

NAVAL POSTGRADUATE SCHOOL
Monterey, California



THESIS

**MARKET RESEARCH IN THE UNITED
STATES NAVY: A STUDY OF THE SKILLS
AND TOOLS REQUIRED TO CONDUCT
MARKET RESEARCH**

by

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December 1996

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THE SKILLS AND TOOLS REQUIRED TO CONDUCT MARKET
RESEARCH**

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B.S., United States Naval Academy, 1987

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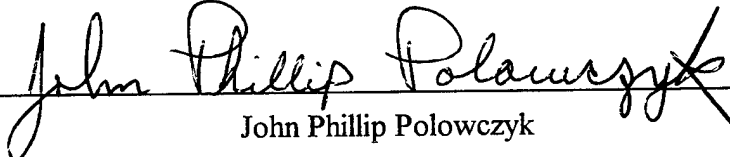
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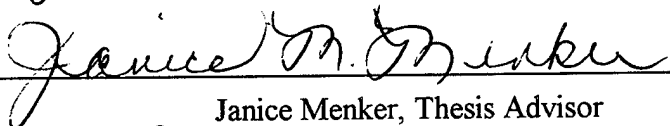
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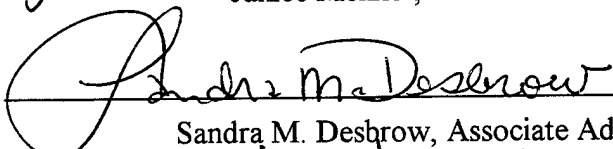
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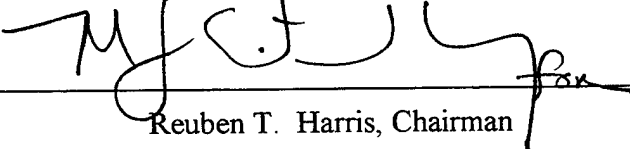
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ABSTRACT

This thesis investigates the underlying policy guidance and the current skills and tools used in conducting market research within Department of the Navy procurement activities, and will explore the potential for future improvement in the market research process. The process of market research is explored by establishing what types of information are collected, who is collecting the information, and what tools and skills are currently utilized to both collect and analyze market information. This thesis also examines the application of Information Technology to the market research process.

Market research is an essential part of advanced procurement planning and the procurement process. Detailed market research provides the procurement workforce with information in order to make better and more informed procurement decisions. New legislation has targeted market research as a tool to examine the commercial marketplace. This thesis examines the workforce perceptions in the market research process as well as recommendations on how the Department of the Navy might best improve the market research process.

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I. INTRODUCTION

The Competition in Contracting Act (CICA) of 1984 set forth that executive agencies must when, "...planning for the procurement of property or services, use advance procurement planning and market research..."(Conyers, 1985, pg.3). CICA, coupled with the additional procurement reform legislation of both the Federal Acquisition Streamlining Act (FASA), of 1994, and the Federal Acquisition Reform Act (FARA), of 1996, place an increased significant degree of emphasis on the conduct of market research. The FASA and FARA provide for many streamlining exceptions for the acquisition of commercial items thus providing incentives for agencies to acquire commercial items. This new emphasis on commercial items accentuates the requirement that procurement activities understand the commercial marketplace in greater detail and perform detailed market research.

Market research is the process by which an activity collects and analyzes information about a specific industry, product, commodity, or commercial entity to make better procurement decisions. Much of the literature expresses the benefits of effective market research to include some of the following (Fearon, pgs 12-22):

- increased competition
- identifying new sources of supply
- drafting better statements of work
- improved product quality
- lower prices
- identification of new products

Market research is an integral part of the procurement process with the need and the benefits documented in the literature; however, there is no specific literature on how procurement professionals are to conduct this task. Market research is performed by

individuals with varying degrees of educational experience and knowledge. The identification and discussion of the skills and tools required to perform market research will aid procurement professionals by establishing a framework for both conducting market research and documenting a procedural model. This thesis will explore the tools and skills necessary for procurement professionals to conduct detailed market research at Department of the Navy (DON) procurement activities, and how new Information Technologies (IT) can facilitate the market research process.

A. RESEARCH QUESTIONS

1. Primary Question

What tools and skills are required by procurement professionals in order to conduct market research in DON procurement activities and how can new Information Technologies (IT) be used to aid in this process?

2. Subsidiary Research Questions

- a. How is market research currently being conducted and how are the results currently being used in DON procurement?
- b. What tools and skills are currently being employed to conduct market research in DON procurement and who is conducting the research?
- c. What tools and skills are currently being employed to conduct market research in commercial purchasing offices and who is conducting the research?
- d. What are the differences and similarities between DON and commercial companies in the market research process?
- e. In what aspect of the market research process would IT be useful?

f. Will the inclusion of IT to market research cause additional problems? If so, what are those problems?

g. How would DON procurement professionals benefit from the increased use of IT in the market research process?

B. SCOPE, LIMITATIONS AND ASSUMPTIONS

The areas examined are limited to DON procurement activities. The study is a focus on the procurement functions at system commands, Fleet and Industrial Supply Centers (FISCs), inventory control points, and field contracting activities. This study also explores the similarities and differences in the market research process at commercial purchasing offices and DON activities. The purpose of this research is to identify the key tools and skills required to perform market research. While an understanding of the market research process will be presented to familiarize the readers with the philosophy of market research, the focus of this paper is to identify the tools and skills procurement professionals need to support the procurement function.

The researcher assumes the reader has a basic understanding of the Federal procurement process and basic knowledge of market research. This thesis does not attempt to explain the procurement process, but rather to expand on specific requirements to perform the function of market research within the procurement process.

C. BACKGROUND

Market research, a necessary beginning to the procurement process, became important with the passage of CICA. The CICA emphasis was promoting competitive procurements and established the need for an agency to perform advanced planning for

procurements. Prior to CICA the Defense Acquisition Regulation, previously known as the Armed Services Procurement Regulation, required DOD activities to conduct advanced procurement planning. (Mounts, Sep 96)

The FASA now requires agencies to conduct market research before developing new specifications for a procurement and soliciting bids and/or proposals for a contract exceeding the simplified acquisition threshold of \$100,000. It does not however, preclude the use of market research below the statutory limit. Additionally, FASA requires agencies to use the results of market research to determine whether commercial or Nondevelopmental Items (NDI) can fill an agency need. It appears, based on the specific statutory language, that the intent of FASA is to perform cost/performance tradeoffs to fill agency needs with items that are either NDI or commercial. (NCMA FASA Handbook, 1994)

Because of the legislation agencies have begun to understand the benefits of market research to Federal procurement. These have included the identification of potential new sources and increased competition and lower prices. Currently market research is not performed at the agency level, but is the responsibility of an individual procurement specialist who is tasked with the complete procurement function. Thus, it is imperative that these officials have the correct knowledge and skills in their repertoire and are provided the specific tools to collect and analyze market research information. If the combination of knowledge skills and tools are incorrect then a agency may not be conducting market research to fulfill the requirements of FASA and other legislation.

D. ORGANIZATION OF THE STUDY

Chapter I of this study provides the research questions used to investigate market research. Chapter I additionally provides background on market research to include a discussion of the scope, limitations and assumptions made for this study.

Chapter II of this study outlines the research methodology used during the literature search, oral interviews and the development of the survey. Chapter II also details the survey procedure used and the purpose of the survey in this study.

Chapter III of this study provides a detailed framework of the current organizational structure towards market research in the Department of Defense. Chapter III also outlines an industry example of organization structure towards market research.

Chapter IV is the discussion and analysis of the survey results from this study on the tools and skills needed to conduct market research. Additionally Chapter IV provides a comparison between industry and Government survey results.

Chapter V of this study provides discussion and analysis towards the application of information technology to aid in conducting market research. Chapter V focuses on a information technology tools such as the Internet to facilitate the market research effort in the DON.

Chapter VI of this study presents the conclusions and recommendations generated by this research. Chapter VI also provides areas for further research on the topic of market research.

II. METHODOLOGY

A. RESEARCH METHODOLOGY

This thesis research included three areas: a literature search, a written questionnaire, and oral interviews. The comprehensive literature search examined the current market research process both in the private and public business sectors. The literature search included the Defense Logistics Studies Information Exchange, the Defense Technical Information Center, Internet, public libraries and the Federal Acquisition Regulation (FAR). The benefits of the market research process were documented by several works discussing market research performed by American industry. These works laid the foundation for the understanding of the market research process and the benefits that detailed market research has provided the commercial sector. However, there was a lack of written literature concerning the market research process in Federal procurement.

Interviews were conducted with limited numbers of Government procurement officials due to the relative distance and lack of available travel funding. Several phone interviews were conducted and generated a deeper understanding of the market research process at DON activities. Phone interviews were also conducted with commercial industry purchasing officials. Industry interviews were used to expanded the researcher's knowledge base on the strategic use of market research by private companies.

A written questionnaire was developed and distributed to procurement staffs in Federal Government, state Government, and commercial firms. The survey was distributed to these activities to generate all possible information on market research and procurement.

This survey provided additional information to help establish the current market research process, tools being employed, skills required, and potential benefits of IT to market research. A singular questionnaire was developed to capture information from contracting officers, heads of procurement activities and procurement specialists who perform market research. The same questionnaire was used by both Government and commercial activities in order to facilitate comparison of the data.

B. DESCRIPTION OF SURVEY

The purpose of the survey was to broaden this researcher's knowledge of the market research process and collect information on both the skills and tools currently being used by the workforce. The survey asked questions about various facets of market research and the process. The questions were developed after interviews and literature searches on market research. There is a significant lack of written information on the skills or tools required to both collect and analyze market research information.

1. Survey Question Development

Survey questions were developed to facilitate the understanding of market research and gather data on the current skills and tools being used to conduct market research. The survey design was structured to differentiate data from opinion.

The survey provided a definition of market research to establish a baseline and gather data on common definitions. Space was left after the definition for respondents to provide comment and discussion. Questions were developed to gather information on various topics

including:

- Current skills and tools used in collection and analysis of market research information
- Definition of market research
- Types of information collected during market research
- Goals of market research at an activity
- How an activity is organized towards market research
- Opinion on uses of the Internet and IT in the market research process

The researcher developed these topics after the literature review, and discussions with industry, and Government. These topics were used to provide the researcher with data to answer subsidiary research questions and to understand the market research process in its current state.

Since there is a lack of background in the area of tools and skills required to conduct market research, the researcher presented in the survey representative tools and skills that one would use to collect and analyze data and information during any research project. This was done to help establish a wider set of possible tools and skills to ensure respondents were provided sufficient choices. Again space was left after questions for comment and inclusion of additional information by respondents. Two literature sources were used to gain knowledge of research methods. These were *The Business Research Process*, 1974, by George Kress and *The Research Process*, 1993, by Gary Bouma. These references provided information on different research methods including marketing, product, and scientific research. Questions were developed after reading these books on research methodology. These works enabled the researcher to draft survey questions that contained many of the principles used during collecting and analyzing any type of research information.

2. Survey Procedure

The survey was in accordance with techniques of written questionnaires as outlined in *Survey Questions: Handcrafting the Standardized Questionnaire*, 1986, by Jean Converse. This reference aided the researcher in both construction of questions and structure of the questionnaire. (Converse, pgs 3-58)

The survey, once drafted, was given to a Government agency and commercial activity for comment. Comments were used to ensure each question was clear and understandable from both commercial and Governmental views. Once these comments were incorporated the survey was mailed to selected activities.

The survey activities were selected by the researcher to ensure that a broad spectrum of activities were represented. Factors included for Government activities were: size of contracting activity (large and small), type of activity (regional contracting or specific support), and diversity of commodities procured. The size of an activity was based on both the contracting volume and numbers of contracting professionals employed.

Commercial activities were randomly selected from the data base of the National Association of Purchasing Managers (NAPM) by Standard Industrial Classification (SIC) Code. A selection of codes was used to represent a diverse group of procurement activities, they were:

- 35 - Machinery
- 36 - Electronic and electrical equipment
- 44 - Water Transportation
- 48 - Communication Equipment
- 91- Executive, Legislative, and General

The survey was mailed to a total of 200 procurement activities in the Government

including other military Services' procurement offices, DON procurement offices, and industry. The mailed surveys consisted of: an introduction cover letter, a copy of the survey found in Appendix A, and a return self-addressed stamped envelope. The return self-addressed stamped envelop was provided to facilitate survey response. The Government and DON activities were contacted by phone prior to mailing the survey to facilitate a response from each activity. Commercial activities were mailed the survey without any prior contact.

The survey was directed towards contracting officers, heads of procurement activities, and procurement specialists. This selection was done to gain information from the procurement work force. The researcher believed this group to be the primary agent to conduct market research in the procurement process .

III. MARKET RESEARCH IN DOD: THE ORGANIZATIONAL STRUCTURE

Market research is a complex and detailed process, most often performed by procurement professionals. This section establishes the organizational framework of the procurement process to support the conduct of market research.

A. ORGANIZATIONAL STRUCTURE

This section discusses organizational issues associated with the current framework of market research and the organizational theory behind the DOD and DON structures.

The organizational structure found in DON for market research is described best by Henry Mintzberg in his book *The Structure of Organizations*, 1979. In this work Mintzberg characterizes the organization as a "Machine Bureaucracy". (Mintzberg, pg 635)

The present organizational structure with the clear lines of command, regulation, and policy direction is similar to what Mintzberg calls a "Machine bureaucracy".

These types of organizations have attributes such as: highly specialized, routine operating tasks, very formalized communication throughout the organization, large size operating units, reliance on functional basis for grouping tasks, relatively centralized power for decision making, and elaborate administrative structure with a sharp distinction between line and staff. (Mintzberg, pg 635)

Many of these common attributes can likewise be seen in the DON procurement organization. This structure is organized with a strategic apex and a considerable technostructure and operating core. The top managers are the only generalists in the structure, the only managers with the broad perspective to see all the functions. The apex is a centralized structure where clearly, the formal power resides. (Mintzberg, pg 638)

The technostructure is the supporting staff consisting of analysts, schedulers, planners, budgeters, accountants, researchers, and others whose job it is to standardize or regulate the procedures for the operating units (Mintzberg, pg 636).

The operating core and middle line managers are provided with standardized procedures to conduct the immediate task. Tasks are highly formalized and enable middle line managers to have large spans of control. (Mintzberg, pg 635)

This structure causes the organization to focus on control - controlling the process to affect the outcome of products and service.

Many government departments such as post offices and tax collection agencies, are machine bureaucratic not only because the work is routine but they are also accountable to the public for their actions. Everything they do --treating clients, hiring employees and so on must be seen as fair and so they proliferate regulations to control. (Mintzberg, pg 680)

With Mintzberg's framework, one can see how the Secretary of Defense provides the strategic apex and the supporting acquisition staff provide the required technostructure. The procurement specialists in the operating core are conducting procurement functions underneath this organizational control; organizational control necessary to meet the statutory and regulatory mandates for the conduct of market research. (Roberts, Nov 96)

B. REQUIREMENT TO CONDUCT MARKET RESEARCH

The acquisition cycle begins with the identification of an agency need and acquisition planning. FAR Part 7 details the procedures for acquisition planning and defines it as:

The process by which the efforts of all personnel responsible for an acquisition are coordinated and integrated through a comprehensive plan for fulfilling the agency need in a timely manner and at a reasonable cost. It includes

developing the overall strategy for managing the acquisition. (FAR Part 7.101)

Within this context of acquisition planning, market research is an integral element. It is the policy of the Federal Government to conduct acquisition planning and market research to identify and acquire commercial or Nondevelopment Items. (FAR Part 7.102)

Market research is a statutory mandate from Title 10 United States Code section 2377. Because market research is a statutory mandate and an integral part of acquisition planning, the procurement workforce must perform this function.(10 U.S.C.,2377)

There is case law to illustrate the effects of loose or faulty acquisition planning and market research. One case of inadequate market research described as a fatal defect by Cibinic and Nash in *Competitive Negotiation: The Source Selection Process, 1993*, is representative of this effect. In *K-Whit tools Inc*, Comptroller General Decisions B247081, 92-1, the agency did not perform adequate market research to identify all possible sources available to meet an agency need. The Comptroller held that the failure to conduct a detailed market survey indicated that the need to contract sole source was due to a lack of advance planning and was unauthorized. (Cibinic and Nash, pg 12)

The requirement to conduct market research is both mandated in statute and regulation. Market research is a meaningful and necessary part of the acquisition cycle. The next several sections detail the environment in which DON procurement specialists work in order to perform market research.

