MATERIALS ACQUISITION CYCLES FOR MANUFACTURING FIRMS

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MATERIALS ACQUISITION CYCLES FOR MANUFACTURING FIRMS

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By

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CHAPTER I

INTRODUCTION

Statement of the Problem

When a manufacturing concern acquires materials, its decision makers appear to follow a pattern of decision elements which changes as conditions change. Published sources do not portray the purchase decision cycle as a total system, although some authors describe several of the elements within the process.

The research undertook to study the problem stated in the following way, viewing the purchase decision process as a total system: What general patterns of decision making do manufacturing firms follow for acquiring materials? What steps occur and in what sequence do they operate? Who participates in decision patterns or cycles? What factors cause patterns to change? In the main, what constitutes materials acquisition cycles in manufacturing firms?

Complete uniformity of acquisition cycles for different enterprises appears highly improbable. Yet, certain general patterns may exist. If patterns do exist, and if they can be related to definable factors, they may serve as broad guides to particular enterprises in appraising present acquisition cycles or designing new ones.
The general purpose of this investigation was to identify general models of materials acquisition cycles for manufacturing firms as found in representative industries. The study further undertook to identify types of industrial situations in which the acquisition cycles display unique characteristics.

Background and Significance of the Study

The National Association of Purchasing Management is searching for a definition of the acquisition cycle in terms which describe the steps in the process.* Its goal is to examine such questions as, where in the cycle does the traditional purchasing organization operate and where should it operate? What changes in other steps in the cycle indicate the need for changes in the purchasing function in the chain of events leading to the acquisition of industrial goods?

Many managements and academic theorists recognize the continuing trend in the increasing value of purchased materials and services relative to plant and product costs. Accordingly, many managers and professors focus attention on the functions which operate in the acquisition cycle. When the present research results are applied, several benefits may be derived in various areas.

*N.A.P.M. Purchasing Educational Foundation sponsored this research under a Doctoral Fellowship Grant.
Top management of industrial companies may benefit from their own analysis and evaluation of their materials situation through improving the decision-making processes which they follow in the acquisition cycle. This may lead to more effective systems design and to a sounder approach to organization of the purchasing function and others.

Suppliers may obtain a clearer picture of who takes part in the acquisition cycle, enabling suppliers better to reach them to determine their needs, and to furnish the right information leading to better purchases and sales.

Purchasing education in general may benefit from a model which describes how the various functions connect to form a typical cycle for the acquisition of industrial goods.

College recruiting into the field of industrial purchasing may benefit as the acquisition cycle clarifies the scope, importance, and challenges involved in procurement of industrial goods.

Governmental agencies may benefit as they relate the acquisition cycle of particular goods to needed quality, cost, performance, and other requirements.

To the extent that industrial firms, college teaching, and governmental agencies put the results of this study to their own use, the national economy may benefit.

According to many specialists in the purchasing field, no exploratory study has produced conclusive results in analyzing the acquisition cycle. Evidence of this fact
comes from communications with National Association of Purchasing Management officials, with industrial executives, and with Professors W. B. England of Harvard, John Hoagland of Michigan State University, and M. K. Cox of North Texas State University. The National Association of Purchasing Management officials agreed that this unresolved problem is regarded widely as a high-priority research area.

Further noted is the absence of doctoral theses on this topic from Dissertation Abstracts, 1952 through January, 1968 under the headings of Economics (Commerce), Business Administration, and Industrial Engineering. Similar conclusions are arrived at by personal reading and by reference to the DATHIX services of University Microfilms.

Therefore, the conclusion is drawn that the research is unique. The results seem to hold some promise of significance to managements of industrial firms, purchasing education, governmental agencies, and the national economy.

Research Hypotheses

The previously stated problem led to developing two working hypotheses.

Patterns exist and can be defined in the business-economic environment which describe the decision process found in manufacturing firms for the acquisition of industrial goods and services.

Patterns vary in specific detail. Yet models can be
identified which describe the process in general, regardless of type and size of the firm.

Basic Assumptions

As a consequence of searching for a method of collecting data that would prove or disprove the research hypotheses, two basic assumptions emerged.

1. A sufficient amount of evidence exists which can be incorporated into a cohesive general structure describing materials acquisition cycles in manufacturing firms.

   The basis for this assumption is the belief that many companies are following decision systems which could be schematically structured into straightline models of decision events and functions. A current lack of written models does not indicate necessarily a lack of evidence. Rather, there may be a lack of definition because the elements elude the managers of the firm. The many permutations of decision variables probably account for the elusiveness or obscurity of evidence; still, the evidence is there, however deeply it may be buried.

2. The purchasing executive constitutes a reliable source of information about his company's materials acquisition cycles, even though the cycles may be undefined at present.

   This assumption derives from the belief that the purchasing executive observes directly or indirectly the decision makers who participate in the acquisition cycles.
The methodology selected for this research rests upon these two assumptions.

Research Methodology

The study was limited to selected manufacturing firms in the private sector of the economy, and to a limited number of governmental establishments and industrial distributors which acquire the same general types of goods and services as the manufacturing firms and generally follow the same kinds of decision making processes. All are considered industrial firms under the Bureau of the Budget Standard Industrial Classification.

Firms to be studied were selected from a broad basis of industry types in order to reflect a wide variety of conditions and to incorporate findings into general models. With few exceptions, interviews were limited to purchasing executives involved vitally in the acquisition cycle and thus capable of seeing the cycle in its various events leading into or flowing out from their function. However, a few were found with only limited exposure to all parts of the cycles.

Geographically, the nation seemed the appropriate area for study, in view of the possibility of differences in how home office and separate regional locations make their decisions. While the research was designed to be representative, it was not intended to be complete. Accordingly, sampling
was representative only, rather than an attempt to determine all variations that might exist.

For that reason, only ten geographic locations provided information. These geographic locations were Atlanta, Dallas, Denton, Fort Worth, Houston, Milwaukee, New York, Pittsburgh, San Antonio, and St. Louis.

The research universe is considered to be extremely large, since there are some 400,000 manufacturing firms in the United States, all acquiring industrial goods and services.

However, the research includes only forty-one firms, because the personal interview method required so much time. The personal interview method proved to be essential for gathering large amounts of information in depth in order to understand a firm's materials acquisition cycle.

No measure of the precision of results was made.

The search for data began by examining selected published sources, looking for materials acquisition cycle concepts. This phase led into depth interviews conducted with representatives of forty-one geographically dispersed firms. Interviews constituted the prime method because the concept of materials acquisitions required research in depth. Chapter III presents more detailed descriptions of methodology.

Order of Presentation

Chapter I introduces the problem. Chapter II reports results of the literature search. Chapter III reports the
primary data collection and describes the respondents who contributed to the results.

Chapter IV discusses materials acquisition cycles. Chapter V examines the variables believed to influence the makeup of cycles. Chapter VI draws relationships among cycles, variables, and industrial situations. Chapter VII presents conclusions, some key implications for management, and directions for further research.
CHAPTER II
THE DECISION-MAKING PROCESS IN MATERIALS ACQUISITION CYCLES—CONCEPTS DRAWN FROM PUBLISHED SOURCES

The preceding chapter identifies the research problem. This chapter presents concepts drawn from published sources which suggested general features of acquisition cycles and variables that may influence the design of cycles to meet different conditions.

The concepts drawn from published sources constituted the bases for hypothesizing general models of cycles and a starting list of possible variables. Face-to-face interviews finalized models and list which were subjected to verification by purchasing executives in thirty-one enterprises, as Chapter III details.

A detailed investigation of the literature undertook to determine what constitutes materials acquisition cycles and to identify the variables which might have an impact on the cycles. Moreover, the literature investigation sought to improve research methodology and interpretation of results by exploring some of the recent literature in the fields of Systems Analysis, Model Building, Organizational Relationships, Information Theory, and Decision Making applied to the materials function in industry.
Materials Acquisition Cycles

A number of books and articles were examined under the subject headings of Materials Management, Purchasing, Procurement, Industrial Buying, Government Purchasing, and Purchasing Departments.

Ammer (4, pp. 19-39) describes the materials management cycle but not the complete acquisition cycle. He traces the materials cycle from the product design stage to shipment of finished product with appropriate stages in between. In a second chain, Ammer identifies and specifies duties for six functions in the materials flow: production and material control, nonproduction stores, purchasing, traffic, receiving, and shipping. He briefly treats development of specifications outside the purchasing department from the quality control standpoint and on this point he convincingly brings in the seller's influence on specifications-writing. Ammer also delineates elements of cycles and variables useful to this study.

Lee and Dobler (30, p. 419) present a clear chart of the general procedure and document flow "for a typical purchasing cycle." The chart portrays how six departments (using, inventory control, purchasing, inspection, receiving, and accounting) together with vendors, perform ten procedural activities which generate eleven documents. Lee and Dobler's chart includes Vendor whereas charts drawn for the present research omit Vendor and include, as Chapter IV details, the decision
makers who determine the need, specify it, authorize its purchase, and move it inhouse following vendor delivery. Lee and Dobler further describe elements in the cycle and their functions.

Platten (39) shows how industry as a whole allocates appropriate authority and responsibility at each step in the purchase of plant equipment, materials, and component parts. He further reports how eight specific industries allocate the decision making of those materials acquisitions to various functional departments. For the current study, this 1951 survey constitutes the single most complete identification of the decision-making departments participating in materials acquisition cycles.

England (19, p.122) pictures Purchasing as the convergence of centripetal lines of internal information flowing to it. He includes in Materials Management (19, pp. 13-15), Production Control, Inventory Control, Purchasing, Traffic, Materials Handling, Receiving, Shipping and Warehousing.

Westing and Fine (50) discuss seven steps in the purchase transaction: recognition of need, description of the need, selection of sources, ascertaining the price, placing the order, follow-up of the order, and checking invoices. Curiously, they omit authorization, receipt, and inspection.

Exploring vendor dependence, a Syracuse University study (38) describes the business relationship and the faults involved when two large corporations buy from six hundred
small suppliers. The study stresses the importance of a few large corporations keeping hundreds of small sellers busy with a steady flow of orders. The survey, although well done, derives implications which fall short of practical coverage. However, as in the Syracuse study, the present research finds dependence of the small firm on the large. On the other hand, the present research encounters large firms confessing to being captive to small vendors whom they have sponsored and encouraged and whose livelihood now depends upon continuing patronage by the large firms. Chapter V expands upon this point when discussing Variable No. 33.

A special report by U.S. News and World Report (48) throws light on the prepurchase phase of materials acquisition cycles. It undertakes to determine how business makes first-time purchases of raw materials and five other categories of goods and services. An average of 8.7 executives within manufacturing corporations, the study reports, forms the buying "decision team," a group found to be "not readily available for direct personal contact." This fact confronts sales executives with the basic and continuing difficulty of reaching this "decision team" with company and product information.

In line with reaching the "decision team," a DuPont survey (51) determines that hard-to-see people use trade paper advertising to keep informed about industrial goods.
Official titles of company executives do not indicate whether they influence purchasing decisions according to a Sales Management study (10).

Robbins (41) reports negatively on the authority of purchasing agents to determine the specifications of purchases.

Advertising and sales promotion may be guided by the fact that "team buying" is almost universal, according to an Industrial Marketing article (46).

A National Industrial Conference Board report (32) discusses nonpurchasing executives' participation in purchase decisions. It brings out the use of the team approach by some firms and the fact that order quantities and other specified purchase decisions bring nonpurchasing personnel into purchase decisions in several firms studied.

Aljian (2) presents a practical view of the significance and scope of the purchasing function including those men who participate in the buying decisions. His long experience as a purchasing executive gives a depth of understanding from which he draws authoritatively.

In his book in the early Twenties, Dinsmore (16) describes the potential relationships of purchasing as a function relating to all of the other functions which still operate in modern industrial firms. His visionary appeal augurs poorly with the actual acceptance of purchasing in many companies over the forty-five intervening years and comes into its own.
only in the past few years as the practice of purchasing achieves front-rank status as a top management function, according to some of the interviews. For its simple language and forthright vision, this work deserves wider circulation judging by the fact that it was located in only one of the many libraries visited.

Turner (4?) displays a useful table showing how Americoat Corporation isolates the key men who influence the buying decisions for corrosion control. The degree of influence varies according to managerial level, knowledge, interest, and authority, this source states.

*Industrial Marketing* periodically publishes a comprehensive study of all classifications of industries as markets for the purchase of goods and services. A recent study (24) describes how each industry buys, what it buys, and who influences the purchase decisions, and presents basic statistics from the latest Census of Manufacturers concerning expenditures.

IBM(12) uses a procurement cycle diagram to clarify how Procurement, Materials Distribution, and Accounts Payable relate to each other by means of computer orientation. This source explains how the computerized system "helps to separate professional purchasing duties from clerical duties." The system treats only the typical cycle which begins when the perpetual inventory indicates a future purchase requirement. The firm refers to this system as Phase I; it may be,
future phases will involve the other prepurchase decision makers found in the present research.

Systems Analysis

Systems analysis proved to be a logical tool for examining company practices for acquiring materials. For this present research, systems analysis literature furnished guides and tools for discovering interrelationships of decision makers, their limits of authority, the force of policy, the results of planning, and the actuality of procedures.

Ackoff and others (1) warn that initial difficulty in systematically improving business decisions centers in the "system" or environment in which the decision maker operates. They designate the elements of decision making problems to be
1) the decision maker himself, 2) his objective, 3) possible courses of action, and 4) the environment consisting of states of nature and the conduct of other decision makers.

Mundel (36) examines the acquisition function and identifies its subparts to include definition, authorization, contracting, acceptance, storage, and issue.

Russell (42) explains how relatively simple it is to define systems in manufacturing and then to plan machining work, using decision logic to automate process planning.

Schlager (43) describes mathematical models of companies simulated for experimentally improving production efficiencies. He describes the linear decision models of several
other systems analysis researchers, which assist in developing the hypothetical models for this present study.

**Model Building**

For the sake of designing models of the materials acquisition cycle, many published sources proved useful in understanding the nature of model building.

Olsen (37) delineates models for decision making. He describes attributes of various models such as iconic, analog, symbolic, and verbal models. His mathematical approach proves particularly helpful in applying models to describe complex business situations.

The work of Forrester (21) and colleagues provides modern management with both a philosophy and a methodology for clarifying thinking about industrial systems and economic activity. Forrester's concept of Industrial Dynamics stresses pinpointing exactly what the decisions are to be made, who makes them, who consults, which factors are considered, where the decision point is, what happens at the decision point and how often, and which ingredients are necessary for a decision. He presents many graphic models, mathematical-analog in type, to describe the movement of simultaneous forces which act upon an industry and its firms. The chief limitation lies in getting executives to specify the total basis for their decisions since environment intangibles play so strong a part.

Dickson (15) designs a mathematical equation model
which works well in predicting actual selections of vendors. For the conditions specified, the model serves as a specimen for the kinds of models which likely will guide purchasing decisions of the future.

