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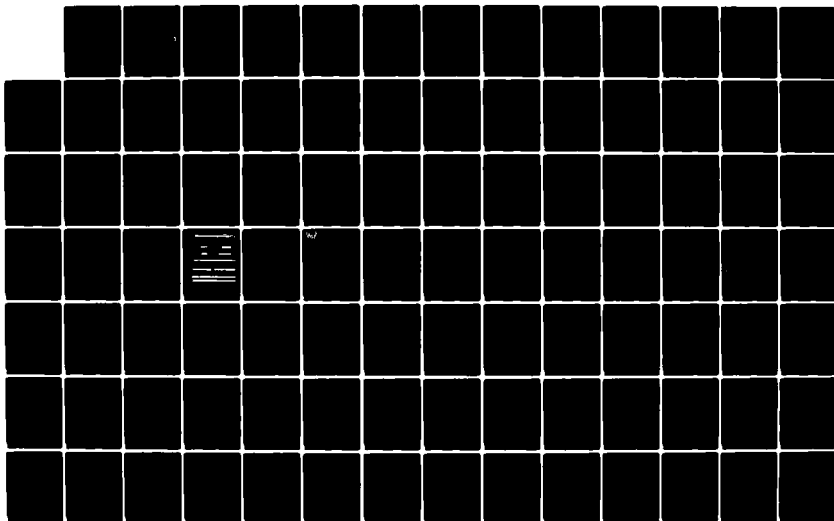
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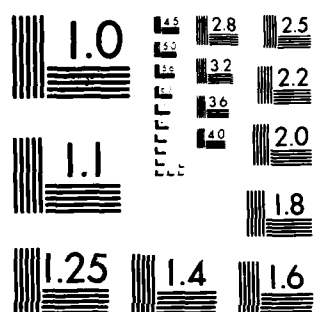
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This study reviewed and evaluated government, industry, and private source listing ventures to ascertain some means for enhancing the involvement of small and disadvantaged small business owners in government and prime contracting opportunities to a greater extent than the present. It suggests that the state of the source list science is improving with technology and organization on behalf of more small and disadvantaged firms, and that a merger of some existing systems would optimize capability. The Dunn and Bradstreet system was found to be the most complete, but in a development stage. A merger with the more mature PASS System was suggested.

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PHASE I

1.0 INTRODUCTION

The objective of this study is to develop a methodology for identifying and evaluating small business and economically and socially disadvantaged small business firms, including women-owned business, capable of performing work for the Department of Defense. This study will place special emphasis on the development and evaluation of source lists for small business firms.

This particular report is the Phase I report as called for under the statement of work and is described as follows:

Phase I - Review extant literature relating to the relationships between small business and the federal government's procurement process. This review will also cover the areas of the development of source lists by both government and industry and will be especially oriented to the methods of market research used to search out and identify needed source firms. Attention will be directed to the small business aspects of research.

As such, this report will include sections based upon research to date which will deal with the following topics:

What is a Small Business?

The Case of Minority Business

The Source List Quest

Appended to these sections will be listings concerning the following:

Selected Publications of the Government Dealing with
Socially and Economically Disadvantaged Firms
Selected Publications Dealing with Disadvantaged Firms
Doing Business with Contractors and Government

A bibliography of relevant literature will accompany this report.

It is to be noted that additional material is being uncovered which will make a worthy addition to this report, and will be incorporated into the final report along with any future updates of this report. This report is an interesting study product which reflects a lack of organized material in the areas of small business, government procurement with small business, and minority business opportunities. Apparently, the importance of this topic is unrelated to its nonpopularity in the literature.

2.0 WHAT IS A SMALL BUSINESS?

It is the declared policy of the Congress of the United States that small business shall be assisted and its interests protected to preserve free competitive enterprise. Specifically, small business shall obtain what is considered a "fair proportion" of government contracts. Whether that "fair proportion" policy is adequately or not executed is a point of contemporary argument. There are forces within the economy and the procurement community that appear to work both for and against the benefit of small business. It is evident that small business could benefit more from government procurement than it does.

Many definitions of small exist. There are quantitative and qualitative considerations in delineating small business from medium and large businesses. Congress itself has continued to modify its definition of small business. A 1980 publication (Government Procurement Opportunities for Small Business) described a business as small if:

1. it has fewer than 500 employees for R & D and manufacturing;
2. has average annual receipts for 3 preceding fiscal years of less than \$12 million for general construction; and
3. has average annual receipts for the 3 preceding fiscal years of less than \$2 million for service industry.

It is interesting to note that Section 1-701 of the Defense Acquisition Regulation which contains some quantitative definitions of small business is 12 printed pages long.

In a qualitative sense, definitions of small businesses are characterized by:

1. limited dollar volume of business, assets, and/or employees;
2. owner-management;
3. financial control by owner-managers and support from retained earnings rather than from the general money market; and
4. local character operations, and dependence upon local community for growth (Bonner, 1977).

Other qualitative features of the small business may be elaborated. McGuire (1976) described the small business as existing in the context of a single profit center. While such arbitrary descriptive characteristics abound, some aspects of small businesses are relevant to the challenges they face. For instance, in general the following observations may be presented:

1. Smaller businesses are usually less stable than larger businesses (Archer, 1976).
2. Smaller business tends to be marginally capitalized, generally with expensive short term financing (Hollander, 1968).
3. Small business management is characterized by a generalist nature (Cohn and Lindberg, 1974; Thiebolt, 1976).
4. Less structured organizations are in small business (Cohn and Lindberg, 1974).
5. More centralized control is in small business.

6. Frequent neglect of planning can be found in small businesses (Steinmetz, et al, 1968).
7. Preference for risk aversion is shown by small businesses (Bank of America, 1971).
8. Small business conservatism can be seen in product diversification.

As may be expected from the above descriptions, the small business is in a volatile position. Dun and Bradstreet have indicated that half the small businesses begun each year do not survive for two years. Yet, 97 percent of all American business is classified as small.

A Congressional report indicated that small business provided the following in our economy (H. Report 1791, 94th Congress):

1. 40 percent of the business gross national product.
2. 55 percent of the private sector employment.
3. livelihood for about 100 million Americans.

As such, small businesses provide innovation, competition, and a vast array of goods, products, and services. It is easy to see why the national interest is claimed on behalf of the many small businesses which are struggling for survival and working for development.

3.0 THE CASE OF MINORITY BUSINESS

The case of small business is unique when viewed from the standpoint of minority business. The minority business situation is considered to include both socially and economically disadvantaged firms. The history of American business testifies to the participation of women, blacks, and other minorities dating from pre-Revolutionary times. However, with the passage of time, more and more involvement of minorities has been the case. Still the socially and economically disadvantaged owners and operators have not been represented in business to the proportion they represented shares of the general population. Yancy (1974) has pointed out that black businesses have historically been found in business areas that were neglected by whites: those involving menial service or hard labor.

The 1969 Survey of United States Business by the Small Business Administration (SBA) found 112,500 black-owned businesses. At that time the total represented 2.25% of the grand total of business firms in the U. S. which exceeded 5 million. That survey went on to point out that at the 11 percent representation of blacks in the national population, there should have been 550,000 businesses. On that representational basis, a considerable shortfall in black-owned businesses was observed.

Bailey (1971) has indicated that black business totals grew at a restricted rate between 1890 and 1969. He pointed out that black-owned businesses grew from 76,071 in 1890 to 112,500 in 1969. It was further indicated that this period was an era of singular growth in American business. Apparently the free enterprise system did not result in the accompanying growth of black business with the national rate.

Black business development benefited from political interest in the 1960s and 1970s. It appeared that black business was to benefit more from government action than from the workings of the free enterprise system. The Small Business Administration and the Department of Commerce have been the vanguard of providing more assistance to minority business. The increased role of the federal government in small and minority business assistance has not been without controversy.

At any rate, the role of government in minority and small business development has continued to grow. Particular attention has been paid to the role of federal departments in contracting relationships with small and minority business.

Yaroy (1974) stated that federal assistance to black business was based on two assumptions of importance:

1. Black business can grow to economic significance.
2. Black business will help the black community.

Gamble (1979) concluded that anything that might be accomplished by the various governmental departments, including the Defense Department, would serve to benefit the objective of upgrading the condition of minority business as a significant segment of the national business arena.

Despite some claims that the development of black business constitutes a support of segregationist spirit or that small black businesses are economically unjustified in support, the fact remains that government is committed to the development of the socially and economically disadvantaged business segment as a matter of national interest.

Historians and economists have reviewed the case for smaller businesses from the standpoint of economy of scale. A classic study by

Gunnar Myrdal pointed out that blacks had not experienced great success in business because they had been denied the opportunity for that experience.

Significant federal assistance to minorities began with a series of executive actions by Presidents Eisenhower, Kennedy, Johnson, and Nixon. In fact, Nixon established the Office of Minority Business Enterprise shortly after his inauguration in 1969.

Since that time, federal programs designed to assist minority business have taken on various forms. Those programs are administered principally by the Small Business Administration and have included:

1. Economic Opportunity Loans which provide management and technical assistance upon request, with up to 15 years to pay loans as large as \$25,000.
2. SBA regular business loans amounting to a direct advance of \$100,000 or a 90% guarantee of a \$350,000 loan (as limits).
3. Local Development Company Loans such as "502" loans to assist small businesses in long term financing.
4. Minority Enterprise Investment Companies (MESBIC's) which were established as financial entities licensed to loan funds to minority businesses and also establish eligibility for matching funds.
5. Displaced Business Loans designed for small businesses suffering from construction projects, urban renewal, and other business events which affected business climate or opportunities.

3.1 Section 8(a) Programs

Specific impact on the Department of Defense was noted by Section 8(a) programs, above and beyond the general scope of federal assistance. The Section 8(a) programs were so titled as an outcome of the provisions of Section 8(a) of the Small Business Act of 1958 (as amended). This provision was specifically intended to aid minority business by some special entitlements.

Under the Section 8(a) provision, the Government was entitled to write contracts with the SBA which subsequently contracted with an approved 8(a) contractor. In effect, contracts were able to be "set aside" for small minority businesses. In addition, under the 8(a) provision, contracts could be awarded noncompetitively.

The purpose of the 8(a) program was to provide further help in the development and expansion of existing, newly organized, or prospective small businesses that are owned and operated by disadvantaged persons, according to the Air Force Small and Minority Business Handbook. Those disadvantaged were considered in the socially or economically designated case.

A later letter defining eligibility (1978) interpreted those disadvantaged to include: Negroes, Spanish-speaking Americans, Native Hawaiians, American Aleuts, and American Eskimos, among others.

The impact of the Section 8(a) provisions has been formidable. With the size of the Department of Defense procurement schedule (in FY 79, some 32 billion dollars), the role of defense spending in small business and minority business has achieved many goals for improving the role of firms previously not involved. It has been claimed that both social and economic considerations have been included in this experience.

3.2 Impact

It has been difficult to assess the impact of government in assisting disadvantaged businesses. Several studies are underway to assess the results of expansion and development of businesses owned and operated by disadvantaged persons.

One study that has been completed was an analysis by King (1977), in which he makes known some interesting findings:

1. The SBA 8(a) programs have emphasized quantity over quality.
2. The majority of contracts have been to service or small construction companies.
3. Contracts tended to be smaller in amounts, with a relatively smaller percentage of large contracts.
4. More dense populations of disadvantaged were less represented in contracts on a relative basis.
5. Larger contracts were awarded as the contracted firm increased its perceived ability to perform.

King concluded that the Section 8(a) programs had been "somewhat effective" in alleviating some aspects of the economic underdevelopment problem which exists among the disadvantaged sectors of the business population of the country. For example, it could be noted that Defense installations are not typically located in areas having large concentrations of minority population.

3.3 The Air Force Case

Among the Armed Forces, the Air Force has done a singularly notable job in promulgating guidance designed to ensure the best possible oppor-

tunity for disadvantaged business persons to engage in contracting opportunities. The Air Force Small and Minority Business Handbook (1979) has reviewed the role of Air Force personnel in dealing with disadvantaged businesses.

Small Business Specialists have been designated at the command and installation levels to monitor activity and further the development of disadvantaged business opportunities. As evidence of commitment to disadvantaged business, the following duties are presented from the Air Force Handbook (1979, p. 2ff):

1. Establish a system to locate small and minority business sources.
2. Ensure small and minority business firms receive maximum opportunity to receive contract and purchase awards.
3. Initiate small business set-asides when appropriate.
4. Ensure small and minority business firms are not precluded from competing because of restrictive drawings or specifications unless there are sufficient and valid reasons to the contrary.
5. Review acquisition programs to identify items suitable for purchase from small and minority business firms.
6. Review commissary sources, including DCA and DPSC, to ensure small and minority business awards are properly coded.

7. Ensure buyers are taking action to locate small and minority business sources for new items and for items currently purchased from large business.
8. Assist small and minority business firms in understanding requirements for responsiveness and responsibility to enable the firm to compete for future awards.
9. Participate in government-industry conferences to assist small and minority business firms, including Minority Business Opportunity meetings.
10. Advise small and minority business firms how to get on the bidders' mailing list for future acquisitions and how to subscribe to the Commerce Business Daily as a source of information.
11. Identify requirements to the Small Business Administration for joint class set-asides. Identify requirements to the contracting officer for unilateral set-asides.
12. Identify requirements to the Small Business Administration for contracting under Section 8(a) of the Small Business Act.
13. Initiate plans and take action to promote and publicize Small Business Week to the maximum extent.
14. Ensure that all applicable acquisitions over \$10,000 are synopsisized in an intelligible form in the Commerce Business Daily.