C. OSD AND MARKET RESEARCH

This section outlines how the organization is structured with regard to conducting market research and providing policy and guidance to the workforce. It is important to conceptualize the current organization to understand the interaction and support for market research through the different organizational levels. This knowledge will allow for discussion of the tools and skills appropriate for the current environment.

1. Organization

As with any large bureaucratic organization, the strategic apex of the organization, in this case the Office of The Secretary of Defense (OSD), provides the vision for the supporting infrastructure. (Mintzberg, pg 641) Acquisition policy and guidance is provided by the Under Secretary of Defense for (Acquisition and Technology). It is primarily within this office that policy and principles about market research are provided to the DOD infrastructure. An additional organization exists within OSD to facilitate commercial products and standardization. This office is outside the acquisition framework and resides in the Office of the Deputy Under Secretary of Defense (Industrial Affairs & Installations). This office promotes the requirements of commercial items and NDI that are contained in both FASA and FARA. (Mounts, Sep 96)

These organizations provide both policy and guidance to the DOD procurement structure about commercial practices and products. They do not collect or analyze market research information but rather act as a focal point to ensure that correct policy and procedures are established to facilitate the market research functions at the lowest level. (Mounts, Sep 96)

2. Policy

Within OSD, policy on market research is specified in several key documents that range from broad concepts to specific guidance on how to perform market research. This section will outline these policies and documents to acquaint the reader with how OSD is involved in the market research process.

While the FAR specifies acquisition policy for the Federal Government, OSD further refines and delineates that policy for DOD activities. The overarching policy document providing both mandatory and discretionary guidance for major system acquisitions is the DOD 5000 series. These documents provide the policy about acquisition strategy. The DODR 5000.2-R Mandatory Procedures for Major Defense Acquisition Programs and Major Automated Information Systems Acquisition Programs directs the Program Manager (PM) to incorporate market research into the acquisition strategy throughout the procurement process. This section specifically states:

Market research and analysis shall be conducted to determine the availability and suitability of existing commercial and non-developmental items prior to the commencement of a development effort, during the development effort, and prior to the preparation of any product description. The PM shall define requirements (including hardware, software, standards, data, and automatic test systems) in terms that enable and encourage offerors to supply commercial and non-developmental items and provide offerors of commercial and non-developmental items an opportunity to compete in any procurement to fill such requirements. (DODR 5000.2-R, para 3.3.1.1)

Program managers must ensure that market research is being conducted to facilitate the incorporation of commercial items and/or NDI into complex weapon systems. While it is true that few commercial items can fill the agency need at a system level, the above policy

ensures that program managers incorporate commercial and NDI into acquisitions at the component or subsystem levels during the development of an agency requirement documentation.

The workforce additionally finds detailed policy from OSD in two references; *Standardization Handbook 2 (SD-2) Buying Commercial & Nondevelopmental Items: A Handbook*, and *Standardization 5 (SD-5) Market Analysis for Nondevelopmental Items*. These documents delineate detailed planning and procedures with regard to the acquisition of commercial items. The SD-2 is a "Handbook" published by the Office of the Under Secretary of Defense (Acquisition and Technology) (OUSD(A&T)) which reflects overall policy guidance for buying commercial items and NDI. This handbook emphasizes the need for procurement planning and acquisition strategy for commercial and NDI items. The SD-2 outlines a two-step process consisting of market surveillance and market investigation. OSD outlines market surveillance as defined in SD-2 as:

Market surveillance is the continuing effort by acquisition and developmental activities to remain abreast of advances, changes and trends within their commodity areas. These activities must monitor marketplace activities, as well as technologies and products with potential for DOD use. (SD-2, pg 18)

The OSD wants both procurement and technical personnel to take part in a continuous monitoring of the commercial market place to be able to incorporate commercial or NDI into acquisition strategies. The second aspect of market research as prescribed by OSD is market investigation. Market investigation is the detailed specific evaluation of an item or items to fill an agency need. (Metz, Sep 96)

The OSD additionally puts forth an emphasis for commercial items and market research through its commercial Advocates Forum World Wide Web (WWW) page. This forum provides online access to policy documents, suggested practices, and search tools to aid the acquisition workforce in accomplishing the task of buying commercial items or NDI. (Mounts, Sep 96)

It can be concluded from the review of the many policy documents that OSD envisions that both technical and procurement personnel who perform this two-step process accomplish the statutory guidance contained in FASA and other legislation. OSD policy and guidance on market research, as reflected in the definitions, potentially limit the procurement personnel to engage only in market research to identify commercial items to fill agency needs. Many believe that as more and more commercial buys are undertaken with the above guidance the procurement workforce will become knowledgeable concerning the marketplace and thus make better use of all the market data they collect. (Metz, Sep 96)

3. Planning

OSD is an organization providing strategic guiding principles for the individual Services. It is this organization that provides overarching guidance on how the individual Services perform their mission. For the acquisition workforce, the DODR 5000 series provides a concise policy framework for major systems or for those items falling within the dollar and responsibility thresholds. This section will outline the role of OSD, as currently organized, to act as a strategic planner for market research.

Within any organization, senior leaders need to provide a vision and guidance for the organization. The OUSD(A&T) provides guidance to the DOD procurement workforce.

This office is responsible for many functions with regard to strategic management but currently does not provide a detailed and specific plan for market research to the entire DOD work force. It does, however, through its policy issuances discussed previously, provide the needed guidance to the individual Services. The OSD does not provide planning on which commodities, industry, or contracts will receive detailed market research. (Mounts, Oct 96)

4. Conducting

Currently there is no agency organized to collect or analyze market research information at this level. Policy and guidance have taken the forefront of OSD management. The role of OSD as viewed by many in the procurement workforce is to provide the enabling devices to accomplish the needs of individual agencies. These enabling devices are normally in policy and guidance. Perhaps the only aspect that this strategic level can provide which appears to be lacking is a means to help disseminate market research information between Services and procurement agencies. (Mounts, Oct 96, Gaudio, Sep 96)

D. DON AND MARKET RESEARCH

This section focus on the Secretary of the Navy policy towards market research. The importance of this section is enhanced by the lack of refinement of OSD guidance within the DON structure.

1. Organization

The organization apparatus for market research within DON is geared towards providing policy and guidance much akin to OSD. With the passage of FASA, DON

established a commercial advocate within the office of the Competition Advocate. This office provides dual guidance promoting commercial usage and competition. Currently for the Navy, this office resides in the Deputy for Acquisition and Business Management in the Office of the Assistant Secretary of the Navy (Research, Development & Acquisition) (OASN(RD&A)).

This office does not identify, collect, or analyze market research information, but provides Navy policy and guidance to the procurement workforce at the subordinate activity level. Currently no organization exists at this strategic level to perform market research in any detail. (Mcanich, Sep 96)

2. Policy

The DON agency level policy guidance on market research is limited. One would expect to find refinement or additional direction from an agency head to DON acquisition personnel. The workforce is provided with many significant and well-defined procedures, policy, and guidance from the FAR and OSD handbooks. Currently no specific policy document by the Secretary of the Navy exists with regard to market research. (Winston, Oct 96)

An interview with the current DON commercial advocate, RADM M. Sullivan, provided additional insight into this lack of information. RADM Sullivan believes that there should be no formally directed approach to market research at the DON level. RADM Sullivan stated:

The role of the commercial advocate is not to force DON policy towards market research on the workforce but rather to enable this workforce to be able to conduct this research to meet the identification of commercial items. (Sullivan, Sep 96)

RADM Sullivan expressed that there was already significant policy towards market research, and agency procurement officials did not need additional oversight.

3. Planning

Similarities exist between OSD and DON strategy to plan for market research. At this intermediate level of management, no formally structured plan to facilitate market research or provide policy is evident at the Secretary of the Navy level. (Sullivan, Sep 96, Winston Oct 96)

4. Conducting

The DON organization maintains a level of policy and oversight. No particular office within the Secretary of the Navy or Assistant Secretary (RD&A) collects or analyzes market research information. (Metz, Sep 96; Sorber, Sep 96; Winston Oct 96)

E. DON PROCUREMENT ACTIVITY AND MARKET RESEARCH

This section will acquaint the reader with an understanding of Navy procurement activities and market research. This is to provide additional insight into how procurement officials are prepared to conduct market research.

1. Organization

The organization structure of procurement offices at Navy activities varies with the

size and scope of the procurement organization. The three most common approaches to organizing offices in order to conduct market research are a full-time staff, buyer responsibility, or a combination of technical personnel and buyers.

The researcher found that the most common approach within a Navy procurement office was individual buyers performing market research or a market survey on an individual procurement. These buyers rely on technical personnel to analyze the technical information. Many organizations establish a dollar threshold; if the expected procurement meets the threshold then the combination of buyer and technical analyst is used. Thus this approach, using the buyer's business skills combined with a technical engineering skill, is necessary to accomplish market research at the same activities. (Various interviews and Survey Data)

Some procurement offices at an activity use the resources of the Small and Disadvantaged Business Utilization Specialist (SADBUS), relying on this office to provide information on the capabilities of new sources. The offices using this approach were found to rely on individual buyers to make an analysis of the information presented by the SADBUS. (Cottongim, Sep 96)

2. Policy

No specific policy or direction exists at Navy activities. Many activities incorporated FAR references and OSD documents into activity policy statements. However, no unique or substantially different policy statements were discovered during the research process. (Various interviews and Survey Data)

3. Planning

Most DON procurement activities require each buyer or procurement specialist to plan and conduct market research. Individual buyers utilize the guidance and policy documents from the FAR and others previously discussed. Buyers understand the requirements to conduct market research based on regulations and any activity - generated, unique planning documents. This is consistent with the organizational structure found at most procurement activities. DON procurement specialists rely on the user or requirements generator to provide basic guidance as to potential sources and to provide a commercial orientated statement of work or specification. Technically competent users must draft requirements documentation so as to allow for competition by commercial firms in accordance with FASA and FARA. Because of this requirement, users must have an understanding of the technology and capabilities present in the commercial marketplace. (Scarpa, Oct 96)

4. Conducting

This section outlines how a typical DON procurement agency conducts market research. A detailed step-by-step process will not be presented. No general or specific procedure was found throughout procurement offices to build a specific agency procedure common to all offices. Many agencies and contracting officers interviewed use a variety of methods based on the needs of a procurement. The most common thread among offices regarding market research is the flexibility with which market research is employed to accomplish a variety of objectives based on the requirements of that activity and the nature

of the individual procurement. (Mcanish Sep 96, Owens Sep 96)

The procurement activity currently collects and analyzes market research information. These offices use a variety of methods to determine the extent of market data needed to accomplish a given procurement. Many of the policy and guidance documents have been previously discussed. Due to the fact that there is no singular formula or "cook book" approach for market research, this section will outline some of the current methods available and in use by DON procurement activities.

a. Collection Methods

Many activities follow the guidance of the FAR and other handbooks previously mentioned. The below collection methods list is a consolidation of guidance documents. Not all of these methods are used for every procurement but are used as necessary for a given procurement action or situation. (FAR Part 10, DAD, SD-2 and SD-5)

- Contacting knowledgeable individuals in Government and industry regarding market capabilities to meet requirements
- Publishing formal requests for information in appropriate technical or scientific journals or business publications
- Obtaining source lists of similar items from other contracting activities or agencies, trade associations, or other sources
- Reviewing catalogs and other generally available product literature published by manufacturers, distributors, and dealers or available on-line
- Conducting interchange meetings or holding presolicitation conferences to involve potential offerors early in the acquisition process
- Use of automated data bases
- Use of a market survey to specific companies to gather information.
- Use of the Commerce Business Daily (CBD)
- Use of Government contract information data bases
- Site visits to industry locations
- Hold industry conferences to broadcast agency's future needs
- Internet searches
- Use of Electronic Data Interchange (EDI) and the Federal Acquisition Commerce Network (FACNET)

These collection methods are varied and provide a wide range of information that can be collected in tremendous amounts. The methods used can vary in accordance with activity established guidelines. FAR Part 5.101 "Methods of Disseminating Information" stipulates how contracting officers make contract actions accessible to the public. One such method is the CBD announcements of contract actions. Some agencies use CBD announcements as their only tool and conduct no other form of market research. This displays the wide variety of effort towards market research currently at the activity level.

(Various interviews)

b. Types of Information Collected

The types of information collected again varies much according to the needs of the acquisition. Many activities interviewed collected information on potential sources only; others collected many different types of information for a given procurement. The below list is a summary of the types of information that activities are seeking to collect during market research:

- Technology available in the marketplace
- Capabilities of the marketplace
- Production capabilities of given industries or suppliers
- Customary terms and conditions in a particular marketplace
- Marketplace environment (Example: Union vs non-union labor)
- Production or manufacturing processes descriptions
- Demand for a product or service within an industry
- Potential new technologies that are applicable to your procurement
- Past performance of potential contractors
- Quality of potential contractor's supplies or services
- Identify potential new sources for a particular product or service
- Assessing the production capacity of a given industry or of a specific potential contractor
- Assessing production capabilities for an industry or a specific potential contractor

- Assess the labor relations within an industry or potential contractor
- Financial data concerning a potential contractor
- Market share for a given industry with regard to participants
- Define a market price
- Establish general market data such as labor and overhead rates
- Availability of commercial products for a military requirement
- Understating applicable new technology in the commercial marketplace for potential sources of military items
- Understanding trade relations that can affect sources of supply, price, and/or demand for products and services within a given industry
- Establish general economic trends and data
- Why solicitations did not generate competition
- Size of an individual business
- Types of warranties inherent to a given industry or product
- Extent to which transportation or distribution of a product is available
- Quality control systems and procedures for potential contractors
- Extent to which there is configuration control and maintainability within the commercial marketplace for a given product
- Maturity of a product or service
- Pace in which new technology transforms a given product or service over time. (Various interviews, SD-2, SD-5, FAR Part 10)

Not all of these types of information are collected at each activity for any particular acquisition. This list is a summary of the types of information that DON activities agreed were useful to the procurement workforce during the entire procurement process.

c. People Involved

Market research in a detailed sense involves many different people. Procurement activities without the requirement generating activity internal to the organization like a FISC or regional contracting center relies on the user to provide substantial information on the capability of the commercial marketplace. On the other hand, a large multi-structured systems command like the Naval Sea Systems Command (NAVSEA) can incorporate technical personnel from engineering, logistics, and the user community during the entire

procurement process. It is clear from interactions with procurement activities, the personnel involved in market research differed from activity to activity. (Various interviews)

The commonality amongst all activities was the involvement of the procurement workforce and contracting officers in the process. This fact is important to note since many activities are organized to have each buyer conduct research as needed for the procurement and thus must have the appropriate tools and skills to perform effective market research.

d. Documentation of Effort

Collection of the information into a useful medium to report/document market research typically has also been a problem. No specific automated system or formatted report was discovered for the particular task of reporting market research. The FAR 10.002(b)(e) delineates that agencies must document their market research results as appropriate for the size and complexity of the acquisition. This section of the FAR does not specify what is required and grants significant latitude to the contracting officer. Additionally, FAR Part 7 addresses the acquisition plan and the requirements to conduct and document market research. The FAR Part 7 states:

Address the extent and results of the market research and indicate their impact on the various elements of the plan. (FAR Part 7.105)

Below is a possible list of topics that may be included in such a report. This list was generated by the researcher based on the requirements of FAR Part 10, literature, and interviews:

- Background on the acquisition
- Identification of who participated in the research effort

- Discussion of the agency's need. This discussion could be orientated towards identifying tradeoffs needed to incorporate commercial items
- Description of the research methods and information sources used
- Summary of industry sources or contacts
- Summary of commercial terms and conditions included or found during the research that apply
- Summary conclusions of the research (FAR Part 10, various interviews)

F. INDUSTRY AND MARKET RESEARCH

This section outlines a singular company's approach towards market research. One large multilayered and structured organization was chosen to present an American industry perspective. Hughes Defense Communications, a division of the larger Hughes Corporation, was chosen based on size, structure, informational technologies present, materials management philosophy, and complexity of the items they both manufacture and procure. The information contained in this section was gathered during several phone interviews with Mr. Gil Perry, Director, Material Management at Hughes Defense Communications.