The verbal model by Harris (22) enjoys wide publication. It gives a broad look at the total system "organized sequentially for Critical Path Method application." Harris' model conforms to all the activities faced on the physical supply side of the materials acquisition process for consumer goods with many applications for industrial goods. He predicts that by 1975 many large corporations will computerbank their total marketing knowledge. The prediction implies a reduction in procurement costs for industrial purchasers.

The International Material Management Society model (25) represents the components of materials management as a planetary gear system. While appearing simple and accurate in its sequences, the analog-verbal model omits major prepurchase decision points found by several other writers and this research to be vital to the materials acquisition cycle.

Firestone (20) shows a sense of reality in interpreting a survey of more than 300 manufacturing companies. He advises building models by the bit-at-a-time method for understanding the behavior of decision makers in the supply-demand relationship. Firestone finds joint decision making prevalent in and pertinent to business practice. Yet, the present study found it to be a rare situation.
Langhoff (27) edits the contributions of eight writers who approach marketing decision making from varied backgrounds: economics, philosophy, engineering, mathematics, and marketing. The contributions build upon each other; mathematical and philosophical concepts round out a total view of model building. The definitions and explanations of varieties of decision-making strategies encourage the business administrator to try his hand at building simulation models, a concept useful to this present research.

An extremely theoretical work by Berger and others (8) adds in two ways to an understanding of model building for materials acquisition cycles. First, Berger et al. consider three distinct formalization purposes for models: a) to render precise meaning, b) to represent a recurrent observed phenomenon by tying together a variety of its characteristics, and c) to account for specific behavior. Separate chapters describe the differences among these three formalization types with unfortunately long and complex applications for examples. Second, Berger et al. review the research literature on mathematical models for small-group behavior, including some rigorous concepts by Fritz Heider which illumine the two-persons-at-work relationship. The extensive annotated bibliography indicates the multidisciplinary usefulness of model-building as alternative approaches to scientific theories of human behavior.

Lazer (28) explains some usefulness of models for
marketing and shows the methods for classifying the relationships between models, systems, hypotheses, and theory. One of the techniques, "Model building by realization," proves to be highly useful to the research since the technique readily goes from a "logically consistent conceptual view" to the real world.

Organizational Relationships

New research in organization now concentrates on the ties, the loyalties, and the face-to-face relationships of the organization man, just as this present research does. Several analytic approaches found in the literature present techniques which are useful to the research.

Likert (31) offers a system for examining an organization's orientation toward a number of management problems. He emphasizes the linking process which overlapping groups provide. Thus, he explains decision making widely done throughout the organization within a prescribed framework linked to the policy makers at the top.

Scott (44) considers justice as a predominating concept in organizations. He discusses appeal rights in both business and nonbusiness organizations and describes several ideas for managing conflict, a situation delineated by several of the purchasing executives interviewed in this study.

In historical perspective on up to the Johnson administration, Janeway (26) describes the ways in which United States Presidents accommodate themselves to the executives.
which they inherit from prior administrations, a condition found in some of the companies studied.

Ansoff (5) presents many schematics depicting relationships within corporations among abstractions, such as cycle elements, and among people, such as the decision makers which this research identified.

The American Institute of Accountants' special report (3) points out the increasing significance of internal control. The report discusses elements of a properly coordinated structure and presents graphic illustrations of internal control by means of organization charts and procedural flow charts, including Purchasing.

Learned and Sproat (29) offer not a summary but a sampling of major schools of thought which contribute to organization theory, showing how theory can condition practice. Their contribution's usefulness to this research lies in their analysis of controversies about structure and some issues in Organizational Behavior, Processes, and Patterns.

Writing over forty years ago, Dutton (17) identifies two elements important in determining the rank and quality of the purchasing executive: scale of operations of the department as the one subjected to the greatest pressure for special favors to outsiders and by attempts "more or less subtly to influence its judgment." Because of these pressures, the position requires executive caliber, according to Dutton. He describes the purchasing function as one of the
information gateways through which "new ideas flow into the 
organization," a concept found in other purchasing texts as 
well.

Cady (9) notes the post-World War II emergence of Amer-
ican industrial team play as a new factor in the world of 
business. He represents team play as segments of a wheel 
whose hub is profits, involving several interrelated func-
tions including purchasing. Cady discusses the essential 
sequence of the functions. He justifies the wheel as a model 
"because the ends of the chain meet." The concept proves to 
be unique and yet essential because it visualizes purchasing 
as looking both at the "desires and needs of its company's 
customers" and at the facilities of its production and dis-
tribution functions to meet those desires and needs. Thus, 
Cady stresses the purchasing function not as an isolated de-
partment but as one interrelated with many other functions: 
engineering, producing, financing, sales, and public rela-
tions.

Bennis (7) examines the concept of power as an inde-
pendent variable. He discusses five types of power: coercive, 
referrent, expert, traditional, and value power. Bennis em-
phasizes the rising strength of shared influence which he 
calls "democracy" and of collaboration which resolves con-

flict in the modern organizational relationships.
Information Theory

The research probed into information theory literature because information constitutes the raw material for decision. A large amount of literature was found to exist on information theory. Much of it results from mathematical analysis of computer theory and electrical engineering research on circuit networks. Much of this literature also results from esoteric conceptualizing about the nature of human communications. Most of it signifies the emerging of a new science.

Moles (35), for example, treats the theory of communication as one of the great theories of science which must take its place "beside the quantum theory." He examines the concepts of information, code, redundancy, complexity, foreseeability, and background noise defined as "a message that someone does not want to transmit or to receive." He looks on information, the raw material for decision making, as an organized signal always emerging "against a disorganized ground noise." Even in abstraction, Moles tries to explain reality by decomposing information theory into simple elements.

On a more earthy level, Dearden (14) classifies information systems in the typical company with respect to the type of information handled: monetary, personnel, and physical goods. He distinguishes the characteristics of each system and proposes a three-stage method for organizing effective management information systems.
Gyert and March (13) identify four different communication chains in the business firm, which form its communication patterns. They examine the character of relay points according to information flowing through them, their number, and their sequence as determinants of communication chains which generate decisions as their output.

Two other authors, Williams and Griffen- (52), present excellent graphs on management information systems useful for inventory control. They describe the use of various mathematical tools for actuating the information systems.

Mack (33) examines comprehensively the demand and receipts variables which confront the decision maker. She provides information-handling techniques which consider such factors as on hand and on order stock information, risks of tardy or unavailable goods, and supplier-announced increases in replenishment periods.

These information theory references appeared to be suitable points of departure for further research into materials acquisition cycles.

Decision Making

Wasserman and Silander (49) present an annotated bibliography of considerable value for the person interested in examining the decision making process.

Anyon (6) develops a clarity of managerial decision making in the purchasing process which warrants wide reading. His book turned up frequently in this study's library search.
in different parts of the United States. Anyon argues for a wide use of practical records and routines which typically exist in conventional industrial purchasing departments.

A major contributor to systematizing decision processes, Simon (45) encapsulates the potential tools and techniques which managers likely will be using for decision making in the future.

Miller and Starr (34) raise the question whether decision making in most organizations is two different people or one man acting in two different functions. Further, they question what causes the executive to decide to decide, and what constitutes a "good" decision.

Approaching managerial decisions quantitatively, Hein (23) packs in a wealth of techniques with good illustrative problems. In Chapter I, Hein explores managerial decisions and distinguishes them from the nonmanagerial type, a concept especially germane to this study since nonexecutives were identified at several decision points in the cycles.

Emory and Niland (18) contribute a number of good illustrative problems for a general understanding of the decision process found in materials acquisition cycles. To the works discussed earlier, they add network analysis and means-end chains, the latter being a technique to describe the relationship between goals and a method for goal-attainment.

Richards and Greenlaw (40) analyze the decision process which a manager follows when he must buy raw materials. By
means of a generalized schematic representation, they consider the influences of company policies, market information, and memory of past transactions. The manager's decision becomes the output from such a system.

With candor, Chamberlain (11) admits that however psychologically interesting it may be, the executive finds it of little economic benefit for him to examine his decision making process. The market and other environment factors dictate the decisions, Chamberlain declares. He marks as unreliable rationalization the "evidence turned up by direct questioning" for information. In this extremely practical study of managers' actions, techniques, programs, and strategies for planning the financing and expansion of business firms, Chamberlain sanctions the use of "not enough cases" in drawing generalizations. He states that he finds a "cumulative weight of evidence" which can help an executive to understand his subject and make his decisions.

Numerous other references were examined but rejected as being unrelated to the hypotheses which the study tested, namely, that patterns exist and can be identified in manufacturing firms for the acquisition of industrial goods and services.

This chapter describes a general accumulation of those concepts which led to designing and testing hypothetical models of acquisition cycles and a list of variables which may influence their make-up. A lengthy and continuing search in
a number of public, university, and company libraries led to developing an annotated list of references pertinent to branches of the research topic, as this chapter presents. Several texts described the various roles played by participants in the acquisition of materials. Of the nearly two hundred books, pamphlets, and periodicals searched, only three sources were found which actually describe materials acquisition cycles, References 4, 12, and 30.

Of all the libraries visited, three libraries stand out: Georgia State College, Atlanta, for early works on purchasing, National Industrial Conference Board, New York City, for numerous recent purchasing texts, and Dallas Public Library for company annual reports and studies on how industry buys.

Many other libraries proved helpful, including those of the Federal Reserve Bank of Dallas, Marquette University, North Texas State University, St. Louis University, Southern Methodist University, and bookshelves of companies left unnamed since they participated in the research.
CHAPTER BIBLIOGRAPHY


CHAPTER III

PRIMARY DATA COLLECTION

The research followed a framework of activity by stages shown in Appendix A, indicating where and when the activities occurred and the industrial categories to which the respondent companies belonged. The goal was to identify models which describe the materials acquisition process for manufacturing firms in general and the factors which make a particular firm's acquisition cycles unique and lead to variations from general models.

Source of the Data

Purchasing executives in business comprised the source for primary data. The experiences of such executives in actually making purchasing decisions was thought to provide the most suitable basis for defining general models, if the information could be obtained in depth.

One promising source of names lay in the membership rolls of the National Association of Purchasing Management. A simple mailed questionnaire, if constructed, could elicit information from a statistical sampling of 18,000 members with a probable return high enough to afford definable significance.

The opportunity to use a mailed questionnaire was
carefully considered but rejected after preliminary and pilot interviews demonstrated how much exploratory study would be needed to gather large amounts of information to understand a particular firm's materials acquisition cycles and to design hypothetical models for verification by the research.

Accordingly, to obtain depth information, the research did not use a mailed questionnaire but employed the personal interview method instead. Executives were surveyed individually and in groups to obtain descriptions of the decision processes by which their firms acquired materials and services.

Collecting the Data and Testing Models

Four types of interviews constituted the method for collecting data and testing models: preliminary, pilot, prime, and panel interviews. All interviews consisted of one-time face-to-face contacts made by the researcher. Each person interviewed held a commanding position for materials acquisition or for knowing the system by which his establishment acquired materials. Two of these persons held the position of owner-president. The persons interviewed totaled forty-nine persons from forty-five companies. However, as stated later, information is used from forty-five executives in forty-one companies.

Face-to-face interviews in depth during the preliminary and pilot stages brought forth the comprehensive information
needed regarding how the purchasing managers relate to other decision makers in the cycles. The concept of cycles for materials acquisition seemed to be a new concept to many executives. No company representative displayed a previously drawn chart showing the cycle within his company although as each interview progressed, every respondent except one indicated a detailed working knowledge of how his firm's decision makers participate when acquiring materials and services. The one exception occupies a policy-making position so high in his company that he observes little of the day-to-day activities.

Preliminary Interviews

The first type of interviews, conducted in New York City, explored the general areas where information might be available regarding a) the research topic, its branches, and prior studies; and b) company practices, systems, and procedures.

a) Concerning the research topic, an all-day interview with home office executives of the National Association of Purchasing Management uncovered a large background of information and aspirations for the research. An inspection of membership files revealed how random sampling of 18,000 members might be conducted in the event that a simple mailed questionnaire became appropriate.

b) To look closely into company practices, three interviews in two companies brought out the line of questioning
which could obtain the needed information. The companies
were chosen for interviews on the basis of the researcher's
knowing who to see and of being known by people in both com-
panies, leading to immediate relations of trust and confi-
dence.

The manager of purchases in one of these companies fur-
nished organization charts and descriptions of relationships
between home office and field. In the second company, two
executives at different levels discussed a number of critical
topics for materials decisions. The senior executive, respon-
sible for $200 million annual purchase volume, demonstrated
how a purchase policy manual guides certain types of deci-
sions. The subordinate described how he involves vendors in
the flow of information into the decision making points of
his company.

Pilot Interviews

Two medium-size companies in the Southwest served as
pilot interview companies, one a home office situation, the
other a separate branch, selected on the basis of divergent
sizes and products. Matters which were checked out included
locating the right man to see; manner of setting up inter-
views; profile data which brought out useful differentiation
about respondents and their distinct purchase situations;
company practices and attitudes toward decision making, or-
ganizational structures, and typical events which might occur
to some degree in all companies; and types of decisions,
when they are made, and who makes them. Useful methods for recording and treating the information came into view.

The information obtained to this point from interviews and library search combined into tentative models depicting the material acquisition cycles. To a considerable degree, this action constituted the formulation of an a priori statement about the real world as it would be enlarged by the prime interviews and would be verified by the panel interviews.

Prime Interviews

The line of questions emerging from the preliminary interviews and library search, and tested by the pilot interviewing, became the standard procedure for conducting prime interviews. These depth interviews lasted from thirty minutes to three hours. Tape recordings recorded the entire interviews in all but two cases. The two cases included a major defense goods contractor where policy prohibits tape recorders in work places, and a corporate executive so high up in the organization that he shies away from "going on record."

Eleven prime interviews were conducted. However, two interviews in two firms revealed nothing but generalities and so are not included in the findings. The prime companies furnishing nine interviews constituted seven companies in Dallas, Denton, Fort Worth, Houston, and San Antonio, representing a variety of product lines and company sizes. In every case, an individual person formed the basis for
selecting the company, a person known to occupy a responsible position or known to conduct systematic analysis of materials acquisitions leading to a broad knowledge of the decision steps in his firm.

The cooperation of two data systems companies led to interviewing certain individuals. Contacts with local National Association of Purchasing Management groups led to interviewing others.

The prime interviews proceeded from the researcher's unstructured open-end questions, in place of structured interviews. Typically, the interviews opened with the statement:

I am doing research in the doctoral program at North Texas State University in management and am interested in the procurement decisions from the time a person first begins to feel a need in his manufacturing company until all the steps have been taken helping the final user get his raw material or his equipment or his MRO supplies and component parts, or the services that he needs.

I am interested in those scrubbing points where one part of the business begins to scrub against another part of the business and a decision is made perhaps by committee or some individual executive that furthers this whole thing along.