15. Screen all proposed acquisitions in excess of \$2500 and recommend actions with respect to setting aside such acquisitions.
16. Provide copies of solicitations to the Small Business Administration when deemed appropriate.
17. Participate in contracting officer determinations of responsibility/nonresponsibility on small and minority business firms.
18. Assist small and minority business firms in subcontracting opportunities and provide large business firms with information concerning the availability of qualified small and minority business firms.
19. Maintain close coordination with the SBA Procurement Center Representative and the Command Executive for Small Business.
20. Conduct training/education sessions for all personnel involved in the acquisition cycle on the importance of Small Business and Minority Enterprise Program goals and their involvement in the program.
21. Publicize the program to the maximum extent and seek the involvement of appropriate commanders and top management to provide program emphasis.
22. Ensure that an alternate Small Business Specialist has been properly appointed to assume requisite duties in the absence of the primary.

23. Prepare recommended field activity goals for submission to the Command Executive for Small Business.

The activities above speak for themselves. This complete compilation of duties, when well executed, has been responsible for much of the improvement in the participation of disadvantaged businesses in Air Force contracting and procurement activity.

It is worth noting that while much progress has been made, there is still room for further involvement of disadvantaged firms in procurement in the future. Improvement in quantity and quality of participation is still possible.

4.0 THE SOURCE LIST QUEST

The heart of the process of bringing buyers and sellers together is the market process of developing source lists of buyers and sellers. In this discussion, buyers will be contractors, as well as purchasing and contracting officers of public and private firms.

Much market research is utilized to help buyers broaden their pool of prospective sellers who could provide products and services needed by buying organizations. While the market is not as open and as free as the consumer market, the industrial market is characterized by high volume buys, with dollar values that project up into the millions of dollars.

At the same time, sellers are interested in the market research function of developing buyer lists. Prospective customers will develop hopefully into real customers. The free enterprise goal of sales volume depends upon generating sales and the accompanying delivery of products and services.

Hence, the importance of source lists which contain the identity and capability of past and prospective customers, both buyers and sellers. This is the heart of the market function, and millions of dollars are expended in the effort to increase the quantity and quality of the source lists which may develop into customers via the contracting or purchase route.

This function is especially important to the government offices which intend to develop relationships with small business. Government offices continually attempt to find new sources of supply which will fall into the category of small business or the socially and economically

disadvantaged categories. As a practical matter and as a matter of national policy, expanded source lists are vital.

On the other hand, the small businesses, including minority businesses, are concerned about finding sources of possible contracting in the public sector. Notwithstanding the folklore of certain difficulties in doing business with the government, many small businesses have grown and developed with the expansion of their contracting with the government.

4.1 Early Source List Attempts

As would be expected, the original source lists were compiled on cardex files, in notebooks, and other manual forms of compilation. Before the computer and information explosion, manual forms of source list compilation were simply collections of names, addresses, and some form of cataloguing capability.

Codings were done on several bases. The Dun and Bradstreet numbers were used by the firm for compiling financial data of interest to various segments of industry. Financial organizations are still very partial to organizational identification by Dun and Bradstreet numbers.

Other proprietary organizations developed similar forms of classification which were relevant to their forms of business. This is still true of many trade organizations.

The classifications were means of identifying capability on a coded basis which represented a typology of product or service groups for convenience in grouping.

Another popular classification is the Standard Industrial Classification or SIC code. This is a four-digit number which classified a

business by the primary type of economic activity in which it is engaged. For example, the SIC for manufacturing metal forgings is 3462. A complete manual of SIC codes is available. However, some critics of this system complain that a particular code is too broad with too many widely varying products represented under one number. Nevertheless, the SIC (1972) code is widely found in use.

With the advent of computer capability, the KWIC system found high utility. KWIC refers to "Key Word in Context," a method by which certain salient identifying terms are used to describe the entity. The inquiry process is facilitated by using those key words to ask the system how many firms are engaged in "fasteners," "copper," and "cardboard containers" related manufacture. By the common intersection of the firms listed under the certain KWIC descriptors, a list can be retrieved from a computerized system.

4.2 The PASS System

Typical of systems which use the KWIC method is the PASS (Procurement Automated Source System) program established by the Small Business Administration. This method was initiated in the mid-1970s under a joint effort of SBA and other interested federal offices. Its goals were to provide small business with opportunities to bid on federal procurements and to help eliminate the administrative cost of buying offices maintaining their own bidding lists.

In its first quarter of operation (October-December 1978), firms were solicited to become entered into the system. As of November 1980, 34,000 firms were entered into the system. Among those small businesses

were included 6500 minority businesses and 3900 businesses owned or operated by women.

Information was first distributed about PASS by mass mailings. Now efforts are concentrated on soliciting firms through workshops and conferences that the SBA periodically holds. While the original form for entering the business firm data amounted to five pages, a simplified form is under construction. It was estimated that fifteen minutes were required to complete the form, but this still represented a formidable task to many firms. Behind this simplification effort lies the goal of SBA in building a small business list of 150,000 firms which would be available to buying firms.

The heart of PASS is located in Randolph, Massachusetts. Remote and local terminals are located at SBA central and regional offices (10), at Department of Energy locations (15), and at other authorized user sites along a nationwide PASS network of terminals.

Through the use of a PASS terminal, a large company searching for a small or minority-owned firm with particular capabilities, or that is located in a specific area, may ask the system to provide profiles of firms that meet the requirements.

PASS maintains a full-time staff to train system users at field locations. Persons who are reluctant to use such a service because of the strangeness of computer language are reassured to learn that PASS uses a simple user-oriented language designed with the needs of all procurement officers in mind.

PASS officials believe that through the massive information storage capability of computers their system can store and retrieve information

on the firms registered in greater depth than is possible with most printed directories. Printed directories have become popular with many firms and associations but at tremendous cost and with a very perishable nature considering the volatile and dynamic nature of small business.

Information such as the length of time a firm has been in operation, the type of contracts it held in the past, the geographic area it serves, and many other facts are available through the PASS network. Officials of SBA hope that use of the Procurement Automated Source System will not only serve as a convenience to the firms registered but to procurement officers. They also anticipate that PASS will have a significant effect in increasing the number and dollar amount of government contracts and subcontracts awarded to small and minority business.

Other variations of computer source lists exist. The Department of Commerce is engaged in an effort to make a similar compilation of firms available for small business contracting. The Department of Defense has used some forms of computerized access lists which will be examined in this study.

4.3 Evaluation of Source Lists

This study will utilize the methodology of information sciences to examine the efficacy and utility of the various source lists. The chief criteria will be related to effectiveness and efficiency for the purpose of maximizing small business participation in government procurement and contracting.

Some of the criteria to be used will include:

1. Completeness
2. Accuracy

4. Currency
5. Inter-system compatibility
6. Economy
7. Flexibility
8. Practicality

This study will examine the manual and printed directories as well as the computerized methods. It is expected that there will be two dimensions to the evaluation study:

1. Methodology of source list compilation and use, and
2. Technological applications.

It is anticipated that the evaluation will include a model which will include the methodological and technological considerations for study in trade-off and sensitivity analyses of different variables involved in the model.

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APPENDIX A

**Selected Publications of the Government Dealing with
Socially and Economically Disadvantaged Business**

Selected Publications of the Government Dealing with
Socially and Economically Disadvantaged Business

Air Force Information for Industry Office (Tri-Service Industry Information Center). Andrews AFB, MD: Air Force Systems Command, undated.

Contracting Guide (Federal Agencies and Prime Contractors). Los Angeles: Defense Contract Administration Services Region, 1980.

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Doing Business with the Federal Government. Washington: General Services Administration, 1978.

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Firms in the 8(a) Business Development Program. Washington: SBA, 1979.

Government Procurement Opportunities for Small Business. Washington: SBA, 1980.

How to Seek and Win NASA Contracts. Washington: National Aeronautics and Space Administration, 1979.

Minority Business Enterprise Directory. St. Louis: Midwest DCAS Region, 1978.

MX. Norton AFB: Ballistic Missile Office (Small and Disadvantaged Business Utilization Office), 1980.

Prime/Associate Contractors: USAF Space and Missile Programs. Los Angeles: USAF Space and Missile Systems Organization, 1979.

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Selling to the Military. Washington: Department of Defense, 1979.

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Small Business and Quality Assurance. Washington: Department of the Air Force, undated.

Small Business Investment Act of 1958. Washington: Congress of the United States, 1958.

Small Business 1979 Subcontracting Directory. Washington: Office of Procurement and Technical Assistance (SBA), 1979.

Subcontracting Regulations. Washington: Office of the Management and the Budget, 1980.

APPENDIX B

Selected Publications Dealing with Disadvantaged Firms
Doing Business with Contractors and Government

Selected Publications Dealing with Disadvantaged Firms
Doing Business with Contractors and Government

Boeing Small/Minority Business Newsletter. Seattle, WA.

Black Enterprise.

Guide to Obtaining Minority Business Directories. Minneapolis, MN:
National Minority Business Campaign.

Northrop Corporation Small Business Report. Los Angeles: Northrop
Aircraft Corporation.

NTMA Letter.

Purchasing People in Major Corporations. Minneapolis, MN: National
Minority Business Campaign.

Try Us. Minneapolis, MN: National Minority Business Directory.

1.0 INTRODUCTION

The field of source listing for the procurement function is a key element in attaining and maintaining a viable selection base of suppliers. Yet, in the purchasing profession, this subset of activity has lagged. In an interview with Professor Hal Fearon of Arizona State, he stated that the source listing function was not as advanced as other parts of the purchasing process. As the recognized senior statesman of the professional purchasing fraternity (past president of National Association of Purchasing Managers and long-time editor of the Journal of Purchasing), Professor Fearon said that the mention in print of source list advances was sadly lacking.

Mr. Horace Crouch (OSD Office of Small Business Utilization) echoed the sentiment. Mr. Crouch had previously worked with the Small Business Administration with technology applications for utilization of minority and disadvantaged small businesses. He indicated that new efforts were needed, not only to upgrade and expand the sources available for Department of Defense contracting, but to adequately represent the capability of the minority and disadvantaged small businesses to contribute to the economy.

The current books on purchasing and materials management that are used to train purchasing personnel contain little reference to the source listing function and relevant computer applications. The newest of the group by Leenders, Fearon, and England (1980) still contains little reference to the technology applications to improving source listing on behalf of potential small and disadvantaged business customers. Coding methods such as

key word systems are not found either. The literature of management information systems contains some material on coding systems, but nothing related to source listing.

The Journal of Purchasing and Materials Management (Spring 1981) in a study on use of computers in purchasing surveyed 300 major firms and found that 58% used computerized vendor lists and that 47% had no computerized lists of vendors. It is assumed the case for small business firms would be no better than for large firms. The extent of small and disadvantaged contracting with the Federal Government is presented next.

The scope of small and disadvantaged business activity may be introduced by presenting the following data from the 1981 Report of the Federal Procurement Data Center. This report presented the 1981 findings for federal contract actions over \$10,000 awarded to small business:

182,365 small business actions (36.5% of the total)

\$19,308,189,000 value of small business actions (15.6% of the total)

In another analysis, the total of minority and disadvantaged activity was presented of the total for all federal agencies as:

20,202 minority/disadvantaged actions (4% of the total)

\$2,847,286,000 value of minority/disadvantaged actions (2.3% of the total)

The minority/disadvantaged group was further broken down into:

Small minority--9,245 (45.8%) actions for \$949,014,000 (33.3%)

Large minority*--1,240 (6.1%) actions for \$184,954,000 (6.5%)

8(a) disadvantaged--9,717 (48.1%) actions for \$1,713,318,000 (60.2%)

*Small Business Administration definitions of small and large businesses were observed, taking into account the nature of the business and product/service.

The lot of small and disadvantaged business in contracting with the government had advanced.

This report will deal with particular findings in source listings which are intended to improve the extent and quality of small and disadvantaged business in government contracting. Federal source listing methods will be covered next, followed by industrial practices. After that, specific analysis will ensue.

2.0 FEDERAL GOVERNMENT SOURCE SYSTEMS

2.1 Introduction

This section will outline several systems in use by various departments of the Federal Government (refer to Statement of Work, par. 4.2.1). These systems are designed to improve the ability of the department concerned with identifying small, minority, and disadvantaged businesses for the purpose of possible contracting activity with the Federal Government.

Most of the systems discussed in this section emerged as an outgrowth of the establishment of the Office of Federal Procurement Policy in 1972. One contact, Bill Beauchamp of the Dallas office of the Region VI Small Business Administration, was associated with early efforts of the Office of Federal Procurement Policy, as well as later efforts by the Department of Energy and the SBA to upgrade the building and maintenance of small business source lists. He cited the prevalent use of manual source lists following World War II, which were found inadequate to meet the needs for inclusion of more small businesses for contracting in the 1960s. Various federal agencies began to turn to computer listing in a simple building of files based upon the manual methodology. In a sense, he claimed the listings were maintained in computer files just as they had been maintained in card files.

Mr. Beauchamp claimed the joint effort of the Department of Energy and the SBA to build a system (PASS--Procurement Automated Source System) was a milestone in the direction of up-to-date systems. The Office of Procurement Policy strongly endorsed standardization of the different methods that were emerging for automating aspects of the procurement function. Mr. Beauchamp indicated that systems capability had improved,

but that the issue of compatability between systems was a concern. This concern of compatability will be discussed in a later section.