1. Definition

Mr. Perry has provided his workforce with a working definition:

Market Research --Detailed investigation of the supply chain by the procurement activity by commodity, products, supplier and industry to optimize the competitive position. (Perry, Sep 96)

This definition again yields a much broader perspective towards procurement and market research similar to that encountered by Dr. Fearon expressed in his book *Purchasing Research in American Industry, 1963*. Many organizations undertake market research to make better purchasing decisions. These decisions are tied to goals or various other specified

outcomes for a given organization. (Fearon, pg. 12). No other definitions were found in the literature search to expand on this industry definition.

2. Organization

Within Hughes Corporation there are approximately 24 buying or procurement offices, each exercising its own business control during procurement. These 24 procurement activities all report to a "Procurement Council" consisting of experts on commodities and other technical functional specialties.

This council has many functions besides market research, including source selection above a given dollar threshold. The council's primary function with regard to market research is to provide a central point in the procurement process to aid as a conduit for the 24 procurement activities to circulate market research information. Information generated by an activity is shared through this council to others within Hughes. This enables Hughes procurement offices to accomplish many objectives, including but not limited to: leveraging, reduced price, improved quality, and achieving a smaller supplier base. This organizational structure reduces boundaries between procurement activities and increases the information flow. A company-wide intranet links almost all of the procurement activities within Hughes, allowing each procurement team to translate buyer-to-buyer information more rapidly than other formal communication methods. (Perry, Sep 96)

3. Policy

The Hughes organizational structure disseminates policy from a strategic apex, the "Procurement Council" and its members. One aspect of this organization and its policies on

market research and procurement is the adaptive nature towards applying policy on a program by program basis. Policy is established and applied from the top down, similar to many types of bureaucratic organizational structures. The council acts as a central decision-making body to apply business practices in a strategic manner.

Within each procurement office individual managers can and do institute their own procedures and policies as long as they are not conflicting with the above guiding principles. This allows procurement and material managers flexibility to apply good business sense or practices to their individual and sometimes unique problems. (Perry, Sep 96)

4. Planning

The Procurement Council acts as a strategic planner. Since it is organized with experts from commodity areas, these experts can provide guidance and direction for buyers at the lower activity level. The Procurement Council provides a minimal planning function towards market research. Individual managers initiate their own discretion towards planning for market research at each office. The direction from the council is normally focused on commodities crossing functional lines or those items common to many procurement activities. (Perry, Sep 96)

5. Conducting

The goal of procurement and conducting market research in this organization is to select the best suppliers and share them with the other business areas within the organization. Through effective and early communication with the user or designer, the procurement team conducting market research can better focus on the specific item to be supplied. This early involvement ensures the insertion of current technology into the design process. (Perry, Oct

96)

Mr. Perry has created within his organization cross-functional teams to collect and analyze market research information. Hughes uses a technical, often an engineering person, to keep abreast of industry developments. Technically qualified engineering personnel are required to analyze production processes, quality controls, new technology, and other manufacturing/production processes.

In general, Hughes Defense Communications uses the combined efforts of the Hughes procurement team when conducting market research. They use this team to share information, make decisions, and incorporate the information from other activities for use during the procurement process in the future. (Perry, Oct 96)

IV. DISCUSSION AND ANALYSIS

This section will present and analyze the literature, survey data, and interview findings about market research within the current conceptual environment. The survey results will be summarized using various forms of analyses. Survey responses to specific questions that generated sufficient data to warrant discussion will be highlighted in each section. Every question on the survey will not be analyzed but rather an overarching description will be used.

An analysis comparing similarities between commercial and Government procurement offices will aid in determining the extent to which practices can and might be included by DON procurement professionals. Appendix A provides the questionnaire used in this process and a summary of results for each question.

A. DEFINITION OF MARKET RESEARCH

The first stage in identifying the tools and skills required to conduct market research includes establishing a definition of market research. This definition should be all-encompassing, providing the reader and procurement professional with an understanding of both the concept and process of market research. This section will emphasize the definitions provided by legislation and regulations to the procurement workforce so that the reader can understand the direction provided to professionals on performing the market research function.

During a literature search, several definitions and descriptions were discovered. These will be discussed and analyzed and then a final working definition will be presented.

The United States Code, Title 10, the statutory law governing military or DOD

acquisition and procurement, specifies the conditions for using market research with regard to the acquisition of commercial items. Title 10, section 2377, "Preliminary Market Research" is provided in its entirety for reference:

- (1) The head of an agency shall conduct market research appropriate to the circumstances
 - (A) before developing new specifications for a procurement by that agency; and
 - (B) before soliciting bids or proposals for a contract in excess of the simplified acquisition threshold.
- (2) The head of an agency shall use the results of market research to determine whether there are commercial items or, to the extent that commercial items suitable to meet the agency's needs are not available, nondevelopmental items other than commercial items available that
 - (A) meet the agency's requirements;
 - (B) could be modified to meet the agency's requirements; or
 - (C) could meet the agency's requirements if those requirements were modified to a reasonable extent.
- (3) In conducting market research, the head of an agency should not require potential sources to submit more than the minimum information that is necessary to make the determinations required in paragraph (2). (10 U.S.C., 2377)

A literal interpretation of this language would suggest that Congress intended for market research to be specifically used as a technique to identify commercial items or NDI, prior to writing a Government specification.

The FAR provides the procurement workforce the regulatory guidance for the conduct of the procurement function in which it must operate. Thus, it is necessary to see how this document interpreted this legislation in the building of a definition. FAR Part 2 Subpart 101, defines market research as:

Market research means collecting and analyzing information about capabilities within the market to satisfy agency needs. (FAR Part 2, Subpart 101)

This definition communicates that procurement professionals must conduct and analyze information to be able to understand how the marketplace can satisfy an agency need.

Therefore, one could conclude that the sole intent was to focus on properly identifying potential commercial items or NDI that can fill an agency requirement even though these are not included in the definition. The emphasis on commercial items and NDI is further elaborated by the guidance set forth in FAR Part 10.

FAR Part 10 states:

This part prescribes policies and procedures for conducting market research to arrive at the most suitable approach to acquiring, distributing, and supporting supplies and services. (FAR Part 10, Subpart 000)

Although this language is broader in scope, FAR Part 10 further reiterates the language of Title 10, Section 2377 (c). By specifying and elaborating on the search for commercial items, one is left with emphasis again on the ability of agencies to conduct market research in order to identify commercial items or NDI to fulfill agency needs. It should be noted that both the statutory law and the Federal regulation implementing it have sufficiently narrowed the scope of market research as illustrated in FAR Part 10 to produce only four outcomes if the FAR is followed explicitly. If the FAR is interpreted literally without any other definition or guidance, the above definitions will produce:

1. Identification of a commercial item
2. Identification of a NDI

3. Identification of a commercial or NDI item that can be modified
4. No commercial or NDI item available (Researcher generated)

In an attempt to identify fully all the definitions available to today's procurement workforce, other procurement reference material was consulted. These other references provided definitions that equaled and or restated the scope of the FAR and Title 10. One such reference is the new Defense Acquisition Deskbook (DAD). The DAD is a product of the Office of the Secretary of Defense (OSD) and provides the acquisition workforce with an on-line reference tool providing both mandatory and discretionary regulations/statutes. This unique tool defines market research as:

Evaluating the potential of the commercial marketplace to meet system performance requirements including how the performance requirements can be reasonably modified to facilitate the use of potential commercial items, components, specifications, standards, processes, technology, and sources. (DAD, Sep 96)

This definition limits the scope of market research to outcomes intended to identify commercial or NDI solutions. Additional sources were sought to clarify or expand a definition of market research. The DOD 5000.2-R also discusses market research, but only with regard to the acquiring of commercial and non-developmental items. The DOD 5000.2-R states:

Market research and analysis shall be conducted to determine the availability and suitability of existing commercial and non-developmental items prior to the commencement of a development effort, during the development effort, and prior to the preparation of any product description. (DOD 5000.2-R, para 3.3.1.1)

One can reach a conclusion from these definitions, that the Federal procurement workforce is expected to conduct market research by collecting and analyzing information about the marketplace, in order to identify and or have the ability to use commercial or NDI items to satisfy agency needs. The researcher finds this to be sufficiently specific and narrow in scope, such that the many other benefits of market research are lost unless a broader and more loosely defined definition is provided to the workforce.

The DON workforce uses the definition contained in the FAR and generated by OSD in the conduct of its quest to conduct market research. DON has not generated Service specific guidance on market research. No FAR supplement or agency generated handbook is available. (Winston, Oct 96)

Some of the other literature differs in the definition of market research from what has been presented so far. It is important to note that the Federal Government defines market research conceptually different than corporate America. Dr. Harold Fearon in his book *Purchasing Research in American Industry, 1963*, defines market research as:

The systematic investigation and fact finding undertaken to improve purchasing performance. (Fearon, Pg 17)

This definition provides for a significantly broader scope than what Congress envisioned. Using this concept, a procurement professional can use market research to support agency or activity needs rather than a stricter definition and focuses on identification of possible commercial items or NDI to fulfill agency needs.

A Naval Postgraduate School Masters Thesis by Richard Stewart in 1987 both

captured the focus of CICA and explored the definition of market research in American industry. Stewart's study examined the process of market research and established a definition of market research that can be applied to both Federal and private procurement activities. Stewart's definition explored both a narrow view of market research based on an interpretation of CICA and a broad view of market research based on procurement research documented in American private industry. This broad view of market research lead to Stewart's definition:

Market research --the collection and analysis of data to improve the quality of specific decisions which must be made within the existing framework of the procurement process. (Stewart, pg 12)

The above definition not only allows for agencies to meet the intent of CICA, FASA, FARA, and other legislation, as well as the implemented policy of the FAR but allows the procurement workforce enough latitude to conduct research into the marketplace to improve procurement decisions. (Stewart, pg 13)

This broad definition appears to be in conflict with the specific intent of the statute or regulations. However, it would be unfair to say the drafters of procurement reform legislation intended to limit the ability or scope of the procurement workforce to conduct research that would lead to better procurement decisions. If the workforce is constrained by applying such a narrow view of market research, then the workforce is potentially not sufficiently utilizing the full benefits of market research. (Stewart 1987, pg 13-15)

In attempting to capture a sufficiently broad definition that incorporates both the intent of regulations and laws but does not limit the potential outcomes, the researcher has

developed this definition:

Market research --The systematic and detailed investigation, collection, and analysis of data by technical and purchasing activities to make better and more informed purchasing decisions. This effort can be directed at a given commodity, industry, product, or supplier in order to provide the ability to make better decisions during the procurement process.

It is the intent of the above definition to provide the acquisition and procurement workforce enough guidance and scope without limiting the ability of the workforce to use market research in the procurement process. The researcher would propose that market research remain a tool to gain more knowledge about the marketplace in order to make informed decisions resulting in good business sense. By adapting a broader definition that allows the procurement manager more flexibility to adapt the market research process to a procurement, both statute and regulations can be met without limiting the outcomes.

B. CURRENT GOVERNMENT SKILLS

The skills required as indicated by the survey results, are applicable to many areas. Some of these skills are used strictly by technical personnel, "the user," and other skills are strictly procurement related. Some who responded to the survey indicated that in their view "market research had limited application to their procurement since they are buying major weapon systems and deal with sole sources." Additional comments from these types of commands stated they primarily use CBD announcements as their tool to find sources for their procurement. As a result of this focus, these respondents indicated that there was no need for many types of skills the survey listed. It is of this narrow view towards market

research, as developed by the framework outlined in Chapter II and the definitions in Section A of this chapter, that many DOD/DON activities are not developing the procurement workforce research skills to their full potential and thus are not receiving the full benefits of market research. (Survey data and Various interviews)

1. Skills Used In Collecting Data

Collection of market research information is done prior to and during the procurement process. Survey respondents when asked to rank various collection skills, (Question 8 Appendix A) in level of importance, ranked “expertise in research methodologies” as the most important skill or attribute. Expertise in research methodologies was ranked number one, over 58 percent of the time, above five other choices. Other skills such as writing and speaking skills needed to communicate with both the customers and potential suppliers were ranked last in the group of five presented. The researcher defines expert in research methodologies to include a set of skills that can be applied to any form of research and include but are not limited to:

- Ability to use and conduct research in any type of data base
- Ability to formulate and ask detailed questions
- Ability to plan a research task in order to minimize resources associated with collection of only needed information
- Ability to read and understand the material presented
- Ability to organize and collect information into a useable medium
(Survey data and Various interviews)

Many survey respondents who listed expertise in research methodologies as their number one skill also listed knowledge of a specific search logic such as, “boolean logic” last or provided additional comment as to, “what is boolean logic?”. This form of search logic is present in many electronic catalogs and informational data bases where market research

information can be collected if done in a detailed manner. Based on the survey results the researcher is of the opinion that the collection of market research information is traditionally not done in a detailed manner within DON.

The survey respondents also indicated a strong preference for expertise in personal computers as a skill necessary to collect market research information. Forty percent of respondents indicated this was their second choice in order of preference. Use of electronic sources such as, the Internet and electronic bulletin boards are on the rise and one must have a certain degree of personal computer literacy. This application of technology and skills will be addressed in Chapter V.

Many survey respondents crafted additional comments to the question of skills needed to collect market research information. A summary of these comments is provided below for additional discussion and as a means to broaden the topic area:

- Personal knowledge of product and market
- Reading and a strong academic background
- Curiosity and interest in the technology of a particular marketplace
- Clerical researching skills (Survey data)

Several respondents outlined that in their view “intimate personal knowledge of both the product and marketplace” was the single most necessary skill needed to conduct market research. The researcher defines these qualities as an attribute, not a skill, that a person must have. An attribute is something belonging to a person as a characteristic or quality (Random House). One achieves intimate knowledge of a marketplace over a period of time, after having immersed oneself deeply into that market. In order to achieve this detailed knowledge of the marketplace, procurement personnel must conduct detailed research into their

appropriate sectors or product lines.

Those survey respondents conducting in-depth market research view market research skills as similar to an academic inquisitive research project. One must be able to produce the information and then critically analyze results to reach a conclusion for the business problem at hand. The strong academic bullet above exemplifies this concept of doing just plain good and detailed research. (Loverde Sep 96, and Survey Data)

The above points are outlined to emphasize that market research requires a dedicated effort, and that when done in detail can provide those involved many of the attributes needed to maintain liaison with the marketplace. Procurement professionals need to be afforded time and resources to be able to collect and utilize the research skills outlined here. Without this emphasis on conducting and developing research skills, DOD/DON activities will maintain a narrow view towards market research. (Mcanish, Sep 96)

2. Skills Used In Analysis

Proper analysis of market research information is essential to procurement managers who use market research to make better and more informed acquisition decisions. Question 3 of the survey addressed these types of skills. Seventy percent of survey respondents said comparative analytical skills were used most in the analysis of market research information. The researcher concluded that much of the information collected can be effectively compared against industry trends, past procurements, and other known sources. Comparative analyses is the method by which information is presented against others of a similar nature (ASPM, pg 15-1). One must ensure the information used was collected under similar conditions and

environments. Comparative analyses of market prices from one industry to another or from past years to present may not have a high degree of comparability since conditions are dissimilar in many cases.(ASPM, pg 15-2)

Financial analysis was also chosen by more than 70 percent of respondents to be a top skill needed in the analysis phase. This skill was routinely placed in the "used often" and/or all of the time category by respondents. Financial analyses is done to ascertain the financial capacity of potential sources or as an aid to prepare negotiating teams. A potential source must possess sufficient financial resources to produce the product or service until delivery and payment. (Fearon, pg 26) This can affect the contractual relationship used in the acquisition and thus aid in acquisition planning. This skill includes subsets of financial accounting, auditing, and the ability to interpret financial statements. Procurement personnel must possess the fundamental knowledge in this skill area in order to understand and interpret market research information in the context of financial data. (Fearon, Nov 96)

Value analysis was recognized by over 60 percent of the respondents to be one of the top three skills needed during the analysis of market research information. Value analysis is often viewed in two different ways. One definition is a study to compare the purchase price for an item with the value of the function performed by that item (Dobler, pg 645). This analysis is carried out so one can judge this item against others that may be substituted as a solution to the existing problem.

