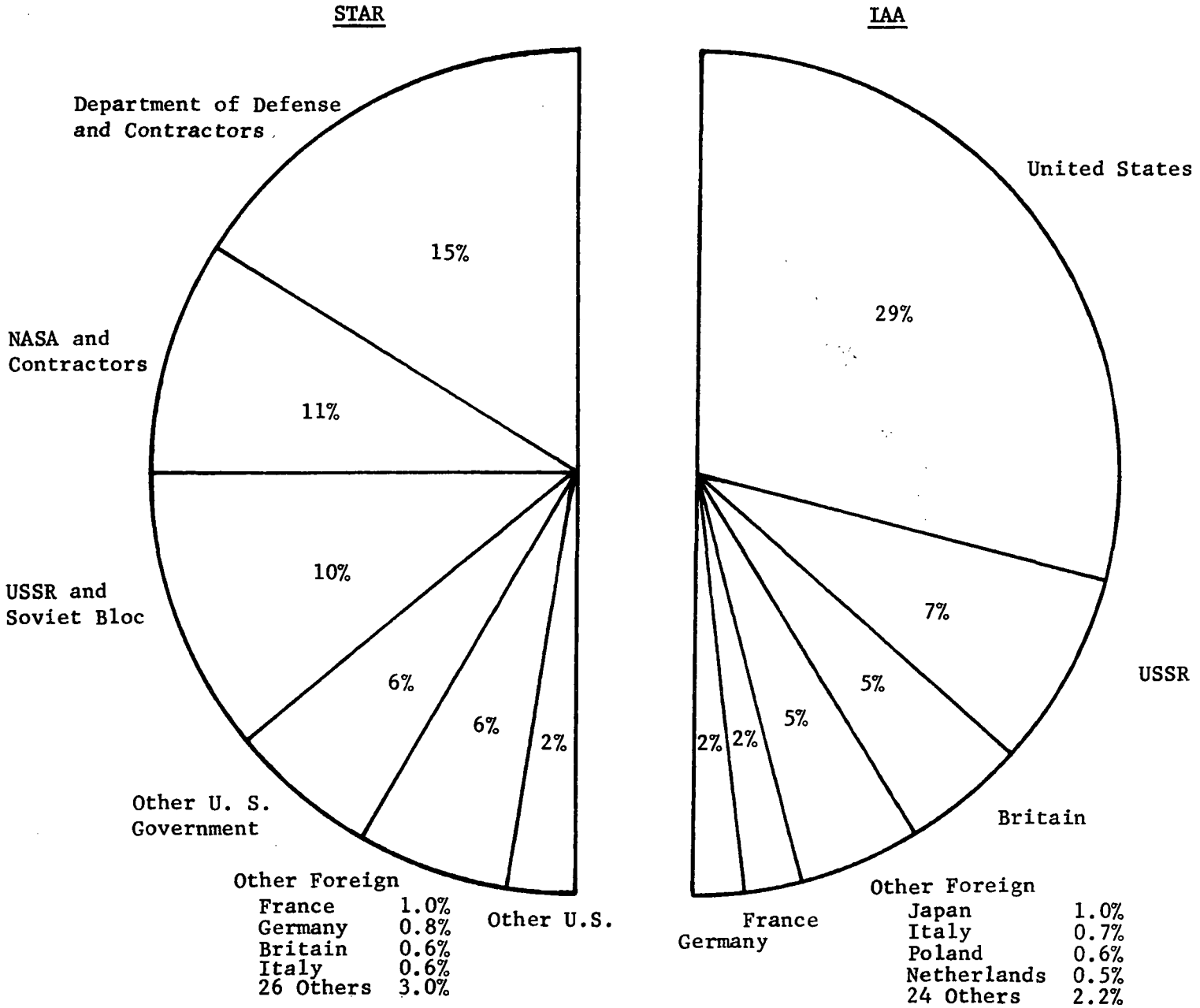
Company officials say they also consult the computer before making decisions about new ventures. "When we're probing new business areas for Dart we need a quick reading to find out if a particular technology" has consumer applications, says Joseph Ciarimboli, Dart's manager of technical planning. "So we go and get a quick computer readout."

The Dart executive admits, however, that he was skeptical at first. "It took us about a year to be convinced," he says, adding, "People in the field tend to think they're up on everything."