2.2 The Procurement Automated Source System (PASS)

2.2.1 Description

The Procurement Automated Source System (PASS) of the Small Business Administration is designed to achieve the following objectives:

- Improve the current source referral process
- Provide quick response of small businesses
- Increase the number and dollar amount of government contracts awarded to small business
- Maintain a central, readily accessible, up-to-date file of small businesses and their capabilities
- Provide SBA Procurement Center Representatives, Source Specialists, Subcontracting Specialists and Technology Assistance Officers with a resource in their efforts to assist the small business community
- Provide a data source for small business directories in areas of Research and Development, Manufacturing, Construction, and Services

This project is managed and sponsored by the Small Business Administration (SBA) which uses this system as a vehicle to carry out some of its legislative mandates, such as to:

- Promote Small Business set-asides
- Refer small businesses to prime contractors for subcontract opportunities

- Publish the Science, Engineering, Research and Development Directory and the Manufacturing, Construction, and Services Directories
- Increase the number of Research and Development Contracts awarded to small businesses

The project also receives financial support from the Department of Energy.

2.2.2 System Capabilities

The Procurement Automated Source System provides the following capabilities:

- Small Business Profiles--The system represents the most comprehensive data base of small business profiles, including majority/minority enterprises, and women-owned firms available anywhere. Company profiles are available on research and development (R&D), manufacturing, service, and construction organizations.
- Source Selection--Procurement Specialists can use PASS to select Small Businesses as sources for procurement purposes.
- Source Directories--PASS provides the capability to publish a set of comprehensive directories of Small Business enterprises.
- Keyword Search--The system allows the user to search its data base using any user-defined keyword or combination of keywords including "and," "or," and "not" conditions.
- Current Information--The information available on each firm is periodically updated with new profiles being entered on a daily basis.

-Nationwide Network--As an interactive, distributed system,

PASS allows the user to quickly identify and display or print desired information.

-Project Outreach--To continually expand the PASS data base's

usefulness, Project Outreach has been undertaken to solicit sources of lists of small businesses, minority enterprises, and women-owned firms. Expansion of this data base is achieved through a quota system for regional and district offices. In addition, workshops and procurement conferences are held to publicize PASS.

-User Language--PASS is supported by a simple user-oriented

language designed with the needs and responsibilities of procurement officials in mind. This language, unlike COBOL (Common Business Oriented Language) for instance, uses English syntax and vocabulary.

-Active Training Program--PASS maintains a full-time training

staff to train system users at field locations. Among the PASS training tools are the Comprehensive User's Manual and portable remote terminals.

Transactions--The system supports all major transactions, such

as Data Entry, Update, Source Search, Information Display, Management Reports, and File Maintenance.

2.2.3 Major System Components Description

The PASS System Operations consist of four (4) major components as follows:

- PASS Data Center--Located at SAI's (Systems Architect, Inc.)
Randolph, Massachusetts Office complex to provide computer
resources, using SAI's DEC System-20 computer.
- PASS Service Center--Located next to the PASS Data Center to
provide clerical support for Data Entry, Data Verification,
Data Maintenance and Hotline Answering Services, etc.
- Remote and Local Terminals--Located at SBA Central Office, SBA
Regional Offices, DOE locations, and PASS Service Center to
access the PASS system.
- Nationwide PASS Communication Network--Connects the nationwide
network of terminals at all authorized user sites, as well as
the PASS Service Center, to the PASS Data Center.

2.2.4 Initial PASS Locations

The initial PASS users were located in twenty-eight SBA and Department of Energy locations, such as:

Washington, DC (2)	Idaho Falls, ID	Aiken, SC
Boston, MA	Las Vegas, NV	Houston, TX
New York, NY	Oak Ridge, TN	New Orleans, LA
Bala Cynwyd, PA	Richland, WA	
Atlanta, GA	Mechanicsburg, PA	
Chicago, IL (2)	Huntsville, AL	
Dallas, TX	Eglin AF Base, FL	
Kansas City, MO	Rock Island, IL	
Denver, CO	Columbus, OH	
San Francisco, CA (2)	St. Louis, MO	
Seattle, WA	Los Angeles, CA	

However, additional SBA authorized users may access the system from any location within the continental United States. Over 100 terminals are now in operation throughout the country as of April 1982.

As of the end of March 1982, the PASS system has been operational for approximately two and one-half years and contains over 62,000 small firms registered in the system. Included in this data bank are over 11,800 minority firms registered in the system and over 10,000 female-owned firms. Figure 1 shows recent data base statistics. Company profiles are on-line in the fields of research and development (R&D), manufacturing, construction and services. The SBA Procurement Source Specialists located in each SBA Regional office can instantly furnish a computer printout of small businesses in the system with the capabilities required to supply the product or service required.

The 7,000 key word vocabulary is being expanded to meet the complex needs of the procurement community. The manufacturing portion of the vocabulary is being updated first, to be followed by the R&D and Service portions of the vocabulary. As the interface between the vendors and buyers, the relevance of the vocabulary is very important in exactly describing the nature of product or service involved.

The root words of the vocabulary are being expanded with suffix capabilities, as in compute - computer, computing, computed, computable. By expanding other roots such as forge, it is claimed by SBA designers and the SAI contractors agree that the power of the vocabulary can be extended considerably. This is plausible with refinement of programming, as a result of system experience. The key word vocabulary is effective as far as it goes. The vocabulary is not extensive enough at the present time.

Database Statistics Report on: 24-Feb-82

Region	Number of Companies				
	Manufacturing	Construction	Research & Development	Service	Total
1	3382	1018	1379	3039	5839
2	4999	968	1682	3364	7532
3	3756	1763	1885	5244	8539
4	3179	1489	1038	3458	6224
5	6539	1969	1919	5295	11045
6	2248	1353	797	2845	4937
7	2035	1079	568	1762	3645
8	1219	907	507	1567	2617
9	4566	1381	2124	4336	8201
10	1621	1041	613	2055	3504
TOTALS	33545	12941	12512	32965	62083

Number of Profiles added since 11-Feb-82: 319

Female Owned	10,008	Veterans	20,190
Minority Owned	11,871	Vietnam Era Vets	5,934
8(a) Certified	1,276	Labor Surplus	17,745

(Source: SBA Technology Applications, Washington, D.C.)

Figure 1
PASS Data Base Statistics

The number of terminals is being expanded by offerings to companies and other interested parties. A modest charge of \$26.50 per connect hour should make the use of a PASS terminal very cost-effective.

In addition, SBA has recently reduced the paperwork requirement for entry into PASS by revising the company profile form to a one-page self-mailer (see Figure 2). Being reduced from the original four-page length, the company entry form facilitates listing for small businesses.

2.3 Profile (Department of Commerce)

2.3.1 Description

This section will introduce the U.S. Department of Commerce's Minority Business Development Agency's (MBDA) National Automated Minority Business Source List Service and Census Patterned Identification Project, known generally as Profile. The Interagency Council for Minority Business Enterprises (MBE) charged MBDA with the responsibility of developing a program that would dramatically increase the listings of minority-owned businesses for availability to procurement offices of Federal agencies, other government entities and private sector firms. Such an expanded list would partly assist in the compliance efforts of Public Law 95-507.

To date, through the efforts of MBDA, PASS and many of the Offices of Small and Disadvantaged Business Utilization (OSDBU), a large number of minority-owned businesses have been identified and entered into the MBDA and PASS systems. As a result, greater business opportunities for the minority business community are being made available in Federal procurement sectors.

The process to be used to increase the minority business listings in the Federal Government, National Automated Minority Business Source List

This is a reproduction of the original yellow PASS booklet. If you have already filled one out, you need not send back this form but why not PASS it on to a friend?

11-12

PROCUREMENT AUTOMATED SOURCE SYSTEM — COMPANY PROFILE

IDENTIFICATION

PASS is designed only for small businesses which are organized for profit and independently owned and operated.

COMPANY NAME _____

EMPLOYER IDENTIFICATION NO. (if avail.) _____

NO. OF EMPLOYEES _____

MAILING ADDRESS _____

TOTAL SALES LAST FISCAL YEAR _____

CITY _____ STATE _____ ZIP _____

YEAR BUSINESS ESTABLISHED _____

CONTACT PERSON _____ TITLE _____

PHONE _____

PASS is divided into 4 types of businesses. Please estimate the percentage of your business allocated to the following (total must equal 100%) and complete the appropriate section(s).

MANUFACTURING/SUPPLIES

CHECK ONE ☒ _____ %

☐ MANUFACTURER ☐ DEALER ☐ WHOLESALE DISTRIBUTOR
MANUFACTURING FACILITY SIZE _____ SQ. FT.

CONSTRUCTION

_____ %

MAXIMUM CURRENT BONDING LEVEL \$ _____ (if applicable)

MAXIMUM OPERATING RADIUS _____ MILES
ANYWHERE IN U.S. ENTER 3999 ABOVE
ANYWHERE IN THE WORLD ENTER 9999 ABOVE

RESEARCH and DEVELOPMENT

_____ %

No. of engineers & scientists _____

Expertise of key personnel _____

SERVICES

_____ %

MAXIMUM CURRENT BONDING LEVEL \$ _____ (if applicable)

MAXIMUM OPERATING RADIUS _____ MILES
ANYWHERE IN U.S. ENTER 3999 ABOVE
ANYWHERE IN THE WORLD ENTER 9999 ABOVE

CAPABILITIES

(limit 32 words — avoid abbreviations)

List products and services offered and special capabilities

OWNERSHIP

CHECK ALL APPLICABLE BOXES ☒

Company is at least
51% OWNED, CONTROLLED
and ACTIVELY MANAGED BY:

- ☐ VETERAN(S)
☐ CHECK IF ANY SERVICE WAS
IN VIETNAM ERA (1964-1975)
☐ WOMAN/WOMEN
☐ MINORITY PERSON(S)

IF MINORITY OWNER, CHECK ☒

- ☐ BLACK ☐ HISPANIC AMERICAN
☐ NATIVE AMERICAN ☐ ASIAN PACIFIC AMERICAN
(Includes American Indian, Eskimo, Aleut & Native Hawaiian) (Includes Oriental)

EXPORTS

CHECK ONE BOX ☒ FOR INTERNATIONAL TRADE

☐ ACTIVE EXPORTER ☐ INTERESTED IN EXPORTS ☐ NOT INTERESTED IN EXPORTS

SIGNATURE

Important! Signature is required!

INFORMATION CONTAINED IN THIS PROFILE MAY BE DISCLOSED BY THE SMALL BUSINESS ADMINISTRATION

Please sign here

Signature of Company Officer

Title

Date

(for SBA Use)

Questions? Contact your regional or district U.S. Small Business Administration Office for answers.

FILL OUT . . . SEAL . . . AND MAIL TODAY! IT'S EASY!

SBA Form 1187-Revised 10/80
OMB Clearance No. 100R0080-March 1983
U.S. GOVERNMENT PRINTING OFFICE: 1981-338-898

Figure 2

PASS Company Profile Form (Revised)

Service, and SBA's PASS will be the development and implementation of a national Census Patterned Survey Project, to be known as Profile.

The nationwide survey to identify approximately 40,000 minority-owned firms that meet MBDA's minimum criteria of non-retail, minimum annual volume of \$150,000 and paid employees (non-volunteer) to be listed as potential vendors to government entities and private firms is being conducted by personnel from MBDA's National Offices and funded organizations. The procedure requires visiting and interviewing selected minority firms.

A preliminary Master Minority Business Address Listing is being developed through collective efforts of MBDA National, Regional and District Office personnel. The Listing for the Profile will be compiled by gathering the names and addresses of all known minority businesses from various sources (e.g., OSDBU Directories, Interagency Minority Business Card Files, etc.). The Listing will serve as a starting point for the local interviewers. Additional minority firms will be added at the local level as the interviewer identifies them through referral from other minority firms, local business community, and knowledge of the general community.

During the survey, interviewers visit minority businesses and complete a questionnaire (Figure 3) which has been specifically developed for the Profile effort. The questionnaire was developed considering past and potential difficulties in gathering the necessary information. Previous survey instruments were regarded as too lengthy and requested information that was considered unnecessary for its intended purpose. The number of elements on the questionnaire have been reduced to include only pertinent information, generally available through various administrative sources. Although the information is administratively available in the Business

Census series of the Commerce Department, an interview is necessary to elaborate on those elements of the questionnaire considered to be of important relevance to minority business; i.e., capabilities, annual volume, employees, etc. The interview allows the interviewer the opportunity to obtain the respondent's signature, necessary for entry into the MBDA and PASS systems. The information gathered will be used only for official business in the best interest of the respondent. The primary intent is to interface the minority business firms with prospective procurement opportunities. This visit will also provide the interviewer the opportunity to distribute MBDA and related agencies' marketing and promotional materials.

A formal promotional effort has been developed and is to be implemented immediately prior to the survey effort. The promotional effort will address the minority business community, procurement sector, specific business communities and the general community. In part, the promotional effort will include 1) meeting with the various minority communities, 2) public service announcements, 3) MBDA specifically developed brochures, 4) printed media, and 5) electronic media public service appearances.

The promotion will be a positive marketing approach to inform all participants of the benefits to be derived from such an enormous endeavor. Special marketing activities will be directed to the minority business firms to inform them that their participation in this effort will greatly enhance their business opportunities with public and private procurement offices.

After expansions of the minority-owned business list, the preliminary plan calls for Federal agencies to use a combination of SBA's PASS and MBDA's National Automated Minority Business Locator Service to identify minority firms to meet procurement needs.