Another definition or use of the term value analysis is any type of analysis that is done to represent a best value or best buy approach. This view is not as widespread in the literature but is expressed in terms of "if an activity is performing any type of analysis to reach

a best value decision then that analysis can be equated to a value analysis.” The researcher is of the first value analysis opinion as expressed in *Purchasing and Materials Management* sixth edition by Dobler and Burt, 1996. They expressed that value analysis is a concept that encompasses two general skill levels. These skills are design and cost analysis. The combination of these two skills provides a deeper understanding of market research and often is a detailed technical application that must incorporate both the user and the procurement activity. (Dobler, pg 645-656)

The organizational structure within DOD and DON allowing for the combinations of these two skills during most procurements is at the systems command level. The use of the standard matrix organization and Integrated Product Teams (IPT) can be used to incorporate people who have expertise in both of these skill areas. (DOD 5000.2-R, para 1.2)

Even though this concept appears to be easy on the surface, when asked how activities are organized to collect and analyze market research information, over 60 percent said that they “are not” organized to utilize skills from other functional areas (question 6C, Appendix A). Over 90 percent of those surveyed indicated that they “did not” utilize a central group to collect and analyze market research information. The majority indicated that market research is conducted by each individual buyer. This type of organizational structure places an increased burden on procurement professionals to be able to validate design criteria and other technical aspects in a procurement. If the procedures of value analysis are used and the procurement office or buyer is left to conduct detailed market research, then that sole buyer must have both of the above skills. (Survey data)

The below list summarizes the primary and secondary skills presented by the survey

respondents:

Primary Skills-

- Comparative analysis
- Financial analysis
- Value analysis

Secondary Skills:

- Economic analysis or forecasting
- Technical or engineering analysis (Survey data)

Secondary skills or techniques used in the analysis or evaluation phase of market research include the ability to forecast demand within an industry or from users, and the ability to evaluate the use of commercial items to fill agency technical requirements. Forecasting is the means by which activities understand the market forces for certain commodities or products. This technique is used most often with commodity studies and can include demand, price, and supply forecasting. (Fearon, pg 26) This skill includes tracking both supply and demand sides of the market and utilizing known production capacities to predict or estimate prices and availability of products.(Fearon, Nov 96) In order to be effective in this area, procurement workforce personnel must have an understanding of both basic macro and microeconomic principles with additional training in forecasting models.

C. CURRENT INDUSTRY SKILLS

The industry respondents used many of the same skills needed in both the collection and analysis of market research as does DOD. This section outlines the results from industry and provides comment on some of the additional written information provided by survey respondents.

1. Skills Used In Collection

The collection of market research information by the commercial sector relies heavily on two skills: writing and personal computer expertise. These two skills were closely matched in degree of importance. Seventy percent of respondents placed these two skills in either the first or second position of the five choices given. Expertise in research methodologies received mixed importance and was equally distributed in each of the first four out of five positions. The increased importance of writing and personal computer expertise and the distribution on expertise in research methodologies illustrates that the commercial sector values communication between the user and the buyer. Additional comments provided by survey respondents also highlight this view. These additional comments are:

- Customer service and listening skills to focus on internal customer requirements
- Knowledge of the marketplace or industry
- Creativity (Survey data)

The degree to which communication focuses effectively between procurement activity and user can aid in the procurement process. Much of the market research effort is understanding the user requirement and using knowledge of the industry to meet this need. One could conclude that communication is a key facet of market research internal to the organization prior to the act of collecting information. To completely understand this requirement will enable a procurement office to conduct market research in a more focused and directed nature. (Perry, Sep 96)

2. Skills Used In Analysis

The commercial respondents heavily favored two analytical skills over the others listed

on question 3 of the survey. These two skills are value and financial analysis. These two skills were used by over 80 percent of industry respondents very often or all of the time during the analysis of market research information. These skills and the components of them were previously summarized in the above DOD section. Three additional skills were placed in categories which indicated that they were used routinely throughout the market research process. These skills are economic analysis or forecasting, statistical, and comparative analysis. Statistical analysis provides the procurement office with the ability to aid in analyzing many portions of market surveys and other areas of forecasting. These secondary skills were indicated to be used during only selected procurements and not in occurrence during everyday operations. (Survey data)

D. COMPARISON OF GOVERNMENT AND INDUSTRY SKILLS

The set of skills portrayed in both of these views displayed a significant degree of similarities and almost no differences. Detailed market research, whether it be in industry or DOD, utilize many of the same types of information and collection methods.

1. Similarities

Many of the similarities can be attributed to the expected benefits that both groups believed would result from market research. Question 4 of the survey asked respondents to categorize their level of agreement with the expected benefits of market research. Both groups expected to receive the same benefits such as: increased competition, lower prices, better negotiation strategies, improved quality, identification of new sources, and others listed in Appendix A. These benefits are exemplified by the types of information collected and the

skills used to both collect and analyze them. One can assume then that many of the commercial practices can be transferred to DON procurement activities.

2. Differences

The only significant difference in survey respondents between commercial and DOD activities was the range of skills used in both categories. Industry used a wide range of skills to solve procurement problems. Based on the framework towards market research in DON as outlined in Chapter II and the differences in the definitions displayed in section A of this chapter, these contrasting DON/industry philosophies might be responsible for some of the differences.

E. SKILLS SUMMARY

A high degree of commonality is correlated in the skills needed to collect market research information in both the commercial and DOD respondents. This correlation can also be expressed in terms of expectations towards the benefits of market research information. This is an interesting correlation when one considers the differences in scope and focus of market research as outlined in Chapter II. Forces such as mandated legislation and increased educational requirements may have given DOD procurement professionals more exposure to market research than in past years. This recent thrust could contribute to the lack of known skills needed but increased awareness of the benefits such a detailed research effort can achieve. Appendix B provides a listing of those skills the researcher has found to be needed in the market research process.

F. GOVERNMENT TOOLS CURRENTLY IN USE

Many of the tools currently employed by the Government to conduct market research are used in a variety of capacities in the procurement process. Some tools can be classified as used primarily in the collection process; others in the analysis portion. A breakdown by this classification allows for a deeper understanding of the tools required to conduct effective market research.

1. Tools Used for Collection

The most frequently used tool for the collection of market research information is the use of bidders lists or internal preferred suppliers lists. The survey results illustrated that the Government used these types of sources to collect information most frequently. When asked what percentage of time this type of tool was used, the most frequent response from those surveyed was 81-100 percent of the time. When asked, given a choice of tools available and to rank by level of importance, an internal preferred suppliers list was most frequently the top choice over others listed. These results are illustrated by questions 1E and 5H found in Appendix A. The researcher believes activities are developing and using a list of suppliers that frequently provide the products that they buy and use such lists as a means to keep track of events in the marketplace.

The respondents also identified Internet, electronic bulletin boards, or electronic commerce as tools of importance; this is from the results of question 5B apply in Appendix A. The Internet, as a tool, is becoming more prevalent as a means to publish or post Request for Quotations (RFQ) or sources sought on agency bulletin boards, WWW home pages, or within FACNET. (Mounts, Sep 96)

Primary tools are summarized in the list below.

- Bidders lists
- Internal preferred suppliers lists
- Electronic sources such as the Internet, electronic bulletin boards, or electronic commerce (Survey data)

Secondary sources, or ones used slightly less frequently to collect information are industry representatives, publications/catalogs, and other Government agencies. Survey respondents indicated that they used industry representatives during the collection of market information 41-60 percent of the time. The use of information from other governmental agencies was used sparingly, only 21-40 percent of the time. Many contracting officers interviewed expressed frustration and lack of cooperation in obtaining information within the Federal Government. Other tools utilized less frequently to collect market research information are publications or catalogs, and other Government agencies. These secondary sources are illustrated by results of questions 1D, 5A, and 5C in Appendix A and summarized in the list below:

- Information from other Government contracting agencies
- Publications or catalogs all types
- Other Government agencies (Department of Commerce, etc.) (Survey data)

Many agencies that responded with additional information on the survey indicated that the CBD was the primary publication used. Some agencies (66 percent) went so far as to indicate it was the only tool needed to identify potential commercial items or sources for upcoming procurement actions. (Survey data)

2. Tools Used for Analysis

The researcher attempted to correlate an analysis skill, such as statistical analysis, to the use of a tool such as a personal computer and or a spreadsheet program as asked in questions 1J and 1K. The most frequent survey response for both of these tools was in the 0 percent or placed in the never used category. Both had only a slight tendency to be used and a few survey respondents placed them in the 1-20 percent of the time category. This could possibly indicate the analysis portion of market research is more subjective than qualitative and or quantitative. The types of information collected by the Government as indicated by the results of survey question two are indicative of mostly subjective or non-quantitative analysis. The most frequently collected kinds of subjective information placed in the 81-100 percent of the time category are:

- Past performance of potential contractors
- Quality of potential contractors supplies or services
- Availability of commercial products to a military requirement
- Why solicitations did not generate competition
- Size of an individual business (Survey data)

The quantitative set as established by the researcher's interpretation of the survey results is:

- Financial data concerning a potential contractor
- Define a market price
- Establishment of general market data such as labor and overhead rates

(Survey data)

The survey results indicated that this set was collected at a slightly lesser rate or portion of the time. Survey respondents placed this quantitative or secondary set in the 61-80 percent of the time category.

Because of the lack of results and evidence for the preference for a particular tool in the analysis portion of market research, a conclusion can be ascertained that quite possibly the information collected, as outlined above, tends to be in the category of skills that are comparative/subjective in nature. Many of these types of skills do not require a formalized tool such as a spreadsheet and computer but rather one's own mind and intellect.

G. INDUSTRY TOOLS CURRENTLY IN USE

1. Tools Used for Collection

The commercial survey respondents indicated a strong use of multiple tools for collection of market research information, demonstrating a reliance on both established bidders lists and industry representatives. These tools among all others were consistently used 61-80 percent of the time. Additionally, three other tools were equally used 41-60 percent of the time. These tools are:

Primary (61-80 percent)

- Established bidders list
- Industry representatives

Secondary (41-60 percent)

- Industry generated catalogs or other publications
- Refer to advertisement in trade journals, newspapers, or other publications
- Visits to industry facilities (Survey data)

It appears that the commercial workforce uses a varied amount of collection methods to gather the information required during their market research effort. This may be indicative of the more numerous types of information collected as posed by Question 2 of the survey

and summarized in Appendix A. Specifically, strong and consistent responses were established for all the below types of information which were indicated to be collected 61-80 percent of the time:

- Past performance of potential contractors
- Quality of potential contractor's supplies or services
- Identification of new sources for a particular product or service
- Financial data concerning a potential contractor
- Define a market price
- Quality control systems and procedures of potential contractors (Survey data)

The commercial view illustrates that a preference for participation by all the players in a possible contractual relationship is key as evidenced by the survey comments concerning the communication between suppliers and industry. The addition of such tools as site visits and industry representatives indicates that a higher level of involvement on both sides of the relationship is critical.

2. Tools Used for Analysis

Survey results indicated that analysis tools such as a personal computer, computer spreadsheet, and data base programs were used with regularity in the market research process. These three tools were indicated by respondents to be used by almost all of those surveyed. Respondents placed them in the 61-80 percent of the time category. This trend to use a software program to help in analysis agrees with the types of information collected as outlined in the previous section. Additionally, within the computer usage segment, when asked what percentage of the time a computer-based statistical or mathematical program was

used, survey respondents select 0 most often. Again one can see that the types of information collected plays a role in the tools needed in the evaluation phase.

This selection of tools is also joined by the use of reports and analysis from independent sources such as Dun and Bradstreet. Industry survey respondents indicated that this type of tool is used by most 41-60 percent of the time. These results illustrate that there is possibly a lack of formalized procedures or practices when it comes to evaluating and analyzing market research information within any individual procurement office.

Summary of the top tools used by industry in the analysis phase is provided in the below list:

- Personal computer
- A spreadsheet or similar computer program
- Create or refer to your own personal computer data base program
- Market analysis reports from analysts such as Dun and Bradstreet (Survey data)

H. COMPARISON BETWEEN GOVERNMENT AND INDUSTRY

The survey data demonstrate that Government and industry currently employ many of the same methods and tools in the market research process. Chapter II outlined broad concepts and policies at the various levels of management in Government and industry and the beginning of this chapter highlighted the difference in definitions between Government and industry. The data would suggest industry believes market research to be a broad and flexible subject and that the tools employed should be of a large range in complexity and scope. The DON procurement workforce may be using a much more narrow view about market research,

by only identifying commercial or NDI. This more restrictive view is indicative of the types of information collected and the limited tools used to both collect and analyze market research information. This section attempts to outline both similarities and differences in the choice of tools and possibly explain the divergent views.

1. Similarities

Both Government and industry rely on bidders and internal suppliers lists as a method of keeping in contact with industry to track technology and trends. The use of known suppliers can be a good method to initiate dialog about upcoming procurement actions in order to ensure the insertion of the most current or up-to-date technology into the design process of new products, systems, or services. (Perry, Sep 96)

Additional similarities is the lack of involvement of a Management Information System (MIS) by both Government and industry. The use of MIS as a tool consistently was ranked low by both survey groups and mutually ranked fifth in the eight choices given. The lack of an MIS system in the market research process correlates to the types of information collected. Both groups, Government and industry, collect subjective types of information and limited amounts of quantitative data that can be formalized in a report. This could also mean that there is no formalized reporting procedure and repository within each group. In Chapter II, the researcher illustrated a commercial view of the market research process and the mechanisms in place to aid in the sharing of research information. The use of an intranet and a management-level council linked the individual procurement activities in the case presented. In essence an MIS systems could be used to bring this transfer of data into an everyday occurrence.

2. Differences

The major difference between the commercial and DOD/DON set of tools is in the numbers of tools employed in the process. The DOD/DON activities surveyed used five primary tools while the commercial segment indicated at least 11 tools needed to conduct market research. Significant tools that the DOD activities “did not” use and commercial industry “did” are:

- Visits to industry facilities
- Refer to advertisements in trade journals, newspapers or other publications
- Create or refer to your own personnel computer data base
- Personnel computer
- A spreadsheet or similar computer program
- Industry generated catalogs or other publications
- Conduct Internet searches (Survey data)

The differences in tools employed potentially show that industry conducts a broad and more detailed market investigation than DOD/DON activities. The inclusion of industry facility visits is to inspect various production and quality control methods of a potential supplier. The recent trend of Just In Time (JIT) strategy and the reduction in receipt inspect must be compensated by increased quality from suppliers. This is one possible reason for the additional use of this tool. (Survey data, and Perry Sep 96)

As for the greater use of computers and associated software programs, industry again appears to be more detailed and quantitative in its market research process. The tracking of market prices and other trends lend themselves to spreadsheet applications. The greater use of computing can have a resultant affect on different skills required.

I. TOOLS SUMMARY

The set of tools required to collect and analyze market research vary between industry and Government. The differences in this set of tools can be attributed to the difference in the definitions outlined in this chapter. Since Government has taken a narrow focus to market research, that is, identifying commercial or NDI, vice the industry broad view of better purchasing decisions, the sets of tools are accordingly arranged. Appendix C provides a list of these tools for both collection and analysis.

V. DISCUSSION AND ANALYSIS: THE APPLICATION OF INFORMATION TECHNOLOGY TO MARKET RESEARCH

This chapter reviews the applications of Information Technology (IT) that can aid in market research. The primary thrust of the chapter will be exploring a set of skills and techniques on how to use the Internet and other technologies associated with the Internet to conduct market research, because the survey data suggested the Internet or other IT had applications to market research and are currently being underutilized.

The chapter is designed to give the reader background on the Internet and provide the reader with a better understanding of how this tool can be incorporated into a market research effort.

