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**COMMERCIAL STYLE MARKET RESEARCH
FOR NAVY ACTIVITIES**

by

Elliott Cory Yoder

December 1993

Principal Advisor:

William R. Gates

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FOR NAVY ACTIVITIES**

by

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Submitted in partial fulfillment
of the requirements for the degree of

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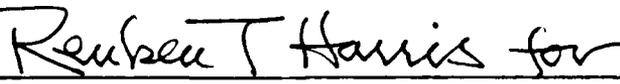
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ABSTRACT

This thesis investigates the nature and functions of commercial style market research. It examines the issues and barriers which face Navy contracting personnel should commercial style market research be assimilated and employed at contracting activities. It specifically considers an acquisition environment characterized by a downsized infrastructure and rapidly changing technological environment.

Commercial entities have been successfully using market research to make better qualified business decisions. Can commercial style market research be successfully applied to Navy acquisition activities? The conclusion is that Navy activities can and should use the successful market research practices of commercial business. However, the Navy manager must be cognizant of the potential barriers to effective and efficient market research which face the Navy as well as the commercial manager. The barriers must be overcome and/or their effects mitigated in order to successfully employ market research. This thesis explores barriers and possible solutions.

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I. INTRODUCTION

A. AREA OF RESEARCH

Market research is providing tangible benefits to corporations in the commercial sector. This thesis investigates the nature and functions of commercial style market research, it examines the issues and barriers which face Navy contracting personnel should commercial style market research be assimilated and employed at contracting activities in an acquisition environment characterized by a downsized infrastructure and a rapidly changing technological environment.

B. RESEARCH QUESTIONS

1. Primary Question

Can commercial style market research be successfully applied to Navy acquisition activities?

2. Subsidiary Questions

1. What constitutes market research in competitive commercial activities?
2. What are the barriers to effectively implementing market research at Navy acquisition activities?
3. How can the barriers to effective implementation be overcome?

C. SCOPE, LIMITATIONS, ASSUMPTIONS

This thesis identifies key current issues in effective and efficient market research, and determines if the Navy can benefit from current commercial practices. Additionally,

barriers to effective and successful employment of commercial style market research are examined, and suggestions made for Navy managers to overcome these barriers.

A thesis was written in 1987 by Richard L. Stewart, titled "Market Research for Effective Competition in the Federal Procurement Process." [Ref. 64] This thesis provided a model for implementing market research. However, Navy activities have not actively used it. In the past few years, the state-of-the-art in information gathering, storing, retrieving, analysis and dissemination has progressed rapidly. Many of the management information systems available today were not economically or technically feasible even as recently as 1987. Rapid change and the resulting technologies have significantly altered the attractiveness and potential of market research. This thesis does not attempt to validate or invalidate Richard Stewart's model, although some of the concepts still apply.

This thesis identifies and analyzes successful commercial market research practices. It highlights the decisions and opinions of progressive managers on how to implement and employ successful market research programs. Because of the broad diversity of acquisition activities and the range of commodities which the Navy buys, this thesis stresses the benefits which commercial market research could provide. It emphasizes Navy activities which procure in non-commodity specific environments, such as a Fleet and Industrial Supply Center (FISC) or Naval Regional Contracting Center (NRCC).

Some Navy managers may prefer a "cookbook" methodology in applying a new approach. However, the magnitude and diversity of purchases, and the market complexities require managerial imagination and ingenuity. As such, managers must tailor programs for their unique applications. Managers will gain insights from this work to help them tailor an effective program.

D. LITERATURE REVIEW AND METHODOLOGY

Information and data for this thesis were obtained by examining current literature, by telephone and personal interviews and through site visits at three progressive corporations and two Navy field contracting activities.

Specifically, an exhaustive search of current periodicals, trade journals, articles and published works was conducted at the Naval Postgraduate School's Dudley Knox library and at the J. Hugh Jackson Graduate Business library at Stanford University's Rosenberg Corporate Research Center. A comprehensive search was made utilizing twenty-three current, interactive, databases at Stanford's Jackson library. Among some of the more fruitful databases were: ABI Inform on Folio, which indexes and abstracts over 800 business journals from 1985 to the present; Business Dateline (CD-ROM), which contains full text from over 165 regional business articles; F&S Index Plus (CD-ROM), which provides abstracts, and full text articles from over 1,000 business sources from 1991 to

the present; Global Vantage (CD-ROM), which provides information on corporations, industries and markets; Dialog Business Connection (ONLINE), which covers a variety of full text reports; and Lexis/Nexis (ONLINE), which covers legal and business news, periodicals and publications. The literature review was essential in determining the current level of knowledge and recent developments in market research.

A second source of information was telephone and personal interviews. These were conducted with several nationally recognized researchers at the Center for Advance Purchasing Studies at the University of Arizona, and the FELS institute of Government Study, Philadelphia. Site visits and personal interviews were conducted at three corporations recognized for their progressive market research programs: Apple Computer, Variar. Electronics, and Selmar-Ludwig Instruments. Site visits were also conducted at two Navy contracting activities: the Fleet and Industrial Supply Center and the Naval Regional Contracting Center, San Diego, Long Beach Detachment. The interviews and personal site visits helped contrast current practices in commercial activities with those used at Navy activities.

E. BACKGROUND DISCUSSION

Market Research is not a new concept. Its merits were publicized in the management science field as early as the 1930's. Market research concepts were more thoroughly developed and utilized by the Government during the Second

World War, where critical material shortages and near full capacity production required Government purchasers to know their markets intimately. In the 1950's, the experience gained from the previous decades combined with a new emphasis on cost reductions and production efficiencies to create a more systematic approach to market research. Recent studies indicate that market research can reduce procurement and materials costs by at least five to fifteen percent. [Ref. 26] In the commercial and industrial markets, a five percent reduction in materials costs can increase net revenues by twenty-five to fifty percent. Given these figures, it's not surprising that commercial activities have begun to embrace market research as a viable corporate policy tool.

Commercial businesses have been successfully employing market research in a variety of competitive environments for decades. Commercial market research has assumed that an effective program will enable the business to effectively and efficiently operate within its competitive environment.

Navy activities may not be capturing all the benefits which an effective market research program could offer. In part, the Navy misunderstands market research and how to employ it. In part, the Navy lacks motivation. The Navy could derive significant benefits from incorporating commercial style market research. This is particularly important considering the current emphasis on deregulation under Section 800 of the 1991 Defense Appropriation Bill. It is reinforced

by recent initiatives to improve the acquisition process and to "reinvent" Government. (Note: additional discussion of the Section 800 will be provided in subsequent chapters).

F. BENEFITS OF RESEARCH

Government procurement is entering a new era. There are initiatives to streamline and reinvent the procurement process to mirror the more successful and cost effective commercial practices. This thesis examines successful market research practices. The purpose is to identify the most promising techniques for the Navy manager. This thesis will enhance market research across a broader range of activities by demonstrating that commercial style market research is necessary and viable in non-commodity specific activities.

Although Rich Stewart's thesis identified a model for integrating market research into organizational decision making, little progress has been made in the Navy. At the same time, market research has expanded in the commercial sector. This thesis will provide a strong case for implementing market research and provide beneficial insights for the Navy manager wishing to do so.

II. DEFINITION AND BACKGROUND

A. INTRODUCTION

Market research is recognized as an essential element of effective procurement, and is a statutory requirement for Government purchases and acquisitions. This chapter defines and examines the statutory and regulatory requirements for using market research in the procurement process, and analyzes the current emphasis by the Section 800 panel to utilize commercial procurement practices, including commercial style market research.

This research and analysis draws on sources and interviews from both the Government and commercial industry. The opinions and conclusions implied by the interviews do not represent a statistically sound sample. However, the results provide necessary insight and a framework for analysis.

B. BACKGROUND

This chapter will address three major areas. First, it will provide a working definition of market research. Second, it will discuss the statutory requirements which make market research mandatory for all Government agencies. Third, it will provide the reader with current insights into how the National Defense Authorization Act for 1991, particularly Section 800, makes market research an essential element of the acquisition process.

C. DEFINITION

The term "market research" must be properly defined in order to distinguish it from terminology and concepts which resemble and are often confused with market research. Dr. John Mulhern, director of the Fels Center for Government Research at the University of Pennsylvania, has defined market research broadly as:

An intellectual effort on the part of a purchaser to ascertain in advance, on the basis of information, what the response of other participants will be to an offer to buy goods and services and what their performance will be if a contract is formed. [Ref. 49]

The term market research should not be confused with or used interchangeably with the term "marketing research." Marketing research is generally concerned with investigating opportunities to sell goods and services. [Ref. 64:p. 35] In particular, marketing research deals with influencing and persuading potential customers that a particular product is better than other products, or that a product meets a particular customer's need. Marketing research is also used in defining opportunities for product development and positioning within the marketplace, again, clearly seller oriented.

It appears that the Government has made an incorrect and unfortunate choice of words in adopting the term "market research" because it closely resembles and is often mistaken for "marketing research." Although many of the information gathering and statistical tools employed by both market research and marketing research may be similar, the end

purposes are different. Clearly, from the definition provided above, Government market research is purchaser oriented. The more commonly accepted definition of marketing research is oriented towards the seller and the seller's market.

The Government's approach to "market research" is more related to what commercial industry defines as "purchasing research." [Ref. 9] The National Institute of Governmental Purchasing defines purchasing research as:

A continuing process in all active purchasing departments, involving investigation and research into new and improved or alternative materials and sources of supply with an ever open door to new offers. [Ref. 20:p. 30]

Because the Government's concept of market research is closer to the commercial industry definition of purchasing research, the Government should have adopted the term "purchasing research." Some of the confusion surrounding market research could have been avoided by simply adopting the commercially accepted name with a similar definition. For the purposes of this thesis, the term market research has the same definition as purchasing research in the commercial sector. Combining Dr. John Mulhern's definition with that provided by the National Institute of Government Purchasing, best describes the basic concept of market research.