So I would be interested in your helping me see features of the acquisition of any of these you might be familiar with or interested in, either raw materials, or equipment, or MRO items and component parts or services.*

Respondents plunged directly into describing in broad general terms their own duties and the functions which report to them. Then they defined the specific types of decisions for which they are accountable, using actual

*From an actual taped interview.
situations from the day's activities to clarify how they and other persons make decisions which result in materials acquisitions. The respondents described in detail the types of decisions made before their own decisions are made, and those which follow after them.

From time to time the interviewer injected questions which probed for underlying philosophies and policy guidelines which assist the purchasing executive in his decision making. For example, the researcher asked, "What is the dollar limit on the purchases which you can make without specific approval from higher management?" "What products or commodities do persons buy entirely outside your purchasing department?" "How do your answers affect the acquisition cycle?"

In a few cases, respondents referred to industrial engineering studies seeking to understand more clearly the make-up of decision cycles for materials acquisition. However, such studies pertained only to acquiring MRO supplies from storerooms, with considerable evidence of how long a craftsman waits in line to be served by a storeroom clerk. Such studies as those sophisticated queueing-line studies appeared to comprise the only systematic approach made at the time to identify the materials acquisition cycle for the firms interviewed.

During the prime interviews and while analyzing the tapes later, the researcher kept in mind the preliminary
models and listened for variations which should be worked into revised models. In effect, each prime interview constituted starting anew.

Based on an analysis of the prime interviews and the literature search, two instruments emerged for verification. One was a checklist of thirty-nine factors which appeared to determine the materials acquisition cycles for some companies, as indicated in Table I. The other was a 24-by-36 inch schematic chart of four general models of the acquisition cycles, one for each of the four major categories identified in the purchasing literature described in Chapter II: Raw Materials; Equipment; Maintenance, Repair, and Operating Supplies, Subassemblies, and Component Parts; and Services.

The two research instruments took substance from the purchasing literature and from descriptions given by executives during the primary interviews. The checklist and chart of general models constituted aggregates of experiences from the variety of experiences, product lines and company sizes which the men represented. As such, the instruments comprised empirical generalities and therefore necessitated verification.

Panel interviews served the purpose of verifying the models.

Panel Interviews

Selecting panelists. —Approximately eighty men comprised the groups invited to take part in the panel interviews.
<table>
<thead>
<tr>
<th>As Appearing in Checklist</th>
<th>Abbreviation</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Raw material, equipment, MRO supplies, or services</td>
<td>Type of goods</td>
<td>Literature</td>
</tr>
<tr>
<td>2. Ordering first time, reordering, or ordering once and for all</td>
<td>First-time ordering</td>
<td>N.A.P.M.</td>
</tr>
<tr>
<td>3. Urgent, routine delivery, or time unspecified</td>
<td>Urgency</td>
<td>Literature</td>
</tr>
<tr>
<td>4. Involve fewer people to reduce delay, or many people to obtain benefits</td>
<td>Involve people</td>
<td>Interviews</td>
</tr>
<tr>
<td>5. Equipment: produces product or supplies service (such as electric motor for sawing logs or hoisting passengers)</td>
<td>Equipment use</td>
<td>N.A.P.M.</td>
</tr>
<tr>
<td>6. Equipment for replacement item, additional capacity, process change, new process or product</td>
<td>Equipment purpose</td>
<td>Interviews</td>
</tr>
<tr>
<td>7. Equipment installed: by ourselves or others</td>
<td>Who installs</td>
<td>Literature</td>
</tr>
<tr>
<td>8. Equipment installed on receipt or stored first, installed later</td>
<td>When install</td>
<td>Literature</td>
</tr>
<tr>
<td>9. Manpower: one man show or all functions filled by different persons</td>
<td>Share decisions</td>
<td>Interviews</td>
</tr>
<tr>
<td>10. Participants overloaded with work at the moment or operating routinely</td>
<td>Overloaded decision makers</td>
<td>Interview</td>
</tr>
<tr>
<td>11. Strength or weakness of participants</td>
<td>Forceful decision makers</td>
<td>Professors</td>
</tr>
<tr>
<td>12. Dollar amount of the purchase</td>
<td>Dollar amount</td>
<td>Interviws</td>
</tr>
<tr>
<td>13. Ratio of purchase cost to final cost of product</td>
<td>Cost/cost ratio</td>
<td>Literature</td>
</tr>
<tr>
<td>14. Buy or lease</td>
<td>Buy/lease</td>
<td>Literature</td>
</tr>
<tr>
<td>15. Intracompany transfer or obtained outside</td>
<td>Transfer</td>
<td>Interviews</td>
</tr>
<tr>
<td>16. Quality critical or not critical</td>
<td>Quality</td>
<td>Literature</td>
</tr>
<tr>
<td>17. Reliability of vendor performance</td>
<td>Vendor reliability</td>
<td>Literature</td>
</tr>
<tr>
<td>As Appearing in Checklist</td>
<td>Abbreviation</td>
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<tr>
<td>18. Performance of purchased item subject to guarantee</td>
<td>Guarantec</td>
<td>Literature</td>
</tr>
<tr>
<td>19. Vendor: governmental body or private</td>
<td>Governmental vendor</td>
<td>Interviews</td>
</tr>
<tr>
<td>20. Vendor: can be foreign or must be domestic</td>
<td>Foreign vendor</td>
<td>Literature</td>
</tr>
<tr>
<td>21. Service from vendor after purchase: critical or we service it ourselves</td>
<td>Service after purchase</td>
<td>Interviews</td>
</tr>
<tr>
<td>22. Secrecy involved</td>
<td>Secrecy</td>
<td>Literature</td>
</tr>
<tr>
<td>23. Mode of transportation: specified by us or makes little difference</td>
<td>Transportation</td>
<td>Literature</td>
</tr>
<tr>
<td>24. Purchase for scheduled utilization or for stock</td>
<td>Use/stock</td>
<td>Literature</td>
</tr>
<tr>
<td>25. Distribution channel: fixed or prevailing channel not clear</td>
<td>Distribution channel</td>
<td>Literature</td>
</tr>
<tr>
<td>26. Freedom to go outside to purchase item ordinarily made by ourselves</td>
<td>Make/buy</td>
<td>Literature</td>
</tr>
<tr>
<td>Supply circumstance known by us to be:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27. short or long</td>
<td></td>
<td></td>
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<tr>
<td>28. single source or multiple sources</td>
<td></td>
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<tr>
<td>29. substitute material available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30. patented product</td>
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</tr>
<tr>
<td>31. combination of above</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32. Contractual commitment by supplier to furnish part of our needs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33. Company philosophy to maintain economic health of vendors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34. Company policy that all salesmen must go through purchasing department before</td>
<td></td>
<td></td>
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<tr>
<td>contacting employees</td>
<td></td>
<td></td>
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<tr>
<td>35. Purchasing company dominates suppliers of this item</td>
<td></td>
<td></td>
</tr>
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<td></td>
<td>Vendors' economic health</td>
<td>Interviews</td>
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<td></td>
<td>Backdoor selling</td>
<td>N.A.F.E.</td>
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<tr>
<td></td>
<td>Purchaser dominates</td>
<td>Literature</td>
</tr>
<tr>
<td>As Appearing In Checklist</td>
<td>Abbreviation</td>
<td>Source</td>
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<td>---------------------------------------------------------------</td>
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<tr>
<td>36. Complexity of material</td>
<td>Complex material</td>
<td>Literature</td>
</tr>
<tr>
<td>Social responsibility of company</td>
<td></td>
<td></td>
</tr>
<tr>
<td>37. buy at home locally</td>
<td>Buy-at-home</td>
<td>Literature</td>
</tr>
<tr>
<td>38. minimize pollution of air, water, land, wells</td>
<td>Antipollution</td>
<td>Interviews</td>
</tr>
<tr>
<td>39. acquiesce to community governing body</td>
<td>Acquiesce to community</td>
<td>Interviews</td>
</tr>
</tbody>
</table>
The panels concept offered a quick way for interviewing a large number of men verifying for three to four hours under rigorous directions. Panels were not like consumer panels, which operate intermittently for three months. This study's panels met once and discharged fully their purpose in one interview each.

The method of selecting the eighty men started when the researcher chose the regions and cities to be visited. The five regions and cities selected for panel interview testing of the general models and thirty-nine factors comprised widely dispersed geographic points. Each region and city constituted a unique manufacturing area earning national prominence as an industrial center:

*Atlanta* -- enlarging its manufacturing concentration, tying in with the major distribution activity which for a century has fostered the city's growth and which now reaches out to serve the emerging manufacturing developments in the Carolinas, Arkansas, Georgia, and Birmingham.

*Fort Worth* -- maintaining its condition of giant aircraft production for the military; small manufacturing firms; and production branches of major manufacturers which boast of operating autonomously.

*Milwaukee* -- bristling with foundry and machining operations, holding its position as a manufacturing center for automotive and machinery castings, a major consumer of steel.

*Pittsburgh* -- continuing to be a center for steel and
other metals industries, international headquarters for a large number of manufacturing firms, a city devoting its efforts to bringing back some firms which have moved their national headquarters away.

St. Louis—expanding rapidly its manufacturing company expenditures for new plants and relocation of old plants from other regions, diversifying to add a number of processing plants to an already large investment in process-vessel manufacture whose business grows as new processing plants move in.

Ten other cities were considered but were rejected, for various reasons.

Once the cities were chosen, the researcher contacted the N.A.P.M. Professional Development Chairman in each city and solicited help. These Chairmen worked in extracurricular capacities to promote the development of local members of their profession, in addition to working as fulltime purchasing executives for their respective firms.

By long distance telephone the researcher outlined the plans with each Chairman and requested a list of some twenty purchasing executives in that metropolitan area known to be responsive to a project of this type. The men were to be named from manufacturing companies which were small, medium, or large—about a third each—and from a wide variety of product lines, for purposes of diversification of results. In addition, a few men were to be listed from non-manufacturing firms where their contribution might well serve this
particular research to spotlight some differentiation of characteristics. Finally, the Chairmen were asked to recommend places to meet and the hours, day of week, and menus most likely desired for dinner in that locality. The researcher contracted with eating establishments for dinners and meeting rooms.

Using the lists, the researcher wrote a personal letter of invitation, with reply card enclosed. On the appointed day, the researcher attempted to remind each participant by local phone. In one city, the Chairman personally made the contacts with all participants.

Thirty-one purchasing executives accepted the invitation to verify the list of variables and the general models of the cycles. These executives met in groups of five to eight for a single evening in one of five locations throughout the United States on the dates shown: Fort Worth -- April 9, 1968, St. Louis -- May 9, Atlanta -- June 11, Pittsburgh -- June 19, and Milwaukee -- June 27. The wealth and consistent nature of verification results led to concluding this phase in five cities only.

The panels met at a motel or inn for dinner. After dinner, the group members provided profile data reflecting the industrial situations which they represented. Then panel members worked through a checklist of thirty-nine factors or variables which were believed to affect the cycles. As the specimen checklist shows in Appendix B, and as Chapter V
explains, the executives indicated the degree of importance which each factor appeared to make in determining the chain of decision makers who participate in their firms when acquiring materials under situations which the variables describe.

Finally, the panelists marked an individual copy of the 24-by-36 inch chart of the four hypothetical models to indicate which functions were engaged, which decision makers would function at each decision point, and in what sequence. Their marks acknowledged acceptance of general models or described modifications between the four models and their own acquisition cycles as they perceived them for their particular companies.

Tape recordings recorded the comments to help the later analysis. Tapes and their contents and all names of companies and participants remain in strict confidence.

Profiles. -- The respondents supplied profile information on blank sheets of paper in response to ten questions put to them verbally. The profile data and each subject's responses are presented in Chapter VI to show relationships among cycles, variables, and situations.

The ten profile questions asked were as follows:

Name -- in order to tie information together.

Job title. One owner-manager commented, "When you have a small company, you have about six of them, including janitor." He wrote down, "President."
Title of person to whom reporting.

Number of personnel for whom responsible in the materials area. This number was not just those reporting directly, but all subordinates as well. In a large organization, there would be more than one level reporting to the purchasing executive, and this answer was to show the total number of personnel in the whole materials system. A Procurement Manager in charge of storerooms would include storekeepers, receiving clerks, and secretarial personnel as well as buyers and expediters.

Home office or separate branch.

Multiple-plant or single unit operation.

Annual dollar volume of purchases responsible for. This item was absolutely research-confidential. Respondents were invited to indicate this information if they wished to, but were encouraged to decline if hesitant to reveal it. An estimate was acceptable, rounded off to the nearest million dollars. "Responsible for" meant the amount they actually purchase under the job title shown previously. In a branch of a large company, the purchasing executive typically obtains help from a central office such as a General Purchasing Department which contracts for deliveries to several plants, under which one plant places release orders as it needs delivery. Wanted here was the dollar amount the executive actually controlled at his location. Thus, the local purchasing executive would indicate the dollar quantity he buys
plus portions of a general contract perhaps for world wide operations, which could be identified for his particular location, since he controls these portions.

**Number of years of work experience in materials.** Both military and civilian experiences counted, such as 1) specifying materials, 2) requisitioning, 3) purchasing, 4) handling materials, 5) stocking, 6) inventorying, and other matters having to do with materials. Service as a Supply officer or sergeant would count as materials experience. For the municipal executive in this study, materials include automotive equipment, fuel, uniforms, weapons and ammunition, and office supplies. The definition had nothing to do with the person having to actually use the materials.

**Work experience throughout his working life.** This gave a texture of situational experience. The intent was to identify work experience which got him where he is today. One respondent stated, "There's not enough paper here."

**Functions reporting to him—traffic, warehousing, purchasing, finance, tool room, salvage, and so forth.**

Consistency of Panel Responses

**Individual Responses**

Some concern for research consistency became necessary because of the length of the checklist, the evening hours after dinner, the next day a work day, the relaxing hours after a busy business day, and one more large assignment to
complete after the factor checklist. What consistency did individual panel members show in their responses? Did they tire or wear out, as the task proceeded?

The responses showed adequate consistency of attention to marking. By the variety of degrees marked, responses by individuals reflected deliberate thinking throughout the assignment even near the end.

One explanation for this persistence may be the dependable nature of the participants. The responsible positions which respondents held and the personal stamina which contributed to their moving up in the business world assured that they would exert a conscientious effort to answer questions after thinking through each factor. The tape recordings bear out the continued alertness of respondents.

The task represented a difficult assignment because it called for judging subjectively and for remembering a complex set of instructions applying to all thirty-nine factors. Yet little evidence of fatigue appeared.

The face-to-face arrangement made it possible to quickly judge from facial signs when a respondent was having difficulty interpreting a factor. Additionally, as the tape recordings show, all respondents raised questions from time to time asking for clarification. The researcher's answers remained the same across the various panels, trying to maintain consistent interpretation and responsiveness.
Enthusiasm and purposefulness pervaded each group. Several reasons perhaps account for it. First of all, panelists were among friends holding membership in the National Association of Purchasing Management and/or their local association. They knew each other or had seen one another at association meetings.

Second, with few exceptions, all carried job titles comparable to each other, usually senior positions bearing large dollar accountability. They showed pride for their own departmental progress and yet they also showed openmindedness to the possibility of picking up new ideas from their associates on the panels and from the research.