A. NEW TREND IN TECHNOLOGY

The personal computer revolution of the 1980's and 90's have transformed many business practices and personal habits. The personal computer is a tool that is commonplace in every office and home. Only a decade earlier this technology had applications to only large computing needs of Universities, DOD, and major corporations. DOD and American industry are still undergoing organizational and intellectual challenges because of the infusion of technology into the workplace and everyday life.

DOD has made great strides in incorporating technology into the procurement process. One such innovation is Electronic Commerce (EC). The Federal Government's EC program has taken advantage of this computer revolution by incorporating innovation into the procurement process. The development of the Federal Acquisition Network (FACNET)

and the increased use of EC demonstrates a move towards increased technology usage in the procurement process.

Even though FACNET uses current technology, corporate America and other Federal agencies appear to have chosen to develop the Internet and the World Wide Web (WWW) as a place to conduct business transactions. NASA has chosen to conduct its EC on the Internet vice through FACNET because the Internet provides the greatest access to industry and is relatively inexpensive. NASA points out that new virtual storefronts, libraries of corporate information, and catalogs of products and services emerge daily. (Bradford, pg 23)

This general trend in the belief that the Internet will be a significant place to conduct business ten years from now and in the increased importance of information technology was illustrated in the responses to questions 9 through 14 of the survey in Appendix A. Over 93 percent of the commercial and DOD responses strongly agreed with "The Internet will be a significant place to conduct market research within the next ten years." (Question 9, Appendix A.)

Another area with strong consensus was question 10 which stated, the ability to share information between buying activities concerning contractor past performance and other market data is an important aspect of market research. Over 90 percent of DOD and commercial responses either agreed or strongly agreed with this statement. Information technology, like the Internet and company wide intranets, allows for the rapid exchange of information. (Perry, Oct 96)

Since information technology allows for the rapid transmission of various forms of information to and from data bases, a central repository could be maintained with regard to

market research data. Question 11 attempted to gather opinions towards a central repository managed by DOD. A third of the DOD responses said they were unsure if this would be beneficial and the majority of respondents agreed that a central data base would be a benefit to their research efforts.

This hesitancy towards a central repository was illustrated in a General Accounting Office (GAO) Report (NSIAD-97-3) on market research released in October 1996. GAO was tasked by FASA to review the feasibility of creating a Government-wide database for storing, retrieving, and analyzing market data (FASA Sec 8305 B.2).

This report found that both Government and industry oppose such a data base maintained by a central repository. Some of the reasons cited in the GAO reports, which would inhibit or limit the creation of a central data base, are:

- Cost of starting and maintaining
- Ability to keep information current
- Provide few additional benefits (GAO NSIAD-97-3, pg 14)

This October 1996 GAO Report specified that much of the information requested by agencies on prior procurement actions is already available from the Federal Procurement Data System. In contrast to a central repository, they found agencies spoke favorably of using the Internet to facilitate market research. At the time of this October 1996 Report, GAO estimated that the Internet linked over 59,000 networks, 2.2 million computer systems, and 15 million users in 92 countries. GAO cites the Office of Federal Procurement Policy and others who pointed out that powerful "Search Engines" are available on the Internet that facilitate market research of private and Government data bases. (GAO NSIAD-97-3, pg 15)

This view is also shared by OSD which has established a commercial advocates forum on the Internet and WWW. This forum consists of many Internet resources including a market research "Tool Box" with Internet research sites. (Mounts, Sep 96)

Others in industry established that a public medium like the Internet will expand the marketplace by increasing the number of suppliers from which a buyer has to chose. The Internet favors small business since it provides a large public medium in which to advertise products and services. (Tenenbaum, Nov 96)

Defense industry leaders are also progressing to expand the Internet as a medium to conduct complex business processes. Lockheed Martin Missiles and Space in Palo Alto, California is piloting an Agile Infrastructure for Manufacturing Systems (AIMS) Program. AIMS employs innovative technologies and business practices to implement agile electronic network of customers, suppliers, and other service brokers called AIMSnet. AIMSnet is a robust, extensible, and flexible infrastructure designed to allow integration of agile suppliers across the globe over the Internet. Customers and suppliers will be able to access and use AIMSnet for efficient procurement and production of high quality, low cost, and customized complex products. AIMS envisions a reduction in the procurement cycle through new business practices that are enabled by communication on the Internet. The pilot program is the Lockheed Launch Vehicle (LLV). (Sriram, pg1)

AIMS is built over the most widely connected electronic network, the Internet. AIMSnet uses WWW protocols, clients, servers, and other WWW/Internet standards. Security is maintained through the use of emerging WWW and Internet security mechanisms such as Secure Sockets Layers (SSL) and other new security ideas to maintain privity of data.

(Sriram, Pgs. 2-5)

It is within this environment that the researcher believes the Internet to be another tool with which procurement professionals should be acquainted to facilitate market research and the procurement process. Since the Internet is a tool, a certain set of skills must be understood in order to use the Internet in an effective manner to collect market research information.

This new tool requires procurement professionals to rethink how they undertake the market research process. Since this is an altering of the current process, many elements of organizational and process change are present. The next section will address this issues.

B. ENVIRONMENT NEEDED FOR CHANGE

Because the Internet is new and it requires a change in the way the workforce is currently conducting market research, there are aspects of organizational and cultural change that are appropriate to discuss. Changing the way people work can be extremely threatening and therefore a careful process of change must be undertaken. There is significant literature to discuss organizational change and IT. One reference on this subject by Ed Schien *Management Development as a Process of Influence, 1961* states that if all of the leadership and environmental conditions are adequate then there are three stages of change: unfreezing, change, and refreezing. (Schien, pg 59-77)

Along with these three concepts of change to conduct the implementation of IT and the process of organizational change, research has shown that internal parts of the organization also have integral roles. This philosophy of roles is outlined in *The Corporation of the 1990's* by Scott Morton, 1991. This reference is a research study conducted by the

MIT Sloan School of Management concerning the impact of IT on organizations. This work emphasizes the many fundamental considerations needed to implement the use of a new technology like the Internet in the procurement process. (Morton, pg. 3-23)

Morton's work outlined three main themes for the implementation of IT into an organization. First a clear top management vision and the presence of a "Champion" for the new IT must be at the top. Active leadership by this champion is crucial to the implementation process. Second, a cultural change coupled with underlying human resource efforts must be undertaken to facilitate the use of this new IT. This cultural change enables its implementation to transform fears and resistance into creative endeavors. Third, participation by users/stakeholders helps to bring about the integration of technology and organizational choices. (Morton, pg 244-246)

The process of change and the implementation of IT into the market research process must be approached with the above organizational issues in mind. In order to successfully incorporate the Internet into the procurement process, the workforce must make a cultural shift away from current methods and practices.

C. INTERNET AND THE WORLD WIDE WEB

This section provides a general overview of the Internet and the World Wide Web (WWW) to form a baseline knowledge level of this new and ever-expanding technology. This section is designed to provide background on these two technologies and aid in the level of understanding of how the WWW and the Internet relate to each other. There are a significant number of books in print that detail the specifics of the in-workings of the Internet

and the WWW. These books are numerous because the technology and use of both the Internet and the WWW continue to grow at enormous rates. A book that was published in 1995 as a guide to the WWW provides out-of-date information concerning specifics about numbers, users, uses, and technology. (Lescher, pg 125)

1. Internet Overview and History

The Internet resulted from a cold war project undertaken by the Advanced Research Projects Agency (ARPA) in the 1960's. (Krol, pg 3) The Internet was originally conceived by the US military as a means to ensure a workable communications system in the event of a strategic strike to the United States in a nuclear exchange. The idea was to ensure that surviving locations could communicate with each other even though there were significant breaks in the network of computers. The original name given to this system uses the ARPANET. Some of the early technical decisions were based on the assumptions, that the network unity would be unreliable (breaks in the structure due to attacks). Because of these assumptions the designers developed a means for computers linked to the network to communicate with other computers linked to the network with minimal interaction with the network and host computers. This communication procedure is described best by Ed Krol in his book *The Whole Internet Users Guide & Catalog*, 1992 :

To send a message on the network, a computer only had to put its data in an envelope, called an Internet Protocol (IP) packet, and "address" the packet correctly. The communicating computers --not the Network itself-- were given the responsibility to ensure the communication was accomplished. The philosophy was that every computer on the network could talk as a peer, with any other computer. (Kroll, pg 11)

During the development of this military communication network, ARPA also realized that this concept was a cost-effective easy method for its scientists and researchers to communicate research information with a wide array of universities and research labs. Accordingly, many research institutes and universities connected themselves to this network. ARPA continued to develop technology through the 1970's that allowed the linking or "addressing" of individual computers to this network to expand from its current limits of hundreds to tens of thousands. (Lane, pg 2)

ARPANET was taken over by the National Science Foundation (NSF) in the 1980's and incorporated the NSFnet into the ARPANET which then become known as the Internet. The NSF linked several its large supercomputers which were instrumental in the ongoing research in physics and global weather. The joining of these two capabilities provided the early structure to the Internet in the late 1980's. (Lane, pg 2-3)

The current expansion to the Internet was the direct result of then Senator Gore (D-Tennessee) who introduced a bill entitled the High Performance Computing Act (HPCA) of 1990. This bill was to appropriate funds to greatly expand the Government portion of this network including the NSFnet, Department of Energy network, and the remnants of ARPANET into the National Research and Education Network (NREN). This bill died in conference but was reintroduced as the HPCA of 1991. NRENS' goal was to establish and maintain a high-speed, high capacity research and education network, while helping to develop a commercial presence on the Internet. (Lane, pg 4-5)

The Internet is the collection of Federal, regional, campus, and foreign networks that are linked together to form a seamless system using the Internet Protocol of IP addressing.

Some commercial services such as America On Line (AOL) and COMPUSERVE have developed bridges or "gateways" to the Internet to allow data to be passed between their remote network and the many networks that make up the Internet. These servers are not actually networks on the Internet but allow for the delivery of electronic mail and other data to Internet addresses. (Lane, pg 4)

A publication by Elizabeth Lane and Craig Summerhill *Internet Primer for Information Professionals*, 1993, provides a listing of the major Federal, regional, educational, cooperative, commercial, and foreign Internet networks. The individual networks taken as a whole, not the individual computers or data centers of each network, amounted to over 50 individual networks. Each network consists of various numbers of supercomputers and clients (individual users). One can see that the Internet itself is the networking of all these networks through the use of standard communication methods based on the original ARPANET concepts. (Lane, pg 6-33)

Today the Internet is primarily used for E-mail but lends itself to the use of Internet-based tools that allow for the search and retrieval of information on the Internet. These tools or search techniques are, for the most part, not user friendly and require knowledge of some computer language and terms. This limitation or non-user friendly environment led to the creation of the WWW. (December, pg 5-6)

2. World Wide Web Overview

First and foremost, the WWW is not the Internet. The Web is a concept, not a program, nor a system, and not even a specific technology. (December, pg 4) The WWW is more like an interface or more often related to a Meta-interface. The WWW is the

combination of three systems or concepts including hypertext, the Internet, and multimedia. The concept of the WWW provides the technology needed to offer a navigable, attractive interface for the Internet's vast resources. This concept started in Switzerland in March 1989 by a physicist, Tim Berners-Lee of the European Particle Physics Laboratory (CERN). Berners wanted to be able to exchange information rapidly among geographically separated members and use the ability to hypertext key words in documents to others. (December, pg 4-8; Lescher, pg 134)

This hypertext system allows users to move from point to point, document to document, in a easy, manageable manner. This hypertext system uses a software program called a "browser" to navigate through this hypertext environment. The WWW also relies on a standard protocol called HyperText Transfer Protocol (HTTP). This hypertext system is made up of documents or information sites connected by links or points to other locations. This allows the user the ability to quickly browse information and documents. (Lescher, pg 132-134)

Each of these documents or information sites has a specific electronic address called a Uniform Resource Locator (URL). This is the technology that allows for the rapid movement between information sources and relies on the Internet to navigate to and from hosts (computers that have the information). (Lescher, pg 133)

The WWW is the concept that functionally allows the linking of information and sites throughout many different computers on many different systems. Accessing the WWW can be done by either direct or indirect Internet connections and through a variety of different browser applications. A direct connection is a computer which is a node (or simulated node)

on the Internet. A node is a computer that is directly connected to the Internet and has information stored on the computer. An indirect connection, the computer is simply a terminal and maintains information on a separate computer called a server. An indirect connection limits the types of WWW tools available for use. (December, pg 26-55).

D. USE OF THE INTERNET AND THE WORLD WIDE WEB TO CONDUCT MARKET RESEARCH

The WWW and the Internet are viewed by the researcher as another tool that can be used to facilitate the market research process. Businesses are using the Internet more and more. Businesses use it for E-mail and commerce as many issues of security are resolved. Businesses provide public relations information, product announcements, technical material, and electronic catalogs. Recent surveys of WWW and Internet use provides that the number of Internet hosts has grown from 1.313 million in January of 1993 to 4.852 million in January of 1995 and individual organizations or domains have grown from 21,000 to 71,000 in that same time. (Lescher pg 124-125)

The previous two sections provided some background on the Internet and the WWW. To understand completely how to conduct research through the Internet and the WWW a certain degree of education in Internet/WWW vocabulary, search tools, procedures, and techniques must be developed. These next sections provide this information.

1. Search Skills and Tools for the Internet and WWW

Many of the WWW and Internet information sources rely on basic search logic called boolean. Along with boolean commands there are techniques of truncation and proximity

commands that can refine a search further. Boolean logic creates useful sets of information. Boolean logic uses AND, OR and NOT connectors between terms, information or key words. Appendix D provides diagrams as aids in understanding the connector concepts. (Lescher, pg 54)

The AND connector requires both terms to be present. "A AND B" means the result must contain both A and B (Diagram D-1, Appendix D). The OR connector requires either term to be present. "A OR B" means the result must contain either A or B (Diagram D-2, Appendix D). This function is useful when the use of synonyms or alternative spellings is present. The NOT Connector requires a term not to be present. "A NOT B" means the result must contain A but Cannot Contain B (Diagram D-3, Appendix D). (Lescher, pgs 53-57)

The basics of Boolean logic provides the procurement professional with an understanding of how to conduct electronic searches with tools that use this as a search scheme. Many tools allow for the use of parentheses to control the order of operation. Items contained in parentheses are performed first. Example: (A OR B) AND C, would find all the information related to A or B and also contain C. Two other common electronic data base search techniques which a procurement professional can use are proximity and truncation. Truncation allows you to search easily for plurals, spelling variations, or other word orders. An example is: If the character ? is the "Wild Card" than "copyright?" would find copyright and copyrights. "Wom?n" finds woman and women.(Lescher, pg 55-56)

Proximity Selection allows searching words or terms in specified relationships vice any where in a document or data base. Proximity connectors can specify that a word or term

be a specified distance away from one another. An example is "market w/1 share" would find market share in a document or data base not share of market. Electronic search tools usually specify which of these techniques they use or allow in searching their data base. These several skills form a basic foundation for using the many WWW and Internet tools. (Leshcer pg, 56, December, pg 402)

2. Internet Tools

There are many types of Internet specific tools available to the procurement professional to conduct market research on the Internet. The basic set of tools consists of File Transfer Protocol (FTP), Gopher, and Wide Area Information Server (WAIS). These tools allow for the search and retrieval of information from one Internet site to another. (Lescher pg 137, Krol pg 45)

FTP is the ability to move files back and forth between Internet sites. It is most useful for retrieving files from public archives. FTP is an application that is used to move or retrieve files or directories between computers on the Internet. The ability to connect to and retrieve a file from a computer of which you are not directly part is called "anonymous FTP". This allows the author of a document to post it to a central location and allow anyone with Internet access to retrieve this file/ document for personal use. (Kroll, pg 45, Lane pg, 98)

Gopher is a program that provides easy access to an Internet-based online data base and services by allowing you to make selections from a menu environment. A Gopher server is a computer system resident on the Internet that services the information requests from users of gopher programs. Information in a Gopher server is indexed or cataloged by the owners of the individual information. Gopher indexes are not organized in a standard layout or

catalog. These searches can be limiting if the information is not cataloged in any reasonable manner. Gopher services allow access to public and university libraries and many other Internet data bases. (Lane, pg 190)

The Wide Area Information Server (WAIS) is an extremely useful tool that generates and allows a search to be conducted through a huge range of data bases stored on the Internet. This search tool also provides feedback in a numerical scale of the relevance of the documents it returned for the search. A score of 1,000 would be a direct find and 100 would be a marginal find. This type of search process is now commonplace in new browsers used on the Internet and WWW and provides the most user-friendly tool on the Internet. (Lescher, pg144, Kroll, pgs 211-213, December, pg 22)

Appendix E provides a listing compiled by the researcher of Internet sites that support the above applications. This listing provides a starting point to conduct basic research of information on the Internet using current Internet tools. Appendix F provides a diagram that shows relationships to the various networks, the Internet, Internet tools, and the WWW.