2.3.2 Capability

The MBDA's data system will provide:

- magnetic tape
- documentation for agency development of on-line use
- hard copy line printed reports
- computer output on microfiche
- limited loose leaf listings (particularly for state, county, and local governments)
- production of mailing labels

The PASS and MBDA Automated Minority Business Source List Service (Profile) will be coordinated to assure that the information on minority listings will be compatible. There will be no proliferation in the technical formats in which information will be available to procurement offices.

In addition to direct procurement source list use, the MBDA'S data system is being designed to be capable of the following:

- match up on merger and acquisition opportunities
- collection and maintenance of minority vendor data
- contract award tracking for effectiveness measurement and statistical reporting
- convertability between various Federal Coding Systems (e.g., SIC, FPDS, FSC) (for a given item, what SIC and FSC numbers are equivalent)
- matching Federal Procurement Data System (FPDS) outputs with minority business capabilities and thereby improving marketing capabilities for MBE's
- match up Technology Commercialization transfer opportunities with qualified minority firms

An added major key element of the MBDA National Automated Minority Business Source List Service (Profile) will be the addition of a minority business source marketing manager. The marketing manager will be in regular contact with the various Federal Agency's Offices of Small and Disadvantaged Business Utilization (OSDBU) and major procurement policy offices in Washington, D.C., and throughout the country. A major element of MBDA's marketing efforts will be to provide on-going services to procurement officials in matching procurement opportunities with qualified minority firms.

As of 17 March 1982, the Profile system contained 9,000 entries, and the officials of the Minority Business Development Agency were optimistic for the continued growth of the system.

A promotion campaign has been in the offing to make the availability of this service more known to the minority business community. It was ascertained from the Profile sponsors that full cooperation with the Small Business Administration was in practice.

In fact, the Profile questionnaire closely resembled that of the Small Business Administration PASS system. This similarity was endorsed by the Office of Management and Budget which must clear questionnaire efforts such as that of the Commerce Department and the Small Business Administration.

The Profile system sponsors claimed the Profile system would be very amenable to reporting and research on the minority business community. They also intended to make the service available to state and local governments which at the present rely largely on manual systems of maintaining bidder lists.

Essentially, the Profile system was intended to concentrate on the minority business community, while the PASS system was aimed at the entire

small business community, with the subsets of minorities, veterans, and Vietnam era veterans as key personnel of listed businesses.

2.4 Air Force Systems Command

The Air Force Systems Command has PASS terminals at their locations at Wright-Patterson AFB, Hanscom AFB, and Andrews AFB, but the Small Business Utilization representatives were not enthused about the PASS system. The claim was made that the PASS keyword vocabulary was inadequate for the procurement purposes of acquisition officers.

The Systems Command Small Business representative, Mr. Dave Oswalt, indicated that the PASS system was poor for R&D within the Systems Command community. The Systems Command's concern was for specificity of nomenclature of equipment parts and models. The vocabulary of PASS was claimed inadequate for the sophisticated nomenclature of parts and models purchased by Systems Command.

The best link they found with the Small Business community was the Commerce Business Daily. This periodical is published by the Department of Commerce and is discussed elsewhere in this report. The filing of SF129 (Bidder's Mailing List Application - Figure 4) placed small business applicants on bidders' lists which are kept in the appropriate files of the procurement office.

The conventional manual system was the bidder source list maintained in files by the various procurement offices. Attempts to automate involved coding of the bidder data on cards which then provided bidder lists.

Past systems used the DD Form 1630 (Research and Development Capability Index) as source document. However, these systems were abandoned in favor of upgraded computer-based technology.

BIDDER'S MAILING LIST APPLICATION			INITIAL APPLICATION REVISION	FORM APPROVED OMB NO. 29-R0069															
<small>Fill in all spaces. Insert "NA" in blocks not applicable. Type or print all entries. See reverse for instructions.</small> TO (Enter name and address of Federal agency to which form is submitted. Include ZIP Code)			DATE																
1. APPLICANT'S NAME AND ADDRESS (Include county and ZIP Code)			2. ADDRESS (Include county and ZIP Code) TO WHICH SOLICITATIONS ARE TO BE MAILED (If different from item 1)																
3. TYPE OF ORGANIZATION (Check one) <input type="checkbox"/> INDIVIDUAL <input type="checkbox"/> PARTNERSHIP <input type="checkbox"/> NON PROFIT ORGANIZATION <input type="checkbox"/> CORPORATION, INCORPORATED UNDER THE LAWS OF THE STATE OF _____			4. HOW LONG IN PRESENT BUSINESS																
5. NAMES OF OFFICERS, OWNERS, OR PARTNERS <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">PRESIDENT</td> <td style="width: 33%;">VICE PRESIDENT</td> <td style="width: 33%;">SECRETARY</td> </tr> <tr> <td>TREASURER</td> <td colspan="2">OWNERS OR PARTNERS</td> </tr> </table>			PRESIDENT	VICE PRESIDENT	SECRETARY	TREASURER	OWNERS OR PARTNERS												
PRESIDENT	VICE PRESIDENT	SECRETARY																	
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6. AFFILIATES OF APPLICANT (Names, locations and nature of affiliation. See definition on reverse)																			
7. PERSONS AUTHORIZED TO SIGN BIDS, OFFERS, AND CONTRACTS IN YOUR NAME (Indicate if agent)																			
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NAME	OFFICIAL CAPACITY	TEL. NO. (Ind. area code)																	
8. IDENTIFY EQUIPMENT, SUPPLIES, MATERIALS, AND/OR SERVICES ON WHICH YOU DESIRE TO BID (See attached Federal agency's supplemental listing and instructions, if any)																			
9. TYPE OF OWNERSHIP (See definitions on reverse)																			
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FOR	TOP SECRET	SECRET	CONFIDENTIAL	NAMES OF AGENCIES WHICH GRANTED SECURITY CLEARANCES (Include dates)															
KEY PERSONNEL																			
PLANT ONLY																			
THIS SPACE FOR USE BY THE GOVERNMENT			CERTIFICATION I certify that information supplied herein (including all pages attached) is correct and that neither the applicant nor any person (or persons) in any connection with the applicant as a principal or officer, so far as is known, is now debarred or otherwise declared ineligible by any agency of the Federal Government from bidding for furnishing materials, supplies, or services to the Government or any agency thereof. SIGNATURE _____ NAME AND TITLE OF PERSON AUTHORIZED TO SIGN (Type or print) _____																

The Technical Fields of Interest were indicated as the key words for accessing potential bidders for specified procurement needs. The Fields of Interest were previously coded onto cards that were used in a Friden Flexo-writer.

The current AFSC system is Research and Development Contractors Update and Retrieval System (RADCURS). This system also uses the DD Form 1630 as input document to the computerized data base. The keywords of this system conform to the Technical Fields of Interest extracted from the DD 1630. Hanscom AFB has over 700 contractors on the RADCURS system.

2.4.1 Electronic Systems Division

Discussion of automated source lists centered around the role of the Electronics Systems Division (ESD) as the lead agency for the AF Systems Command. Pat Leyne of the ESD Small Business Utilization Office indicated good progress in accessing small and disadvantaged systems with existing systems.

The Electronic Systems Division makes use of two automated vendor listings. The first, CIAPS (Customer Integrated Automated Procurement System), uses information provided by interested vendors when they submit Standard Form 129, Bidders Mailing List Application. In completing the SF 129, vendors identify items within the Federal Supply Classes which they can furnish to the Air Force. A SF 129 and Commodity Listing of Federal Supply Classes are identified in Figures 4 and 5. When Air Force requirements are identified within these classes, they are fed into the CIAPS system and matched with the vendors who supply them. From this matching a competitive source list is developed for that requirement. Although all entries on the SF 129 will be used in the analysis and award of contracts,

A total of 96 codes are used to classify both services and supplies. Services, both procurements and awards, are classified under 19 single letter codes; 77 two-digit code numbers are utilized in classifying the procurement or award of supplies and equipment.

The following definitions comprise the entire Service and Supply Item Classification System that is currently used in the Daily.

Codes for services

The code letters to be used for services are as follows:

Code Description of Services
A. Experimental, Development, Test, and Research Work (research includes both basic and applied research).

B. Expert and Consultant Services.
C. Maintenance and/or Repair of Equipment.

D. Modification, Alteration, and/or Rebuilding of Equipment.

E. Technical Representative Services. (i.e.) Services of technical specialists required to advise and assist with respect to the installation, checking, operation, and maintenance of complex equipment.

F. Operation and/or Maintenance of Government-Owned Facility.

G. Installation of Equipment (use code K if the procurement also involves modification, alteration, or rebuilding of the equipment).

H. Funeral and Chaplain Services.

I. Salvage Services (services required to salvage property of any kind).

J. Medical Services.

K. Architect-Engineer Services.

L. Housekeeping Services. (i.e.)

M. Utility services, gas, electric.

telephone, etc. Laundry and dry cleaning services. Custodial - janitorial service. Insect and rodent control. Packing and crating. Storage services. Garbage and trash collection. Food service. Fueling service. Fire protection. Building and grounds maintenance. Guard services.

T. Photographic Mapping Printing and Publication Services. (i.e.) Film processing. Cataloging. Charting. Reproduction. Technical writing. Art. Printing.

U. Training Services.

V. Transportation Services. (i.e.)

Passenger and cargo transportation. Vessel charter. Vessel operation. Tug service. Stevedoring service. Vehicle hire. Railway equipment charter.

W. Lease or Rental, Except Transportation Equipment. (i.e.) Lease of ADP or EAM equipment. Lease of earth-moving equipment.

X. Miscellaneous.

Y. Construction (i.e.) New Construction and major additions to existing buildings or facilities.

Z. Maintenance, Repair & Alteration of Real Property. (i.e.) Painting, Building Maintenance, Roads Maintenance & Repair.

Codes for supplies and equipment

The two digit code numbers and description used below are the same as the 77 assigned commodity groups of the Federal Supply Classification system.

Code Description of Supplies and Equipment

10. Weapons.

11. Nuclear Ordnance.

12. Fire Control Equipment.

13. Ammunition and Explosives.

14. Guided Missiles.

Figure 5. Federal Service and Supply Classification List

17. Aircraft Launching, Landing, and Ground Handling Equipment.	61. Electric Wire and Power and Distribution Equipment.
18. Space Vehicles.	62. Lighting Fixtures and Lamps.
19. Ships, Small Craft, Pontoons, and Floating Docks.	63. Alarm and Signal Systems.
20. Ship and Marine Equipment.	65. Medical, Dental and Veterinary Equipment and Supplies.
22. Railway Equipment.	66. Instruments and Laboratory Equipment.
23. Motor Vehicles, Trailers, and Cycles.	67. Photographic Equipment.
24. Tractors.	68. Chemicals and Chemical Products.
25. Vehicular Equipment Components.	69. Training Aids and Devices.
26. Tires and Tubes.	70. General Purpose ADF Equipment.
28. Engines, Turbines, and Components.	71. Furniture.
29. Engine Accessories.	72. Household and Commercial Furnishings and Appliances.
30. Mechanical Power Transmission Equipment.	73. Food Preparation and Service Equipment.
31. Bearings.	74. Office Machines. Visible Recording Equipment.
32. Woodworking Machinery and Equipment.	75. Office Supplies and Devices.
34. Metalworking Machinery.	76. Books, Maps, and Other Publications.
35. Service and Trade Equipment.	77. Musical Instruments, Phonographs, and Home-Tape Recorders.
36. Special Industry Machinery.	78. Recreational and Athletic Equipment.
37. Agricultural Machinery and Equipment.	79. Cleaning Equipment and Supplies.
38. Construction, Mining, Excavating, and Highway Maintenance Equipment.	80. Brushes, Paints, Sealers, and Adhesives.
39. Materials Handling Equipment.	81. Containers, Packaging, and Packing Supplies.
40. Rope, Cable, Chain, and Fittings.	83. Textiles, Leather, Furs, Apparel and Shoe Findings, Textile Flags.
41. Refrigeration and Air-Conditioning Equipment.	84. Clothing, Individual Equipment and Insignia.
42. Fire Fighting, Rescue, and Safety Equipment.	85. Toiletries.
43. Pumps and Compressors.	87. Agricultural Supplies.
44. Furnace, Steam Plant and Drying Equipment; and Nuclear Reactors.	88. Live Animals.
45. Plumbing, Heating, and Sanitation Equipment.	89. Subsistence.
46. Water Purification and Sewage Treatment Equipment.	91. Fuels, Lubricants, Oils, and Waxes.
47. Pipe, Tubing, Hose, and Fittings.	93. Nonmetallic Fabricated Materials.
48. Valves.	94. Nonmetallic Crude Materials.
49. Maintenance and Repair Shop Equipment.	95. Metal Bars, Sheets, and Shapes.
51. Hand Tools.	96. Ores, Minerals, and Their Primary Products.
52. Measuring Tools.	99. Miscellaneous.
53. Hardware and Abrasives.	
54. Prefabricated Structures and Scaffolding.	
55. Lumber, Millwork, Plywood, and Veneer.	

only certain data will be loaded into the CIAPS system for solicitation purposes. That data will be extracted from Blocks 1, 2, 3, 8, 9, 10, and 11.

The second system used to develop competitive source lists is the Air Force Systems Command Small Business Research and Development Computerized Source System. Entry into this system is also accomplished through completion of the SF 129. The SF 129 information is supplemented by data provided vendors in completing the DD Form 1630, Research and Development Capability Index. The DD 1630 allows vendors to identify their particular areas of technical competence. This vendor supplied data is then computer matched with requirements identified in synopses to be published in the Commerce Business Daily. When vendor capabilities match the synopsis content, the vendor is sent an advance copy of the synopsis. If after evaluation of the synopsis the vendor wishes to receive the RFP for that requirement, he responds to ESD and is placed on the source list. This system assures small businesses that they will be aware of all work emanating from ESD and does so early in the contracting cycle.