The Federal Acquisition Regulation, FAR Part 7, defines "market survey," analogous to "market research." It is "attempts to ascertain whether other qualified sources capable of satisfying the Government's requirement exist." [Ref. 28: Part 7] By this definition, the FAR defines market research

in terms of obtaining adequate competition. This is a valid use of the market research principle. However, this limited definition doesn't capture the full spectrum of applications for which the contracting officer/purchaser can use market research. The FAR definition may deemphasize some of the benefits which market research can provide.

For example, the definition fails to consider negotiating leverage that market and vendor information give the buyer. This leverage may ultimately create cost and/or price savings. The Federal Acquisition Regulation should adopt the commercial definitions cited in the preceding paragraphs to fully convey the benefits and multifaceted objectives and uses of market research.

Within the broader definition, two additional concepts are defined by the Defense Systems Management College. Both go well beyond the Federal Acquisition Regulation's restricted definition. The first concept is "market surveillance." This is defined as "an ongoing process of the acquisition agency to canvass the technology and product developments in its areas of expertise." Market surveillance is a continuing and ongoing process. In contrast, "market investigation" has a more restricted application. Market investigation is "conducted in response to a defined need and focuses on specific solutions." [Ref. 37:p. 17]

D. STATUTORY REQUIREMENTS

The Competition in Contracting Act (CICA) provides the statutory requirement to conduct market research. Prior to CICA, there was little if any emphasis on market research in the Government acquisition process. CICA emphasized the use of competitive procedures in Government contracting. The Act specifically refers to market research three times. All references are associated with "acquisition planning." The term market survey is also used in the Act. It has much the same meaning as market research.

Specifically, the Competition in Contracting Act refers to market research in the following passages:

Section 303A. (a)(1) In preparing for the procurement of property or services, an executive agency shall use advance procurement planning and market research.

Section 2301. (a)(5) ...the head of an agency shall use advance procurement planning and market research and prepare contract specifications in such a manner as is necessary to obtain full and open competition with due regard to the nature of the property or services to be acquired;....

Section 2305. Contracts: Planning, Solicitation, Evaluation, and Award Procedures (a)(1)(A). In preparing for the procurement of property or services, the head of an agency shall-...(ii) use advance procurement planning and market research;.... [Ref. 17:pp. 3-30]

The Federal Acquisition Regulation mandates an additional use of market research within the context of acquisition plans, stating,

If the acquisition or part of it is for commercial-type products, (the plan) should address the results of market research and analysis and indicate their impact on the various elements of the plan. If the acquisition or part of it is for other than commercial or commercial type

products, address the extent and results of the market survey conducted and the reasons one was not or will not be conducted...Once the Government's needs have been functionally described, market research and analysis shall be conducted to ascertain the availability of commercial products to meet those needs.... [Ref. 7:Part 11.100-6]

E. SECTION 800 RECOMMENDATIONS AND THE COMMERCIAL APPROACH

In the National Defense Authorization Act for 1991, Congress mandated that the body of acquisition laws be streamlined. Section 800 of the Act directed the Under Secretary of Defense for Acquisition to appoint an advisory panel of Government and private-sector experts to streamline all laws affecting DOD procurement. Dramatic reductions in Defense spending and drastic personnel reductions dictate that the acquisition system will be managed by fewer people and use far fewer tax dollars. This demands better management. "Better" meaning more flexible and responsive.

According to Ms. Colleen Preston, Deputy Under Secretary of Defense Acquisition Reform, there are two reasons for the current urgency to change current acquisition laws: regulations and practice. First, past acquisitions have been generally successful. The Department of Defense acquisition system has produced the best weapon systems and support in the world. But past success does not mean the current system is perfect. Past success had a price, "both in terms of sheer expense to the nation (money that could have been spent otherwise) and in public confidence in the DOD acquisition system." [Ref. 58:p. 1]

Secondly, and perhaps more important, "is the fact that today's acquisition system evolved to meet needs of the Department of Defense and industry that have in the last few years fundamentally changed." [Ref. 58:pp. 1-2] Among some of the fundamental changes are the rapidly advancing technologies in certain commodities and markets requiring dramatically reduced acquisition lead times and a better way of doing business. It is also recognized that commercial markets are increasingly driving the state-of-the-art, not DOD directed and funded projects. Additionally, the globalization of industry, industrial parity and the concomitant increase in inter-national access to domestic technology require a different approach to maintaining technological superiority.

Colleen Preston and the Section 800 Panel iterate the current philosophy as follows:

The world is a different place, and the challenges facing DOD are fundamentally different than they were even four years ago. Few things are constant or predictable, and new technology developments enable the breaking of rules and practices that at one time made perfectly good sense. The world in which DOD now must operate has changed beyond the limits of the existing acquisition system's ability to adjust or evolve. It is not enough to improve the existing system, we need a fundamental rethinking and reinvention of the acquisition system if we are to be able to respond to the demands of the next decade.

If DOD is to continue to improve its efficiency, reduce acquisition costs, and maintain its technological superiority it **MUST ADOPT THE BEST PRACTICES OF COMMERCIAL COMPANIES....** (emphasis added) [Ref. 58:p. 4]

In a nutshell, the Section 800 panel recommended several changes in the acquisition system, one of which is using more commercial items and adopting commercial business practices.

Specifically, the Panel suggested amendments of Section 2325, 10 U.S.C., to require DOD to:

Define its requirements so that commercial and other non-developmental items may be procured to fulfill those requirements; and

Prior to acquiring a defense-unique item, to perform market research to determine whether commercial or non-developmental items, or modified commercial items, can be used in place of a defense unique item. [Ref. 58:p. 18]

The Panel clearly intends that commercial items should become the norm, not the exception for end-items that are not unique to DOD's war-fighting role. This will require agencies to perform market research, to look diligently for commercial items early in the procurement process, and to use commercial items when they meet the agency's minimum needs. The emphasis on using commercial practices combined with the Panel's recommendation to buy commercial products, places the DOD, and Navy, in a position to benefit greatly from commercial style market research.

III. SOURCES OF INFORMATION

A. INTRODUCTION

"Market research--the systematic collection, classification, and analysis of data as the basis for better purchasing decisions--is increasingly viewed by purchasing departments as a means of lowering costs and coping with the uncertainties of obtaining materials." [Ref. 27:p. 5] An on-going market research program can empower managers by providing them the information to make better qualified business decisions. Where does the information come from? This question must be answered for the manager to understand market research beyond its basic definition. Determining information sources, and collecting and disseminating information provides the manager a better perspective of market research. It is imperative for the manager to understand market research elements and processes before a program can be effectively implemented.

B. NEED FOR MARKET RESEARCH

Dr. Harold E. Fearon identified several areas where effective buying decisions require an in-depth knowledge of the buyer-supplier relationship and the external environment surrounding this relationship.

Some of the information needs for effective purchasing decisions are: our estimated usage requirements; competing demands; raw material availability; price history and forecasts; cost to make (in house or by supplier); alternative manufacturing methods; technological change;

supplier capability and strategy; supplier expansion plans; vendor pricing methods; quality considerations; competitive environment; innovations in transportation and handling, and distribution; government regulations and controls; systems for processing information. [Ref. 27:p. 5]

C. SOURCES OF INFORMATION

Market research's primary objective is identifying information sources and obtaining the knowledge to make qualified business decisions. Good purchasing decisions depend on adequate information, in terms of both quantity and quality. Table 1, lists the information sources used by thirty corporations, six with a full time research staff and 24 without a full time staff. The table is adapted from research conducted by Dr. Harold Fearon. The table shows that market research relies substantially on the most standard information sources. As part of market surveillance, buyers and staff most often rely on sources which are readily available and cost effective.

Sources of information are abundantly available. The benefits derived from any market research program should outweigh the costs associated with it.

According to Dr. Fearon, a majority of firms do not effectively use available information sources for purchasing research. Many sources were only being used by a small percentage of the firms surveyed. Findings indicated that the firms with a full-time market research staff performed a more comprehensive search of sources than those without a full-time

TABLE 1
MARKET INFORMATION SOURCES AND
UTILIZATION [Ref. 27:p. 30]

Source	Used	Most Useful
Trade newspapers and magazines	83%	20%
Vendor sales personnel	80	33
Vendor technical personnel	73	18
Purchasing personnel in other firms	73	27
National Association of Purchasing Management publications	73	9
Vendor Publications	70	5
Trade association publications	67	15
Books on purchasing	63	11
Other departments within the firm	60	0
Corporate annual reports	57	0
U.S. Department of Labor publications	43	23
Consultants	37	18
U.S. Department of Commerce publications	27	25
Trade association personnel	20	0
Public libraries	20	0
University publications	10	33
U.S. Government personnel	7	0
U.S. Department of Interior publications	3	0
Representatives of foreign governments	0	0
Foreign Government publications	0	0
United Nations publications	0	0
U.S. Department of Agriculture publications	0	0

staff. Firms employing full-time staffs are more attuned to the sources of information available, primarily because full-time staff personnel are more experienced at knowing where to look.

Purchasing staffs most often use: catalogs; trade journals; industrial advertising; trade directories; sales personnel; buyer's own experience; contacts with other purchasing agents; trade shows; and staff visits to vendor plants. Additional automated sources are rapidly gaining prominence and revolutionizing the market research process. Automation increases the activity's capabilities which, if integrated properly into the organization, dramatically improves effectiveness and efficiency. Automated information sources are discussed later in this chapter.