3. WWW Tools

Users of the Internet are most familiar with the WWW interface to the Internet. Browsers such as NETSCAPE, MOSAIC, and others provide a user-friendly face to the Internet specific tools. Once connected to the Internet through a WWW browser, many specific WWW tools are available. (Lescher, pg 145, and December , pg 402)

These tools allow users to interface and connect with all or most portions of the Internet and other electronic mediums. Appendix E lists these locations as a reference. Use of these types of search tools can be done by two techniques: subject and key word oriented

searching.(December, pg 440-500)

The researcher provides some techniques found for using subject searches to aid in the collection of information from the WWW:

- Search broadly at first
- Look for authoritative sources
- Bookmark references often
- Try several different search tools (December, pg 440-441)

Some WWW search tools use key words from document titles and or words from inside the documents. While conducting key word searches, keep in mind the basic search skills presented earlier since many of these tools rely on boolean logic to fulfill a search request. (December, pg 444, Lescher, pg 53)

4. Collection Phase

Using the Internet to collect market research information is similar to any other research effort. Common steps to undertake prior to connecting to the Internet and the WWW to limit time and effort are:

- Define and understand the problem
- Understand the vocabulary of the problem --this will aid in key word or subject searching
- Determine appropriate sources--the Internet and the WWW offer vast amounts of resources so limiting them to particular ones will aid in the sorting process. A search can easily be expanded for more information
- Go online (Lescher, Pgs.. 175-176)

E. SUMMARY

This chapter has introduced the concepts of the Internet and the WWW as another tool to conduct market research in the procurement process. Some techniques and skills were outlined along with background on the expanded importance of the Internet to the procurement workforce. The WWW and the Internet provide a unique opportunity to increase communication, alter current procurement practices, enable faster and more effective research, and provide a medium to communicate between activities through the standard Internet protocols and process.

The procurement workforce should be afforded the Internet as an IT tool to conduct market research. The importance of the IT, like the Internet, to the acquisition process is likely to expand in the next five to ten years. The development or incorporation of the Internet into the market research process now will enable the procurement workforce the ability to keep pace with the market of tomorrow.

VI. CONCLUSIONS AND RECOMMENDATIONS

A. OVERVIEW

Market research is essential to the procurement process and has received renewed emphasis with passage of the FASA and FARA. The term market research is identified as the process by which both procurement and technical professionals collect and analyze information on the market and acquisition environment for which they intend to conduct a procurement. This collection and analysis of market research information is intended to provide a framework to make better and more informed procurement decisions. This research focused on understanding the set of skills and tools procurement professionals use to conduct market research.

B. RESEARCH QUESTIONS

The primary research question was: What tools and skills are required by procurement professionals in order to conduct market research in DON procurement activities and how can new Informational Technologies (IT) be used to aid in this process? In order to properly answer this research question a set of seven subsidiary research questions were established and explored. These questions and summary answers are provided below:

How is market research currently being conducted and how are the results currently being used in DON procurement? Market research is currently not being conducted in a formalized, structured or sophisticated manner at DON procurement. Many activities conduct limited

market research based solely on the needs of a given procurement vice a planned, controlled, and prolonged research effort. Chapter II outlined the conduct of market research at DON procurement activities and provided insight on the collection methods, information collected, people involved, and the documentation of this effort. Chapter IV analyzed survey information and presented the various skills and tools in use to capture and analyze market research information.

The research indicated that the process of market research varies greatly among procurement activities. Additionally many procurement professionals have a narrow view towards the concepts of market research. This narrow view inhibits their ability to investigate thoroughly into a market area. This view was highlighted by the many survey comments provided that the only source of market research information utilized is the CBD synopsis, and that utilizing a sources sought in such a medium provides the foundation of a market research effort. Chapter IV highlights many other findings within this area.

Market research information is being utilized to accomplish many goals. Some organizations firmly use market research to provide for: increased competition, lower prices, better negotiation strategies, improved product quality, and an identification of new sources as illustrated by the survey results.

What tools and skills are currently being employed to conduct market research in DON procurement and who is conducting the research? Chapter IV provided an analysis of survey data and identified major tools and skills currently employed by procurement professionals to conduct and analyze market research information. These tools and skills are

listed in Appendixes B and C. Market research is currently being conducted by both procurement and technical personal. The responsibility of the effort though remains with the contracting officer for any individual procurement. It is necessary to establish and equip these professionals with the required skills and tools in order to perform adequate market research.

What tools and skills are currently being employed to conduct market research in commercial purchasing offices and who is conducting the research?

Chapter II provided insights into a commercial organization as an aid to understanding how commercial activities define, organize towards, plan for, and conduct market research. Chapter IV outlined the survey results of commercial procurement offices and identified their set of skills and tools currently utilized. These are summarized in Appendixes B and C as a complete set of fundamental tools and skills in use.

What are the differences and similarities between the DON and commercial companies in the market research process? The definition of market research as provided in Chapter IV provides an understanding of the differences in concepts towards market research. Commercial activities have taken a broad view towards market research. Industry uses market research to make better informed procurement decisions; the DON activities utilize a narrow view towards market research, focusing on satisfying statute and regulation. DON uses market research to understand the marketplace with regard to identification of commercial items and NDI for procurement. Many of the differences in the market research

process can be attributed to this difference in the definition of market research. Chapter IV provided an analysis of the similarities and difference of skills and tools currently in use between commercial and DON organizations.

In what aspect of the market research process would IT be useful? Chapter V outlined the inclusion of an information tool, the Internet, into the market research process. This application of IT is directed at the collection and dissemination of market research information. Procurement professionals through various acquisition reform initiatives are understanding the usefulness of IT as an aid in disseminating information to the procurement workforce. Many agencies now utilize a WWW home page to promote best practices, new ideas, and provide a forum for communication. Chapter V provided a basis for using the Internet as another tool for capturing and disseminating market research information.

Will the inclusion of IT to market research cause additional problems and what are those problem? The inclusion of IT into conducting market research will be a change to the current process. Chapter V provides parameters for including IT into a process and the environment necessary for change. Many procurement professionals believe the Internet to be a future source of market research information. The incorporation of the Internet and the WWW into the market research effort will take some time. Over time and continued use, a better understanding on how to utilize this tool will evolve. The process provided in chapter V and the understanding of how to implement an IT project will aid in alleviating many of the cultural biases towards the Internet and other IT tools into the market research effort.

How would DON procurement professionals benefit from the increased use of IT in the market research process? The inclusion of IT into the market research process will aid the procurement professional to collect and disseminate market research information faster and easier. Chapter V discussed using a IT tool such as the Internet to aid in the collection of market research information. Chapter V provided a summary of Internet unique tools and skills the procurement workforce will need to utilize the Internet in its current state to conduct market research.

C. CONCLUSIONS

The following conclusions are drawn from this research:

1. The definition of market research provided to the procurement workforce is sufficiently narrow in scope to possibly inhibit the procurement process. The current definition focuses on the identification of commercial items and NDI to satisfy agency requirements and not on the broader concept of market research providing a means in which to make better and more informed procurement decisions.
2. The current organizational structure does not adequately support the individual procurement professional's conduct of market research. The OSD provides sufficient policy and guidance and a forum for communication towards market research. The Secretary of Defense has a proper balance of guidance and oversight towards the procurement workforce and market research. More guidance and oversight from OSD would unduly burden the individual agencies. The Secretary of the Navy currently has taken a very limited role towards aiding the DON procurement workforce in conducting market research. Market research in the current acquisition and procurement process is controlled, planned, and conducted at the procurement activity level within DON and provided limited direction from any strategic apex of the organization.
3. Individual procurement professionals or contracting officers

conducting market research are called upon to utilize many different and unique skills. The procurement individual must possess all of the skills and tools required to conduct an effective market research effort based on the current organizational and planning structure found in the DON.

4. Market research is a detailed research effort performed by both contracting and technical personal. The process of detailed market research requires significant time and resources. Procurement professionals need to be supported by an infrastructure that enables them to accomplish this mandatory task of market research.
5. There is not a convenient method for the consolidation of market research information provided to the workforce from any strategic level. DON procurement activities are collecting, analyzing, and storing market research information for each individual procurement and are provided limited ability to share market research information among DON activities.
6. Information technologies (IT) are scarcely used in the current process of market research. The procurement workforce would benefit from the use of IT in the collection and dissemination of information amongst DON activities.

D. RECOMMENDATIONS

1. Increase the role and involvement of the Secretary of the Navy's office in the market research process. This policy and guidance level could expand on the capabilities to aid in the dissemination and collection of market research information and provide a coordinated effort towards market research within DON.
2. Expand on the definition and guidance given to the procurement workforce to include a broader definition of market research. Remove the current language in regulations and policy documents that narrowly focuses the intent of market research on identifying commercial items and NDI with one that focuses on market research as a process by which to make better and more informed procurement decisions.
3. Expand the planned role of the DON acquisition reform office's new Acquisition Center of Excellence (ACE) to include market research.

The ACE concept is to provide a singular office or functioning activity to help solve procurement problems. The ACE can fill the need for increased communication or sharing of market research information between buying activities. The researcher recommends staffing the ACE with procurement professionals who are versed in the market research process to aid the procurement workforce in the difficult task of collecting and analyzing market research information.

4. Incorporate IT such as the Internet into the market research process. Provide the procurement workforce the Internet as an IT tool which can be used to collect and disseminate market research information between procurement activities. This application of technology will enhance the market research process by facilitating communication and the efficient use of resources from multiple procurement locations.
5. Make market research more of an integral part of advanced procurement planning and the budget cycle. Use the current tools of the POM, FYDP, and other readily available planning documents to communicate with industry and the procurement workforce. Advanced procurement planning and market research must be communicated early in the procurement process, not on an individual contract action.
6. Include formal education on the process of market research as a detailed and extensive research effort. Make the workforce aware of research methodologies and processes. Develop training courses that aid in developing research skills and the utilization of tools that can be used to both collect and analyze market research information. Move the current training away from the focus on identifying commercial sources and more towards incorporating the philosophies of research disciplines.

E. AREAS FOR FURTHER RESEARCH

The following areas are deemed worthy of further research.

1. Study market research at a DON procurement activity to develop and document a model of the process and propose improvements.
2. Study the incorporation of market research into the budgetary cycle and propose improvements in communicating information to industry and the procurement workforce.

APPENDIX A. SURVEY AND SUMMARY OF DATA

Appendix A provides the survey questions and a table summarizing the results. The table summarizing the results provides the frequency of responses for each question and a statistical summary. Individual survey responses for each particular survey are not provided. Chapter IV provides presentation and analysis of the survey data in a narrative form.

A. SURVEY

1. When conducting market research to aid in planning for a procurement and source selection or simply to gain a further understanding of the marketplace or industrial sector what percent of the time do you use the following tools in your research effort? (Please circle appropriate choice)

	0	1	2	3	4	5
	Never	1%-20%	21%-40%	41%-60%	61%- 80%	81%-100%
a.	U.S. Government publications and or Government catalogs from any Federal department (Labor, GSA, etc.).					0 1 2 3 4 5
b.	Professional contracting publications or journals such as National Contract Management magazine or other.					0 1 2 3 4 5
c.	Market analysis reports from analysts such as Dun and Bradstreet.					0 1 2 3 4 5
d.	Information from other Government contracting agencies.					0 1 2 3 4 5
e.	Established Bidders Lists.					0 1 2 3 4 5
f.	Industry representatives					0 1 2 3 4 5
g.	Industry generated catalogs or other publications.					0 1 2 3 4 5
h.	Conduct Internet searches.					0 1 2 3 4 5
I.	A shared information data base or Management Information System (MIS).					0 1 2 3 4 5
j.	Personal computer.					0 1 2 3 4 5
k.	A spread sheet or similar computer program.					0 1 2 3 4 5
l.	An electronic medium such as a CD rom.					0 1 2 3 4 5

- m. Create or refer to your own personnel computer data base. 0 1 2 3 4 5
- n. A computer based statistical or mathematical program. 0 1 2 3 4 5
- o. The World Wide Web or an electronic bulletin board. 0 1 2 3 4 5
- p. Refer to advertisement in trade journals, newspapers or other publications 0 1 2 3 4 5
- q. Advertise on a world wide web bulletin board or home page. 0 1 2 3 4 5
- r. Electronic commerce. 0 1 2 3 4 5
- s. Contact industry participants via E-mail. 0 1 2 3 4 5
- t. Services of commercial marketplace research firms or consultants. 0 1 2 3 4 5
- u. Visits to industry facilities 0 1 2 3 4 5
- v. other.

Please list any other tool you use in your efforts to conduct market research or understand an industry segment. Please indicate a percent of time used. Attach additional sheets if necessary.

2. When conducting market research to aid in planning for a procurement and source selection or simply to gain a further understanding of the marketplace or industrial sector; how often are you collecting the following types of information:(Please circle appropriate choice)

0	1	2	3	4	5
Never	1%-20%	21%-40%	41%-60%	61%- 80%	81%-100%

- a. Production or manufacturing processes descriptions. 0 1 2 3 4 5
- b. Demand for a product or service within an industry. 0 1 2 3 4 5
- c. Potential new technologies that are applicable to your 0 1 2 3 4 5

- procurement.
- d. Past performance of potential contractors. 0 1 2 3 4 5
 - e. Quality of potential contractors supplies or services. 0 1 2 3 4 5
 - f. Identify potential new sources for a particular product or service. 0 1 2 3 4 5
 - g. Assessing the production capacity of a given industry or of a specific potential contractor. 0 1 2 3 4 5
 - h. Assessing production capabilities for an industry or a specific potential contractor. 0 1 2 3 4 5
 - i. Assess the labor relations with in an industry or potential contractor. 0 1 2 3 4 5
 - j. Financial data concerning a potential contractor. 0 1 2 3 4 5
 - k. Market share for a given industry with regard to participants. 0 1 2 3 4 5
 - l. Define a market price. 0 1 2 3 4 5
 - m. Establish general market data such as labor rates over head rates. 0 1 2 3 4 5
 - n. Availability of commercial products to a military requirement. 0 1 2 3 4 5
 - o. Understating applicable new technology in the commercial marketplace for potential sources of military items. 0 1 2 3 4 5
 - p. Understanding trade relations that can effect sources of supply , price, and or demand for products and services with in a given industry. 0 1 2 3 4 5
 - q. Establish general economic trends and data. 0 1 2 3 4 5
 - r. Why solicitations did not generate competition. 0 1 2 3 4 5
 - s. Size of an individual business 0 1 2 3 4 5
 - t. Types of warranties inherent to a given industry or product. 0 1 2 3 4 5

- u. Extent to which transportation or distribution of a product is available. 0 1 2 3 4 5
- V. Quality control systems and procedures for potential contractors. 0 1 2 3 4 5
- w. Extent to which their is configuration control and maintainability with in the commercial marketplace for a given product. 0 1 2 3 4 5
- X. Maturity of a product or service. 0 1 2 3 4 5
- y. Pace in which new technology transforms a given product or service over time. 0 1 2 3 4 5

Z. Other: Please list any other types of information you collect during market research or use as an aid to understand an industry segment. Attach additional sheets if necessary.