The DD 1630 solicits responses of businesses in six categories of activity:

Research	Engineering Development
Exploratory Development	Operational Development
Advanced Development	Management and Support

It is to be noted that the DD 1630 form is seventy-one (71) pages long, with great depth of detail capable of describing technical areas of interest. Figure 6 illustrates page one (1) of the DD 1630 form.

RESEARCH AND DEVELOPMENT CAPABILITY INDEX SCIENTIFIC AND TECHNOLOGICAL FIELDS OF INTEREST

Form Approved
OMB No. 22-R0389

CODE NUMBER				CATEGORY						NAME AND ADDRESS OF APPLICANT																																																																																									
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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DD Form 1630

PAGE 1

Figure 6. DD Form 1630. Research and Development Capability Index, p. 1

2.4.2 Air Force Logistics Command

The Air Force Logistics Command is a very large purchaser of goods and products for the Air Force. Besides the headquarters at Wright-Patterson AFB, the five regional Air Logistics Centers purchase more volume and value of goods and services than most corporations. Each Center supports major weapons systems of the Air Force.

Mr. Bob Kennedy, the Small Business Utilization Officer of the Air Force Logistics Command (AFLC), indicated that each base and center maintains its own bidders list. Automation is present in two forms:

- a. Customer Integrated Automated Procurement system which is maintained at the base level operations. Parts lists and item stock numbers form the key entry variables into the system which provides lists of firms which have the capability of being considered for procurement by the Air Force.
- b. A Mechanized Bidders List System which the Logistics Centers maintain, with key entries being stock numbers and type of manufacturing, such as casting, forging, etc. These entries were considered crucial for special items such as titanium turbine blades or special forgings. This system was highly specialized for particular items used by the Air Force. The technical-specialized keyword was the critical element in this system.

In addition, the Air Force Logistics Command maintains a system to encourage prime contractors in utilization of small businesses as sub-contractors in the annual plan of the prime contractors.

The SBA PASS system is used to augment the two main systems used by AFLC. The chief problem with the PASS system was the lack of fit between the nomenclature of keywords used by PASS and the AFLC systems. The PASS system chiefly augmented by the introduction of new small business into the procurement bidder arena. This augmentation then supplemented the existing bidder list maintained by the AFLC installations.

2.4.3 Air Force Contract Management Division

The Air Force Contract Management Division (AFCMD) of the Air Force Systems Command has cognizance of 16 major defense contractors at 23 locations throughout the United States. These companies annually place purchase orders in excess of five billion dollars in subcontracting commitments for defense-oriented products and services.

Most important, however, approximately \$2.2 billion of this amount is awarded directly to small business concerns. In addition, approximately \$108 million is funneled to suppliers in the small disadvantaged business community. These small business suppliers operate through prime contractor source lists.

The prime contractors listed in AFCMD Pamphlet 70-30, "Selling to Air Force Prime Contractors," 1980, have undertaken extensive efforts to inform small firms of defense requirements and to give assistance for facilitating the entrance of new firms into the Air Force industry complex.

The details contained in the booklet provide a starting point and some initial guidance to small business firms that have the necessary talent and interest to contribute to the Air Force's subcontract requirements.

The directory of firms which comprises part of the AFCMDP 70-30 includes the name and address of the prime contractor, the name of the company official (including phone number) concerned with their Small Business and Small Disadvantaged Business Concerns efforts who should be contacted by potential subcontractors, and the general category of defense items produced by each prime contractor. In addition, the name, address, and phone number of the Air Force Small and Disadvantaged Business Utilization Specialist assigned to each plant are included. All of these firms have established senior executives to foster and administer these programs. These executives have further appointed officials at operating levels who can be contacted directly by potential subcontractors. Providing this "point of contact" within each firm, together with the Air Force counterpart, is one of the major purposes of AFCMDP 70-30.

Small business firms wishing to be placed on prime contractor source lists must understand some government provisions. Government regulations for small business and small disadvantaged business concerns efforts are divided into two groups: (a) those ranging from \$10,000 to \$500,000 and (b) those over \$500,000. Contracts which fall under the first category are required to include a "best efforts clause wherein the contractor agrees to accomplish the maximum amount of subcontracting consistent with the efficient performance" of the contract.

All negotiated and formally advertised contracts, amendments, and modifications which offer subcontracting possibilities and which are expected to exceed \$500,000 for services or supplies or \$1,000,000 for construction of any public facility, are required to include an appropriate clause obligating the contractor, as a precondition to award of the

work, to develop an acceptable subcontracting plan and, at the risk of material breach, to thereafter implement in good faith the plan so developed.

The contractor will maintain records to demonstrate procedures which have been adopted to comply with the requirements and goals set forth in the plan, including the establishment of source lists of small business concerns and small business concerns owned and controlled by socially and economically disadvantaged individuals and efforts to identify and award subcontracts to such small business concerns.

To summarize from AFCMDP 70-30, it is recommended that the following steps be taken by a small business concern in getting on source lists and seeking orders from Air Force prime contractors:

1. Conduct a thorough analysis of the company including facilities, personnel, production factors, shipping, finance, etc., to determine company capabilities.
2. Consider the possibility or the desirability of pooling capabilities with those of other concerns to improve business potential.
3. Investigate and determine the general areas of military end items which match company expertise.
4. Prepare brochures or descriptive literature which accurately describe the company and its facilities listing the types of products or services felt most competent to produce for the defense effort.
5. Use this information to do a marketing job with sales effort comparable to that which would be used in civilian operations.

6. Contact the Small and Disadvantaged Business Utilization Specialist at the nearest Air Force purchasing activity, Chamber of Commerce, Small Business Administration regional or branch office, and other pertinent sources for information on current subcontract and prime contract opportunities.

Source persons interviewed in this study, Mr. Cleveland Wells, AFCMD Small Business Utilization Office. and Mr. Nat Marcus, AF Space Division Small Business Utilization Office, considered the AFCMD to have one of the best small business and minority subcontracting programs in the realm of prime contractors.

2.5 The Commerce Business Daily

One of the most useful tools of business seeking contracts with the government is the Commerce Business Daily according to Cohen in his popular work on contracting with the government (1981). Every week day, this publication brings hundreds of new business proposals for products and services wanted or offered by the U.S. Government.

Contents include:

- Unclassified requests for bids and proposals
- Procurements reserved for small business
- Prime contracts awarded
- Federal contractors seeking subcontractor assistance
- Upcoming sale of Government property
- Government research, development leads, and information on current foreign government procurement offers in the U.S.

The Commerce Business Daily is a unique Federal procurement publication charged by law with publicity about:

All proposed procurements of \$5,000 or more by civil agencies,
All proposed procurements of \$10,000 by military agencies, and
All Federal contract awards of \$50,000 or more for potential
contractors.

The entries of the Commerce Business Daily are synopsized under 96 codes found in Figure 6 (page 23). Under Department of Commerce sponsorship, the 96 subjects use 19 single letter codes for services, and 77 two-digit codes for supplies and equipment. The supply and equipment coding conforms to the Federal Supply Classification system. (It is noted that solicitations from the Federal sources usually conform to the Federal Supply Code.)

3.0 INDUSTRIAL SOURCE LIST SYSTEMS

3.1 Civilian Firms

The industrial world has responded to the need for inclusion of small and disadvantaged businesses among their suppliers by designating offices of "Small Business Utilization" and/or "Minority Business Enterprises."

As a basic procurement tool, the large businesses and contractors compiled directories in hard copy. For instance, the McDonnell-Douglas Company has a Minority Business Enterprises Directory that contains sections for 1) products and services, 2) geographical location of suppliers by states and cities, and, 3) alphabetical listing of all suppliers.

Approximately five thousand firms are listed in this directory, which was compiled by accumulating past and present suppliers, as well as firms that had made inquiries about doing business. This research found evidence for a concerted campaign by contractors to increase listings, in the sense that the federal government agencies had activated campaigns for increased listings of minority and disadvantaged businesses. Opportunities for sub-contracting were dispatched to SBA, the Department of Commerce, and various minority and disadvantaged business groups.

In another typical example, the Boeing Company of Seattle has a Corporate Small Business/Small Disadvantaged Business Program whose staff meets with the procurement organizations within the company. With information on procurement needs, the staff conducts searches for qualified businesses and recommends them for consideration by the appropriate buyer. The total population of qualified firms are listed in a directory, which is also carried in computer files, coded by company product and item categories. This is a version of the keyword coding.

In addition, many firms such as Boeing produce newsletters to keep company and small businesses informed. For instance, the Fall 1981 Boeing newsletter features the use of the PASS system and the Boeing terminal for access to the PASS system.

Westinghouse has an extensive procurement function, employing 500 personnel. Over seven thousand suppliers are carried in the Westinghouse vendor files maintained on computers. Items are carried by part numbers in the files. Maintained since 1972, the Westinghouse system works well for their needs and the part number coding in the source list will be maintained indefinitely. Procurement personnel claimed that over \$17 million value in supplies are acquired annually.

Furthermore, the Westinghouse system is noteworthy for its use of vendor quality information in the source listing. Information carried deals with quality rates, number of shipments, reject rates, and on time delivery data.

Black and Decker of tool manufacturing fame also maintains a computerized source list, but claims to have a specialized roster of suppliers. Most supplies are custom made, and long term supply arrangements are common.

Both Westinghouse and Black and Decker claim extensive efforts to solicit small and disadvantaged suppliers. They participate in trade shows, minority trade association, and publicize their interest in negotiating with minority and small business providers. Both firms are considered very enlightened regarding these practices. Still, their needs are very specific, and their source listing is coded to unique company needs, not unlike the defense establishment.

Other major industrial firms have systems which would be worthy of specific mention. The Bechtel Corporation (heavy construction) of San Francisco is engaged in worldwide activity. It was cited by Dr. Hal Fearon (past president of National Association of Purchasing Managers, past editor of the Journal of Purchasing, and a nationally recognized expert in procurement) as one of the leaders in automated source systems.

Dr. Fearon claimed that most large firms use manual directories or computerized files. The Bechtel organization is distinguished by one of the largest centralized purchasing departments (3200 personnel), and also maintains a computerized vendor list which includes vendor ratings. These ratings evaluate the quality of performance, cooperation, and aspects of expediting delivery. This vendor list is largely quantitative in terms of numerical data, but also includes the word descriptions as to vendor performance. This was the most sophisticated system found. Small business lists are kept as are lists of disadvantaged firms.

Other large manufacturers included the Hospital Corporation of America in Nashville. This system kept data by its own format of product listings, using a version of keywords. This system is maintained on the company computer, which permits call-up of firms by location and size. Small and disadvantaged firms are identified in the sense of this study. In the service industry, Hospital Corporation is keenly aware of the importance of honoring commitments to small and disadvantaged business.

The General Electric Corporation is another leader in computerized source listing, with a subset for small and disadvantaged businesses. This firm is generally recognized for social consciousness in working with small and disadvantaged business.

In general, it can be repeated that most of the large firms, and especially the prime contracting firms doing government business, maintained offices which specialized in developing small and disadvantaged business contacts. This was characterized as not only good public relations, but good business.

One of the largest civilian cataloguers of suppliers is the Thomas Publishing Company, located in Manhattan, New York City. This commercial firm publishes the Thomas Register of Manufacturers. This consists of 17 volumes in its entirety. Various industrial category groups are listed by volumes, such as electronics, transportation, services, aerospace, etc. A total of 113,000 firms are listed.

Steve Nichols, the manager of the automated source listing department, indicated that small and disadvantaged firms are intermingled with the large firms. The data entry for each firm carries the size of firm in sales and number of employees, location, and product entries. While no special small business file is kept, inquiries by size of firm will produce a list of small businesses. Some 55,000 entries are used for indicating the various product codes, using the Thomas catalog of products and services in a "keyword" format. This system is "on-line" with 17 terminals available for generating information upon request from inquiring firms. The data is also presented in the hard copy volumes held by the manufacturers and firms interested in purchasing the volumes. The computer capability carries the up-to-date version of information on the firms in the directory.

The Thomas Company operates on what they call the "dictionary/authority" file which contains the listings on the suppliers in the system. This system is growing rapidly and is considered the "bible" for general procurement purposes in the industrial purchasing field.

Other industry efforts have emulated this system. For instance, the electronics industry has compiled the Gold Book, published by the Hayden Publishing Company of Rochelle Park, New Jersey, which carries 23 fields of products in the electronics industry. This hard copy product carries listings of products by companies and is a commercial venture.

3.2 Vendor Information Service (VIS)

The National Minority Supplier Development Council (NMSDC) is a national consortium of persons interested in the advancement of minority business. It has members in industry and minority interest groups. Over the years, a capability had been developed from the Chicago office where 10,000 minority owned firms were listed in a computer data bank. It was claimed in a recent story in the Minority Supplier News (February-March, 1982) that since 1977, this service called Vendor Information Service (VIS) had been upgraded to the point where information could be obtained by telephone or by mail within 24 hours turnaround time.

This system was originally supported by a federal contract from the Office of Minority Business Enterprises. Since 1978, the upgrading of the system was supported by gifts and donations from industry. NMSDC claimed that the system was a vastly improved one compared to the older manual directory capability maintained by the National Minority Purchasing Council, a forerunner of the National Minority Supplier Development Council.