COMPOSITION OF THE NASA DATA BASE

NASA gathers important information from scientific and trade journals, books, conference papers, and reports published around the world. These documents are abstracted and published in two journals: Scientific and Technical Aerospace Reports (STAR) and International Aerospace Abstracts (IAA). The contents of these two journals, indexed on computer tape, make up the NASA file. About two-thirds of these items originate in the United States, and the rest are from various foreign sources, as shown below.

THE NASA FILE



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How KASC Helps You

KASC can provide you with access to scientific, technical, marketing, and management information. Our goal is to help you to identify and apply the new techniques and technologies, and we do it by making you aware of the work being done around the world by others in your field.

Over two million books, journal articles, reports, and other important documents were published last year. Even if you are working on a unique problem in a relatively unexplored area, chances are that someone, somewhere, has been there before. If your interests are part of a broad, well established field, the volume of literature which might be of great value to you is so large that you are probably not even aware of the existance of most of it.

You probably scan the reports and journals which are circulated to you, and browse through the library when you run into a new problem, and occasionally ask for help from a librarian or information specialist. If you want to increase your coverage and save a great deal of time while doing it, let KASC perform regular, comprehensive, computerized reviews for you.

You may need procedural information related to a specific problem in a well defined area, or empirical data to help you expand your coverage in a broad field, or conceptual research reports to help you to decide if you want to get into a new area. No matter what your needs for information might be, or how you describe your own responsibilities, KASC will tailor its services to fit, and do it at a reasonable cost.

Our clients include individual consultants, small companies, and large corporations. All of them have in common a need for information which KASC is helping to supply. Even if you aren't sure if we can help, pick up your telephone and call. A discussion with a subject specialist will result in specific recommendations on what we can do, what you can expect, and how much it will cost.

You will still have to solve your own problems, but a small investment at KASC may make them a little less complicated and a lot less expensive.

The Impact of New Technology

Do you remember the hucksters? They used to drive from farm to farm, house to house, offering everything from pins to harnesses. They vied with each other in offering prices, services, selections, credit--and the biggest all-day suckers to the kids. To each, the others were competition. But before long, they were all out of business-victims of the supermarket and the home food freezer.

The huckster typifies a phenomenon that may be the most important concern of industrial management today: you can't tell who your competitors are.

Let's assume that you want a hole in a piece of metal. A few years ago, you had three or four choices--drilling, punching, sand casting. Today you have more than 25 alternatives from which to choose. For the man who makes drilling machines, his main competition today is not from other producers of drilling machines. It's from people who make powder metal parts, from people who make electrical discharge equipment, and electrochemical machining devices, and electron beam equipment, and precision metal molding firms, and plastic injection molding firms, and electromagnetic punch manufacturers and the laser companies. And tomorrow, he'll also have to contend with the plasma arc and the ion stream.

We can't judge the strengths and weaknesses of the competition and therefore determine our own strengths--on traditional grounds. Factors in the environment over which we have no direct control--technological and socio-economic trends--are, for most manufacturers the real determinants of their future growth and profitability. We cannot catalog our competition. Neither is it easy anymore to catalog our customers.

It is no longer realistic to talk about the "textile industry" or "machine tool industry" or even the "auto industry." The textile industry is now partly chemical, partly plastic, partly natural fiber, partly paper, partly metals, and a conglomeration of other things thrown in. The machine tool industry is now partly electrical, partly electronic, partly mechanical, partly chemical, partly aerospace, partly magnetics, partly hydraulics, partly explosives, partly metallurgy, partly plastic forming.

Nearly all of these changes are technological in origin. The economic impact is increasingly difficult to assess. But attempt to measure it we must, if we are to have any sound basis for investment analysis, product planning, market planning, or corporate diversification. And the increasing pace of technological change only adds to the problem.

We can't catalog our competition. We can't identify our customers. We can't predict with great accuracy what forces will bear on the success or failure of the new product idea we are working on in our development lab. Obviously, this demands an agressive program to obtain relevant information; in fact, the most important determinant of future corporate success may today be the quality and relevance of the information coming into an organization from the outside--from the information specialists at the Knowledge Availability Systems Center. Please read on.

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You are cordially invited to ask KASC for additional information in your field or from specific files without cost or obligation. Just complete and return the following.

My interest is _____

_____

_____

My current responsibilities are _____

_____

_____

My usual sources of information include _____

_____

_____

Additional comments or specific requests _____

_____

_____

Name _____

Title _____

Company _____

Address _____

City, State, Zip _____

Telephone _____