Plant or "site" visits are normally utilized in the later stages of the solicitation and award phase. The sources listed above are discussed in the following paragraphs. Particular emphasis is placed on the findings generated from personal interviews and site visits at the Naval Regional Contracting Center, Long Beach Detachment, the Fleet and Industrial Supply Center, Long Beach Detachment, Apple Computer Corporation, and Varian Microwave, Incorporated.

1. Catalogs

Catalogs are one of the most valuable and common information sources available. Catalogs can be obtained through the mail, from vendors, from trade shows and from

journals. The catalogs' value depends on the form in which they are presented, the readiness with which the information can be retrieved and how the information fits the application requirement.

Commercial catalogs often include price lists. These help the purchaser gauge market prices. However, caution should be exercised when relying on the published prices. The asking price may not reflect the prices actually paid within the market place. Economic order quantities, Government discounts, and the dynamic forces of the market place may effect the true price. Prices change so rapidly within many commodity groups that price lists become quickly outdated. It is imperative to update price lists. Maintaining older price lists in chronological order may help the buyer analyze trends, but the buyer should ensure the current list is available.

The catalogs supplied by wholesalers and jobbers usually contain information from a variety of manufacturers within a commodity group. Often times these catalogs have detailed specifications and performance data which help both the purchasing staff and end users.

To be useful, the information contained in catalogs must be indexed and filed. [Ref. 45:p. 215] In some cases the catalogs are placed together in cabinets without any systematic ordering or classification. The Navy activities examined filed catalogs according to vendor name. When used

alone, this system has a serious drawback. The buyer must either know which vendors supply particular items or page through each catalog to find those who do. This is inefficient and ineffective. Indexing the catalogs and cross-referencing according to vendor name and products is essential, at a minimum. Other cross referencing methods can be tailored to the activity depending on the particular need. Automated cataloging systems are powerful tools which can benefit even small activities.

2. Trade Journals and Industrial Advertising

Trade journals are an important information source for research personnel and buyers. There are innumerable trade journals and association publications. Examples include Chemical Purchasing, Iron Age, American Machinist, and Purchasing. Normally, trade journals are limited to specific industrial fields. Every industrial group of any size has a trade journal. Klein's "Guide to American Directories" gives a comprehensive list of all available trade journals.

If read regularly, trade journals enable the buyer to stay abreast of developments within their fields. Articles often describe advances in technology and manufacturing which may affect the market place.

Trade journals also include advertisements which can be useful information sources. "Advertising people are definite in their opinion that in spite of many weaknesses, industrial advertising has value; buyers generally read it and

are, perhaps unconsciously, influenced by it." [Ref. 45:p. 214] However, the ads may not be in a format that lends itself to much more than general information.

There are wide variations in the definiteness of advertising literature which comes to the purchasing agent. As a matter of general comment we may say that the purchasing agent considers advertising literature useful to the extent that it contains sufficiently specific descriptive information of the product to enable the buyer to file it for reference at such time as he may be in the market for the type of material which the advertiser describes. Unfortunately, on the testimony of the purchasing agents we have contacted in this survey, much advertising material is not so formulated as to bring quickly to the attention of the buyer sufficient information of a definite character to warrant its retention as reference material. [Ref. 39:p. 222]

Despite the limitations of advertisements, the progressive buyer cannot afford to neglect them.

The Navy activities reviewed did not use trade journals extensively. Commercial activities utilized them more frequently. Utilization rates are different largely because of the breadth of commodities being purchased. Both Varian Microwave and Apple Computer operate in a more commodity specific market than either the FISC or NRCC. The broad diversity of products purchased by the FISC and NRCC requires more trade journals to cover the various commodity markets. The cost of subscribing to trade journals covering even the most highly active commodity groups, and the time required to read them, would be high. Nonetheless, both the NRCC and FISC could make better use of this valuable resource.

3. Trade Directories

Trade directories and registers provide valuable information. They list manufacturers, distributors, affiliated firms, and products offered. They also relate trade name products to manufacturers and list materials, supplies, equipment, and other items offered for sale. Commodity listings give the name and location of manufacturers and sources of supply. The registers most frequently are arranged by commodity, manufacturer, or trade name. The most famous and widely used directories are the Thomas Register of American Manufacturers and MacRea's Blue Book. [Ref. 45:p. 214]

One source that is often overlooked is the Yellow Pages. All purchasing departments should have current Yellow Pages for the areas and geographical marketplaces in which they operate. In urban areas, it is particularly important to have all the directories applicable to the area. Gaps in coverage can overlook potential information and sources of supply.

All the activities examined had Yellow Pages. Both of the Navy activities' Yellow Pages were, for the most part, out of date. Many buyers had outdated directories on their desks. Additionally, the Los Angeles, Long Beach, and Orange County directories should have been available to users, but were not.

4. Sales Personnel

Sales personnel have always been a good information source. Sales personnel continually canvass a variety of potential clients and are often knowledgeable about industry trends. They gather information from buyers and other salesmen. A good salesman will read trade journals and other market related media. [Ref. 39:p. 221] Sales representatives may constitute one of the most valuable information sources for suppliers, types of products, and trade information.

An alert buyer makes it a point to see as many sales representatives as possible without neglecting other duties. Most activities have ethics policies governing the relationship between vendor salespersons and buyers. Each buyer should thoroughly review the ethics policy on a regular basis. Vendors must also be apprised of the policies.

It is essential to record the sales call and summarize the information obtained. The information should be categorized and filed in the same manner as vendor catalogs. This allows access to the information by all purchasers, not just the buyer who received the sales call. The Navy buyer must also be aware of the limitations imposed by the Federal Acquisition Regulation regarding contact and "discussion" with vendors during the sealed bid process. The buyer must use caution when discussing information which may be considered a violation.

Although both the Navy and commercial activities relied on vendor sales representatives extensively, neither documented the visits in sufficient detail. Only the commercial activities kept active vendor files documenting visits. The Navy could benefit from a pro-active documentation program.

5. Buyer's Own Experience

Often times, the buyer's own market experience for a particular item is a valuable information source. The knowledge gained from operating within a particular market place can be extensive. Past experiences with vendors, negotiations, site visits, and all other learning experiences provide unique advantages when purchasing, negotiating, or gathering information. More senior buyers are generally more familiar with the market place. They are also more likely to understand market research. Training complements the experience base.

All activities, Navy and commercial, benefit from maintaining experienced and well trained personnel. Incentive structures for retaining personnel differ between the Navy and commercial enterprises. The Navy employs civil servants with job security, longevity, and retirement benefits as incentives. Lateral movements occur among different activities, but most stay within the civil service system. Commercial activities motivate by salary and, to a lesser extent, other benefits. Movements may be within the organization, or

frequently to organizations outside the parent company. For example, Apple Computer trains purchasers. They gain on-the-job experience then leave for a more lucrative position at competitors such as Intel or IBM. These movements are beneficial when an organization gains well trained and experienced buyers. It can be detrimental if qualified personnel hemorrhage in an organization. During a downsizing period, qualified buyers may abandon a "sinking ship" leaving less qualified and less experienced buyers.

6. Contact With Other Personnel in the Activity

Many people within the organization know about potential sources, product quality, firms' reputations, and state-of-the-art products. Other buyers, production specialists, engineering, research, testing, maintenance personnel and end users can provide a wealth of information. They can draw on past experiences with products and firms. They usually draw on knowledge from journals and trade associations and from contacts within their field. They often are contacted directly by suppliers, although sales reps should go through purchasing staff. End users often supply information on suggested sources which can be an invaluable starting point for research.

It is essential to encourage active interchange of information among these internal sources. Often times many potential sources within the organization are overlooked.

Apple Computer and Varian Microwave use internal information sources extensively. Varian, in particular, organizes purchasing as an integrated materials management system. Purchasing is involved in all stages of product development, fielding and production support. The interaction with engineers, technicians, and production specialists helps buyers understand the requirements and translate the need into a desired end item. The knowledge gained from high involvement also proves effective during negotiations. Varian buyers are viewed by suppliers as not just clerical purchasers, but as well informed and knowledgeable practitioners.

7. Trade Shows

Trade shows are an excellent information source. The purchasing agent can gain information from displays and by contacting representatives. Buyers have an opportunity to talk directly to other purchasing agents in the same field. It is not unusual for trades to group in geographic areas. An example is the computer industry in "Silicon Valley." Buyers at Apple attend regional trade shows, which support a majority of the manufacturers within the United States. Because the shows are within the geographic area, travel costs are minimized. Within a commodity specific buying organization, attendance at one major trade show can provide a wealth of information. For activities buying various commodities, buyers should attend trade shows related to their specialty.

Not all buyers need to attend all shows. Tailoring allows the activity to gain the most information for the minimum costs.

Small business fairs sponsored by many Government activities are similar to trade shows. They bring buyers together with suppliers interested in participating in Government purchases. These can be quite effective at identifying potential sources which can help an activity meet the socio-economic goals imposed by the Small Business Act and the FAR.

The Navy activities examined did not regularly attend trade or small business fairs, despite the wealth of information they provide. The buyer's workload limits the time available. Funding for attendance fees and travel is also limited. Additionally, buyers don't specialize, making it difficult to target individuals for attendance. Tailoring is difficult due to the diversity of materials being purchased. Nonetheless, buyers could gain from attending trade shows. Information and industry contacts could be categorized and filed for ready access by any buyer.