The VIS is strongly endorsed by the minority associations as a system which certifies the minority status of firms (with a sensitivity for the charges of minority fronted firms) and is dedicated to minority and disadvantaged business utilization.

The VIS system has been staunchly defended by those who believe the private sector should have its own source system, divorced from government. The private sector advocates claim it is wise to support a system controlled by business, rather than government, especially when minority, disadvantaged interests are concerned. Nevertheless, the VIS venture needs financial support to sustain its growth. The NMSDC staffers are concerned about generating more business support or a merger with the PASS or Profile systems. The NMSDC supporters concede that VIS is at a crossroad in terms of future expansion to include larger data base with more listings and expanded detail of information about listed firms.

3.3 Purchasing and Procurement Information System (PPIS)--Dun and Bradstreet

A very recent arrival in the automated source list field is the well-known business information firm of Dun and Bradstreet. Their purchasing and Procurement Information System (PPIS) is attempting to connect would-be government and private contractors with small business.

Dun and Bradstreet operates from the vantage point of their huge data base of 5 million companies of which they estimate 4 million to be small businesses. While originally a credit-reporting firm, they have built a formidable data base on firms ranging from "tiny" with 1 to 4 employees to the corporate giants of the United States.

In the Fall of 1981, the PPIS capability was begun, and the firm has just gone on-line with the offering of PPIS to customers. The PPIS function has the following unique features:

- a. Information on company ownership, capabilities, and size
- b. Large as well as small businesses in the data bank.
- c. Searches conducted by SIC codes, keywords, or Federal Supply

Classification

- d. Lists can be derived of government agencies that have awarded contracts, with dollar amounts, to business firms
- e. Small businesspersons can indicate whether they wish to deal with government only, private industry only, or both

A test has been conducted by Dennis Gormsley of Dun and Bradstreet with 9,500 companies (70% of them small), and the positive results have encouraged Dun and Bradstreet to go into the market for offering this service on an expanded scale.

Small business capabilities, known or possible, are maintained by the data of firm ownership and location, along with minority, woman ownership, and labor surplus area notations. A key feature of the system is use of a SIC seven-digit product code which provides very fine articulation for the capability of the firm. This goes considerably beyond the four-digit SIC code. The seven-digit code is derived from the Commerce Department Business Census.

A test has been conducted with the data base which enables an inquiring firm to find what kinds of awards are being made by government agencies or large companies. This information includes the kinds of products or services involved, amount of the award, duration of the contract, and delivery points. The products are coded by seven-digit SIC code, keyword, or FSC code.

Potential contractors can use the inquiry system to find firms that have delivered, or could deliver, products (by keyword, SIC, or FSC codes) to certain locations with records of past contracts by the potential vendor firm. The Dun and Bradstreet PPIS capability could provide:

Company address, phone, and contact person

Number of employees, sales volume, and year started

Ownership status (small, minority, or disadvantaged status)

Labor surplus status

Products manufactured or services offered

Payment terms

Method of product distribution

Warehouses and training centers, and administrative offices

Appendix A illustrates a print-out of such an inquiry which sought to find profiles of firms who could deliver a certain category of airborne radar components. The final page of the print-out indicates profiles for the firms according to status of small business, economically disadvantaged, woman-owned, or labor surplus area. With the final capability of examining in detail the profile of the firm, the PPIS of Dun and Bradstreet submits a very powerful resource for accessing firms for products coded by keyword, SIC, or FSC. This same ability can be turned in the other direction for firms investigating the demand for the same products or services in terms of federal agencies that had made awards and the details thereof.

4.0 REVIEW OF SOURCE LIST CAPABILITIES

4.1 Introduction

This section will review the general array of source list activities found in different sectors of government and civilian purchasing activities. These will be identified, examined, and reviewed in the manner specified in Statement of Work 4.2.3.

4.2 Source Lists

4.2.1 Selected Local Government Source Systems

In general, local government source lists are adaptations of the manual method applied to the capability of the computer. The files found in cities such as Los Angeles, Dallas, Denver, Baltimore, and Houston reflect the localized areas of purchase. In general, preference is given to firms in the local metropolitan areas.

The source lists are maintained by firm, and by product or service. The main method of coding is by keywords. The scope of services and product will vary, but the familiarity of the purchasing personnel with the general classes of commodities make the lists workable. In many cases, the list of bidders is not extensive, and the purchasing function works from manual files, while computer rosters of actual and potential providers are maintained.

The Thomas Publication Company of New York indicated that there was a municipal source list system under development by the McGraw-Hill Publishing Company intended for municipal use. The McGraw-Hill personnel were secretive about the venture and claimed that it was still experimental. This would

be initiated as a commercial initiative. This attempt may have merit for the providers of goods and services who market mainly to cities and towns.

All of the municipalities queried indicated that separate listings were maintained by small and disadvantaged businesses. Bidding opportunities were made available to associations and groups advancing the interests of minority and disadvantaged business persons. In most cases, the bidding notices were routed to those organizations as a routine matter.

It appeared that a conscious effort was maintained to promote the participation of small, minority, and disadvantaged businesspersons. The methods were simple computer rosters with keyword identifiers of products and services which appeared to be effective for the municipal purposes.

4.2.2 State Government Source Systems

The state purchasing offices contacted operated in a manner similar to that of the cities. Again, preferences were maintained for in-state sources whenever they were available and competitive.

The lists were maintained as computer files, with keyword notations. State offices were queried in Colorado, Texas, Maryland, and Louisiana. In addition, members of the National Association of Purchasing Managers familiar with government purchasing were contacted.

The states had more identifiable officers charged for contact with small, minority, and disadvantaged businesses. Regular contacts were maintained for dissemination of contracting opportunities to groups such as Black Manufacturers of America, Minority Business Commissions, National Minority Business Council, and National Minority Supplier Development Council.

Each state has a number of statewide and metropolitan agencies who help broaden the base of state contracting with small and disadvantaged companies. For instance, Maryland (with heavy minority population) has Minority Business Opportunity Committee, Department of Economic and Community Development (Office of Minority Business Enterprise), Greater Baltimore Minority Purchasing Council, and Baltimore Council for Equal Business Opportunity.

California had representative groups for Chinese, Japanese, Mexican-American, and Indian ethnic groups of businesspersons. These groups all were earnestly involved in widening the options for minority businesspersons to participate in bidding opportunities announced by state offices.

It was found that the coding again was by firm identity, product, or service (keyword method), and location. This method was deemed adequate for the functions intended. A number of the businesses were entered on other listings such as PASS, Profile, and directories of prime contractors.

The states, as did the local governments, involved themselves in trade fairs and other promotional mechanisms to announce their interest in doing business with minority firms.

4.2.3 The Federal Government

The Federal Government is the largest purchaser in the world. The U.S. Government Purchasing and Sales Directory is an excellent example of the publications made available to stimulate small and disadvantaged businesspersons to get involved in government contracting. An example of the scope of government contracting can be seen from the data from the 1981 report of the Federal Procurement Data Center. This report lists the largest government contractors as:

1. Defense Department	104.2 billion dollars		
2. Department of Energy	10.2	"	"
3. NASA	4.9	"	"
4. General Services Adm.	2.5	"	"
5. Veterans Administration	1.9	"	"
6. Department of Transportation	1.6	"	"
7. Department of Interior	1.6	"	"
<hr/>			
TOTAL	126.9 billion dollars for all contracts		

Publications provide replete guidance on doing business with the government. Bidders List applications are usually the first step for submission to the federal agencies. Different agencies have different versions, but the SF 129 shown earlier is a typical example. Keywords are most often used. The Postal Service uses a SIC coded services list, and in some cases, different alpha-numeric codings are used by various departments. The books by Cohen (1981) and Holtz (1979) on doing business with the government note that the Federal Supply Classification effort was a milestone in bringing order to the various ways of classifying goods. The Cataloguing Handbook H2-1 published by the Defense Logistics Agency is considered the best classification handbook for general use. However, the 13-digit national stock numbers become unwieldy in use.

Apart from the keyword systems used by specific agencies, such as the areas of technical interest used by the Air Force, the major systems are the PASS and Profile systems. Some agencies had heard of Profile, but only the Commerce Department used Profile.

PASS is by far the most used common system. Having been originated by the Department of Energy and the Small Business Administration, it does

have the advantage of maturity, but 100 terminals at the present are still not enough to consider them at the stage of national coverage. Defense and the other large departments (such as NASA and Transportation) support PASS. Prime contractors also support PASS. PASS does suffer from the vocabulary of 7000 words which is claimed inadequate or "not specific enough" by many users.

As is found in data base design, it is difficult to provide a keyword vocabulary which will fit every user (Dippel and House, 1969). The wide variety of government departments and specific purchasing needs confounds the problem of finding the one system that will serve everyone. Yet, the ideal is a master system which would serve a vast network of potential users, amounting to a national (or regional) "yellow pages" for small and disadvantaged business which could be computerized.

4.2.4 Industry

Industry source lists are in a similar condition. The manufacturers and prime contractors deal in a specific list of commodities. Materials Requirements Planning, a new concept in production, uses a stream of computer driven and coordinated information sources to effect a production flow. With procurement at the lead end, many firms, such as Westinghouse and General Electric) have invested heavily in computerizing procurement processes with standing suppliers. While they earnestly support participation of small, minority, and disadvantaged businesses, their specialized needs preclude most suppliers. Their requirements are very specific. The source list is very specific by item, and there is a relatively small list of suppliers that can provide such unique products. Services are in more widespread demand.

There is some communality in the keyword approach used within and between firms of an industry. Between industries, the communality drops off and complicates the objective of a common source list. In effect a common list of items for several industries would run toward the hundred thousands of items according to Bill Beauchamp of the Dallas regional SBA office who follows the industrial information scene closely.

The Council of Defense and Space Industry Associations has expressed its concerns to the Office of the Management and Budget and to the Small Business Administration. These officials representing the electronics, security industrial, and aerospace industry groups urged a single repository of source and capability data for small and disadvantaged firms desiring to do business with their membership.

Bob Ryan of the Boeing Small and Disadvantaged Business Utilization Office has encouraged one vendor information system for all. He further claims that the need for a single national data base extends far beyond the realm of PASS or VIS. He further asserts that government and business are spending too much time, money and resources developing a variety of fragmented data. He urges merging existing systems into one system for the overall benefit of all disadvantaged sellers.

Ryan then claims that information contained in outdated directories frequently is channeled into computer systems without revising the data. He described this method as a faster way of getting poor information.

In addition to the problem of poor data, the industry sources mentioned the problem of distribution. Getting information in the hands of users requires networks or outreach functions. With computer capability, this means a network of terminals or offices which have terminal capability and

which can serve by telephone. In effect, the operator conducts the inquiry of the system and mails the printout to the customer in the field. Most likely, purchasing offices should have access to their own terminals.

Even with the spread of the PASS system, only a handful of aerospace contractors have PASS terminals. A major national operating system would have to have several times the 100 terminals presently serving the PASS system around the country.

4.3 Evaluation of the Capability of Source List Systems

This evaluation will not address company or agency specific source list systems. With a concern for systems that span industries or agencies, the capabilities evaluated will include PASS, VIS, Profile, and the Dun and Bradstreet PPIS system.

The criteria for evaluation will include:

- a. Completeness--the extent to which the populations are covered.
Essentially, this approaches limits of 4 million small businesses, and possibly 250,000 disadvantaged/minority firms.
- b. Accuracy--the sharpness or articulation of the system in coding the products or services desired or offered.
- c. Currency--the verification of the present status of the firms, usually with data no more than a year old. Real-time data are the ultimate.
- d. Compatibility--the ability to translate between systems.
Also referred to as cross-walk capability, as between SIC code and keyword.
- e. Economy--the extent to which the system is cost-effective or even affordable. This includes the assurance of support.

- f. Flexibility--the ability to mit multiple users, as well as the capability for incorporating changes.
- g. Practicality--ease of access and area of coverage.
- h. Capacity--the size of the data base, and the quality of the information contained.

Regarding Completeness, the PPIS system wins hands down. The entire Dun and Bradstreet organization stands behind the PPIS system with its vast credit reporting capability serving most of the six million businesses in the country. As one finance consultant stated, any business that is a business is in the Dun and Bradstreet system. While the PPIS test included less than 10,000 firms, it would be no major step to expand the system to include small and disadvantaged coverage when the system is sold. Dun and Bradstreet is committed to the PPIS development.

Regarding Accuracy, the ultimate is the exact nomenclature for the purpose of the ordering firm or contractor or agency. The Air Force Systems Command prefers "Item of Technical Interest" for items such as forged titanium turbine blades. To cross groups of firms is difficult. The seven-digit SIC code is very articulate as used by PPIS. The seven-digit code is considerably sharper than the four-digit code. The present PASS vocabulary was revised in the fall of 1981 but is still considered too narrow at 7000 words.

Kroenke in his excellent book on data base (1978) states that the building of files is the key. Inverted lists are better than vocabulary, since vocabulary is limited to a given number of words. An inverted list is a sophisticated term for index file and builds on combinations of words or roots. That is the system used for bibliographic searches and information inquiry system. It is expensive in memory but very effective for searching.

By contrast, the partial vocabulary list in Figure 7 shows the PASS first page of the manufacturing keyword list. In effect, the conversation of search is limited to that vocabulary. This is one of the chief criticisms of PASS.