Third, breaking bread together has its scriptural roots in group dynamics which works toward integrative melding rather than win-lose sparring. Guffaws exploded frequently as anecdotes illustrated the rough-and-tumble of daily battles in the acquisition process. The anecdotes and humor stuck to the point and the sessions moved along with ease and purpose.

The open microphones for continuous tape-recording presented no apparent throttling of responses and elicited no "speeches for the record."

Overall, the groups appeared to enjoy their dinner together, then concentrated on the assigned tasks. After completing the work, the groups continued their discussion through a brief afterglow from ten to twenty minutes beyond
the end of the work session, all on the subject of the research.

Analysis Process

The profile data represented clinical material consisting of both quantitative and qualitative descriptions as Chapter VI shows. The rationality of inference from class membership appeared to be plausible. Accordingly, profile data were tabulated, with responses from the charts and checksheets.

Paradoxically, the uniqueness of individual events, as seen in subjects' profile sheets in Chapter VI, led to the ultimate realization that predictions from a study of the occurrences in the individual life of respondents would be difficult if indeed possible. Therefore, the process for analyzing the charts was based on differentiation between those subjects who verified general models and those who indicated modifications.

Analysis of results consisted in examining the responses which panel members marked on the charts of cycle models and on the variables checksheets.

Analysis of Charts

Respondents' 24-by-36 charts were examined to determine which subjects verified the general models and which subjects indicated variations. Profile data were then listed by several categories, looking for patterns which might reveal
causes for verifying or modifying the hypothetical models. It should be noted that any subject might verify all four of the hypothetical models as being General, or he might indicate one or more models to be modifications. Thus, his data might be tabulated under Raw Materials—General, Equipment—Modified, and so forth. The tabulated lists indicated class membership by Multiple or Single Operation, Home Office or Branch, Industry SIC Number, Class of Purchase Responsibility, and Company Size by Sales Category. The lists were totaled by various categories, as Chapter VI indicates.

The profile items which were tabulated were selected because they appeared to be logical as possible causal factors. Profile items which appeared to offer low correlation were checked by scatter diagram analysis and were rejected. Rejected profile items were Job Title, Boss' Title, Number of Employees Supervised, Respondents' Cities, Years of Materials Experience, and Size of Firms by Number of Employees.

Analysis of Thirty-Nine Variables

Respondents' checksheets were analyzed question by question by total votes of L, S, N, or X, as Chapter V discusses. L meant the variable made a large difference in determining who the decision makers are in the firm's materials acquisition cycle. S meant some or small difference. N meant no difference or doesn't apply. X indicated that respondent did not know or had no opinion.

In addition to totals for each variable, the L, S, N, or

Factor by factor, the thirty-nine variables were then analyzed for majority of votes. Majority meant at least the next whole number larger than half the votes cast for that variable. A further criterion was imposed: a majority had to exceed its nearest rival by a margin greater than 3/2 the lesser figure, to make it a significant winner. Majority and Rival Tables designed for this research are exhibited with Appendix C.

Where majorities passed the rival test, they were summarized by class membership as Chapter VI presents, showing those variables which respondent classes identified to be large in importance or no importance in defining materials acquisition cycles. The "S's" were omitted as being an ill-defined differentiation of opinion. The "x's" were rejected as being insignificant in number or importance.

The researcher listened to the tape recording from each panel session while analyzing the cycle charts and the
variables checksheets, noting unique distinctions which might contribute to the findings discussed in Chapter IV, Materials Acquisition Cycles, and Chapter V, Variables Influencing Materials Acquisition Cycles. The object was to develop useful classifications of distinctions which might guide managements of firms when they attempt to use the research results for analyzing and improving their own materials acquisition cycles.

The next section describes the men and companies that supplied data to this study.

Classification of Respondents

The search for primary data led to interviews with forty-nine men in forty-five companies. The research does not use results from four interviews, however. Two respondents in two of the firms revealed nothing significant about the materials acquisition cycles. Two other respondents from data systems companies provided decision network information which did not clarify materials acquisition cycles specifically. For these reasons the research does not include their contributions.

The number of men reported exceeds the number of companies because three of the respondents worked for one firm, two others worked for a second firm, and two for a third. Since their comments reveal the thinking at different organizational levels, the research uses the comments from all seven men from the three companies.
Adjusting for exclusions and multirepresentation, the research embodies information furnished by forty-five men from forty-one enterprises. These totals include respondents in thirty-five manufacturing firms in fourteen industries and six nonmanufacturing enterprises as follows: one each from a municipal agency, a Federal materiel facility, industrial wholesale trade, industrial retail trade, and two from transportation companies.

Each establishment through its respondent made a unique contribution to the results of the study by its particular philosophy, policies, managerial skill, or utilization of resources. The nonmanufacturing enterprises furnished distinctive differences as well as similarities in operating procedures relative to materials acquisition cycles. As a result, inclusion of six nonmanufacturing firms aided in defining the cycles for manufacturing firms, described in Chapter IV and the influencing factors discussed in Chapter V.

Profile data were obtained to determine whether certain characteristics made impacts on the patterns of acquisition cycles by influencing adherence to or departure from general models of materials acquisition cycles.

This section identifies the characteristics of the fourteen primary and thirty-one verification respondents. Next this section characterizes all respondents by industry classifications, geographic locations, size of enterprises by
sales and number of employees, form of enterprise, single or multiplant operations, and respondents' purchase responsibility and work situation.


Fourteen Primary Respondents

Fourteen men contributed data in the preliminary, pilot, and prime stages in the research's attempt to construct hypothetical models and a list of variables. The men worked for ten enterprises in nine industries. Four of the men worked in the chemicals industry, two in food processing, two in industrial retail trade, and one each in petroleum refining; clay products; rubber and plastics; machinery; automotive and aircraft manufacture; and federal government.

Eleven of these respondents belonged to multiplant firms and three to single-unit firms. Ten of the men worked at the home office and four at branch locations. Purchase responsibility for annual volume of purchases ranged from less than $250 thousand to more than $200 million. For two of the men, purchase responsibility was less than $10 million, for one man it was between $10 million and $50 million, and...
for two men, it exceeded $50 million. These data were not obtained from nine of the respondents for reasons explained later in the chapter.

Company size ranged from less than $1 million to over $2 billion in annual sales revenue and from 25 employees to over one hundred thousand employees. Size of purchasing departments ranged from 3 to 75 persons. Years in materials work ranged from 2 to over 43 years.

Thirty-one Verification Respondents

The thirty-one men who verified the models worked for thirty-one different companies. Nineteen men came from industries producing metals, fabricating metals, or manufacturing machinery, electrical equipment, and automotive and aircraft parts. Three others came from the chemicals industry, two from food processing, two from transportation, and one each from crude petroleum and natural gas; construction; stone, shell, clay and glass products; industrial wholesale trade, and municipal government.

Twenty-four of these test respondents belonged to multi-plant firms and seven to single-unit firms. Twenty-three men worked at the home office and eight in branch locations. Single units are classified to be the same as home office operations. Purchase responsibility for annual volume of purchases amounted to less than $10 million for ten men, $10 million to $50 million for thirteen men, and over $50 million for six men. Information was not available or did not apply
to the present job in the case of two respondents.

Company size ranged from less than $1 million to over
$2 billion in annual sales revenue and from 20 employees to
over one hundred thousand employees. Size of purchasing
departments ranged from 1 to 125 persons. Years in materials
work ranged from 5 to 43 years.

Industry Classifications

The industry classifications for the forty-one respond-
ent firms consisted of fourteen industry titles and eighteen
Standard Industrial Classification Code Numbers as defined
by the Bureau of the Budget, as shown in Table II.

TABLE II

INDUSTRY CLASSIFICATIONS OF RESPONDENT FIRMS

<table>
<thead>
<tr>
<th>Industry</th>
<th>S.I.C. Code No.*</th>
<th>No. of Firms Studied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automotive and Aircraft</td>
<td>37</td>
<td>3</td>
</tr>
<tr>
<td>Chemicals</td>
<td>28</td>
<td>4</td>
</tr>
<tr>
<td>Electrical Equipment and Supplies</td>
<td>36</td>
<td>3</td>
</tr>
<tr>
<td>Engineering and Construction</td>
<td>16</td>
<td>1</td>
</tr>
<tr>
<td>Food Processing</td>
<td>20</td>
<td>4</td>
</tr>
<tr>
<td>Metal Producing</td>
<td>33</td>
<td>4</td>
</tr>
<tr>
<td>Metal Fabricating</td>
<td>34</td>
<td>6</td>
</tr>
<tr>
<td>Machinery</td>
<td>35</td>
<td>5</td>
</tr>
<tr>
<td>Petroleum</td>
<td>13,29</td>
<td>2</td>
</tr>
<tr>
<td>Rubber and Plastics</td>
<td>30</td>
<td>1</td>
</tr>
<tr>
<td>Stone, Clay, and Glass</td>
<td>32</td>
<td>2</td>
</tr>
<tr>
<td>Transportation</td>
<td>40,45</td>
<td>2</td>
</tr>
<tr>
<td>Wholesale and Retail Trade</td>
<td>50,59</td>
<td>2</td>
</tr>
<tr>
<td>Government</td>
<td>91,93</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>41</td>
</tr>
</tbody>
</table>

*Where a company fits more than one classification, this
study categorizes it under its leading products as reflected
in recent annual reports to stockholders.

Source: Poor's and respondents.
Geographic Locations

The ten cities where the forty-five respondents worked were: Atlanta, Dallas, Denton, Fort Worth, Houston, Milwaukee, New York, Pittsburgh, San Antonio, and St. Louis.

Size of Enterprise by Sales

Company sizes by 1967 sales, shown in Table III, ranged from less than one million dollars to well in excess of two billion dollars.

TABLE III
SIZE OF ENTERPRISE BY SALES

<table>
<thead>
<tr>
<th>1967 Sales by Firm</th>
<th>No. of Firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. $2 billion and over</td>
<td>6</td>
</tr>
<tr>
<td>B. $1 billion but less than $2 billion</td>
<td>5</td>
</tr>
<tr>
<td>C. $100 million but less than $1 billion</td>
<td>8</td>
</tr>
<tr>
<td>D. $25 million but less than $100 million</td>
<td>7</td>
</tr>
<tr>
<td>E. $1 million but less than $25 million</td>
<td>3</td>
</tr>
<tr>
<td>F. Less than $1 million</td>
<td>2</td>
</tr>
<tr>
<td>G. Does not apply or not available</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>41</strong></td>
</tr>
</tbody>
</table>

Source: Poor's, 1968 adjusted to Fortune, 1968

Size of Enterprise by Employees

The smallest firm employed twenty-five persons in 1967; the largest employed in excess of one hundred thousand persons. Table IV indicates number of firms by employees groupings. Size of enterprise by employees provides some indication of the degree of self-determination which an executive bears; commonly, the smaller the firm, the greater the freedom to modify procedures.
TABLE IV
SIZE OF ENTERPRISE BY EMPLOYEES

<table>
<thead>
<tr>
<th>No. of Firms</th>
<th>Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Less than 500 employees</td>
</tr>
<tr>
<td>6</td>
<td>500 - 1999 employees</td>
</tr>
<tr>
<td>7</td>
<td>2000 - 4999 employees</td>
</tr>
<tr>
<td>8</td>
<td>5000 - 49999 employees</td>
</tr>
<tr>
<td>8</td>
<td>50000 and over</td>
</tr>
<tr>
<td>6</td>
<td>Data not available to this study</td>
</tr>
</tbody>
</table>

Total 41

Source: Poor's, 1968 adjusted to Fortune, 1968

Form of Enterprise

The forty-one enterprises consisted of thirty-five corporations, three family-owned firms, two government branches and one proprietorship.

Single or Multi-unit Operation

Thirty-three of the forty-one enterprises operated as multi-unit firms and eight as single unit operations.

Respondents' Purchase Responsibility

The purchase responsibility for annual dollar volume of purchases reported by thirty-four of the respondents ranged from $250,000 to over $350 million, in classifications shown in Table V, aggregating $1.7 billion, approximately 0.2% of the GNP projected for 1968, $861 billion. Of the remaining eleven respondents giving "no answer," two worked for executives previously tallied, one reported he did not know his dollar amount, two did not purchase, four were not
asked either through interviewer oversight or on-the-spot
decision not to ask, and two respondents declined to answer.

TABLE V
PURCHASE RESPONSIBILITY OF RESPONDENTS
ACCORDING TO CLASSIFICATION
AND DOLLAR AMOUNT

<table>
<thead>
<tr>
<th>Classification for This Study</th>
<th>Annual Dollar Volume of Purchases</th>
<th>Number of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class I</td>
<td>Less than $5 million</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>$5 million to $9 million</td>
<td>6</td>
</tr>
<tr>
<td>Class II</td>
<td>$10 million to $29 million</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>$30 million to $49 million</td>
<td>6</td>
</tr>
<tr>
<td>Class III</td>
<td>$50 million to $99 million</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>$100 million and over</td>
<td>7</td>
</tr>
<tr>
<td>Class X</td>
<td>No answer or does not apply</td>
<td>11</td>
</tr>
</tbody>
</table>
| Total                         | ...                               | 45                     

Work Situations

Respondents' job titles, functions, number of persons they were responsible for, and the title to whom respondents reported, constituted a variety of data as shown in Table VI for Home Office and Table VII for Branch respondents.