8. Unsolicited Proposals

Unsolicited proposals are often the source of new and innovative ideas. Unsolicited proposals must be evaluated in a timely manner. An appropriate response must be given to the firm which submitted the proposal. A perceived drawback of unsolicited proposals is that they are not in direct response to a bona-fide need. Consequently, the activity may not be in

a position to capitalize on the proposal. Especially for large dollar value items, the proposed item is not part of the normal planning and funding process. Funds may not be available. Buyers must evaluate the proposals and catalog the pertinent data for future reference. Potential end users should evaluate the items. This may identify a future need. Information contained within unsolicited proposals should be afforded proper care and custody, as it is often proprietary.

9. Plant and Site Visits

"Site visits to manufacturers of products can help you get a better feel for the realities of the industry than can glossy advertising and sales pitches." [Ref. 19:p. 6] To some this may not constitute "pure" market research. Plant visits are normally reserved for the latter stages of source selection, after identifying a potential source. Thus, the visit is timed well past the market surveillance and general information gathering stages. However, plant visits are an invaluable source of information. Experience indicates that the best results can be obtained by properly planning the visit.

It is desirable to (1) to draw up in advance a general outline of the kinds of information to be sought; (2) to gather all reasonably available information, both general and specific, about the company in advance of the trip; and (3) to prepare a detailed report of the findings, once the visit is completed. When the visits are carefully planned, the direct expense incurred is small compared with the returns. [Ref. 45:pp. 216-217]

D. AUTOMATED SOURCES OF INFORMATION

Automation is revolutionizing the way businesses operate. Once infeasible market research projects are now mainstream. Costs of hardware and software have declined dramatically, putting the smaller activity in a position to capitalize on the advents of this rapidly changing technology.

Automated data bases can help generate a list of potential suppliers by relating a product description to a list of manufacturers. Data bases containing information on government contract awards can identify past suppliers and those that have contracted with other DOD activities or other government agencies. Data bases covering commercial products and suppliers may specialize in one industry or may include products from many industries.... [Ref. 58:p. 11]

There are many Government automated information sources.

The Support Equipment Acquisition Management System (SEAMS) is available from the Air Force Acquisition Logistics Center. This system identifies support equipment for aircraft and weapons. The Defense Logistics Services Center's (DLSC) "FED LOG" system provides the user with a CD-ROM based Master Cross-Reference List, the Management Data List (ML-C), and CAGE codes. The files can be searched on the basis of NSN, NIIN, CAGE codes, or part numbers.

Commercially produced automated information sources are also readily available. The Computer Aided Product Selection (CAPS) data base provides specifications, characteristics, and scanned images for integrated semiconductor devices from 425 manufacturers. Dun's Marketing Services (DMS) produces the Electronic Yellow Pages. This on-line system operates through

the DIALOG network or as a stand alone CD-ROM. It contains names, addresses, DUNS number, SIC codes and number of employees for 8.5 million U.S. businesses. Access is based on the SIC code. (Note: Several additional automated sources are listed in Appendix A of the Defense Standardization Program Market Analysis for Nondevelopmental Items). [Ref. 19:Appn A]

The Navy made use of only one automated commercial source of information, the FED LOG system. Its use was limited to cross referencing purchase request part numbers and associated NSN's. This is not done as a market research activity, but merely to identify items which must be requisitioned within DOD supply channels. The Navy could benefit by using automation. Resources are available at reasonable cost. Activities can tailor systems by selecting appropriate automated tools.

E. CONCLUSION

Market research requires systematically gathering and evaluating information to make better qualified decisions. As indicated previously, activities should use all information sources providing a tangible benefit. The costs of gathering, storing, and retrieving data must be analyzed and linked to the benefits derived from those data. Navy activities could realize tangible benefits through a more systematic approach to information gathering and use. Much of the information used at the FISC was not categorized in a meaningful and

useful manner. Thus, buyers didn't use it. Training buyers about how to obtain information sources is paramount to successful market research.

Commercial activities are using automation and automated data bases to gather, store and retrieve information more easily. The Navy could benefit from automation.

IV. THE COMMERCIAL APPROACH

A. INTRODUCTION

The National Institute of Government Purchasing defines purchasing research, analogous to market research, as:

A continuing process in all active purchasing departments, involving investigation and research into new and improved or alternative materials and sources of supply with an ever open door to new offers. [Ref. 20:p. 30]

There is an increasing number of DOD acquisition managers convinced that a better approach to doing business is essential for Government procurement. The Section 800 Panels' recommendation to utilize the "best" commercial practices emphasizes the push to become more efficient and effective. Colleen Preston states, "If DOD is to continue to improve its efficiency, reduce acquisition costs, and maintain its technological superiority it MUST ADOPT THE BEST PRACTICES OF COMMERCIAL COMPANIES...." [Ref. 58:p. 4]

The purpose of this chapter is to identify and analyze market research practices of three successful commercial companies. This overview and analysis will assist the manager by identifying key factors which make the market research program a success.

B. CORPORATE OVERVIEW

Three firms were selected for analysis: Varian Microwave Power Tube Products, Apple Computer Corporation, and Selmer-Ludwig Instruments. Selection was based on the following

criteria. First, the firms had to be "successful." All three firms have grown, shown stability and longevity in economic downturns, and are generating profits for share-holders and/or owners. Within the general business community the firms are recognized as leaders or strong contenders within their markets. Second, the firms had to manufacture different products and sell to different market segments. This ensured the broadest view of commercial market research. Limiting the research to only three firms within the same industry would skew the analysis. Third, the firms must have a majority of customers or sales outside of the Government. All three firms sell primarily to commercial customers. This helped ensure that the firms' structure and practices were not primarily influenced by the adherence to Government mandated practices. This might distort the "commercial" aspect of commercial market research.

Varian Microwave manufactures and markets high-tech electronic devices. Products include gyroscopes, UHF-VHF Klystron tubes, shortwave communications equipment, cavity amplifiers, medical equipment, satellite and tropospheric scatter communications systems, and wave generating Klystron tubes for radars. Varian is an active participant in the design and construction of the TPX (Tokamak Physics Experiment) and ITER (International Thermonuclear Experimental Reactor). ITER is an experimental fusion reactor expected to produce a billion watts of power by the year 2010. Varian

reported net earnings of \$27.8 million for the first three quarters of 1993, up nine percent from the same period a year earlier. Interviews and site visits were conducted at Varian's Palo Alto business complex with John R. Choate. [Ref. 13] Choate is Varian Microwave's Materials/Procurement/MIS Manager.

Apple Computer, Incorporated manufactures and markets personal, desktop and notebook computers. Apple revolutionized the industry nearly a decade ago by introducing the MacIntosh personal computer. This user friendly computer incorporated unique Apple software allowing users to communicate with the computer's program utilizing icons and picture prompts rather than machine language. Apple has recently undergone a dramatic downsizing and restructuring. Many analysts believe that Apple's insistence on designing and manufacturing chips and software which are not compatible with more pervasive and widely used IBM compatible systems, has caused market share decline. Apple has responded by introducing a new line of PCs utilizing both the Apple chip and software and the IBM compatible Intel 486 chip. Lackluster initial consumer response may indicate further trouble for the one time industry innovator. Nonetheless, Apple is still one of the industry powerhouses. The corporate "trouble" and downsized restructuring provide a timely analogy to the environment currently in DOD. Interviews and site visits were conducted with Terry Caspar at Apple Computer's corporate

headquarters in Cupertino, California. Caspar is the Manager, Semiconductor Group, Worldwide Supplier Management at Apple.

Selmer-Ludwig Instruments, Limited is a privately owned and operated firm manufacturing musical instruments. They are most renowned for drums, flutes and horns. Although this firm lacks the high tech allure of Varian or Apple, it operates within a fiercely competitive market place, making it ideal for inclusion. Interviews were conducted with Thomas Burzycki, President and CEO of Selmer-Ludwig. [Ref. 9]

C. COMMERCIAL APPROACH

1. Market Research Within the Corporate Structure

Market Research may be tailored to the organizational structure in a variety of ways. First, a full time market research staff can be employed. Full time staff develop research skills which buyers may not have. Second, purchasers can conduct the research without using a full time staff. This is beneficial because information obtained is directly available to the decision maker or buyer. Finally, a matrix, or hybrid approach can be used. This tailoring allows the firm to take advantage of the unique attributes of a full time staff while using purchasers to conduct their own research.

Varian Microwave is structured to allow each major manufacturing group to conduct its own research. Decentralization allows each major facility to tailor the market research program to its particular need. John Choate views market research as a line function within his position as

materials/procurement/MIS manager. He elicits strong support from other line managers within the plant. Research is conducted in congruence with input from the production manager. Production is Choate's "end user." Choate ensures that the end user has sufficient interface with the materials management and research functions. Varian capitalizes on the expertise and knowledge of the end users with a matrix structure. Engineers are assigned to review data and ensure accuracy, evaluate potential sources, provide technical breakout and feasibility analysis and recommend improvements in processes and materials.

Apple Computer structures its research efforts in a hybrid manner. At the top corporate level, research is organized as a full time staff. This staff has three full time analysts and a librarian. The staff is part of the strategic group which performs research affecting the long-term strategic factors affecting Apple. At the manufacturing sites, buyers conduct a majority of the routine research requirements. Buyers elicit support from corporate staff when information needs cannot be adequately fulfilled locally. The result is a hybrid approach, tailoring the research staff/personnel structure tailored to the unique requirement.

Selmer-Ludwig uses a full time staff. Selmer-Ludwig requires a large amount of industrial and precious metals in producing its instruments. Silver is particularly vulnerable

to price fluctuations induced by speculative buying and selling. Selmer-Ludwig combined forces with several mid-west regional industrial silver users and purchased a seat on the Chicago COMEX. The seat allows Selmer, as well as its consortium, to have greater uninterrupted access to the critical raw material.