Regarding Currency, the PPIS and PASS systems are accurate within the year. Profile and VIS systems have not yet been updated, and the VIS system was claimed to be particularly susceptible to the high mortality and mobility behavior of small and disadvantaged firms. Again, the credit reporting vigilance of Dun and Bradstreet activated on behalf of PPIS should tend to keep the system up to date since credit data are revised quarterly.

Regarding Compatibility, the situation is mixed. Profile claims transferability between keywords and product service codes for federal purposes. VIS claims the same. PASS is devoted to its keyword vocabulary. PPIS is designed to operate with all the coding methods: key words, SIC seven-digit codes, and Federal Supply Code nomenclature. PPIS is the most versatile in the compatibility category.

Regarding Economy, the situation becomes much more murky. Development costs of systems are considerable, a factor which militates against a proliferation of systems. However, VIS, PASS, PPIS, and Profile are systems underway, but in need of full scale development. VIS has a very uncertain funding future, with a scaling down of federal support and dwindling industry support at present. Profile is struggling, and the Commerce Department is mounting a marketing plan to expand beyond regional capability. PASS is nationwide, but needs more support for an increase of terminals. However, the subsidized terminal cost is quite reasonable now. Roger Hansen of SBA indicated that future funding was uncertain for system expansion.

ABJATIVE	AIR
ABRASIVE	AIRBORNE
ABSORBENT	AIRCONDITION
ABSORBER	AIRCRAFT
ABSTRACT	AIRFIELD
AC	AIRFRAME
ACCELERATION	AIRLIFT
ACCELERATOR	AIRPORT
ACCELEROMETER	ALARM
ACCESS	ALBUMEN
ACCESSORY	ALCOHOL
ACCOUNTING	ALIDADE
ACCUMULATOR	ALIGNER
ACCURATE	ALIGNMENT
ACETATE	ALKALI
ACETIC	ALLOY
ACETONE	ALPHA
ACETYLENE	ALTAR
ACID	ALTERNATE
ACOUSTIC	ALTERNATOR
ACQUISITION	ALTIMETER
ACRYLIC	ALTITUDE
ACRYLITE	ALUM
ACTIVATED	ALUMINUM
ACTIVE	ALUNDUM
ACTUATED	AMBULANCE
ACTUATOR	ANMETER
ADAPTER	AMMONIA
ADAPTOR	AMMONIUM
ADD	AMMUNITION
ADDITIVE	AMPHIBIOUS
ADDRESS	AMPLIFIER
ADDRESSOGRAPH	AMPLIFY
ADHESIVE	AMPLITUDE
ADJUSTABLE	ANALOG
ADVERTISE	ANALYSIS
AERATOR	ANALYZER
AERIAL	ANCHOR
AERO	ANECCHOIC
AERONAUTIC	ANEMOMETER
AEROSOL	ANESTHESIA
AEROSPACE	ANESTHESIOLOGY
AGE	ANGLE
AGENT	ANGLEDZER
AGGREGATE	ANHYDRATE
AGITATOR	ANHYDROUS
AGRICULTURE	ANIMAL
AID	ANIMALFAT
AILERON	ANNEAL
AIMING	ANNUNCIATOR

Figure 7. PASS MANUFACTURING KEYWORDS

PPIS is seeking a tie to government and has proposed a relationship with PASS to combine capability. This would be a combined private industry and government partnership, but SBA has been coy to Dun and Bradstreet overtures so far. The author believes that a pay-as-you-go arrangement might be feasible for contractors or agencies. At any rate, information systems are expensive, although economies of scale enter when piggy-backed to other systems, such as the Dun and Bradstreet credit reporting system, which is nationwide.

Regarding Flexibility, the information bases of the PASS and PPIS systems are most attractive. Community or region specificity is available with Profile, PASS, VIS, or PPIS. The interactive capability of PASS and PPIS is a further asset. The larger data pools provide more information availability, depending upon the needs of the user.

Regarding Practicality, all the systems are useful. Each can be queried by terminal or by telephone to a terminal location. The number of terminals is limited in each case, except that PPIS can be activated by use of modem, a portable keyboard which is used with a telephone. Modems cost in the vicinity of \$300-\$400. This is a very attractive feature of PPIS, since the expensive dedicated terminals of other systems are not required.

Regarding Capacity, present capacity consists of the number of firms in the system. PASS is the largest and hopes to number 100,000 by the end of 1982. Profile claims 9,000 and is growing slowly. VIS claims 10,000 and is uncertain about future expansion. PPIS has the test base of almost 10,000 but is ready to expand to complement its vast file of small businesses with the data relevant to the PPIS service for small and disadvantaged firms.

Overall, the Dun and Bradstreet PPIS is viewed as the most efficacious system, given the development stage in which it exists at present. Given that PASS is reputed to have cost 3.5 million dollars thus far and that Profile has cost \$400,000 for its progress thus far, PPIS has cost the taxpayer nothing. The expansion of PPIS depends upon some commitment for cooperation with industry or a merger with another system such as PASS. In the opinion of the author, the PPIS system most closely resembles the ideal system to meet the needs of small and disadvantaged firms, as well as companies and agencies who might seek source list enhancement. The PPIS source listing sophistication and versatility meet the objections of most critics of other systems.

Since the Department of Defense conducts over 75% of the buys in the country over \$10,000, Defense is the major target for any system. The relationship of prime contractors to the Defense Department further enhances the role of DOD as the "biggest player in town." Any successful system must have the endorsement of the Defense Department, and Defense is less than enthusiastic about PASS and Profile, while they engage in nominal support. For all practical purposes, VIS is not going to be a factor in the future of vendor systems, but is a notable example of a system which emerged to meet the specific needs of the minority business community, but could not achieve the robustness to compete at a time when clamor for a single system is growing.

5.0 Model for Synthesizing Source System Methodologies

This section will present a model which intends to synthesize the various capabilities into a capacity which will improve the participation of small minority and disadvantaged business in the business climate of the nation. An assumption made in this section is that a merger of the PASS and PPIS systems would provide a prototype mechanism for combining the best of both the leaders in source-listing capability at the present.

Figure 8 illustrates a proposal for combining the efforts of the Small Business Administration and Dun and Bradstreet in a joint effort that capitalizes upon the best of public/private enterprise joint ventures. This will be a conceptual discussion, but the merits of an actual combination possess some appeal. SBA outreach efforts would be combined with the targeted industries identified to expand the Dun and Bradstreet PPIS base. The updated Dun and Bradstreet collection would be enhanced by an annual PASS update and additional data from the Dun and Bradstreet master files. The participation of most business firms in the Dun and Bradstreet credit reporting system provides the identification function that has eluded SBA in expanding its list of participating firms. Practically every business firm is in the Dun and Bradstreet system.

The common data base would be formidable. Common data elements would be: company name, address, phone, contact, number of employees, sales volume, year started, ownership, area served, and export status. PASS could provide its unique data elements of: bonding level, number of engineers, and capabilities (for production). Dun and Bradstreet could add its unique data elements for: labor surplus area, SIC code, Dun's number, payment terms, method of distribution, service offered, large

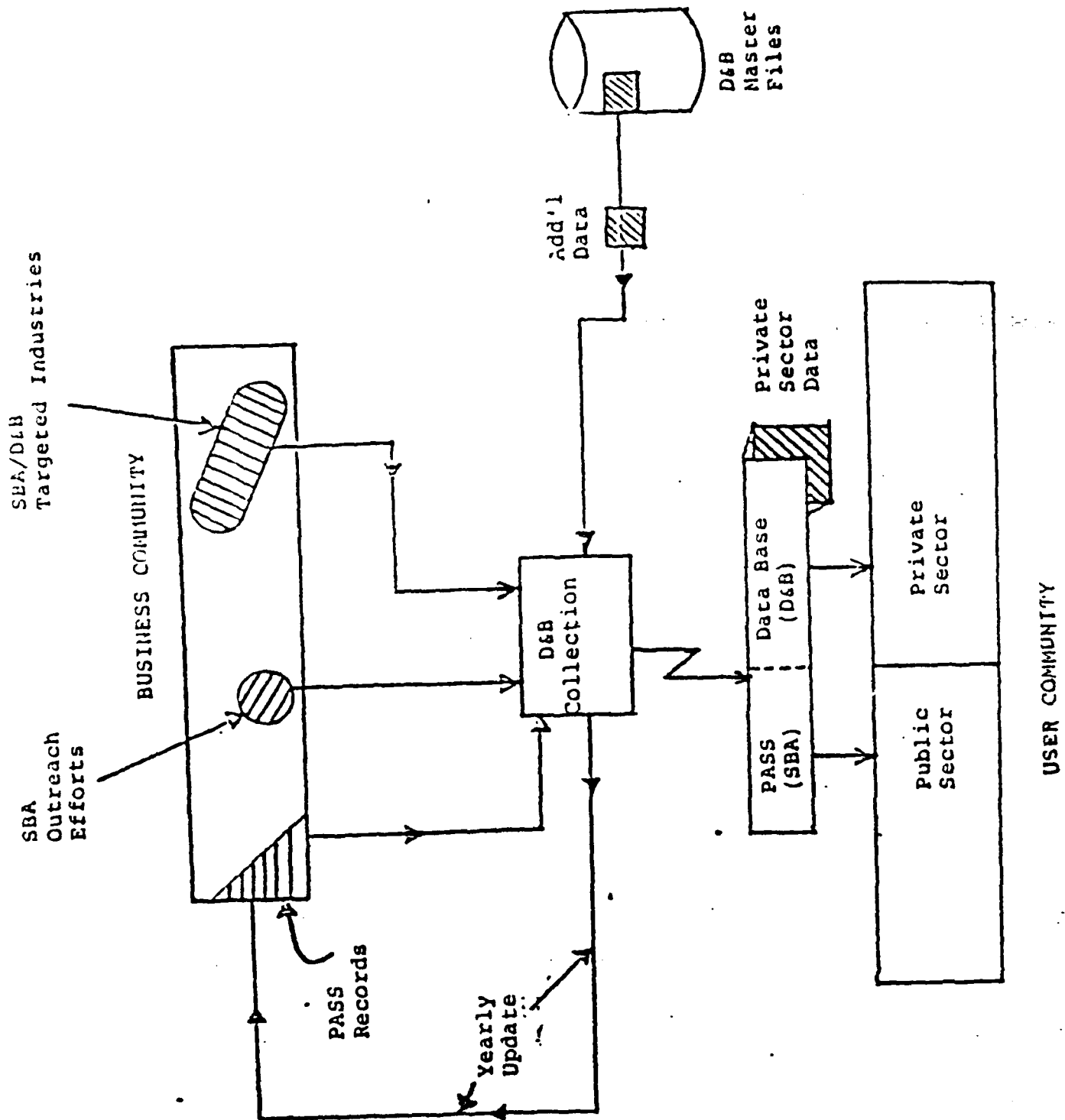


Figure 8. A Model for Synthesizing Source Methodologies.

or small business classification, and location of warehouses. This availability of data would be of considerable value to the user community, be it private or public. Some promotion would enhance the recognition of system availability.

This model highlights several features in the world of contracting opportunities for small and disadvantaged businesses, such as:

- a. Honoring congressional and administration support for small and disadvantaged businesses.
- b. Pressure on prime contractors to comply with public laws that encourage small and disadvantaged subcontracting. This model would enhance prime contractor efforts to improve source listing of new small and disadvantaged businesses.
- c. Capitalizing on the SBA progress on tailoring PASS to small businesses.
- d. Incorporating Profile and VIS data bases into the mode.
- e. Using the experience of Dun and Bradstreet which now serves the private and public sectors with a variety of data and has a national network of offices.
- f. Reducing the burden on government funding by involvement of the private sector.

The SBA would gain from the collection and outreach capability already possessed by Dun and Bradstreet as they would gain by the access of SBA to the small business community.

Promotion has been one of the key challenges in the outreach function for all the source systems. Agressive efforts by Commerce Department, NMSDC,

and SBA have made good starts, but personnel of those agencies have expressed concern over making further penetrations. Workshops, conferences, trade fairs, advertising, and other media efforts have not produced the results desired. Success depends upon the size and quality of the data base. Dun and Bradstreet has the huge data base with capacity for incorporating other data elements of interest to the other source systems.

An obvious conclusion of this study is the advantage to be gained by consolidation of source list efforts, notwithstanding the political and other sensitivities involved in such a merger.

By targeting certain industry groups within the Dun and Bradstreet approach, incremental steps could be taken to incorporate those target groups into the master file in an orderly manner to build a national file. It would be possible also to build regional files. One such option would be to concentrate on the aerospace centers of California and Texas, or the electronics centers of California, the Southwest, and the Northeast. With media support and the good offices of the appropriate industry associations, chances should be good for making strides toward a national data base system.

6.0 Summary

This study has reviewed and evaluated government, industry, and private source listing ventures to ascertain some means for enhancing the involvement of small and disadvantaged business owners to become involved in contracting to a greater extent than the present. The following points are presented in summary:

- a. Increased accessibility of small and disadvantaged businesses to government and industrial contracting is a matter of national concern.
- b. Accessibility depends on small and disadvantaged firms being placed on source lists used by purchasing officers for contracting consideration.
- c. Source list formats have progressed from manual card files to computer-based index files.
- d. Coding of source lists for product or service is done by:
 - 1) Keywords in a vocabulary or index to reflect product or service capability or experience.
 - 2) SIC (Standard Industrial Classification) coding as a numeric (4 to 7 digit) indicator.
 - 3) Federal Supply Code used for services or commodities in the government system.
- e. The Small Business Administration's PASS emerged as a viable system with 100 terminals in use and a data base of nearly 80,000 firms. PASS's chief failing is the inappropriateness of the PASS vocabulary to mesh with commodity needs of purchasers, especially in the Air Force user commands.