In view of the congruencies found in respondents' materials acquisition cycles, as Chapter IV details, the varied work situations further confirm the existence of general models which describe the purchase decision processes regardless of the type and size of the firm.
<table>
<thead>
<tr>
<th>Job Title</th>
<th>Functions</th>
<th>Persons for whom Responsible</th>
<th>Reports to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchasing Agent and Superintendent of</td>
<td>Warehouses and branch purchase</td>
<td>10</td>
<td>VP-- Purchasing</td>
</tr>
<tr>
<td>Warehouses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manager-- Purchases and Transportation</td>
<td>Purchasing Nuclear Plant Components,</td>
<td>58</td>
<td>Director of Projects</td>
</tr>
<tr>
<td></td>
<td>Transportation, Plant Order Services,</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Purchasing Services</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assistant Director--Purchasing</td>
<td>Buying</td>
<td>13</td>
<td>Director--Purchasing</td>
</tr>
<tr>
<td>Director of Purchases</td>
<td>Purchasing</td>
<td>8</td>
<td>President</td>
</tr>
<tr>
<td>Assistant General Purchasing Agent</td>
<td>Purchasing--Urban Development, Foreign</td>
<td>125</td>
<td>General Purchasing Agent</td>
</tr>
<tr>
<td></td>
<td>Construction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Director--Staff Services--Purchasing</td>
<td>Purchasing Research, Office Management,</td>
<td>7</td>
<td>VP--Purchasing</td>
</tr>
<tr>
<td></td>
<td>Utility and Food Service Contracts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Director of Purchasing and Traffic</td>
<td>Purchasing and Traffic</td>
<td>5</td>
<td>VP--Purchasing and Traffic</td>
</tr>
<tr>
<td>Job Title</td>
<td>Functions</td>
<td>Persons for whom Responsible</td>
<td>Reports to</td>
</tr>
<tr>
<td>-----------------------------------------</td>
<td>----------------------------------------</td>
<td>------------------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td>Purchasing Agent</td>
<td>Purchasing</td>
<td>3</td>
<td>VP—Purchasing and Materials</td>
</tr>
<tr>
<td>VP—Procurement, Stores, Materials</td>
<td>Purchasing, Receiving, Stores, Warehousing</td>
<td>60</td>
<td>President</td>
</tr>
<tr>
<td>Assistant Purchasing Manager</td>
<td>Purchasing</td>
<td>27</td>
<td>Purchasing Manager</td>
</tr>
<tr>
<td>Manager of Purchasing</td>
<td>Purchasing, Merchandising</td>
<td>13</td>
<td>Treasurer</td>
</tr>
<tr>
<td>Director of Purchases</td>
<td>Purchasing and Traffic</td>
<td>30</td>
<td>Executive VP</td>
</tr>
<tr>
<td>Supervisor—Purchasing</td>
<td>Purchasing</td>
<td>8</td>
<td>Chairman of Board (Chief Executive Officer)</td>
</tr>
<tr>
<td>Director of Purchasing</td>
<td>Purchasing</td>
<td>12</td>
<td>Executive VP</td>
</tr>
<tr>
<td>Assistant Director of Purchasing</td>
<td>Purchasing</td>
<td>5</td>
<td>Director of Purchasing</td>
</tr>
<tr>
<td>Manager of Purchases</td>
<td>Purchasing</td>
<td>3</td>
<td>VP—Finance</td>
</tr>
<tr>
<td>President</td>
<td>All Functions</td>
<td>25</td>
<td>Board of Directors</td>
</tr>
<tr>
<td>Job Title</td>
<td>Functions</td>
<td>Persons for whom Responsible</td>
<td>Reports to</td>
</tr>
<tr>
<td>-----------------------------------------</td>
<td>-----------------------------------------------</td>
<td>-------------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>Materials Manager *</td>
<td>Purchasing, Inventory Control, Production</td>
<td>21</td>
<td>General Manager</td>
</tr>
<tr>
<td></td>
<td>Order Writing, Traffic, Shipping, Receiving,</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Warehousing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>President*</td>
<td>All Functions of Company</td>
<td>3**</td>
<td>Customers</td>
</tr>
<tr>
<td>Superintendent of Purchasing*</td>
<td>Purchasing, Receiving</td>
<td>3</td>
<td>Purchasing Member--Board of</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Commissioners</td>
</tr>
<tr>
<td>Purchasing Agent*</td>
<td>Purchasing</td>
<td>1</td>
<td>VP -- Purchasing and Personnel</td>
</tr>
<tr>
<td>Purchasing Manager*</td>
<td>Purchasing</td>
<td>2</td>
<td>President and General</td>
</tr>
<tr>
<td>Assistant Director of Purchases and</td>
<td>Purchasing, Stores, Printing, Scrap or</td>
<td>75</td>
<td>Director of Purchases and Corporate Real Estate Board</td>
</tr>
<tr>
<td>Corporate Real Estate Manager</td>
<td>Salvage, Idle Plant, Real Estate Department</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Single location  **3 in Purchasing
<table>
<thead>
<tr>
<th>Job Title</th>
<th>Functions</th>
<th>Persons for whom Responsible</th>
<th>Reports to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchasing Manager</td>
<td>General Contract Buying, Coordinating Plant Purchasing</td>
<td>3</td>
<td>VP -- Operations</td>
</tr>
<tr>
<td>Group Manager</td>
<td>Standard Equipment and Supplies Purchases</td>
<td>25</td>
<td>Manager of Purchases</td>
</tr>
<tr>
<td>Agronomist</td>
<td>Purchasing, Warehousing, Inside Sales</td>
<td>1</td>
<td>President</td>
</tr>
<tr>
<td>Systems Analyst</td>
<td>Computer Control</td>
<td>4</td>
<td>Treasurer</td>
</tr>
<tr>
<td>Central Purchasing Agent</td>
<td>Corporate Commodity Purchases</td>
<td>1</td>
<td>Group Manager</td>
</tr>
<tr>
<td>Job Title</td>
<td>Functions</td>
<td>Persons for whom Responsible</td>
<td>Reports to</td>
</tr>
<tr>
<td>-------------------------------------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>------------------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td>Manager -- Purchasing Services</td>
<td>Staff -- Research -- Office Service</td>
<td>30</td>
<td>VP -- Purchasing</td>
</tr>
<tr>
<td>Plant Purchasing Agent</td>
<td>Purchasing</td>
<td>7</td>
<td>Manager of Plant Services</td>
</tr>
<tr>
<td>Director of Purchasing</td>
<td>Purchasing, Production Control, Inbound Traffic, Leased Truck Operations</td>
<td>8</td>
<td>VP -- Administrative</td>
</tr>
<tr>
<td>Manager, Purchasing and Production Control</td>
<td>Purchasing</td>
<td>16</td>
<td>Factory Manager</td>
</tr>
<tr>
<td>Purchasing Agent</td>
<td>Purchasing</td>
<td>3</td>
<td>Works Manager</td>
</tr>
<tr>
<td>Director of Purchasing and Hydrocarbon Sales</td>
<td>Purchasing, Transportation (Auto, Airplane), Materials and Inventory Control, Purchase and Sale of Natural Gas, Crude Oil, and Natural Gasoline Plant Products, Gas Supply for Pipelines, Regulatory Problems</td>
<td>12</td>
<td>Treasurer and Controller</td>
</tr>
<tr>
<td>Purchasing Agent</td>
<td>Buying General Stores, Paint</td>
<td>19</td>
<td>Material Director</td>
</tr>
<tr>
<td>Job Title</td>
<td>Functions</td>
<td>Persons for whom Responsible</td>
<td>Reports to</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>-----------------------------------------------</td>
<td>-------------------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>District Credit Manager, Office Manager, Buyer</td>
<td>Purchasing, Warehousing, Inside Sales Credit</td>
<td>10</td>
<td>District Sales Manager</td>
</tr>
<tr>
<td>Purchasing Agent</td>
<td>Purchasing, Inventory Control, Stenographic, Mail, General Files</td>
<td>9</td>
<td>General Manager--Division</td>
</tr>
<tr>
<td>Section Chief</td>
<td>Contract Negotiations</td>
<td>10</td>
<td>Branch Chief</td>
</tr>
<tr>
<td>Regional Materials Engineer and Traffic</td>
<td>Inventory Management</td>
<td>25</td>
<td>Regional Materials Manager</td>
</tr>
<tr>
<td>Chief, Procurement Department</td>
<td>Material Procurement, North American Continent</td>
<td>60</td>
<td>Manager of Engineering</td>
</tr>
<tr>
<td>Purchasing Agent</td>
<td>Purchasing, Inventory Control</td>
<td>58</td>
<td>Materials Manager</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>Plant and Division Controller</td>
</tr>
</tbody>
</table>
Years in Materials Work

Years in materials work as listed in Table VIII varied from less than 5 years to over 35 years. A further question regarding the nature of the jobs having some connection to materials, which respondents held since they began their business careers, brought a variety of replies which proved to be interesting yet not essential to this research.

TABLE VIII

YEARS IN MATERIALS WORK

<table>
<thead>
<tr>
<th>Years in Materials Work</th>
<th>No. of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 5 years</td>
<td>1</td>
</tr>
<tr>
<td>5 - 9 years</td>
<td>2</td>
</tr>
<tr>
<td>10 - 14 years</td>
<td>5</td>
</tr>
<tr>
<td>15 - 19 years</td>
<td>14</td>
</tr>
<tr>
<td>20 - 24 years</td>
<td>8</td>
</tr>
<tr>
<td>25 - 29 years</td>
<td>7</td>
</tr>
<tr>
<td>30 - 34 years</td>
<td>1</td>
</tr>
<tr>
<td>35 and over</td>
<td>1</td>
</tr>
<tr>
<td>Not available</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>45</strong></td>
</tr>
</tbody>
</table>

Discrepancies in Company Sales and Number of Employees

Fortune's list of the five hundred largest U.S. industrial corporations by 1967 sales cuts off at $131,319,000, the sales figure reported by the 500th ranking company. Fortune's list of the fifty largest transportation companies
as ranked by 1967 operating revenues cuts off at $96,161,000. Nineteen of the current study's forty-one firms appear on Fortune's two lists.

Poor's Register was consulted for data on companies not included in Fortune's lists. On comparing data for companies appearing in both publications, discrepancies were noted. Poor's, 1968 and Fortune, 1968 report considerably different figures regarding sales for seven out of the nineteen industrial and transportation companies referred to above.

Poor's reports eight of this study's companies to have sales figures falling within the category of $100 million but less than $1 billion. Fortune reports only three of the eight within this range. In the case of two other companies, where Poor's reports sales of "over" so many dollars, the Fortune figures are 130 percent over and 300 percent over these amounts.

Sales and operating revenue figures in Fortune reveal discrepancies from Poor's on what appears to be the correct side. For that reason, Poor's figures were adjusted where necessary to agree with Fortune.

The two sources report figures which differ widely regarding number of employees for eleven of the same nineteen companies for which sales figures differed. The discrepancies in Poor's numbers of employees range from 5 percent lower in Fortune for one company to 30 percent higher in
Fortune for another company. For some companies, Fortune reports employee averages for the company year rather than year-end figures. This may account for some differences but not all. A check of prior years of Poor's reflected in some cases the same employee figures as found later for 1967, leading to a preference for Fortune's figures.

The methodology for primary data collection which this chapter describes developed into four phases of interviewing, working toward verification of the hypotheses that patterns exist and could be identified and that patterns vary, yet general models could be identified regardless of the type and size of firm. The pilot and prime interviewing revealed distinct decision elements operating within cycles, in addition to those the published sources disclose. The chapter presents the characteristics of the men and companies who responded with primary data for the research and for verification. Chapters IV, V, and VI discuss the findings and their relationships.
CHAPTER IV

MATERIALS ACQUISITION CYCLES

This chapter discusses the hypothetical models which the research developed and which field testing verified. It describes the elements which comprise materials acquisition cycles and reports four general models with numerous modifications arising from the testing phase. The chapter concludes with a discussion of external environmental factors.

The general aim of the research was to test the hypotheses that patterns exist for the materials acquisition decision process used by manufacturing firms and that while details may vary, general patterns can be identified, regardless of the type and size of the firm.

Evidence of the existence of such patterns appeared from a search of the literature described in Chapter II and from cumulative findings from field interviews. Verification of the general patterns and determination of causal factors was then attempted through use of five panel groups totaling thirty-one purchasing executives from fourteen industries in five parts of the United States.

Elements

The starting point for building hypothetical models of
materials acquisition cycles was a chart by Lee and Dobler (10, p. 419). As Chapter II notes, Lee and Dobler identify the departments in a typical purchasing cycle to be seven, as shown in Table IX, left-hand column.

TABLE IX

<table>
<thead>
<tr>
<th>ELEMENTS IN THE ACQUISITION CYCLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>From Lee and Dobler*</td>
</tr>
<tr>
<td>Using Department</td>
</tr>
<tr>
<td>Inventory Control Department</td>
</tr>
<tr>
<td>Purchasing Department</td>
</tr>
<tr>
<td>Inspection Department</td>
</tr>
<tr>
<td>Receiving Department</td>
</tr>
<tr>
<td>Accounting Department</td>
</tr>
<tr>
<td>Vendor</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

*Lee and Dobler (10, p. 419)

The present study's pilot and primary interviews modified Lee and Dobler's concept, resulting in a list of elements shown in the right-hand column of Table IX.

An analysis of the elements and fourteen interviews led to conceptualizing a hypothetical model for a materials acquisition cycle. The model contained fifteen different elements representing decisions made at various events along a time line. For the acquisition of a specific type of goods, a group of elements seemed bound together in a linear...
chain with a distinct beginning and ending and a precise sequence. The next time that same type of goods was acquired, the same group of elements began to operate again. Thus the group appeared to be a finite chain of elements or decision events which cycled repeatedly as a group. At times, chains appeared to be operating concurrently, although in different phase with each other, as would be expected.

From this conceptualizing, a hypothetical model was synthesized which combined Receipt and Inspection into one element and added nine other elements to Lee and Dobler’s concept and omitted their reference to Vendor in order that the cycle of elements would involve employees of the buying firm only.

On further analyzing the interviews and readings in Ammer (1, pp. 13-17, 25, 339-340, 492), England (5, pp. 13-15), and Lee and Dobler (10, pp. 14-16, 36, 49, 75-76, 93, 188-189, 272-274, 344-346, 351, 423, 465) cited at the end of this chapter and in Chapter II, it became apparent that when a different type of goods was acquired, some of the elements dropped out while other elements joined the chain. For example, Inventory Control works importantly in Raw Materials procurement but not for Equipment acquisition, whereas Equipment acquisition involves Installation but Raw Materials acquisition does not. Finally, four general chains of elements emerged as shown in Table X, one for acquiring raw materials, another for equipment, a third
### TABLE X

**ELEMENTS IN THE FOUR TYPES OF ACQUISITION CYCLES**

<table>
<thead>
<tr>
<th>Raw Materials</th>
<th>Equipment</th>
<th>MRO Supplies, Subassemblies, &amp; Component Parts</th>
<th>Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ideas</td>
<td>Ideas</td>
<td>Ideas**</td>
<td>Ideas**</td>
</tr>
<tr>
<td>Needs</td>
<td>Needs</td>
<td>Needs</td>
<td>Needs</td>
</tr>
<tr>
<td>Specifications</td>
<td>Specifications</td>
<td>Specifications</td>
<td>Specifications</td>
</tr>
<tr>
<td>Inventory Control</td>
<td>Authorization</td>
<td>Authorization</td>
<td>Authorization</td>
</tr>
<tr>
<td>Authorization</td>
<td>Purchase</td>
<td>Purchase</td>
<td>Purchase</td>
</tr>
<tr>
<td>Purchase</td>
<td>Shipment Inbound</td>
<td>Shipment Inbound</td>
<td>Shipment Inbound</td>
</tr>
<tr>
<td>Shipment Inbound</td>
<td>Receipt/Inspection</td>
<td>Receipt/Inspection</td>
<td>Receipt/Inspection</td>
</tr>
<tr>
<td>Receipt/Inspection</td>
<td>Movement Incompany</td>
<td>Movement Incompany</td>
<td>Movement Incompany</td>
</tr>
<tr>
<td>Movement Incompany</td>
<td>Storage</td>
<td>Storage</td>
<td>Storage</td>
</tr>
<tr>
<td>Storage</td>
<td>Installation</td>
<td>Installation</td>
<td>Installation</td>
</tr>
<tr>
<td>Use</td>
<td>Use</td>
<td>Use</td>
<td>Use</td>
</tr>
<tr>
<td>Disposal</td>
<td>Disposal***</td>
<td>Disposal</td>
<td>Disposal</td>
</tr>
<tr>
<td>Accounting</td>
<td>Accounting</td>
<td>Accounting</td>
<td>Accounting</td>
</tr>
<tr>
<td>Payment</td>
<td>Payment</td>
<td>Payment</td>
<td>Payment</td>
</tr>
<tr>
<td>Total</td>
<td>14</td>
<td>13</td>
<td>8</td>
</tr>
</tbody>
</table>

*Source: Compiled from Ammer (1), England (5), Lee and Dobler (10), and fourteen primary interviews.