At each activity, market research is heavily supported by top management. Top management is the resource allocation control point. Support generally means that resources are likely to be allocated to the research function.

2. Market Research Information Within the Firm

The definition provided earlier captures the heart of the market research concept. Each activity engages in collecting information which is later used in decision making. The approach used by each firm was uniquely tailored to the needs of the firm.

a. Varian Microwave

Varian Microwave uses market research information in several ways. First, utilizing the strengths of the matrix structure, Choate uses engineering, marketing, finance, and production personnel to assist in developing the master materials requirements list. The list of parts and materials is broken down according to Standard Industrial Classification Code and placed in a hierarchy according to the annual expected anticipated dollar volume of purchases. Varian uses long-term contracts extensively. Developing the master

materials list enables buyers to more effectively gather data in market segments and SIC classifications which offer the highest return. This list is then used by Choate and buyers to determine alternative manufacturers, vendor quality, vendor pricing structures, and factors leveraging long-term contract negotiations.

Long-term contracts help Varian control quality and ensure delivery at the right time and price. Managing long-term contracts can be difficult. Contractors may become complacent over time if deficiencies are not monitored and corrected. Once the long-term contract is in place, market research information is still gathered. Choate uses the information as leverage to ensure the long-term contractor relationship continues to foster the benefits which Varian desires.

For example, through market research efforts, Choate became aware of new manufacturing processes within a particular commodity which improved quality and reduced cost. Armed with this information, Varian buyers negotiated a change to their existing contract incorporating the results of their findings. According to Choate, "We use market research information to keep contractors on their toes." [Ref. 13]

Varian uses market research extensively in developing and fielding new ideas. Capitalizing on the matrix structure, engineering and production develop hypothetical new materials and methods for production. Choate then translates

the ideas into a synopsis. This is similar to what the Government buyer does when issuing a draft RFP. Similarities between the Government and Choate's method end quickly. Choate makes extensive use of an EDI (Electronic Data Interchange) network. The rough requirement is fielded over an automated network developed and marketed by TELTEC Corporation located in Minneapolis. The interactive network sends the requirement to domestic and foreign network participants who generally respond within four days. Respondents provide valuable information on feasibility, technical merit, alternatives and anticipated costs and prices. With this information in hand, Choate can discuss the viability of fielding the new idea with the engineers and production managers. Should management decide to proceed, potential sources have already been identified.

Choate could not over emphasize the potential of EDI. The EDI system allows Varian to interact with a greater variety of potential sources, worldwide, on a real time basis. This allows Varian a broader range of options. When combined with the other more traditional information sources, EDI ensures Varian buyers have maximum leverage in negotiations.

Varian also uses historical information on past purchases as a market research tool. Negotiators use the historical information to determine economic order quantities, even if the contractors don't have an economic order quantity pricing structure per se. Some suppliers publish economic

order quantity lists. Buyers can tailor orders to meet internal needs based on an Economic Order Quantity (EOQ) model. In many cases suppliers do not publish lists because the factors affecting pricing may not be entirely known in advance. Choate uses historical purchase records located in Varian's data base to develop his own supplier EOQ pricing. Past purchases are categorized according to quantity and delivery schedule. The computer then determines economic "break" points which may indicate a supplier production efficiency.

For example, examine the following output generated by Varian's computer for a specific part being purchased on an "as required" basis.

Number of Parts Purchased	Price Per Unit	Total Price
1	\$980	\$ 980
2	\$840	\$1,680
3	\$720	\$2,160
4	\$120	\$ 480
5	\$ 68	\$ 340

When Varian purchased the item singularly, it clearly paid the highest price per unit. Negotiators received quantity discounts when two or three were purchased at the same time. Yet these price reductions were not the true "breaks" Choate was looking for. The true price break came when buying four or more units. Historical pricing indicated that four units

could be purchased at nearly HALF THE TOTAL PRICE of one unit alone. According to Choate, this is where the value of market research really pays off.

Varian's extensive automation has one shortcoming. There is a bottleneck of information awaiting input into the system. Buyers must frequently devote time outside of normal purchasing, negotiating, and contract administration to key information into the computer. The information is very valuable once on-line, but meaningless outside the system. It must be processed and accessible.

b. Apple Computer

Apple Computer's hybrid structure conducts different facets of market research at various manufacturing plants and at corporate headquarters. The market forces affecting Varian's suppliers are not the same forces affecting Apple. Varian has a wide variety of alternative suppliers to choose from. Apple Computer is limited to a very few sources for its most critical components, Semiconductors and DRAM (Direct Random Access Memory), or hard disk units. DRAM producers exhibit traits of monopolistic competition. Entry into production is not restricted, at least not for major entrants such as Hyundai, the most recent new player. Most DRAM disks are the same. Suppliers distinguish themselves by focussing on factors such as service, delivery, quality of product leaving the plant, packaging, and technical support. Price may not be the deciding factor in this market place.

Apple views the supplier market as critical to its long-term viability. As such, Apple conducts market research at a top corporate strategic level. Research is continually being conducted in five locations throughout the world. Research is done on all major components including DRAMs. In 1989, Apple's market research team utilized information gathered throughout its international market places to determine: 1) capacities of manufacturers; 2) pricing structures; 3) cartels and market factors; 4) trade agreements; 5) technology advancements; 6) quality issues, and; 7) inter-company alliances. The information gathered was analyzed by the corporate market research team and published internally in Apple's confidential "Memory Map."

The Memory Map is a strategic document which contains a wealth of information for both top management and purchasers. Top management uses the information in forming its corporate strategy formulation. Buyers use its guidance in understanding the markets in which they are negotiating. Apple buyers gain negotiating leverage through knowledge of the markets. The Map acts as: 1) a "road map" for long-term goals; 2) an industry survey on availability and quality; 3) an input in developing manufacturing and production plans. Although the Memory Map is proprietary and confidential, the table of contents appears with Apple's permission as an Appendix. The descriptive titles of the chapters and

subchapters indicate the extent of the research and analysis conducted by Apple.

Apple buyers also make use of an automated on-line market research tool called Data Quest. This system allows buyers to determine sources of supply and pricing. Another automated system is INSTAT, which allows buyers to gather information on end equipment specifications and pricing.

c. Selmer-Ludwig

Selmer-Ludwig manufactures a variety of musical instruments. Silver bullion is the largest raw material component in terms of total expenditure. Industrial grade silver is traded on commodity exchanges throughout the world. In the early 1980's, Tom Burzycki developed an alliance with several other industrial users. Burzycki chose firms not competing directly in the musical instrument business to avoid conflicts. The alliance purchased a seat on the Chicago COMEX, which at the time cost roughly one million dollars. Prior to developing the alliance, Selmer-Ludwig experienced several market shocks which made the availability of silver scarce and the price too high. Several existing long-term contracts became unprofitable when silver prices increased. Customers could not afford to renegotiate the existing contracts. Hundreds of thousands of dollars were lost.

The seat enables the alliance to time purchases according to key indicators. Key indicators are monitored directly for Selmer-Ludwig by its own market research staff.

By monitoring the market directly, purchasing bricks according to specific demand and market conditions, Selmer-Ludwig better controls the per unit cost of its major raw material. This has a major impact on Selmer's competitive strategy. Foreign instrument manufacturers have been manufacturing instruments with plastics and composite materials, which are less costly and less vulnerable to market shocks. However, most musicians still prefer metal instruments. In order to remain competitive with foreign producers, Burzycki had to closely monitor and control production silver.

D. CONCLUSION

Market research information is a tool for management and buyers to make qualified decisions in the competitive business environment. The Navy and DOD can benefit from the corporate example. The information can be useful in a wide variety of purchasing and corporate management areas.

Corporations use market research information to:

1. Field new concepts and ideas,
2. Assist in vendor selection,
3. Assist in vendor qualification,
4. Determine alternative sources of supply,
5. Perform materials requirements planning,
6. Determine vendor pricing strategies,
7. Develop corporate strategy,
8. Anticipate major market shocks and shortages,

9. Monitor and manage long-term contracts,
10. Develop negotiating strategy and tactics.

Tailoring the structure of the organization to fit market research is imperative. All three businesses had programs uniquely suited to the firms' information needs.

Automation is also essential to the successful corporation. Market research depends on information availability and timeliness. Electronic Data Interchange and on-line retrieval systems have revolutionized the business environment. All of the aforementioned uses of market research become more viable when automation is utilized.

The Navy activities visited are not using automation to any large degree. At most, the Navy used a limited electronic solicitation system. Participation by industry has been limited. Many factors create barriers which hinder effective and efficient market research. The next chapter addresses these barriers and offers practical solutions which mitigate their negative effects.

V. BARRIERS TO EFFECTIVE USE

A. INTRODUCTION

Market research can provide tangible benefits to the activities which employ it. The customer directly benefits when the procurement agency uses commercial style market research.

Market research is best when conducted in four phases: requirement definition; planning; data collection; and analysis and interpretation. [Ref. 64:p. 59] However, many activities fail to fully utilize market research and the associated information technologies which could improve operational decision making.

Several Navy procurement officials and commercial purchasing directors at Apple Computer, Varian Microwave, and the CEO of Selmer-Ludwig Instruments expressed a real need for the information which a pro-active market research program provides. However, there are barriers which prevent the Navy as well as commercial businesses from fully engaging in market research. Interviews conducted at Apple Computer, Varian Microwave, Selmer-Ludwig Instruments, the Fleet and Industrial Supply Center, and the Naval Regional Contracting Center, Long Beach Detachment, revealed eleven barriers.

This chapter identifies and analyses the eleven barriers to effective and efficient market research. Recommendations

stem from literature review and extensive interviews. Several barriers and their associated solutions are interrelated. Managers must conduct a comprehensive analysis to identify barriers unique to their activity prior to implementing and conducting market research.