3. Market research is conducted to gather information concerning a given marketplace, product, or industry . Upon collection of this information concerning a specific product or industry, to what extent are the following analysis skills used to evaluate and make acquisition decisions?:(Please circle appropriate choice)

0	1	2	3	4	5
Never	Very little	Occasionally	Often	Very often	All the time

- a. Graphical presentation such as charts showing trends or market share. 0 1 2 3 4 5
- b. Comparative analysis. 0 1 2 3 4 5
- c. Statistical analysis. 0 1 2 3 4 5
- d. Economic analysis or forecasting. 0 1 2 3 4 5
- e. Technical or engineering analysis. 0 1 2 3 4 5
- f. Production process analysis. 0 1 2 3 4 5
- g. Value analysis. 0 1 2 3 4 5
- h. Financial analysis. 0 1 2 3 4 5

i. Other: Please list and explain any other form of analysis you use upon collection of information gathered during market research.

4. At your activity or command what are the goals or benefits of market research? If you are not conducting regular or formal market research what benefits do you feel market research would give your activity?(Please circle appropriate choice)

	1	2	3	4	5	
	Strongly	Disagree	Unsure	Agree	Strongly	
	Disagree				Agree	
a.	Increase competition.					1 2 3 4 5
b.	Lower over all prices paid for products or services.					1 2 3 4 5
c.	Better negotiation strategy development					1 2 3 4 5
d.	Shorter delivery time to end user.					1 2 3 4 5
e.	Improved quality of products or services					1 2 3 4 5
f.	Identify new sources of supply.					1 2 3 4 5
g.	Better or more complete development of user requirements					1 2 3 4 5
h.	Identify impediments to competition with in an industry					1 2 3 4 5
i.	Make better or more informed acquisition decisions					1 2 3 4 5
j.	Reduce cost to customer.					1 2 3 4 5
k.	Identify new commercial products applicable to meet agency needs.					1 2 3 4 5
l.	Meet the requirements of regulations for conducting market research.					1 2 3 4 5
m.	Aid in obtaining commercial items or off the shelf technologies.					1 2 3 4 5
n.	Other : Please list any other goals or benefits your activity achieves through market					

research. Additionally please explain why any of the above listed goals are not achievable through market research at your current activity.

5. Given the choice of tools available to you to conduct market research, rank the following tools in order of importance to you. (1 = your top choice or the tool you rely on most):

- a. Publications or catalogs all types. ()
- b. Electronic sources such as the Internet, electronic bulletin boards, or electronic commerce. ()
- c. Other Government agencies (procurement offices, Department of Commerce Etc.) ()
- d. Management Information Systems. ()
- e. Personally developed contacts (ex: your Rolodex) ()
- f. Industry generated information (includes representatives, associations, trade shows Etc.) ()
- g. Use a commercial firm to conduct your research. ()
- h. Internal preferred suppliers lists ()

I. Other: Please list any other tool of choice that is not listed above that you use on a regular basis. Please include a relative ranking to the other above items.

6. How is your agency or organization organized to conduct market research. (Please check any that apply):

- a. Organized with a central group of people that conduct market research for the entire agency. ()
- b. Each buyer or procurement specialist conducts his/her own procurement research. ()
- c. Contracting department collects the market research information but uses other agency technical personnel to analyze portions of the data such as engineering process, Financial analysis, and other demand forecasting. ()

d. A combination of the above.
()

7. Does your agency conduct formal market research only when required by regulation or statute.

- a. Yes ()
- b. No ()

8. Please rank the following skills with regard to their importance in the conduct of collecting detailed market research (1 = your top choice or the skill that is most important):

- a. Expertise in research methodologies. ()
- b. Understanding of a search logic such as Boolean logic. ()
- c. Personnel computer expertise ()
- d. Writing skills ()
- e. Public speaking skills ()

f. Other: Please list any other skill needed to collect market research information that is not listed above that you use on a regular basis. Please include a relative ranking to the other above items.

Please indicate the extent of your agreement to the following questions :

9. Electronic bulletin boards and the Internet will become a significant place to conduct market research within the next ten years.

1	2	3	4	5
Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree

10. The ability to share information between buying activities concerning contractor past performance and other market data is an important aspect of market research.

1	2	3	4	5
Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree

11. A management information system that acts as a central repository concerning market research data collected by the Department of Defense would be an aid to the acquisition process.

1	2	3	4	5
Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree

12. I now possess the appropriate skills and tools available to collect and analyze market research information using informational technologies such as the Internet, Management Information Systems, Electronic Commerce and other new technologies.

1	2	3	4	5
Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree

13. If offered I would take a class or attend a training session on how to conduct market research on the Internet because this skill will enhance my ability to collect market research information.

1	2	3	4	5
Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree

14. The use of automation and electronic data bases would/has enabled me to collect more market research information faster and of better quality.

1	2	3	4	5
Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree

15. With in my organization or agency it is important that every one conducting market

research has all the analysis skills required to independently collect and analyze market research information.

1	2	3	4	5
Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree

16. Within your activity or organization how is a product, service or industry chosen to be a candidate for detailed market research? Please indicate all that apply to your process of selection:

a. Dollar threshold of item or procurement. ()

(If this applies please indicate the Dollar value: item _____, Procurement _____)

b. All procurement request receive thorough market research. ()

c. Percentage of products or services from a given industry procured at your agency in relation to all total procurments. ()

d. Product availability ()

e. Lack of competition with in an industry or for a individual procurement ()

f. Quality of a given product or service. ()

g. Frequency of demand of an item or commodity. ()

17. Please take a moment and list any additional information on your ability to collect and analyze market research for the acquisition process that was not address in the above survey questions.

B. SUMMARY OF DATA

This section contains two tables that summarize the survey results. One table for DOD/DON results and a second for commercial activities. These tables list individual responses to the survey questions by overall frequency of responses to a question and also provides a statistical summary for each. The tables are displayed in two data sets to be able to compare DOD/DON and commercial views.

The following is a reiteration of the scale used for each question:

Questions # 1, and 2 used a percent of time scale:

0	1	2	3	4	5
Never	1%-20%	21%-40%	41%-60%	61%- 80%	81%-100%

Question # 3 used a frequency of use scale:

0	1	2	3	4	5
Never	Very little	Occasionally		Often	Very often
				Very often	All the time

Question #4, 9, 10, 11, 12, 13, 14, 15 used an opinion scale:

1	2	3	4	5
Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree

Question #5 and 8 are ranked from 1- 8. 1 is the top choice 8 being the lowest choice in priority.

Question # 6, 7, 16 choices are indicated by 1 for yes, and a 0 for no.

1. DOD Survey Results

DOD/GOVERNMENT SURVEY RESULTS												
Responses										Statistical Summary		
	0	1	2	3	4	5	6	7	8	MEDIAN	MODE	AVGDEV
QUES #	0	1	2	3	4	5	6	7	8	MEDIAN	MODE	AVEDEV
1A	7	10	3	5	2	3	0	0	0	1	1	1.44
1B	13	9	2	4	1	1	0	0	0	1	0	1.11
1C	9	13	5	0	1	2	0	0	0	1	1	.93

DOD/GOVERNMENT SURVEY RESULTS

Responses

Statistical Summary

	0	1	2	3	4	5	6	7	8	MEDIAN	MODE	AVGDEV
1D	4	8	8	4	2	4	0	0	0	2	2	1.128
1E	3	5	4	4	5	9	0	0	0	3	5	1.52
1F	4	10	2	11	0	3	0	0	0	2	3	1.33
1G	5	13	3	3	4	2	0	0	0	1	1	1.33
1H	17	3	4	4	0	2	0	0	0	0	0	1.24
1I	16	5	3	6	0	0	0	0	0	0	0	1.03
1J	13	5	2	0	3	7	0	0	0	1	0	1.96
1K	14	5	2	1	5	3	0	0	0	1	0	1.63
1L	19	7	1	2	1	0	0	0	0	0	0	.95
1M	15	7	1	3	1	3	0	0	0	1	0	1.33
1N	22	4	0	3	1	0	0	0	0	0	0	.81
1O	12	10	1	3	2	2	0	0	0	1	0	1.20
1P	4	13	6	2	3	2	0	0	0	1	1	1.12
1Q	14	7	1	2	1	5	0	0	0	1	0	1.56
1R	10	6	2	2	4	6	0	0	0	1	0	1.78
1S	16	5	3	3	0	3	0	0	0	0	0	1.28
1T	19	8	0	2	0	1	0	0	0	0	0	.79
1U	8	16	1	2	1	2	0	0	0	1	1	.94
2A	9	8	3	6	2	2	0	0	0	1	0	1.33
2B	11	10	2	2	3	2	0	0	0	1	0	1.28
2C	6	8	4	3	5	4	0	0	0	2	1	1.51
2D	3	2	3	2	7	13	0	0	0	4	5	1.50
2E	1	1	6	5	5	11	0	0	0	4	5	1.27
2F	3	8	6	3	6	4	0	0	0	2	1	1.40
2G	6	7	6	4	4	3	0	0	0	2	1	1.31
2H	4	7	6	5	4	4	0	0	0	2	1	1.34
2I	13	5	4	3	2	3	0	0	0	1	0	1.44
2J	2	6	4	5	4	9	0	0	0	3	5	1.53
2K	13	5	4	3	2	3	0	0	0	1	0	1.48

DOD/GOVERNMENT SURVEY RESULTS

Responses

Statistical Summary

	0	1	2	3	4	5	6	7	8	MEDIAN	MODE	AVGDEV
2L	4	5	5	5	7	4	0	0	0	3	4	1.42
2M	6	3	5	4	7	5	0	0	0	3	4	1.52
2N	5	5	5	4	5	6	0	0	0	3	5	1.53
2O	7	8	5	2	3	5	0	0	0	2	1	1.46
2P	11	7	4	2	4	2	0	0	0	1	0	1.38
2Q	9	7	6	1	4	3	0	0	0	1	0	1.38
2R	3	8	2	10	2	5	0	0	0	3	3	1.34
2S	3	8	2	4	2	11	0	0	0	3	5	1.72
2T	5	9	1	8	3	4	0	0	0	2	1	1.46
2U	7	10	4	4	2	3	0	0	0	1	1	1.41
2V	5	6	4	3	6	6	0	0	0	2	1	1.63
2W	8	5	3	2	7	5	0	0	0	2	0	1.72
2X	9	7	5	1	4	4	0	0	0	1	0	1.51
2Y	11	4	6	1	1	7	0	0	0	2	0	1.61
3A	9	9	2	5	3	2	0	0	0	1	0	1.39
3B	2	0	7	6	6	9	0	0	0	3	5	1.30
3C	5	6	6	3	7	3	0	0	0	2	4	1.46
3D	8	2	6	5	7	2	0	0	0	2	0	1.46
3E	3	4	2	7	6	8	0	0	0	3	5	1.42
3F	9	7	3	2	6	3	0	0	0	1	0	1.60
3G	4	3	4	6	3	10	0	0	0	3	5	1.52
3H	4	3	1	7	8	7	0	0	0	3	4	1.39
4A	0	1	2	1	14	12	0	0	0	4	4	.67
4B	0	1	4	7	6	12	0	0	0	4	5	1.01
4C	0	1	1	3	13	12	0	0	0	4	4	.67
4D	0	3	7	5	10	5	0	0	0	4	4	1.09
4E	0	1	4	5	12	8	0	0	0	4	4	.87
4F	0	2	1	2	11	14	0	0	0	4	5	.81
4G	0	3	4	4	12	7	0	0	0	4	4	1.03

DOD/GOVERNMENT SURVEY RESULTS

Responses

Statistical Summary

	0	1	2	3	4	5	6	7	8	MEDIAN	MODE	AVGDEV
4H	0	2	2	5	17	4	0	0	0	4	4	.76
4I	0	1	1	2	15	11	0	0	0	4	4	.65
4J	0	1	3	10	9	7	0	0	0	4	3	.9
4K	0	1	1	2	13	12	0	0	0	4	5	1.34
4L	0	1	0	4	14	11	0	0	0	4	4	.64
4M	0	1	2	3	14	10	0	0	0	4	4	.70
5A	0	4	7	4	7	4	4	0	0	3	2	1.40
5B	0	7	6	5	2	2	4	2	3	3	1	1.97
5C	0	4	6	7	4	5	1	3	0	3	2	1.50
5D	0	2	2	2	4	7	3	5	4	5	5	1.64
5E	0	6	2	1	6	8	4	1	1	4	5	1.67
5F	0	2	2	6	5	3	5	7	0	4	3	1.66
5G	0	0	1	0	0	2	0	7	19	8	8	.99
5H	0	9	5	2	1	2	4	4	2	2.5	1	2.31
6A	28	2	0	0	0	0	0	0	0	0	0	.12
6B	12	18	0	0	0	0	0	0	0	1	1	.48
6C	19	11	0	0	0	0	0	0	0	0	0	.46
6D	16	14	0	0	0	0	0	0	0	0	0	.50
7A	21	9	0	0	0	0	0	0	0	0	0	.41
7B	9	21	0	0	0	0	0	0	0	1	1	.412
8A	1	17	3	3	3	2	0	0	0	1	1	1.22
8B	2	0	3	3	4	16	1	0	0	5	5	1.16
8C	2	2	12	5	3	5	0	0	0	2	2	1.18
8D	2	5	6	9	5	1	1	0	0	3	3	1.13
8E	2	2	2	4	10	8	0	1	0	4	4	1.24
9	0	0	0	2	5	23	0	0	0	5	5	.45
10	0	0	2	1	6	20	0	0	0	5	5	.67
11	0	1	2	5	8	14	0	0	0	4	5	.87
12	0	3	6	1	13	7	0	0	0	4	4	1.11

DOD/GOVERNMENT SURVEY RESULTS												
Responses										Statistical Summary		
	0	1	2	3	4	5	6	7	8	MEDIAN	MODE	AVGDEV
13	0	0	1	4	11	14	0	0	0	4	5	.67
14	0	0	0	1	16	13	0	0	0	4	4	.51
15	0	1	7	1	12	9	0	0	0	4	4	1.01
16A	14	16	0	0	0	0	0	0	0	1	1	.62
16B	25	5	0	0	0	0	0	0	0	0	0	.31
16C	26	4	0	0	0	0	0	0	0	0	0	.22
16D	15	15	0	0	0	0	0	0	0	0	0	.50
16E	9	21	0	0	0	0	0	0	0	1	1	.43
16F	18	12	0	0	0	0	0	0	0	0	0	.47
16G	17	13	0	0	0	0	0	0	0	0	0	.48

2. Industry Survey Results

INDUSTRY SURVEY RESULTS												
Responses										Statistical Summary		
	0	1	2	3	4	5	6	7	8	MEDIAN	MODE	AVGDEV
QUES #	0	1	2	3	4	5	6	7	8	MEDIAN	MODE	AVEDEV
1A	5	7	1	0	1	0	0	0	0	1	1	.66
1B	4	3	2	1	3	1	0	0	0	1.5	0	1.5
1C	3	3	2	4	2	0	0	0	0	2	3	1.22
1D	6	5	2	1	0	0	0	0	0	1	0	.73
1E	0	0	1	5	5	3	0	0	0	4	3	.76
1F	1	0	1	4	4	4	0	0	0	4	3	1.06
1G	1	1	1	7	3	1	0	0	0	3	3	.83
1H	4	3	4	1	2	0	0	0	0	1.5	2	1.14
1I	2	5	3	0	2	2	0	0	0	1.5	1	1.40
1J	3	1	3	1	4	2	0	0	0	2.5	4	1.57