**Discussions with professors led to including Ideas element in the Services cycle because it appears logical, although prime interviews omitted it.

***Disposal of equipment is now added as a result of write-ins during testing.
for MRO supplies, subassemblies, and component parts, and one for acquiring services.

After constructing the four hypothetical models, the research then undertook the verification described in Chapter III.

Elements

The four general chains or cycles contained combinations of fifteen different elements which this section describes with a few of the decisions to be made at each element point intending to illustrate some, though not all, of the kinds of judgments which must be made. This section also lists titles for the decision makers and advisors who were reported by respondents in the interviews or by Ammer, England, or Lee and Dobler in the literature cited earlier.

Element 1. Ideas

Ideation constitutes the beginning stage for each of the cycles and triggers all subsequent events. It occurs when someone within the company contemplates adopting a new product or process or procedure, resulting in a materials acquisition.

Decisions to be made. Accept or reject new products or processes suggested by owners or desired by customers; decide whether expected value appears favorable for producing new products for which materials, equipment, or services would be acquired.
Decision Makers

Top management
Design engineer
Founder
Owner
Research and development
specialist
Team of specialists

Advisors
Sales manager
Cost analyst
Distribution personnel
Purchasing manager
Systems analyst
Customer
Competitor
Vendor

Element 2. Needs

Following ideation, this element defines in numerical terms the needs for materials, equipment, or services.

Decisions to be made. --What are the materials requirements considering demand forecasts, general specifications, and rough time schedules; should purchase be to exact requirements.

Decision Makers

Top management
Application engineer
Inventory controller
Stores manager
Marketing or sales manager
Manufacturing manager
Team of specialists

Advisors
Production scheduler
Project scheduler
Quality control man
Purchasing agent
Vendor
Finance officer

Element 3. Specifications

From the determination of needs in the prior step, the technical specifications develop for production materials, equipment, or services.

Decisions to be made. --Decide sizes and multiple weights of raw materials needed to make a customized product;
accept or reject technical specifications offered by vendors; design equipment to performance standards.

**Decision Makers**

Process engineer  
Project engineer  
Manufacturing engineer  
Chief chemist  
Quality control chief  
Purchasing manager  
Using department head

**Advisors**

Purchasing manager  
Customer  
Contractor  
Vendor  
Production foreman  
Cost analyst  
Traffic Manager  
Headquarters manufacturing consultant

**Element 4. Inventory Control**

This element maintains the acquisition cycle to assure continuity of production. A "run-out" situation, for example, signals rush acquisition of materials to prevent shutdown or serious curtailment of production.

**Decisions to be made:**—What, when, and how much to stock; increase or decrease inventory levels; stock a new item or drop existing items from stock; have vendor stock an item.

**Decision Makers**

Production control manager  
Stores manager  
Purchasing manager  
Production planning and control manager

**Advisors**

Purchasing manager

**Element 5. Authorization**

This confers authority to commit the company to a purchase of materials, equipment, or services.
Decisions to be made. — Has acquisition already been authorized by an approved budget; does acquisition exhaust funds; should capital expenditure for equipment be approved, postponed, or disapproved.

<table>
<thead>
<tr>
<th>Decision Makers</th>
<th>Advisors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top management</td>
<td>Planner</td>
</tr>
<tr>
<td>Project, production or facility engineer</td>
<td>Purchasing manager</td>
</tr>
<tr>
<td>Process engineer</td>
<td>Design engineer</td>
</tr>
<tr>
<td>Purchasing manager</td>
<td>Finance manager</td>
</tr>
<tr>
<td>Production controller</td>
<td></td>
</tr>
<tr>
<td>Inventory controller</td>
<td></td>
</tr>
<tr>
<td>Quality control chief</td>
<td></td>
</tr>
<tr>
<td>Inventory controller</td>
<td></td>
</tr>
<tr>
<td>Quality control chief</td>
<td></td>
</tr>
<tr>
<td>Inventory clerk</td>
<td></td>
</tr>
<tr>
<td>Materials supervisor</td>
<td></td>
</tr>
<tr>
<td>Customer account manager</td>
<td></td>
</tr>
<tr>
<td>Division manager, department head</td>
<td></td>
</tr>
<tr>
<td>Appropriations committee</td>
<td></td>
</tr>
<tr>
<td>Board of directors, commissioners</td>
<td></td>
</tr>
<tr>
<td>Authorization for Expenditure committee</td>
<td></td>
</tr>
</tbody>
</table>

**Element 6. Purchase**

Acting on conferred authority, this decision element commits the company to pay for materials, equipment, or services acquired.

Decisions to be made. — Buy on annual contract or under blanket purchase order or on a single contract or purchase order, or release from stores, or make the item within the firm. Negotiate or buy on bids basis. Buy on specifications by brand, or by performance. Canvass surplus sales and leasing possibilities. Explore foreign sources or buy American. Buy nationally or at home.
<table>
<thead>
<tr>
<th>Decision Makers</th>
<th>Advisors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchasing manager or agent</td>
<td>Using department head</td>
</tr>
<tr>
<td>Vice President - purchasing</td>
<td>Production engineer</td>
</tr>
<tr>
<td>Buyer</td>
<td>Vendor</td>
</tr>
<tr>
<td>Division Officer</td>
<td>Stores manager</td>
</tr>
<tr>
<td>Construction Division head -</td>
<td>Purchasing manager</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Element 2. Shipment Inbound**

Element 7 considers the proper routing and mode of transportation and timing for release of shipment as well as specific destination, such as receiving department, user's department, storage, or installation site.

**Decisions to be made.** Optimize ratio of benefit to cost of alternative routes, modes, and timing; decide whether company specifies routing or asks vendor to specify routing.

<table>
<thead>
<tr>
<th>Decision Makers</th>
<th>Advisors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic manager</td>
<td>User</td>
</tr>
<tr>
<td>Purchasing manager</td>
<td>Traffic manager</td>
</tr>
<tr>
<td>Buyer</td>
<td>Vendor</td>
</tr>
</tbody>
</table>

**Element 8. Receipt and Inspection**

This constitutes an event which legally binds the company. It confirms transfer of ownership, committing the firm to honor the vendor's invoice for payment. Despite the legal commitment which the function entails, the task is routine in nature so that in many cases nonsupervisory personnel perform this function.

**Decisions to be made.** Does delivered item physically
conform to specifications detailed in purchase order; decide whether to accept vendors' analysis on certain items, waiving further inspection.

**Decision Makers**
- Inspector
- Receiving clerk
- Receiving inspector
- Quality control inspector
- Analytical laboratory technician
- Production control clerk
- Chief chemist
- Resident engineer
- Tool control superintendent
- Production engineer or foreman

**Advisors**
- Using department head
- Vendor
- Pumper
- Tool room attendant

**Element 2. Movement Incompany**

This element consists of moving inbound materials, equipment, and supplies to users' departments or into storage first then later to users' location. Moving and storing fluids may involve bulk transfer through pipelines into underground or conventional tankage. Movement of equipment within the company's plant may require lowboys, skids, and cranes.

**Decisions to be made.** — Schedule materials for production, maintenance, or construction; choose mode of transporting within the plant; move to general stores or to private stores at user's department, or to installation site; move directly to resale shelf.
Element 10. Storage

Storage consists of providing a place for holding process materials, operating supplies, and equipment until demanded. The location may be contiguous to the point of use or some distance away. Storage may serve general needs of all employees or private needs of particular users.

Decisions to be made. — Store in tank farm, underground storage, leased warehouse; pay demurrage and store in tank cars or holds of ships and barges.

Element 11. Installation

This special purpose element consists of equipment
erection or placement within production facilities of manufacturing firms. It may involve new construction or alterations and additions to existing facilities. Installation may entail removal of old equipment in preparation of site for new equipment. Decisions may be made by company personnel on their own or on advice from outside specialists.

Decisions to be made. —Determine: readiness of site, enough materials and equipment on hand to proceed, erection equipment on hand to make the installation, weather right for pouring concrete foundations or hoisting large items.

<table>
<thead>
<tr>
<th>Decision Makers</th>
<th>Advisors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance crew supervisor</td>
<td>Original equipment manufacturer-technical representative</td>
</tr>
<tr>
<td>Maintenance construction department superintendent</td>
<td>and serviceman</td>
</tr>
<tr>
<td>Purchasing manager</td>
<td>Erection specialist</td>
</tr>
<tr>
<td>Construction department head</td>
<td>Expeditor</td>
</tr>
<tr>
<td>Chief engineer</td>
<td></td>
</tr>
</tbody>
</table>

Element 12. Use

Use consists of a production department employing the materials, equipment, or services to serve their intended purpose.

Decisions to be made. —Requisition for purchase and move direct to user's site; requisition for purchase and move into plant storage to be moved later to user's site; requisition for purchase and deliver to customer with or without inplant processing.
Element 13. Disposal

This element disposes of materials declared surplus to foreseeable needs of production and maintenance departments, scrap generated by the process, or old but useable equipment replaced by new items.

Decisions to be made. — Segregate, store, and dispose of scrap which is either a normal, created byproduct or an unfavorable waste generated during the processing of raw materials; when surplus finished goods are sold as surplus, determine whether surplus buyer needs surplus raw materials also; pay to have valueless items hauled away.
Element 14. Accounting

Accounting in the materials acquisition cycle sets up accounts payable, audits invoices, and authorizes payment to vendors. It records and reports the transactions involving money spent on acquiring materials, equipment, or services and money received from sale of surplus or scrap.

**Decisions to be made.** Decide whether invoices match with requisitions, purchase orders, receiving and inspection reports; take discounts; initiate a voucher which authorizes payment; check credit rating of vendor - if good, allow vendor to remain on approved supplier list; if poor, warn purchasing department. Poor credit rating may result in vendor not obtaining his materials as needed.

<table>
<thead>
<tr>
<th>Decision Makers</th>
<th>Advisors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invoice auditor</td>
<td>Invoice auditing clerk</td>
</tr>
<tr>
<td>Accounts payable head, clerk</td>
<td>Accounts payable clerk</td>
</tr>
<tr>
<td>Office manager</td>
<td>Purchasing agent</td>
</tr>
<tr>
<td>Credit manager</td>
<td></td>
</tr>
<tr>
<td>Receiving clerk</td>
<td></td>
</tr>
<tr>
<td>Purchasing agent</td>
<td></td>
</tr>
<tr>
<td>Manager of disbursements</td>
<td></td>
</tr>
</tbody>
</table>

Element 15. Payment

This element consists of paying the vendor, concluding the cycle.

**Decisions to be made.** Pay by cash or check; pay several invoices by one check or by multiple checks; post to proper accounts.
<table>
<thead>
<tr>
<th>Decision Makers</th>
<th>Advisors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cashier</td>
<td>Vendor</td>
</tr>
<tr>
<td>Accounts payable manager or</td>
<td></td>
</tr>
<tr>
<td>supervisor</td>
<td></td>
</tr>
<tr>
<td>Treasurer</td>
<td></td>
</tr>
<tr>
<td>Controller</td>
<td></td>
</tr>
<tr>
<td>Secretary</td>
<td></td>
</tr>
<tr>
<td>Chief accountant</td>
<td></td>
</tr>
</tbody>
</table>

**Elements Common to All Cycles**

The elements found common to all general cycles are eight in number: Ideas, Needs, Specifications, Authorization, Purchase, Use, Accounting, and Payment. As stated elsewhere in this study, all of the elements occur within the firm, performed by regular fulltime employees. Not all of the employees are executives or supervising managers; many are nonsupervisory employees. In addition to making decisions in acquisition cycles at certain points, nonsupervisory employees were reported to serve in advisory roles at other points of the cycles, such as when maintenance craftsmen advise supervisors at the Needs event of the MRO Supplies Cycle. Another point was identified by respondents to be at the Ideas Element in the Raw Materials cycle where distribution clerks and warehouse attendants advise superiors regarding customer complaints, thereby feeding information into the Ideation stage of the cycle.

**Models of Cycles**

The four hypothetical models, constructed from elements found in the three cited readings and fourteen interviews
and verified by testing with thirty-one panelists, consisted of combinations of elements lineally linked together. This section presents them one to a page, whereas they were presented to panelists all on one chart measuring 24-by-36 inches.

The hypothetical models were verified by test to be general models, as indicated in Figures 1, 8, 13, and 16. Variations were found in the tests, as shown in Figures 2, 3, 4, 5, 6, 7, 10, 11, 12, 14, 15, and 17, labelled Variations from the General Models. Figures show subject numbers, purchase responsibility, class from Table V, Chapter III, and home office/branch location.

This section illustrates the several patterns using symbols for elements as shown in the Key legend in Figure 1.

**Raw Materials Models**

The General Model of the Raw Materials Acquisition Cycle, shown in Figure 1, consists of fifteen elements, fourteen of which are distinctly different and one repeated to show its second operating position.

The chain of elements operates over a time span not measured by this research. Interviews indicated parts of the cycle continuing over a period of many weeks. Indeed, several respondents identified the Ideation or Ideas element for their firms as predating the rest of the cycle by years, about one hundred years in one case. The Ideation element in most cases represented the founders' original thinking.
Key for Elements

I  Ideas
N  Needs
S  Specifications
IC Inventory Control
A  Authorization
P  Purchase
SI  Shipment Inbound
RI  Receipt/Inspection
M  Movement
ST  Storage
U  Use
D  Disposal
AC  Accounting
PY  Payment

Fig. 1—Hypothetical model of Raw Materials Acquisition Cycle verified as general model.
Which resulted in repeated cycling of the pattern for acquiring materials conforming to the original ideas under which the firms still manufacture their products.

Figures 2—6 illustrate variations from the general Model of the Raw Materials Acquisition Cycle. Several respondents indicated that the cycle was followed either in its general form or in a variation for acquiring not only raw materials but also subassemblies and/or component parts. A food processor, for example, stated that preprinted candy boxes designed by his advertising department constituted component parts; fluted paper cups and cardboard separators made up subassemblies; all of these he acquired as raw materials for the packaging of his firm's products. Thus, he followed Figure 1 for triple acquisition, rather than following the general model for acquiring MRO Supplies, Subassemblies, and Component Parts, shown later as Figure 13.

Figure 7 shows a portion of a variation from the general model which a respondent reported, indicating reuse of salvageable raw materials.