Once identified, managers must eliminate or mitigate the barriers to effectively and efficiently conduct market research. Many barriers can be eliminated, others may be beyond the manager's control. In the later case, the manager must work to alleviate their negative effects. Barriers are not necessarily associated with either Government or commercial businesses. They may apply to Navy and DOD activities alone, to commercial activities, or to both Navy and commercial activities. This distinction is important in discussing the barriers.

B. ELEVEN BARRIERS TO MARKET RESEARCH

Each of the eleven barriers to effective and efficient market research will be discussed in turn.

1. Geographic purchasing.
2. Diversity of products and services sought.
3. Lack of understanding/commitment by top management.
4. Short-run versus long-run management horizons.
5. Inadequate MIS (management information systems).
6. Acquisition environment which doesn't reward creativity.
7. Assigning costs of research to specific benefits.

8. Current statutes mandated under the Federal Acquisition Regulation.
9. Emphasis on a Federally centralized data base system.
10. Lack of a scientific body of knowledge.
11. Organizational structure limitations.

1. Geographic Purchasing

Organizing purchasing activities by geographic location as opposed to organizing by commodity or major classes of commodities limit the efficiency of market research. The most effective and efficient market research occurs in organizations which can focus resources and talent among a few commodities and markets.

One prominent example of a single commodity group activity using market research is the Defense Fuels Supply Center (DFSC). As early 1981, DFSC developed a statistical research process concerning spot prices in the crude oil market. Lawrence C. Ervin developed a technique known as "Tunnel Theory" to support market analysis for DFSC's strategic petroleum reserve procurements. The theory was extensively tested from 1981 through 1983. It has increased understanding of the spot crude market dynamics. [Ref. 44 and Ref. 24:p. 381]

Many Navy and DOD activities are organized around geographic location, not commodities. Examples are the Naval Regional Contracting Centers and the Fleet and Industrial Supply Centers. NRCCs and FISCs have not historically conducted systematic market surveillance and research. They

rely predominantly on advertising in the Commerce Business Daily, as mandated by the FAR. Organizing according to geographic location increases the breadth and diversity of the products and services procured. It is costly and complex to focus efforts and resources among such a broad array of commodities. Without a tailored and well managed market research program, the costs of conducting research across the hundreds of commodity classifications far outweighs its benefits.

Solution. This problem is not endemic solely to DOD and the Navy. Both the Navy and commercial corporations have given a great deal of attention to finding a solution for the activity that purchases across a broad spectrum of commodity groups.

One solution is applying a taxonomic model to the buying process. A taxonomic classification system allows the manager to categorize goods and their related attributes and characteristics. This facilitates streamlining and tailoring of contracting policies, methodologies and procedures. [Ref. 43:p. 410] Unlike the Standard Industrial Classification or "SIC" code, products are not necessarily categorized according to their attributes. Another approach is to classify the item according to the process and dynamics of the markets involved. Then research requirements can be based on the methodologies proven most effective in these markets. Yet another approach is to classify products according a basic schematic of

"simple" or "complex," and associating economic costs with each classification. [Ref. 43:pp. 410-413]

John R. Choate, Materials/Procurement/MIS Manager at Varian Microwave developed a very simplistic, yet surprisingly effective system. Varian, just like the NRCC or FISC, procures a wide variety of materials in various markets. In a given year, Varian purchases over 19,000 components including metals, ceramics, electronics, hardware and bit pieces. Varian has utilized automated tracking of vendors and procurement history for several years. Purchased items are categorized by part number, description, purchase quantity, and unit cost.

Realizing the value of the information, John Choate uses the stored data to derive cost savings. The information is simply manipulated into a useful format. He places the raw data in groupings according to Standard Industrial Classification, and subsequently places the results in a hierarchy according to contract dollar value.

With this information, Choate directs research efforts on the highest value commodities. Varian's information system relates past purchases with future demand requirements. From the information, John and his associates can determine the effects of altering purchase quantities, engage in longer term contracts with suppliers, and perform hypothetical "what if" scenarios. The information is also used to give Varian buyers leverage in negotiating high dollar contracts. This market

information has reduced material costs by twenty percent. [Ref. 13] A NRCC or FISC could benefit from a simple system such as Varian's.

2. Diversity of Products and Services Sought

The Government and the Navy procure a wide array of materials and services, including computers, oil, building products, electronics, aircraft, ships, weapons, clothing, and food. No other organization handles such variety of materials. This diversity can make any centralized market research difficult.

Diversity affects market research in several ways. First, wide diversity affects management policies. Diversity and complexity of markets may be one of the reasons the Federal Acquisition Regulation addresses market research in a cursory manner. It is difficult to give specific directives to all of the diverse purchasing activities in the DOD. For example, the market research required for a new state-of-the-art fighter aircraft would differ significantly than research required for janitorial services.

Of course this is an oversimplification. Nonetheless, it highlights one of the problems in developing a broad based policy. Market research needs to be tailored to the activity and the purchases being made. It is impossible to mandate broad based, detailed guidance for market research without creating overly complicated directives.

A second barrier, the inability to focus resources and talent, is addressed in the "geographic purchasing" section.

Solution. First, commercial businesses use a less structured approach and localized management. Several managers see the benefit of generalized policy guidance from central management, but the focus of management and information control is currently decentralized, at the strategic business unit level. Decentralization allows the manager to tailor market research to the specific activity and market place. Tailoring helps the manager become more effective and efficient.

Second, a taxonomical structure allows activities not organized by commodity to focus resources to the categories offering the most promising benefits.

3. Lack of Understanding/Commitment by Top Management

Top management understanding and commitment to market research is essential. Without both, top managers may ignore potential research areas which could improve their procurement operations. Commercial style purchasing research is new to the Navy and DOD. It was mandated in 1984. Many Navy managers do not have business experience or formal education in commercial market research. The requirement's novelty coupled with inadequate business training can hinder market research programs. Lack of understanding often translates into lack of commitment, both in terms of resources and policy.

Solutions. First, there is a promising trend which will strengthen the call for market research. Top management is becoming more aware of the benefits which market research can provide. Commercial and Navy activities are increasingly realizing the benefits of market research. Within the Navy, the collective body of knowledge supporting and advocating market research has increased dramatically. Several "guidebooks" have been published by the Defense Systems Management College including the Commercial Practices for Defense Acquisition Guidebook and NDI Acquisition, An Alternative to Business as Usual. Both recognize and advocate market research as an essential tool in the procurement process.

Second, the Navy is incorporating market research into many of its schools' curricula. Although no course has been specifically and solely dedicated to market research, it has become a topic within several management courses at the Naval Postgraduate School. Several private corporations that educate Federal acquisition employees have prominently included market research within their courses. Management Concepts Incorporated provides course design and presentation under contract to the Federal Government. In response to strong customer demand, several new 1994 courses specifically include market research. One course "Procurement Planning," emphasizes acquisition histories on procurement data to estimate prices and values of the goods and services being purchased. Another course, "Price Analysis," includes market

research on the types of price-related data needed to determine a proper price or value prior to soliciting. "Negotiation Techniques," teaches market research as part of negotiation preparation, planning and fact-finding. [Ref. 10]

4. Short-Run vs. Long-Run Management Horizons

The benefits of market research programs are only developed and realized over long periods of time. Educating and training personnel requires a long term commitment, particularly when complex data gathering techniques and applications are used.

The research process itself requires a long-term commitment. It may be shunned if management has a short term horizon. [Ref. 9] Acquiring hardware and software, and operating and maintaining the necessary information systems takes a long-term commitment before realizing the greatest benefits. Information obtained by an active research program improves the knowledge of the buyers, but only when the information is consistently available and used. Short-term management horizons obviate many of the benefits offered by an ongoing research program.

Solutions. The maximum benefits of a market research program are obtained by managing with a long-term perspective. [Ref. 9 and Ref. 49] Long-term commitment is particularly important in periods of cost cut backs. Long-term projects may not appear beneficial to short-term activity goals. Limited horizon management is a part of the manager's

repertoire. However, the manager must view market research programs as a "capital" investment, incurring benefits over a longer time frame. Thus, the manager must take efforts to make a long term commitment to market research.

5. Inadequate Management Information Systems (MIS)

Research data and information must be transmitted to those who need it. Even the best information is ineffective if it fails to get into the hands of the persons making the decisions. The Navy doesn't have management information systems capable of storing, manipulating and disseminating market research information. Despite the requirement to document actions in the Federal Procurement Data System, the information registered in the system has limited use as a market research tool because it is not detailed enough and it is difficult to retrieve. The information is stored in an ineffective format for market research.

Solution. Information categorization and retrieval systems should be developed for Navy field activities that use market research. Personal experience at the Naval Regional Contracting Center, Washington, D.C. highlights this requirement. Specifically, previous acquisition history can be tremendously valuable. At NRCC Washington, during the late eighties, there was no automated in-house method to extract procurement history information on purchases conducted within NRCC. Someone had to know the specific acquisition number. Often times, the only way to obtain information and retrieve

the historical file was to ask every buyer if they had a similar purchase and if they remembered the contract number. Clearly, this is not an efficient way to conduct business. An automated system would greatly improve overall effectiveness. In addition to historical data, the system could be tailored to record information on potential sources and provide other managerial data.