INDUSTRY SURVEY RESULTS

	Responses									Statistical Summary		
	0	1	2	3	4	5	6	7	8	MEDIAN	MODE	AVGDEV
1K	3	1	3	2	4	1	0	0	0	2.5	4	1.42
1L	5	5	1	2	1	0	0	0	0	1	1	1.02
1M	3	1	2	3	4	1	0	0	0	3	4	1.42
1N	5	3	2	3	0	1	0	0	0	1	0	1.28
1O	4	6	2	1	1	0	0	0	0	1	1	.87
1P	2	1	2	6	3	0	0	0	0	3	3	1.07
1Q	9	4	0	1	0	0	0	0	0	0	0	.64
1R	7	3	3	0	1	0	0	0	0	0	0	.92
1S	5	5	1	3	0	0	0	0	0	1	1	.91
1T	5	4	2	2	1	0	0	0	0	1	0	1.08
1U	1	2	2	5	3	1	0	0	0	3	3	1.081
2A	1	4	2	3	2	2	0	0	0	2.5	1	1.35
2B	1	2	3	4	3	1	0	0	0	3	3	1.12
2C	0	4	1	5	3	1	0	0	0	3	3	1.08
2D	0	0	0	2	7	5	0	0	0	4	4	.56
2E	0	0	0	3	5	6	0	0	0	4	5	.67
2F	0	0	0	3	7	4	0	0	0	4	4	.53
2G	1	2	2	4	3	2	0	0	0	3	3	1.18
2H	0	2	1	5	3	2	0	0	0	3	3	1.10
2I	1	3	1	3	5	1	0	0	0	3	4	1.27
2J	1	1	2	2	4	4	0	0	0	4	4	1.30
2K	1	3	0	4	4	2	0	0	0	3	3	1.24
2L	2	2	1	2	4	3	0	0	0	3.5	4	1.52
2M	2	4	2	1	3	2	0	0	0	2	1	1.55
2N	10	0	1	2	1	0	0	0	0	0	0	1.22
2O	9	1	1	1	2	0	0	0	0	0	0	1.28
2P	3	5	1	1	3	1	0	0	0	1	1	1.48
2Q	0	4	2	4	2	2	0	0	0	3	1	1.18
2R	4	4	1	3	1	1	0	0	0	1	1	1.38

INDUSTRY SURVEY RESULTS

Responses

Statistical Summary

	0	1	2	3	4	5	6	7	8	MEDIAN	MODE	AVGDEV
2S	0	2	1	5	2	4	0	0	0	3	3	1.22
2T	1	2	2	5	2	2	0	0	0	3	3	1.13
2U	1	0	2	4	3	4	0	0	0	3.5	3	1.14
2V	1	0	2	1	3	7	0	0	0	4.5	5	1.20
2W	3	0	1	4	3	3	0	0	0	3	3	1.38
2X	3	0	1	5	3	2	0	0	0	3	3	1.30
2Y	2	2	2	5	1	2	0	0	0	3	3	1.28
3A	3	3	3	3	2	0	0	0	0	2	2	1.16
3B	0	0	3	4	4	3	0	0	0	3.5	4	.92
3C	0	1	2	6	4	1	0	0	0	3	3	.75
3D	1	2	1	5	4	1	0	0	0	3	3	1.06
3E	1	2	3	2	4	2	0	0	0	3	4	1.30
3F	2	3	1	3	4	1	0	0	0	3	4	1.42
3G	0	0	1	3	7	4	0	0	0	4	4	.57
3H	0	0	1	4	7	2	0	0	0	4	4	.65
4A	0	0	2	3	6	3	0	0	0	4	4	.79
4B	0	0	0	4	6	4	0	0	0	4	4	.57
4C	0	0	0	1	8	5	0	0	0	4	4	.51
4D	0	0	3	3	5	3	0	0	0	4	4	.91
4E	0	0	0	3	5	6	0	0	0	4	5	.67
4F	0	0	0	1	5	8	0	0	0	5	5	.57
4G	0	1	0	6	6	1	0	0	0	3.5	4	.71
4H	0	0	4	4	4	2	0	0	0	3	3	.89
4I	0	0	0	2	6	6	0	0	0	4	4	.61
4J	0	0	1	2	6	5	0	0	0	4	4	.66
4K	0	1	1	5	3	4	0	0	0	3.5	3	1
4L	0	2	2	5	3	2	0	0	0	3	3	.94
4M	0	1	1	6	5	1	0	0	0	3	3	.75
5A	0	3	3	3	1	1	3	0	0	3	3	1.56

INDUSTRY SURVEY RESULTS

	Responses									Statistical Summary		
	0	1	2	3	4	5	6	7	8	MEDIAN	MODE	AVGDEV
5B	0	0	2	2	3	3	1	2	1	4.5	5	1.5
5C	0	0	0	3	2	3	1	2	3	5	3	1.63
5D	0	0	2	2	2	6	1	1	0	5	5	1.16
5E	0	4	4	0	3	2	0	1	0	2	2	1.63
5F	0	5	4	1	0	0	2	2	0	2	1	2
5G	0	0	0	1	1	5	1	1	5	5.5	5	1.51
5H	0	6	0	2	1	2	1	2	0	3	1	2.2
6A	10	4	0	0	0	0	0	0	0	0	0	.41
6B	6	8	0	0	0	0	0	0	0	1	1	.48
6C	8	6	0	0	0	0	0	0	0	0	0	.48
6D	9	5	0	0	0	0	0	0	0	0	0	.45
7A	11	3	0	0	0	0	0	0	0	0	0	.33
7B	4	10	0	0	0	0	0	0	0	1	1	.41
8A	0	3	4	3	4	0	0	0	0	2.5	2	1
8B	0	2	3	0	2	7	0	0	0	4.5	5	1.45
8C	0	2	4	3	4	1	0	0	0	3	2	1.02
8D	0	6	4	2	2	0	0	0	0	2	1	.85
8E	0	1	1	5	2	4	1	0	0	3.5	3	1.14
9	0	0	1	0	9	4	0	0	0	4	4	.48
10	0	0	0	1	8	5	0	0	0	4	4	.51
11	0	1	1	6	5	1	0	0	0	3	3	.75
12	0	0	3	2	9	0	0	0	0	4	4	.73
13	0	0	2	3	6	3	0	0	0	4	4	.79
14	0	0	1	2	8	3	0	0	0	4	4	.54
15	0	0	5	2	5	2	0	0	0	3.5	2	1
16A	4	10	0	0	0	0	0	0	0	1	1	.41
16B	14	0	0	0	0	0	0	0	0	0	0	0
16C	11	3	0	0	0	0	0	0	0	0	0	.33
16D	7	7	0	0	0	0	0	0	0	.5	0	.5

INDUSTRY SURVEY RESULTS

Responses

Statistical Summary

	0	1	2	3	4	5	6	7	8	MEDIAN	MODE	AVGDEV
16E	7	7	0	0	0	0	0	0	0	.5	1	.5
16F	5	9	0	0	0	0	0	0	0	1	1	.46
16G	7	7	0	0	0	0	0	0	0	.5	1	.5

APPENDIX B. LIST OF SKILLS

This appendix lists some suggested skills most commonly used by procurement professionals to collect and analyze market research information. The list is provided for establishing a minimum level of skills at DON procurement activities in order to conduct an effective market research program.

A. COLLECTION

- Expertise in research methodologies .
- Ability to use and conduct research in any type of data base.
- Ability to formulate and ask detailed questions.
- Ability to plan a research task in order to minimize resources associated with collection of only needed information.
- Ability to read and understand the material presented.
- Ability to organize and collect information into a useable medium.
- Personal Computer expertise.
- Personal knowledge of product and market.
- Reading and a strong academic background.
- Customer service focus and listening skills to focus on internal customer requirements.
- Writing and other communication skills.

B. ANALYSIS

- Comparative analysis.
- Financial analysis.
- Value analysis.
- Economic analysis or forecasting.
- Technical or engineering analysis.
- Statistical Analysis.

(Source: Survey data, Various interviews, FAR Part 10, and ASPM)

APPENDIX C. LIST OF TOOLS

This appendix lists some suggested tools most commonly used by procurement professionals to collect and analyze market research information. The list is provided to establish the minimum level of information needed by DON procurement activities in order to conduct an effective market research program.

A. COLLECTION

- Bidders lists.
- Internal preferred suppliers lists.
- Electronic sources such as the Internet, electronic bulletin boards, or electronic commerce.
- Information from other government contracting agencies.
- Publications or catalogs all types.
- Other Government agencies (procurement offices, Department of Commerce Etc.).
- Industry representatives.
- Industry generated catalogs or other publications.
- Refer to advertisement in trade journals, newspapers or other publications.
- Visits to industry facilities.

B. ANALYSIS

- Personal computer.
- A spreadsheet or similar computer program.
- Create or refer to your own personal computer data base program.
- Market analysis reports from analysts such as Dun and Bradstreet.

(Source: Survey data, Various interviews, FAR Part 10, and ASPM)

APPENDIX D. DIAGRAMS FOR BOOLEAN LOGIC EXAMPLES

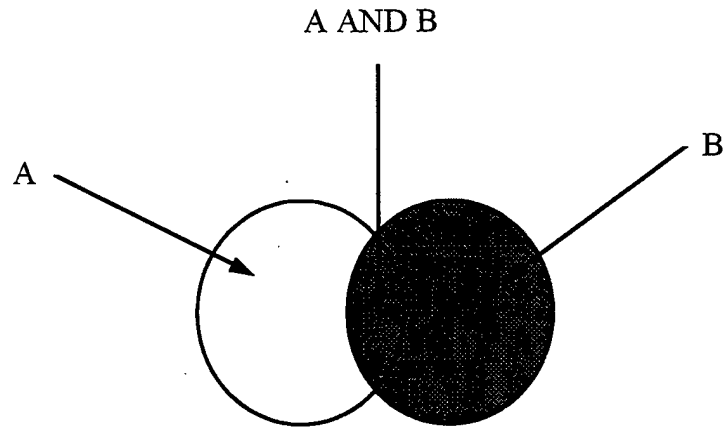


Diagram D-1

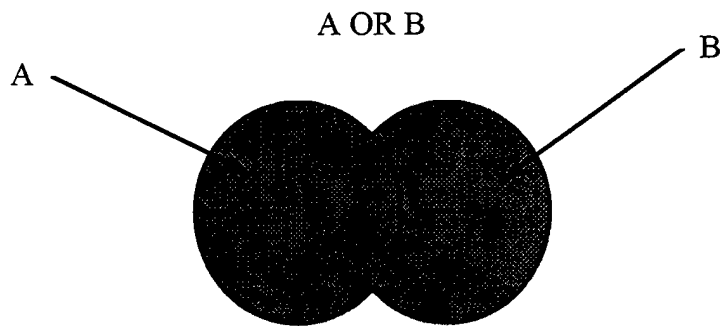


Diagram D-2

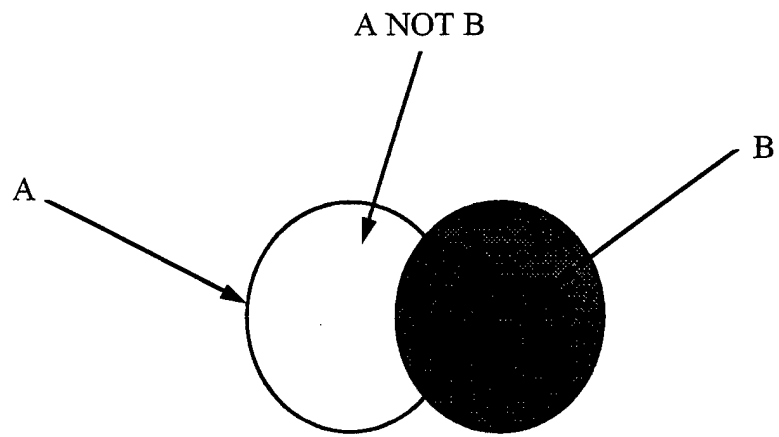


Diagram D-3

(Source: Lescher Pgs., 54-55)

APPENDIX E. INTERNET AND WWW SITES

This appendix is a compiled listing of Internet and WWW sites that can be used as an aid to search for market research information on the Internet. The appendix provides addresses for search tools and where market research information can be obtained.

A. INTERNET SEARCH SITES

<http://web.nexor.co.uk/archie.html>
<http://consultant.micro.umn.edu>
<http://gopher.uiuc.edu>
<http://gophergw.micro.umn.edu>
<http://veronica.scs.unr.edu/11/veronica>
<http://www.wais.com/directory-of-servers.html>

B. WWW SEARCH SITES

Yahoo- <http://akebono/stanford.edu/yahoo>
EINET Galaxy - <http://galaxy.einet/galaxy>
WWWVirtual Library - http://info.cern.ch/hypertext/data_sources/by_subject
Internet Yellow Pages - <http://www.yellow.com>
Infoseek - <http://www.infoseek.com>
Lycos - <http://lycos.cs.cmu.edu>
WWW Worm - <http://www.cs.colorado.edu/hume/nycybryan>
WebCrawler - <http://www.biotech.washington.edu/webcrawler/webquery.html>
Web Wonder - <http://www.digimark.net>
Spiders - <http://web.nexor.co.uk/mak/doc/robots/robots.html>
Harvest - <http://harvest.cs.colorado.edu>

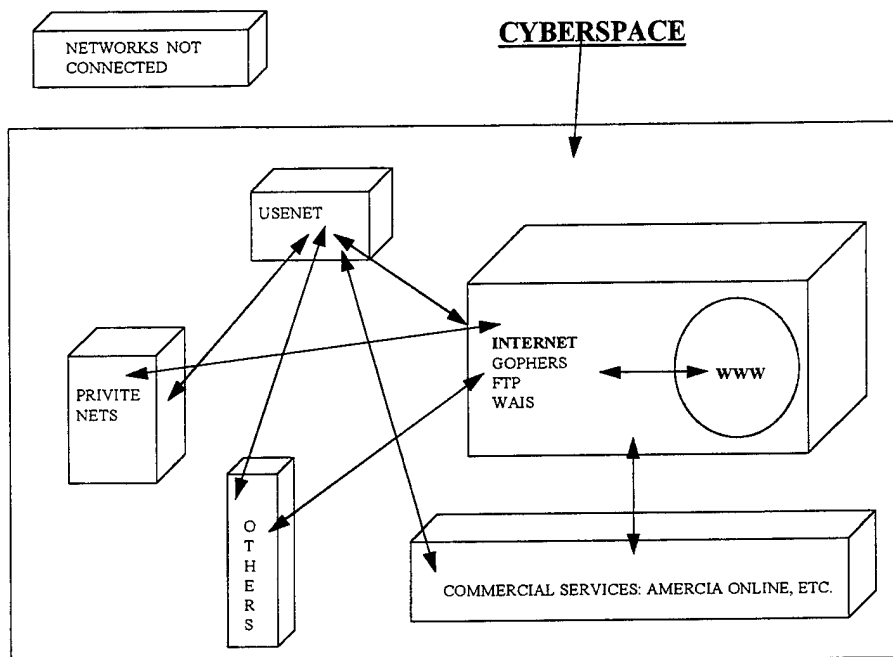
C. SPECIFIC MARKET RESEARCH SITES

OSD Commercial Advocate forum Market Research "Tool Box"
http://www.lmi.org/comm_adv/marksch.html
Federal Information Exchange - http://www.fie.com/www.us_gov.htm
Acquisition reform - <http://www-far.npr.gov>
Thomas Register - <http://www.thomasregister.com:8000>
Department of Commerce - <http://www.sts-usa.gov>
Federal Supply Schedule - <http://www.fss.gsa.gov>
NCMA - <http://www.ncmahq.org>
Science & Technology Acquisition Referral System - <http://www.plk.af.mil>
New Product Announcements - <http://fohnix.metronet.com:80/newprod/newprod.html>
Commerce Net - <http://commercenet.com>
Internet Business Center - <http://www.tig.com/IBC>

Institute of Electrical and Electronic Engineers - <http://www.ieee.org>
Babson Internet Business Resource Links: <http://gopher.bason.edu>
Statistics - <http://www.stat-usa.gov>
Lexis-Nexis Communication Center - <http://www.lexis-nexis.com>
Vivamus Concepts web sites for market research
<http://www.vivamus.com/search.html#primary>
The Federal Acquisition Virtual Library
http://www.arnet.gov/References/vitual_lib_7.html#web_research
(Source: Lescher, Pgs. 156-170, December, Pgs.442 -444, Researchers Efforts)

APPENDIX F. CYBERSPACE RELATIONSHIPS

This appendix show the relationships between the Internet, Internet applications, WWW and WWW applications. (Source: December, pg 399)



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3. Dr. David V. Lamm, (Code SM/LT) Department Of Systems Management Naval Postgraduate School 555 Dyer Road Monterey, California 93943-5104	5
4. Professor Janice Menker, (Code SM/MJ) Department Of Systems Management Naval Postgraduate School 555 Dyer Road Monterey, California 93943-5104	3
5. Dr. Sandra Desbrow (Code SM/DB) Department Of Systems Management Naval Postgraduate School 555 Dyer Road Monterey, California 93943-5104	1
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