**Equipment Models**

Thirteen of the thirty-one panelists verified the general model for their equipment acquisition cycle and four more after marking in Disposal of Replaced Equipment as Figure 8 shows. The chain of elements includes the Installation element defined earlier as belonging only to this cycle. Alternate methods of moving the equipment are shown in the figure.
Fig 2.--Variation from general model of Raw Materials and Component Parts Acquisition Cycle for a firm manufacturing warm air furnaces and air conditioning equipment.

Authorization omitted, already granted by 4-month projected planning.

Production replacements based on 4-month projected planning; monthly cycle largely bill of material support of 4-month additions to schedule.

Purchase manager responsible for all planning, scheduling, production control and inventory control, as well as for purchasing and traffic.

Cash discounts taken before materials are processed.

Partial, not 100% inspection.
Fig. 3--Variation from general model of Raw Materials Acquisition Cycle for a firm making construction and conveyor equipment.
Inventory control omitted due to customized design.

Shipments to site

Joint decision by purchasing and inspectors traffic managers.

Receiving performed by Field Exediting; Movements and Storage eliminated.

Joint decision by purchasing and expediting managers

Fig. 4—Variation from general model of Raw Materials Acquisition Cycle for a firm building nuclear steam supply systems in its design and procurement operations where Component Parts constitute Raw Materials.
Subject 1
Class I
Home Office

Inventory Control maintained by firm over its vendors' supplies.

Fig. 5--Variation from general model of Raw Materials Acquisition Cycle for a firm drilling and processing natural gas without company storage, natural gas constituting firm's raw material.

Use includes distribution to customers, processing plant, refinery, as well as to own power plant.

Omit Disposal

Does not apply because waste is nil.
Fig. 6—Variation from general model of Raw Materials Acquisition Cycle for a firm producing steel forgings, billet, plate, bar, and wire.
Represents

Reprocesses
salvage

Purchasing manager buys
services of disposal ven-
dors to haul away scrap.

Fig. 7—Portion of variation from general model
of Raw Materials Acquisition Cycle for processor of
food and beverages who reprocesses salvage.

Subject 3
Class I
Home Office
(Single Unit)
and are further explained in Figure 9.

Several variations from the general model appeared, as Figures 10—12 show. As these models attest, considerable flexibility was found in patterns of equipment acquisition cycles to accommodate individual situations.

**MRO Supplies, Subassemblies, and Component Parts Models**

Twenty-three respondents verified the general model, Figure 13, for acquiring MRO supplies, subassemblies, and component parts. This pattern, like the others, reflects the sequential arrangement of decision elements along a time line starting with Ideas and concluding with Payment.

One respondent reported a variation, shown in Figure 14, based on arranging his tool crib storage so as to obviate further movement of inbound supplies following the Receipt and Inspection element. Respondents' accommodations to certain situations resulted in other variations of the general model of the MRO Supplies Acquisition Cycle, as Figure 15 indicates.

These special models demonstrate how the general models may be amended to fit a company's particular circumstance to fully utilize existing resources in the face of practical limitations. One of these models omits the Ideas element and shows that the respondent shifted the Specification and Shipment Inbound decisions to his vendors. This represents the type of operation which the cited literature (1, p. 510;
Fig. 9—Portions of general model of Equipment Acquisition Cycle showing four options following shipment inbound combined in Fig. 8.
Acquisition of new plant for installation on customer's site under turnkey contract.

Subject 24  
Class III  
Home Office

Acquisitioner deletes these elements from his cycle.

Customer's cycle includes these elements interspersed with acquisitioner's elements shown in top line.

Fig. 10—Variation from general model of Equipment Acquisition Cycle for a firm building nuclear steam supply systems for customers under turnkey contract.
Subject 21
Class II
Branch

Vendor's certification accepted, omitting inspection.

For warm air furnaces manufacturer

Subject 13
Class I
Home Office

Receiving separate from Inspection

For fabricator of process piping

Storage element referred to as "Shelf."

Subject 30
Class I
Home Office

Installation element shifted to customer.

For industrial distributor buying equipment for resale only

Fig. 11--Portions of variations from general model of Equipment Acquisition Cycle.
Disposal of stored surplus equipment

Surplus equipment disposal

Fig. 12—Portion of variation from general model of Equipment Acquisition Cycle for producer of portland cement.
Fig. 13—Hypothetical model of Materials Acquisition Cycle for ETO supplies, subassemblies, and component parts verified as general model...
Movement omitted by combining Receipt/Inspection with tool crib storage.

Surplus by obsolescence

Fig. 14—Variation from general model of MRO Supplies Acquisition Cycle for a firm fabricating process piping, valves, and fittings.
Fig. 15--Portions of three variations from general model of MRC Supplies Acquisition Cycle.
refers to as blanket order operations* wherein the vendor assumes responsibility for decision making at several of the decision points in the typical cycle.

Another respondent's cycle was reported wherein Authorization preceded the Specifications element, as Figure 15 indicates. This feature affords a certainty that whatever is specified will carry authority previously conferred. On the other hand, it prevents review by the conferring authority.

One respondent described the situation whereby his firm exercised inventory control over the supplies acquisition cycle, as shown in Figure 15.

**Services Models**

The simplest cycle of all, Services, consisted of eight elements, as Figure 16 illustrates. Twenty-eight panelists out of thirty-one verified this model. Here, the service vendor furnished his own Shipment Inbound and Movement within the company. Receipt and Inspection operated tacitly by the user's acceptance of the services rendered. No storage was involved; therefore, the cycle model omitted the Storage element. Respondents reported local amendments to fit particular situations, as Figure 17 shows.

As noted in Chapter VI, the patterns describe the acquisition process in general, regardless of the type and size of

*MacDonald and Brown (11, p. 92) report blanket order operations as increasing.
Fig. 16--Hypothetical model of Services Acquisition Cycle verified as general model.
Fig. 17--Portions of variations from general model of Services Acquisition Cycle.
the firm as reflected by the respondents' classifications. The fact that general models exist regardless of firm type and size proves the basic hypotheses.

Adequacy of Models

In the case of eleven panelists, as shown in Table XI, the four general models proved to be completely sufficient as evidenced by no deletions or additions or write-ins on the charts returned to the researcher after the five testing interviews. Six panelists verified three of the four models, six panelists verified two models, seven verified one of the models, and one panelist verified none of the models as being adequate in describing his firm's materials acquisition cycles.

TABLE XI

ADEQUACY OF MODELS

GENERAL MODEL VERIFICATIONS

<table>
<thead>
<tr>
<th>Verification</th>
<th>Number of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>All four verified</td>
<td>11</td>
</tr>
<tr>
<td>Three of four verified</td>
<td>6</td>
</tr>
<tr>
<td>Two of four verified</td>
<td>6</td>
</tr>
<tr>
<td>One of four verified</td>
<td>7</td>
</tr>
<tr>
<td>None verified</td>
<td>1</td>
</tr>
</tbody>
</table>

Total respondents 31
By type of models, the situation proved stronger. For the Raw Materials general model, seventeen respondents verified the general model, as Table XII indicates. Two other respondents reported no conversion of raw materials by their firms, thus the model did not apply to them.

Thirteen panelists verified the Equipment general model, twenty-three panelists verified the MRO Supplies general model, and twenty-eight panelists verified the Services general model.

<table>
<thead>
<tr>
<th>General Model</th>
<th>Number of Panelists Verifying</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw Materials</td>
<td>17 respondents</td>
</tr>
<tr>
<td>Equipment</td>
<td>13</td>
</tr>
<tr>
<td>MRO Supplies</td>
<td>23</td>
</tr>
<tr>
<td>Services</td>
<td>28</td>
</tr>
</tbody>
</table>

Deletions and additions were found in thirty-nine models returned after the interviews. Each proved to be logical as explained by the panelists in terms of accommodations to special needs.

The literature search overlooked one element, Disposal of Equipment, and the primary interviews did not bring out the regularity of this element which was added by four of the panelists, their only modification. Since this element appeared logical in terms of the literature (1, p. 340;
10, pp. 370, 373), it takes its place in the general model, Figure 8, and in the list of elements, Table X.

Other added or deleted events which were found in special cases are presented in this chapter as variations from the general models for consideration by those firms which utilize the findings from this research.

Several concepts drawn from published sources cited in Chapter II found agreement in the present research. Hein (7) distinguishes managerial and nonmanagerial decisions; the present study found nonexecutives making decisions at several points in the typical cycle. Chamberlain's (4) use of "not enough cases" agrees with the cumulative weight of evidence by which guarded generalizations emerged in the present research. Scott (13) reports managerial strategies for resolving conflict, a situational challenge discussed at length in many interviews during the research. The new executive inherits his staff, according to Janeway (9), a problem reflected by findings in the current study.

Some of the published sources could not be verified completely by the present study. Whereas Paul (12) reports dependence of the small firm on the large, the present study found the contrary view as well, that is, large firms admitting to perpetuating small vendors whom they have developed as alternate sources of supply. The IMMS diagram (8) omits major elements found to be fully operating in materials acquisition cycles prior to the purchase event. Firestone's
(6) "prevalent business practice" of joint decision making proved to be rare in the present study. Cady (3) pictures team play as an emerging force in business, yet only one of the companies interviewed in this study stressed the team approach to materials acquisition. Cady emphasizes the interrelated task of purchasing with other departments. While the present study repeatedly found such a pattern, yet little evidence of team action emerged, beyond the two-persons-at-work relationship. Bennis (2) points toward resolution of conflict through collaboration, a concept not located widely by this study.

**Decision Makers' Titles**

As indicated in this chapter, the patterns of models marked by panelists identified a wide variety of job titles for the decision makers who participate at the different points of acquisition cycles. Part of the difficulty faced in analyzing operations in a group of companies—indeed, in a single company—lies in this varied use and meaning of job titles.

The profiles further illustrate this disparity in the meaning of even identical titles. For example, two respondent executives work under the same job titles and report to identical titles in the home offices of their multi-plant companies within the same industry. They report purchase responsibilities of $43 million and $20 million although one firm's sales amounted to forty times the other.
Still, the functions performed at each element consist of basically common operations regardless of job title. Therefore, patterns were found to exist and can be identified when their constituent elements are linked without reference to job titles.

External Environment Factors

The external environment containing customers, competitors, contractors, vendors, and the regulatory public were reported in the interviews to make their distinct impacts on the cycles through various means.

External Factor 1. Customers

Information flows into the company at two elements in the cycles. The first is the Ideas element of the cycle where sales personnel report the desires of customers for new products, improvement of existing products, quality improvement, package changes, and declining demand for old breadwinners. Distribution personnel such as Finished Goods Dispatchers also feed information into the company when they pass along complaints from customers and from warehousemen under contract with either the producing firm or its customers.

Second, customer information flows into the company at the Specifications element of all of the general cycles. To illustrate from one interview, when a machinery manufacturer's customer, "A", desires a particular instrument as a
customized addition to the basic machine, the manufacturer, "B," acquires the services of an instrument manufacturer, "C," by following the general model of the Services Acquisition cycle. Thus, the customer's, "A's," information flows into the cycle at "B's" Specifications element, entailing as it does non-personal services of "C" to add sophisticated components beyond "B's", the machinery manufacturer's, capabilities.

External Factor 2. Competitors

Information regarding competitors' activities and products enters the materials acquisition cycles at the Ideas element and at the Purchase element. The purchasing literature (1, p. 15; 5, p. 7; 10, pp. 12, 27) cites the vital role of the purchasing manager as the eyes and ears for his company in the marketplace. When the purchasing manager or his buyer hears something about competitors while discharging his function as decision maker at the Purchase element, then he becomes advisory to the Ideas element in the cycles, according to the interviews and verified by numerous write-ins by panelists.

External Factor 2. Contractors

In the Equipment cycle, contractors feed information into the cycles at two elements: Specifications and Installation. Typically, the contractor serves as an informed supplier and therefore negotiates the specifications which
the purchasing firm wants him to perform. At the Installation element, the contractor delivers as specified; but, according to several interviews, the installation contractor may ask to modify the specifications due to unforeseen problems coming to light during equipment installation.

The acquisition of services provides added information which flows into the company when a contractor performs his services in the firm. Instead of installing equipment, this type of contractor provides professional consulting, legal interpretation, office procedure systems analysis, computer programming, management development and worker training, and other services. His information flow may indeed impact every element in the Services acquisition cycle.

**External Factor 4. Vendors**

The vendor was found to make repeated impacts upon the acquisition cycles as a participating advisor to the decision makers at several points, according to the literature (1, pp. 325-326; 10, pp. 28, 36) and the interviews. In the Ideas element, the vendor consults the key initiators of acquisition cycles, describing how other firms use his product. He directs his advertising and sales promotion to this key audience, according to references 14 and 15 cited in Chapter II.

A vendor assists the Needs element decision makers by helping to determine cost savings and to resolve dilemmas regarding materials. For example, a shoe polish manufacturer
whose ingredients separate during shelf life finds that he needs the vendor's emulsifier to maintain ingredient suspension, according to one interviewer's statement.

The vendor may consult on Specifications, helping the firm to requisition clearly and recommending lower cost substitutes upon occasion, as described in the literature (5, p. 36; 10, p. 36).

Again, the vendor takes part in the cycle as he bids or negotiates with the purchasing manager. Further, he may advise on routings and mode of shipment inbound. The vendor's inspection slip may advise the Receipt and Inspection decision makers. For technical specialties, the vendor may recommend special storage, installation, and use procedures, as reported in the interviews.

Finally, the vendor impacts the cycle at the Payments element. Until the vendor accepts payment, the cycle remains open, according to one primary interview. If the vendor comes back with questions about incorrect payment, portions of the original cycle operate again until the vendor's claims have been settled.

External Factor 5. Regulatory Public

A fifth external factor makes a noticeable impact on the acquisition cycles, as reported in the prime interviews and verified by the panel interviews. Portions of the general public exert a strong influence at times, attempting to regulate the will of the company. A food processor indicated
that farmers had poured their produce on the ground rather than sell to his company during a major price dispute. As a result, his top management entered the purchase element of the cycle to negotiate with the farmers, because top management alone could sanction capitulation beyond the price guidelines laid down for the purchase manager to follow.

Another executive stated, "If the mayor's brother-in-law insisted on selling mixed concrete to me above what I can get it for, I'd have to take it upstairs to higher executives to decide how we were going to play ball". In this manner, the cycle's regular make-up of decision makers changed.

This external condition of interaction with the public is described further in Chapter V on Variables, Factors 37--39.

The present chapter describes materials acquisition cycles which the research developed from library search and interviews with forty-five executives. The chapter identifies four general models and several modifications to fit particular needs. The next chapter discusses the variable factors which tend to influence the materials acquisition cycles.


On viewing the variations from general models described in Chapter IV, it becomes clearer why managers have not specified the precise cycles of events which tie together the decision makers in a materials acquisition situation.

Verification of Variables

The task which the panel executives confronted was to identify which are the important variables and which are not, according to their own company experience. Panel members initialed a copy of the checklist, shown in Appendix B, and then worked through each checklist item in sequence following the overall heading "Factors which may determine the materials acquisition cycle in my company". "Company" for this research included the manufacturing and transportation firms, the government institutions, and the industrial distributors. The judgment criterion was stipulated to be: "as respondent's present experience dictates".