Stanley N. Sherman comments on data and record retrieval systems as related to materials management:

Documentation, or in many cases electronic record keeping, is the lifeblood of a logistics system. Creating an effective system should be a principal objective of the materials manager. While records generation may not be viewed as an end objective, it is vital to the flow of material and to effective relationships with suppliers. The record system should, however, be tailored to the types of material, services and sources of supply necessary to the particular materials activity. The major emphasis should be support of decisions such as...analysis of costs; verification of supplier capability; and consideration of quality, design or delivery problems. [Ref. 62:p. 17]

Although the above quotation was directed at materials management, an automated market data and record retrieval system could support decision making as well. Clearly, the Navy would benefit from modernizing its information storage and retrieval systems for market research.

6. An Environment That Doesn't Reward Creativity

Quoting Tom Burzycki, President and CEO of Selmer-Ludwig Instruments, Ltd., "It's hard to be creative in an environment that doesn't reward creativity." [Ref. 9] This is true in any organization, whether Government or commercial.

The Navy procurement system, due to complex and comprehensive regulations and other constraints, limits flexibility and managers' creativity. However, the Navy procurement manager should view market research for each particular organization with as much creativity and imagination as possible. The Federal Acquisition Regulation cannot possibly mandate all specific details for market research programs at all organizations. DOD simply has too much diversity to effectively mandate the specifics. The creative procurement manager should develop and tailor a program to meet the organization's unique needs. The manager should provide an atmosphere conducive to using creative and cost efficient market research.

7. Linking the Costs of Research to Specific Benefits Can Be Difficult

The costs of obtaining information can be difficult to link with specific benefits and cost savings, unless market research information is gathered solely for a specific procurement action. Actually linking research costs to benefits can be difficult, if not impossible, especially in market research programs where a data base is developed for many buyers and procurement actions over long time periods. As such, the cost of market research in many commercial activities is classified as "overhead," and allocated on an appropriate basis. [Ref. 9] Because of its status as an overhead cost, managers often view it as a discretionary item which can be cut when budgets are constrained. If the Navy

moves into the cost structures proposed under Defense Business Operations Fund (DBOF), many Navy managers may well find themselves faced with the same decisions faced by their commercial counterparts. The overhead of market research could be the target of an indiscriminate or reactionary cutback in order to meet target costs for the organization. Market research programs are easy to cut since it is difficult to link their costs and benefits.

Opportunity cost plays an important part in determining the value of market research. Time and dollars spent on market research are time and dollars that could be spent elsewhere. Other projects may appear more critical, or have more tangible and easily identified benefits. Yet market research information is vitally important for managers to make the best decisions in a shrinking and rapidly changing environment.

Financially, the current PURS system (productive unit resourcing system) for funding procurement activities discourages Navy activities from conducting market research. The PURS system assigns points to specific contract actions. For example, award of a contract may earn ten points, award of a contract modification may earn one point. Annually, NAVSUP uses the number of points from each field activity to allocate operating funds to the activities. The more points assigned to an activity, the more money assigned to the activity. The problem is that the PURS incentive structure does not assign

points for many administrative actions or contract outcomes (e.g., cost savings), including market research. This results in part because it is difficult to measure market research as anything other than overhead. Overhead may not be viewed as "productive."

Solution. Treating market research as anything other than an indirect or overhead cost would not be practical. By its nature, associating costs and benefits across a wide array of purchases would require an elaborate costing methodology, which would far outweigh its benefits. Dr. Fearon and other industry leaders point out that a system to track each element of information from its source to use, even if it were possible, just doesn't make good business sense. It entails too much effort and cost. [Ref. 9, Ref. 26, and Ref. 49] Market research is and will continue to be an overhead cost. Management must be willing to incur the overhead costs associated with market research activities.

The best way to justify the costs is to recognize the benefits derived over a long time frame, instead of linking benefits directly to a particular contract action. Several benefit tracking methods may be employed. Among the most recognized is to track the historical reduction in contract prices for a given commodity or class of materials or services. For example, with the information derived from market research, a negotiator may employ leverage and obtain a reduction in price for given items. Varian Microwave

employs such a system. There is a drawback to this system. As the benefits of the market research program reach a "steady state," analysis of current data against historical data may indicate no improvement. This does not mean that there are no benefits being derived, rather, the tracking system must be adapted to the steady state environment.

Tom Burzycki, President and CEO of Selmer-Ludwig Instruments encountered this steady state phenomenon in assessing Selmer-Ludwig's market research program. During steady state operations, when market research has been effectively and efficiently practiced for a long period of time, the benefits are measured against a hypothetical "what if" criteria. The "what if" is the possible and probable decisions which would have been made had the market research information not been available. [Ref. 9] This method corresponds closely to the statistical approach for measuring the value of perfect information and sample information in an uncertain environment. [Ref. 23:p. 630] The problem encountered with this method is that the manager must use discretion in determining what decisions would have been made without market research information. Such judgments are very subjective and do not lend themselves to "hard" financial analysis. Nonetheless, this method indicates how the market research program is functioning during the steady state. The manager must be aware of the steady state phenomenon and tailor effectiveness measures in the appropriate manner.

8. Current Statutes Mandated Under the Federal Acquisition Regulation

The Navy is required to comply with statutory mandates which do not affect commercial activities. The statutes serve two purposes. First, they may provide a legal means of protecting the taxpayer from contractor overcharging, double-charging, payroll padding, bribery, kickbacks, and conflicts of interest. Statutes in this category include contractor compliance with Government unique Cost Accounting Standards [Ref. 65:p. 728]. Second, statutes may serve socio-economic goals which Congress has mandated. Socio-economic goals include small business set-aside requirements, use of Federal Prison Industry material, competition requirements mandated under CICA, and the Buy American Act requirements.

Government institutions are presented real problems. They are frequently subject to laws and regulations with no or little leeway in interpretation. Even when exceptions are allowed, they are usually covered by so many safeguards that it becomes next to impossible to implement effective market research programs. When someone does cut through the red tape, there are so many possibilities of political and media repercussions that it takes a very brave buyer to proceed. [Ref. 47:pp. 83-84]

Exactly how do these mandates restrict the use of market research? First, commercial business utilizes market research to pre-qualify and select potential sources.

Commercially, potential supplier selection identifies suppliers to be invited to tender offers. The Government is bound by statutes limiting this pre-qualification. The Competition in Contracting Act requires the contracting officer to seek "full and open" competition. This provision mandates that all potential sources of supply be invited to submit bids or competitive proposals. To be eligible for award, a responsible bidder must have submitted the lowest responsive bid. The Competition in Contracting Act allows any interested party, normally a disgruntled bidder or party having a financial interest in the bid, to protest any decision or anticipated decision of the Contracting Officer. Pre-qualification issues are the source of many protests. Navy Contracting Officers are reluctant to use pre-qualification in the same manner as commercial industry because of the protest potential.

The Federal mandates for socio-economic programs including Small Business preferences, Small Disadvantaged Business preferences, Women-Owned Small Business preferences, Labor Surplus Area preferences, and the Buy American Act also limit the Contracting Officer's source selection choices. This may preclude the Contracting Officer from making the best business decision based on the information obtained through market research.

Solutions. The Navy's "Red/Yellow/Green" (RYG) program is designed to help reduce the risk of receiving

non-conforming products. RYG classifies contractor quality by assigning a color code based on past historical performance according to Federal Supply Classification. RYG provides an automated system for classifying these risks into the source selection process. This allows a more systematic historical evaluation than was available in the past. The regulatory basis for RYG is Section 9.104-3 (c) of the DOD FAR Supplement. The regulation requires DOD components to assure that contracts are not awarded to contractors with unsatisfactory historical performance. [Ref. 40:p. 1] This historical evaluation fits squarely within the realm of market research. It should be used more frequently in the years ahead. Further study should be conducted to determine the pattern of protests emerging from RYG activities.

Within the confines of existing socio-economic programs, market research can provide information on entities within each perspective socio-economic category. Despite being limited in choice, market research information can be used to improve decision making within the mandated program. The negotiator can also use information on similar products and services from businesses not conforming to the socio-economic programs as a leverage point, and as a basis for price/cost, quality, delivery performance comparison between suppliers.

9. **Emphasis on a Federally Centralized Data Base System**

Top Navy managers believe that the Federal Procurement Data System (FPDS) provides the Navy Contracting Officer with relevant market information. To a limited degree this is true. However, the FPDS was not designed as a market research tool. It was designed by financial experts. Its purpose is tracking the number and dollar amounts of competitive awards versus non-competitive awards, and compiling information on socio-economic program awards.

However, retrievability problems and the limited scope of information in the FPDS severely reduce its value as an effective market research tool. The FPDS system only collects data on purchases exceeding the small purchase threshold of twenty-five thousand dollars. Small purchase activities, including FISC Long Beach, do not benefit from the FPDS. Additionally, the FPDS was designed to track award history for competition and socio-economic status reporting. It was not formatted to give a true picture of the market conditions affecting the resulting contract award. It may give the researcher a distorted view of the actual competitive environment in which an acquisition occurred. For example, data fields ask for entries such as "number of offerers solicited and offers received." The choice of responses is "one" and "more than one." This is not a useful description of the number of available contractors or the competitive marketplace. [Ref. 51:pp. 5-6]

Retrievability is another problem. Due to the complexity of the program and the need for financial accuracy, a single individual manages and runs the FPDS systems currently in place at the Naval Regional Contracting Centers. Each buyer must request data from the FPDS data manager. Buyers seldom request data reports because they are unfamiliar with the system. Additionally, because of the backlog of DD350s, the source document used for screen entries, the FPDS manager rarely has the time to generate custom reports for individual buyers.