Small and disadvantaged firms are well represented by PASS.

- f. The Dun and Bradstreet PPIS (Purchasing and Procurement Information System) is a prototype system and allied to the Dun and Bradstreet business and credit reporting system. It uses coding with SIC codes (7 digit), keywords (inverted file), and Federal Supply Code. This system is terminal or modem accessible with a test data base of almost 10,000 firms thus far. This system was found the most complete in terms of capability. Small and disadvantaged business firms are represented.
- g. The Department of Commerce Profile system is relatively new with 8,000 firms entered. Profile concentrates on small, minority, and disadvantaged firm ownership. Coding is accomplished with keywords and Federal Supply Code. The funding and developmental future of Profile is clouded.
- h. The Vendor Information System (VIS) of the National Minority Supplier Development Council is an effort originally federally funded, but now largely supported privately. Emphasis is on minority firms. Coding is by keywords. The future of VIS is also clouded, but the phenomenon of industry support of a private venture is noteworthy.

This report suggests that the state of the source list science is improving with technology and organization on behalf of incorporating more small and disadvantaged firms into source lists. This report also suggests that a merger of some existing systems would optimize capability and make progress toward a national system to truly enhance the inclusion of small

and disadvantaged firms in government and prime contracting opportunities.

The Dun and Bradstreet system was found to be the most complete, but in a development stage. A merger with the more mature PASS system was suggested.

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- Standard Industrial Classification Manual. Washington: U.S. Office of Management and Budget, 1972.
- Try Us. Minneapolis: National Minority Business Campaign, 1980.
- U.S. Government Purchasing and Sales Directory. Washington: Small Business Administration, 1977.

APPENDIX A

Dun and Bradstreet
Procurement and Purchasing Information System
Sample Inquiry Printout

14.46.34 ON 14APR82.
 CSS.304 11AUG81

PLEASE WAIT WHILE THE SYSTEM DISK IS MOUNTED

SELECT FUNCTION OR HELP FOR ASSISTANCE
 >help

ACQUISITION INFORMATION SYSTEM MENU

OPTION / DESCRIPTION

HELP ... PRINT SYSTEM FUNCTIONS
 LOG LEAVE THE ACQUISITION INFORMATION SYSTEM
 A PRODUCT SEARCH FUNCTION
 B AWARDS INFORMATION BY DUNS NUMBER
 C AWARDS INFORMATION BY FSC4 CODE
 D VENDOR IDENTIFICATION REPORT
 E VENDOR RESPONSE REPORT
 F RFP UPDATE

SELECT FUNCTION OR HELP FOR ASSISTANCE
 >

ENTER ACTION: 1=FSC4, 2=SIC4, 3=KEYWORD OR QUIT>3

ENTER KEYWORD OR QUIT
 >radar and airborne

PRODUCT COUNT	SEARCH CRITERIA
13	FIND RADAR
6	AND AIRBORNE (19)

Joint Category

DISPLAY PRODUCTS (D) OR ENTER NEW KEYWORD (E) OR QUIT

RECORD	PRODUCT	PRODUCT DESCRIPTION
1	3662510	SEARCH AND DETECTION, NAVIGATION AND GUIDANCE SYSTEMS AND EQUIPMENT MISSILE AND SPACE VEHICLE SYSTEMS AND EQUIPMENT (BEAM RIDERS, COMMAND GUIDANCE, INERTIAL SYSTEMS, INFRARED HOMING SYSTEMS, RADAR SYSTEMS, STELLAR TRACKERS, TELEVISION SYSTEMS, COMBINATION SYSTEMS, ETC.) NONMISSILE AND SPACE VEHICLE GUIDANCE EQUIPMENT (GROUND, SHIP, OR AIRBORNE COMMAND GUIDANCE SYSTEMS, ETC.)
2	3662542	SEARCH AND DETECTION, NAVIGATION AND GUIDANCE SYSTEMS AND EQUIPMENT RADAR SYSTEMS AND EQUIPMENT SEARCH DETECTION AND ACQUISITION RADAR SYSTEMS AND EQUIPMENT (BMEWS, AIRBORNE AND OTHER EARLY WARNING RADAR, AIR TRAFFIC CONTROL RADAR, AIR DEFENSE AND FIGHTER CONTROL RADAR, SHIP RADAR, HARBOR CONTROL RADAR, METEOROLOGICAL RADAR, ETC.) AIRBORNE AND MISSILE/SPACE RADAR
3	3662544	SEARCH AND DETECTION, NAVIGATION AND GUIDANCE SYSTEMS AND EQUIPMENT RADAR SYSTEMS AND EQUIPMENT SEARCH DETECTION AND ACQUISITION RADAR SYSTEMS AND EQUIPMENT (BMEWS, AIRBORNE AND OTHER EARLY WARNING RADAR, AIR TRAFFIC CONTROL RADAR, AIR DEFENSE AND FIGHTER CONTROL RADAR, SHIP RADAR, HARBOR CONTROL RADAR, METEOROLOGICAL RADAR, ETC.) SHIP (MARINE) RADAR
4	3662546	SEARCH AND DETECTION, NAVIGATION AND GUIDANCE SYSTEMS AND EQUIPMENT RADAR SYSTEMS AND EQUIPMENT SEARCH DETECTION AND ACQUISITION RADAR SYSTEMS AND EQUIPMENT (BMEWS, AIRBORNE AND OTHER EARLY WARNING RADAR, AIR TRAFFIC CONTROL RADAR, AIR DEFENSE AND FIGHTER CONTROL RADAR, SHIP RADAR, HARBOR CONTROL RADAR, METEOROLOGICAL RADAR, ETC.) GROUND RADAR
5	3662562	SEARCH AND DETECTION, NAVIGATION AND GUIDANCE SYSTEMS AND EQUIPMENT RADAR SYSTEMS AND EQUIPMENT TRACKING RADAR SYSTEMS AND EQUIPMENT (FIRE CONTROL, BOMBING, BOMBING-NAVIGATIONAL RADAR, AIRCRAFT AND MISSILE TRACKING RADAR, ETC.) AIRBORNE AND MISSILE/SPACE RADAR
6	3662570	SEARCH AND DETECTION, NAVIGATION AND GUIDANCE SYSTEMS AND EQUIPMENT RADAR SYSTEMS AND EQUIPMENT INSTRUMENTATION RADAR SYSTEMS AND EQUIPMENT (ALTIMETERS, HIGHWAY SPEED CONTROL RADAR, MISSILE AND SPACE SATELLITE TRACKING RANGE RADAR, GCA AND OTHER PRECISION APPROACH RADAR, ETC.) AIRBORNE AND MISSILE/SPACE AND SHIP (MARINE) RADARS

SELECT RECORD NUMBER(S), ALL OR QUIT

II-62

SIC	NO. COS	KNOWN MFRS.				ALL POSSIBLE MFRS.		
		SB	ED	WD	LS	TOT. COS	SB	LS
3662562	34	14	0	0	10	2,798	2,180	835

SELECT KNOWN OR POSSIBLE MFRS OR SELECT NEW PRODUCTS (K OR P OR S)

DO YOU WISH TO QUALIFY THE KNOWN MFRS TO A SPECIFIC GEOGRAPHIC AREA (Y=N)

WHERE DO YOU WANT THE PRODUCT/SERVICES DELIVERED
(SEE INSTRUCTION SHEET FOR METRO CODES) 059 (BALTIMORE)

SIC	NO. COS	KNOWN MFRS.				ALL POSSIBLE MFRS.		
		SB	ED	WD	LS	TOT. COS	SB	LS
3662562	31	13	0	0	10	2,798	2,180	835

DEPRESS CARTRIDGE RETURN TO CONTINUE PROCESSING OR QUIT

Small Economically Women Labor
Business Disadvantaged Owned Surplus
Area

Small Labor
Business Surplus
Area

PAGE 1

KNOWN COS.	SB	ED	WD	LS
31	13	0	0	10

DO YOU WANT KNOWN COMPANY AWARDS INFORMATION (Y/N)?
 PRINT THE REPORT ON PRINTER OR TERMINAL (P/T)?
 ALIGN PAPER AND HIT RETURN OR TYPE: SETUP OR QUIT

PAGE 1 KNOWN COMPANY AWARDS INFORMATION

DUNS NUMBER: 001018522
 COMPANY NAME: ELECTRONIC SPACE SYSTEMS CORP

CONTRACT NO.: DAAB0777A6533
 BUY.OFF.CODE: OFH02
 BUY.OFF.NAME: SACRAMENTO ALC/PPW MCCLELLAN
 AGENCY NAME: DEPARTMENT OF THE AIR FORCE

(Contract)

CONT. TYPE: J
 CONT. DATE: 81/03
 DOLLAR AMT: 263
 (Thousand Dollars)

CONTRACT NO.: F4160881CA029
 BUY.OFF.CODE: OFF60
 BUY.OFF.NAME: SAN ANTONIO ALC/PPWA KELLY AFB
 AGENCY NAME: DEPARTMENT OF THE AIR FORCE

CONT. TYPE: J
 CONT. DATE: 80/11
 DOLLAR AMT: 75

DUNS NUMBER: 001079219
 COMPANY NAME: SANDERS ASSOCIATES INC

CONTRACT NO.: DAAD0781C0004
 BUY.OFF.CODE: OAD07
 BUY.OFF.NAME: WHITE SANDS MISSILE RANGE
 AGENCY NAME: DEPARTMENT OF THE ARMY

CONT. TYPE: J
 CONT. DATE: 80/10
 DOLLAR AMT: 100

CONTRACT NO.: DAAD0781C0025
 BUY.OFF.CODE: OAD07
 BUY.OFF.NAME: WHITE SANDS MISSILE RANGE
 AGENCY NAME: DEPARTMENT OF THE ARMY

CONT. TYPE: U
 CONT. DATE: 81/02
 DOLLAR AMT: 26

CONTRACT NO.: DAAM0181CA025
 BUY.OFF.CODE: OAH01
 BUY.OFF.NAME: HQS USA MSL COMD REDSTONE ARSE
 AGENCY NAME: DEPARTMENT OF THE ARMY

CONT. TYPE: J
 CONT. DATE: 81/03
 DOLLAR AMT: 296

CONTRACT NO.: DAAM0181C0017
 BUY.OFF.CODE: OAH01
 BUY.OFF.NAME: HQS USA MSL COMD REDSTONE ARSE
 AGENCY NAME: DE>>KT

CONT. TYPE: U
 CONT. DATE: 80/10
 DOLLAR AMT: 350

>CON Print-out Stopped
 ENTER BID OPENING DATE>445566
 INVALID RESPONSE
 ENTER BID OPENING DATE>041532

RFP RECORD CURRENTLY EXISTS, FIELDS ARE BEING REPLACED

REPORT 1, REPORT 2, REPORT 3, LABELS (1,2,3,L) OR QUIT>

PRINT THE REPORT ON PRINTER OR TERMINAL (P OR T)>>
ALIGN PAPER AND HIT RETURN OR TYPE: QUIT>

KNOWN SUPPLIER OF PRODUCT(S):
3662562

Profiles

DUNS NO	NAME (PRIMARY)	SB	ED	WD	LS
001013522	ELECTRONIC SPACE SYSTEMS CORP	Y	N	N	N
001079219	SANDERS ASSOC INC	N	N	N	N
001396068	DUFFY ELECTRONIC & MFG CO INC	Y	N	N	Y
001405315	DIAMOND ANTENNA & MICROWAVE	Y	N	N	N
001405844	GTE PRODUCTS CORPORATION DEL	N	N	N	N
002012409	PRECISION MACHINE CO INC	Y	N	N	N
002041242	HAZELTINE CORPORATION	N	N	N	N
002248185	CREATIVE ELECTRIC INC	Y	N	N	Y
002342434	ROA/CENT BID REGISTER	N	N	N	N
002522910	MILCON INCORPORATED	Y	N	N	Y
007318306	E-SYSTEMS INC	N	N	N	N
007321912	TEXAS INSTRUMENTS INC	N	N	N	N
008398786	GOODYEAR AEROSPACE CORPORATION	N	N	N	N
019499284	ATLANTIC MICROWAVE CORPORATION	Y	N	N	N
030239412	LITTON BUSINESS SYSTEMS INC	N	N	N	N
031899222	H & F PRODUCTS INC	N	N	N	N
041330077	FORD AEROSPACE COMM	N	N	N	N
048500789	SYSTRON DONNER CORP	N	N	N	Y
048581763	COMMUNICATION DIV	N	N	N	Y
049693393	MARCONI AVIONICS INC	Y	N	N	N
053499950	U B CORP	Y	N	N	N
053702072	APPLIED DEVICES CORP	N	N	N	N
053870168	RESDEL ENGINEERING CORPORATION	N	N	N	Y
054139506	ISCE/ELECTRONICS	Y	N	N	N
059106484	CINCINNATI ELECTRONICS CORP	N	N	N	Y
059215319	GAMMA-F CORP	Y	N	N	Y
060897063	HUGHES AIRCRAFT CO/CORP MKTG	N	N	N	Y
066885674	REX SYSTEMS INCORPORATED	Y	N	N	N
071713798	ADAMS-RUSSELL CO INC	N	N	N	N
093633352	GENERAL SIGNAL CORPORATION	N	N	N	N
099093643	C W S INDUSTRIES INC	Y	N	N	Y

REPORT 1, REPORT 2, REPORT 3, LABELS (1,2,3,L) OR QUIT>

END