Solution. Small purchase activities, under the reporting limits required for the FPDS, do not benefit from the FPDS system. Even if they were participants in the system, there are alternatives which provide more relevant information for the buyer and are easier to access. One system was developed by the Naval Supply Center in Jacksonville, Florida. The system is called EASE, or Electronic Assisted Solicitation Exchange. It is an electronic bulletin board replacing telephonic and mailed request for proposals for actions under twenty-five thousand dollars. The EASE system allows any MS-DOS compatible personal computer to interchange with the small purchase activity. The system tracks both awards and non-awardees according to commodity group based on Federal Supply Groups 10 through 99. The buyer has access to a wealth of historical data including price quotes from unsuccessful offerers, terms

and conditions of contracts, and special narrative notes from contractors.

A drawback to relying solely on the EASE system for market research information is that participation is voluntary. Only participating suppliers will have a historical record. The system fails to collect data on the overall marketplace, including capable vendors who may not have the EDI system on-line or choose not to use it or to participate in Government procurements. [Ref. 15]

Non-centralized automated information sources are available from the commercial and Government sector at reasonable cost. (These automated systems were discussed in detail in Chapter III). These systems offer the individual activity the flexibility they need to tailor information sources to their unique buying environment. Tailored systems offer a much more cost effective and efficient means of obtaining information on the marketplace, given the diversity of markets in which the Government participates.

10. Lack of a Scientific Body of Knowledge

Two factors have hindered market research from becoming a well recognized science with an associated body of knowledge: reliance on other disciplines and the small number of users relative to other sciences.

Market research draws on many disciplines. Marketing research, economics, statistics, electronic information exchange and MIS, finance, accounting, negotiation and

management sciences, all combine to form the backbone of market research. Each discipline has a body of work developed and dedicated to its field. Because market research is a hybrid, its study has been normally relegated to the underlying disciplines. Multi-discipline study is not entirely without merit. For example, understanding economics (the allocation of scarce resources under uncertainty and the quest for profit) is an essential element of motivation within a marketplace. Because of the hybrid nature of market research, it has not achieved its own notoriety.

Compared to the sciences (and art) of statistics or economics, market research appeals to a more limited audience. Purchasing managers and contracting officers are the primary users. Economics, on the other hand, pervades everyone's daily lives. The evening news is replete with economic undertones. Market research does not have the broad appeal or application as the more established sciences it draws upon. As such, there is a relatively small body of written work devoted to market research. This hinders the use and acceptance of market research within areas where it could be beneficial.

Solution. Market research is gaining prominence among top managers as an effective means of improving operations. Fortunately, this has translated into increased work within the market research field of study. Several authors have heightened awareness and improved the field's

stature within the management sciences. Efforts to create a disciplined approach and scientific body of knowledge must continue. If market research is as good as many managers believe, then the body of knowledge is likely to follow.

11. Organizational Structure Limitations

Firms can organize market research in one of two ways: by assigning full-time staff personnel or by using regularly assigned personnel as a secondary assignment. As discussed in Chapter IV, assigning of a full time market research staff has many advantages. A full time staff can devote more time and develop specialized skills for market research. "Current evidence indicates that in most instances research will be most productive when persons are assigned to this activity on a full time basis." [Ref. 27:p. 7] Cost is the major drawback to using a full time staff. The staff is also removed from the locus of decisionmaking. If buyers conduct market research as a secondary assignment, it develops the buyers' repertoire of skills, may cost less, and the information is at the decision making point. However, buyers in most organizations do not have time to conduct market research, and frequently don't possess the specialized skills.

Solution. Dr. Harold Fearon, Chairman of the Center for Advance Purchasing Study, Arizona State University, believes in a compromise between a full time staff and buyers. He suggests forming a committee, or matrix. Committees could be titled "tiger teams," "task forces," or any other title.

These teams generally work best under crisis and are later disestablished.

Educating purchasers on market research techniques and utilizing the information for decision making will make for a more qualified, efficient and effective purchasing staff. Hiring a full time staff is not feasible at the Fleet and Industrial Supply Centers and the Naval Regional Contracting Centers, because of funding constraints. Educating the purchasing staff and providing the appropriate tools to conduct research is the best approach.

C. CONCLUSION

Market research provides tangible benefits to the user. Despite a recognized need by managers for the information provided by a research program, many activities do not have active, on-going programs. This Chapter identified the key barriers which managers must recognize and work to eliminate or mitigate. Managers must be aware that each activity presents a unique set of barriers. The barriers must be identified and addressed to effectively and efficiently employ market research.

VI. CONCLUSIONS AND RECOMMENDATIONS

A. OVERVIEW

Market research is providing tangible benefits to firms in the commercial sector. This thesis examined the nature and functions of commercial style market research. It examined the issues and barriers which face Navy contracting personnel should commercial style market research be assimilated and employed at contracting activities in an acquisition environment characterized by a downsized infrastructure and a rapidly changing technological environment.

Commercial entities have been successfully using market research to make better qualified business decisions. Commercial businesses successfully use market research in a variety of competitive environments. Commercial market research assumes that an effective program will enable the business to effectively and efficiently operate within its competitive environment.

This thesis identified and analyzed successful market research practices of commercial firms with particular emphasis on applying these practices in Navy contracting activities. Decisions and opinions of progressive managers on implementing and employing successful market research programs were incorporated within the text.

Information and data ere obtained by examining current literature, by telephone and personal interviews and through site visits at three progressive corporations and two Navy field contracting activities.

B. THE RESEARCH QUESTIONS

The findings of this research are summarized below as they pertain to the specific research questions posed in Chapter I.

The primary question was whether commercial style market research can be successfully applied to Navy acquisition activities. In answering this question, three subsidiary questions were explored. The primary question will be addressed after the subsidiary questions.

First, what constitutes market research in competitive commercial activities? This answer is provided in chapters III and IV. Chapter III explored the sources of market research information. It discussed important considerations for the manager utilizing those sources. Commercial activities are using automation and automated data bases to gather, store and retrieve information. The Navy could benefit from a greater use of automation. Chapter IV provided description and analysis of three successful commercial firms practicing market research. These firms use market research information to:

1. Field new concepts and ideas,
2. Assist in vendor selection,
3. Assist in vendor qualification,

4. Determine alternative sources of supply,
5. Perform materials requirements planning,
6. Determine vendor pricing strategies,
7. Develop corporate strategy,
8. Anticipate major market shocks and shortages,
9. Monitor and manage long-term contracts,
10. Develop negotiating strategy and tactics.

All of the aforementioned uses of market research become more viable when automation is utilized.

Question two asked, "What are the barriers to the effective implementation of market research at Navy acquisition activities?" Chapter V identified barriers to effective and efficient use of market research. Specific emphasis was placed on those barriers which face Navy managers.

Eleven barriers were identified.

1. Geographic purchasing,
2. Diversity of products and services sought,
3. Lack of understanding/commitment by top management,
4. Short-run versus long-run management horizons,
5. Inadequate MIS (Management Information Systems),
6. Acquisition environment which doesn't reward creativity,
7. Assigning costs of research to specific benefits,
8. Current statutes mandated under the Federal Acquisition Regulations,
9. Emphasis on a Federally centralized data base system,

10. Lack of a scientific body of knowledge,
11. Organizational structure limitations.

Eliminating the barriers or mitigating their negative effects will allow for successful market research.

Question three asked, "How can the barriers to effective implementation be overcome?" Chapter V included recommended solutions for eliminating or mitigating each barrier. Particular emphasis must be added on the recommendations made. First, activities must assess the barriers which are unique to the activity. The barriers must be overcome or mitigated. Second, market research must be tailored to the activity and the markets which it operates. A "federal" program will not allow the flexibility required by the Navy. Wide diversity of commodities and broad geographic scope requires a tailored program for each activity. Third, commercial activities make extensive use of automation. Automation is revolutionizing information gathering, storage and retrieval. The Navy must commit resources to develop tailored information systems which will directly benefit local organizations. Top management insistence on using the Federal Procurement Data System as a prime source of market research information fails to address the unique requirements of each buying activity. Its use will cause inefficiency and ineffectiveness. Fourth, the Navy should use the broad array of information sources used by commercial enterprises, including automated sources. Fifth, the Navy should broaden its concept of market research to

include all the decision making benefits captured by commercial activities. Limiting its definition to obtaining adequate competition, or obtaining commercial products, restricts the full spectrum of uses which commercial activities benefit from.

C. CONCLUSIONS

1. Commercial style market research provides tangible benefits to the organizations which employ it. Specifically, successful commercial firms derive significant cost, schedule, and performance improvements. These same benefits can be derived by Navy activities.
2. Commercial style market research can be successfully employed by Navy activities, provided the barriers to efficient and effective use are eliminated or their negative effects mitigated.
3. Of the barriers identified, the most critical is inadequate understanding/commitment by top management. Inadequate commitment normally translates into inadequate resources allocated to the process.
4. Inadequate MIS structure existed at the Navy activities. Significant gains in automation technology reduced information handling costs. Commercial activities are capitalizing on the automation revolution.

D. RECOMMENDATIONS

1. Navy Activities, particularly FISCs and NRCCs should employ market research utilizing a hybrid organization structure similar to that utilized by Apple Computer or Varian Microwave. The hybrid organization includes a full time staff member devoted to market research functions. Purchasing personnel should perform market research in addition to their normal duties for routine buys or less complex requirements. Buyers should elicit support from the full time staff member when complexity or uncertainties require additional support. The full time staff member can be assigned duties to maintain the automated support tools identified in Chapter III.

2. Top management should ensure that resources are allocated to support market research. The FISC and NRCC activities should acquire the automated tools described in Chapter III. Adequate training must accompany any new automated system or process. Management should ensure all personnel are trained to use and understand automated systems.

3. Local managers should tailor market research efforts to their organization. The barriers addressed in Chapter V may apply in greater or lesser degree to each activity. Managers must be cognizant of the barriers and implement recommended solutions.

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