What the executive judged in this test of the variable factors was put as a question, "Does it make a difference in the cycle when your company faces the choices which are listed as variables?"

Throughout the task lasting from thirty minutes to two
hours, panel members repeatedly were urged to raise questions where their understanding of the listed variables and of the task itself could be clarified to obtain consistent responses. The large number of requests for clarification arising during the tests proved the necessity of obtaining answers by face-to-face interview rather than via mailed questionnaires.

The thirty-nine factors which are presented in this study were hypothesized as influencing the make-up of the acquisition cycle. The research at this point verified these factors against the experience of purchasing executives selected from a variety of product lines and company sizes in different sections of the country.

For a panel member, thinking only of decision making activities, to mark a factor L--for Large Importance, or S--for Small Importance, he would say this factor would have to be taken into account in making up the chain of decision makers who participate in acquiring materials or service. To mark a factor N or X, he would say this item would not have any impact on his cycle.

Panelists were not asked to distinguish one choice from another within one of the factors. Instead, if any choice within a variable item calls for different decision makers than another choice within the same factor, then the factor overall is sufficiently important to affect the cycle and should be marked L or S.

Where the panelist's firm was considerably diversified
and with relatively small operating units as well as large units, a mixture was identified which would confuse the results. As one top-level executive stated:

If you want it, we've got it, as to approach.

If I think of it from one division, I have one perspective; another division means another perspective. Some items are produced on a repetitive stock basis. Others are specifically engineered, designed and built, and the perspectives would be considerably different. There is a difference because on one hand we are generally buying after the product is sold — custom built items; on the other hand, we are buying on the projection of selling, so the emphasis is somewhat different.

In such a dilemma, the panelist was encouraged to answer in light of his major product; in so doing he did not present the total perspective for his company, a severe limitation in this study. Without studying his firm in greater depth, the information could not be obtained by this research methodology.

The results comprise three rankings, Large -- Small -- and No Importance, as tabulated in Appendix C.

Test Results by Factors

Results appear next with the researcher's discussions and with comments selected from tape recordings of the panel interviews recorded as panelists marked their checklists of variables. Comments reflect the informal speech of the discussions and remain unaltered to preserve their exactness. Factors are the same as Variables.

Factor 1. Raw material, equipment, MRO supplies, or services.

29 L -- Large Importance; 1 S -- Some or Small importance;
1 N— No Importance or Does Not Apply; zero X— Do
Not Know or No Opinion.

If a different decision maker would be used somewhere
along the line when acquiring gasoline for example, then
when acquiring automobiles, then Factor 1 is of some impor-
tance and either L or S would be marked on the checklist.
It is readily noted in the total panel results for Factor 1
that material acquisition cycles were importantly distin-
guished by identifying their intended use.

One firm, for example, stated it buys steel barstock for
inventory to be put in stock for maintenance use which might
be used "next week or six months from now". No real impor-
tance would be attached to its purchase. On the other hand,
the firm buys steel for making tin cans—which for them is
production material. Production material carries extreme im-
portance, probably one of the most important functions in
the office of Procurement. Thus the same commodity would be
bought in two different ways. The intended use factor assumes
a large importance since different decision makers would be-
come involved in acquiring the commodity for one use than
for another.

Factor 1 carried large importance.

Factor 2. Ordering first time, reordering, or ordering once
and for all. 17— L; 12— S; 2— N.

Are different people involved when ordering for the first
time than when reordering? If so, this variable factor
represents some importance to the cycle. On the other hand, if a firm makes no distinction among these three choices, the respondent would mark it "N".

The results show that this factor comprised an important influence on determining the materials acquisition cycle.

**Factor 3. Urgent, routine delivery, or time unspecified.**

19— L; 9— S; 4— N.

This factor carried importance, according to the results.

Sometimes a maintenance item purchase cut off production. Instead of being of no significance, according to some panel members, suddenly it becomes critical and therefore of prime importance in defining the acquisition cycle. For that reason, Urgency was hypothesized as an appropriate variable which dictated a particular acquisition cycle. Test results verified this to be true.

Typically, when a firm faces an "Urgent" acquisition, some decision maker is left out, bypassed, or short-circuited from the normal chain of acquisition events. Communicating becomes verbal in order to save time, to quicken the outflow and feedback of emergency commands, and to express explicitly that a state of emergency exists. Unfortunately, the human mind may "play tricks" in such a state; many persons are sadly familiar with garbled communications which flow during emergencies. The possibility of garbled communications may call for a shift in the cycle, as Factor 4 brings out.

Moreover, during emergencies, leadership style typically
shifts to Authoritarian. The central authorities brook no back-talk, no questioning, no wrangling. They make decisions and bark orders. Subordinates run with the orders, assuming the necessary authority to carry out the orders and to make decisions while carrying them out. A distinct "red-tag" acquisition cycle appears.

To illustrate, the Fire Marshal fighting a raging fire in an oil refinery orders up "more foam". The order-receiver proceeds to get "more foam". To carry out the order, he takes for granted—from either the urgency of the spoken words or one look at the blaze itself—that there is no limit to the foam's cost or quantity or condition or containers or mode of transport for urgent delivery. More foam arrives and the fire dies. Days later, insurance settlements pay for the extravagances of materials acquisition which were waived yet entirely authorized at the time of emergency.

The point is, if the normal routine cycle is upset by "Urgent" acquisition, this factor becomes important in defining the cycle.

Some panelists noted a combined effect of different factors. An urgent request for a five-dollar fire extinguisher would call for a different cycle than an urgent request for a five hundred thousand dollar furnace.

**Factor 4. Involve fewer people to reduce delay, or many people to obtain benefits. 9--L; 20--S; 2--N.**

The bypass situation in Factor 3 above may be reversed
for the non-urgent situation. Indeed, the goal here may be to involve many people when acquiring materials or services. The purpose might be to gain the benefit of wiser heads, or to get people committed to the decisions by involving them, or to train junior executives in making decisions, since time is available for team deliberations.

One manager stated that he would go to fewer people, and therefore alter the materials acquisition cycle, only in cases of urgency—to avoid delay. But another manager answered oppositely. "We would go to a larger number of people in urgent cases, to get the benefit of a lot of thinking, in order to make the right decisions." Both men marked "S" for Factor 4. Obviously, the wording for this question did not provide for clear differentiation of these opposite outcomes.

When faced with these alternatives, some respondents insisted that the answer depended upon the type of material to be acquired, as in Factor 3 above.

Factor 4 was important somewhat to differentiate the cycles.

Factor 5. Equipment: produces product or supplies services (such as electric motor for sawing logs or hoisting passengers.) 15—L; 13—S; 3—N.

A company contemplates the acquisition of an item of equipment such as a twenty horsepower electric motor. Does the intended use make a difference in the makeup of the
decision makers? Is the chain or cycle different when the motor is intended for producing product, such as driving a saw in a sawmill, than when the motor is intended for providing non-producing service, such as hoisting a passenger elevator?

Several firms in the panel which recognized this factor to be of large importance, further stated that they viewed their Maintenance Department's requests for materials to be product-producing rather than non-producing services. Therefore, Maintenance item acquisitions carried production priority, and the Raw Materials decision makers comprised the MRO cycle as well.

Factor 5 was of large importance.

Factor 6. Equipment for replacement item, additional capacity, process change, new process or product.

21—L; 8—S; 2—N.

In the case of a metal fabricator acquiring a sigma arc welding machine, does his decision cycle depend upon whether he acquires it for replacement of existing equipment or for expanding his capacity, or for installing an entirely new process which he has never used before, or for making a new product? The labor-saving implications may trigger entirely different outcomes than would occur from expanding his product line. Therefore the decisions involved for acquiring the equipment might command a substantially different group of decision makers, depending upon the purpose.
For the owner-manager, the differing cycles may be entirely obscured by the fact that he does not distinguish between acting as Sales Manager and acting as Production Manager or Financial Manager. Yet the decisions involved in acquiring the equipment could be of large and devastating importance to his shop. Does the Sales Manager's characteristic optimism struggle in some sort of win-lose conflict with the hard-as-nails caution of the Production Manager or with the "all costs are too high" logic of the Financial Manager? Does the single proprietor who operates one-alone in all functions of his acquisition cycle trap himself by the one predominant trait which overpowers his other traits?

In the medium-sized firm which has various decision makers located in geographic proximity, the whole viewpoint is perhaps clearer as to who the decision makers are who become involved when the intended purpose specifies which cycle should be followed.

No matter what the acquisition purpose might be, each acquisition cycle was found to involve the purchasing executive or someone who performed his function. He was found operating in every type of chain. Thus, the basic assumption was proven: the purchasing manager constitutes a reliable source of information regarding materials acquisition cycles since he generally sees all the decision makers who possibly participate in any acquisition. Certainly he does not make all the decisions alone unless he operates a small firm by
himself. But typically the purchasing executive occupies the vantage point to see all the decision makers upstream preceding his decisions and those downstream after he makes his functional decisions. Moreover, from the panel evidence, he views differing chains of decision makers depending upon the acquisition's intended purpose.

Factor 6 was important.

Factor 7. Equipment installed: by ourselves or others.

8— L; 19— S; 4— N.

This factor operates not just in the wording of the contract. Do other decision makers become involved when the firm itself installs acquired equipment than when others install it?

From the results, it appeared that different people in the plant become involved as a result of this pair of alternatives. But the decision makers involved in material acquisition cycles would generally remain the same and the factor made small impact on the cycles.

Factor 8. Equipment installed on receipt or stored first, installed later. 6— L; 16— S; 8— N; 1— X.

At the planning level of executive decision making, this factor involves priority: the executive may have related decisions pending. It is a matter of making a decision: What is he going to do first:

Why buy an item now if it is to be installed later?
Panelists' verbal answers included: 1) to fill out a depressed inventory, 2) to take advantage of a closing out sale, a surplus sale, or a fire sale, 3) to hold a spare on hand, 4) to accumulate all of the items before installing any of them, or 5) to hold items until foundations are poured and supporting steel is fabricated and erected.

This factor constituted low importance.

**Factor 9. Manpower:** one man show or all functions filled by different persons. 13—L; 10—S; 8—N.

Factor 9 had a modest bearing on the cycle, according to the results. How well the organization is manned with decision makers who have the forcefulness and top management permissiveness to make decisions made a difference. Alternatively, if every job function is filled but the "old man" won't let go the reins, it is the same as a one man show, according to several panelists' statements.

Does the cycle differ where there is an engineer who specifies what to buy, a traffic manager who routes the inbound material, a warehouseman who receives it and an accountant who pays for it? The establishment operating a one man show with just an assistant, reported no difference among acquisition cycles, as would be expected. The possibility of varieties of cycles exists only when an array of decision makers exists, subject to top management's openness and permissiveness toward allowing them to make decisions.

Results ascribed some importance to Factor 9.
Factor 10. Participants overloaded with work at the moment or operating routinely. 6 -- L; 18 -- S; 7 -- N.

Do decisions tend to be different in load situations? One materials manager for a medium-sized company stated, "We'd have a hard time getting them all together." This missed the point. It is never true that the cycle works only when decision makers get together. Indeed, a manager may never see all the participants together in one operational place. Typically these persons operate at different work places making their independent functional decisions which affect the acquisition. The question was simply, does it make any important difference to the cycle if participants are overloaded with work or not?

Factor 10 constituted small importance.

Factor 11. Strength or weakness of participants. 18 -- L; 9 -- S; 4 -- N.

Examined here is the nature of the personal trait of forcefulness of company decision makers toward each other. Does the forceful individual in a company forge a place in the acquisition cycle where less strong individuals do not? Given both types of behavior in the same cycle, do forceful persons push decisions their way, forcing weak persons to give in? On the other hand, does the power of personal position and prestige rise above the power of personal forcefulness?

Does the strong-willed person push his way into membership
in the acquisition cycle? Does the weak person lose out as
a participating decision-maker? In that case the cycle
which ties decision makers together includes the strong and
excludes the weak.

The four companies reporting N—no importance or doesn't
apply—may constitute mature firms whose policy is to involve
functional decision makers regardless of the personal traits
of managers relative to other managers in the firm. Respond-
ents who marked N to this item exhibited annoyance when other
respondents admitted that forcefulness played a strong role
in their companies.

Many purchasing managers recognized the textbook admoni-
tions to challenge specifications which seem to be extrava-
gant or overdesigned. Additionally, the right to challenge
quantity is upheld by purchasing authorities providing that
the final quantity demanded arrives on time. But purchasing
agents often give in and order exactly what has been request-
ed, according to field interviews.

Individual answers to Factor 11 matched the answers to
Factor 9, underscoring some belief that permissiveness of
top management (Factor 9) must be congruent with forcefulness
of decision makers (Factor 11) throughout the cycle.

A large majority of respondents stated that Factor 11
constituted importance.

Factor 12. Dollar amount of the purchase (under $200, over
$1000). 22—L; 7—S; 2—N.
Would different people be involved if the purchase were under $200 or over $1000, because the unit price of one item was very small and another one very large?

The research did not specifically ask the respondents to state the dollar authority they have for purchasing independent of higher authority. However, the ensuing discussions brought out the point that typically a very small dollar figure, often $25, bound some of these purchasing executives to acquisition cycles which involved other authorization executives when a small unit price is exceeded. For others, their authorization limit was quite large. One executive asked, "Do we buy anything less than a thousand dollars?"

Other executives reported that they rarely capitalize equipment below $300. Therefore, the typical Equipment cycle would involve other Authorization personnel than the Purchasing Managers.

One man stated that a lot more people become involved in Capital Equipment expenditures than on Raw Materials acquisitions, even though both items may cost well over $1000. Therefore, this factor did not differentiate adequately, in his judgment.

One panelist stated he was thinking about a corporate structure where it takes "1700 signatures to approve a new press. It becomes a very great magnitude." He said he cannot buy an electric typewriter without approval from the group corporate headquarters in New York. Nevertheless, he
signs purchase orders in excess of a million dollars "and they won't challenge me, because it is raw materials."

Factor 12 makes a large impact on materials acquisition cycles.

Factor 13. Ratio of purchase cost to final cost of product.

17—L; 8—S; 6—N.

One consumer goods manufacturer stated, "Number 13 isn't hard to answer," marking this factor L. "It is the answer."

The impact of this factor may vary with the nature of the intended use of the product acquired. Where the purchased item is for sale, the ratio of purchased cost to final cost of product comprises large importance and therefore multiple decision makers handle the raw material acquisition.

"When the product is for internal use, say we make something for our own use, then this ratio is not so important, and you wouldn't see the same decision makers involved. It's of lesser importance."

Overall, Factor 13 comprises large importance.

Factor 14. Buy or lease. 13—L; 14—S; 3—N; 1—X.

The majority of responses indicated the moderate importance of this factor in defining the materials acquisition chain. The possibility of leasing brings other decision makers importantly into the cycle.
Factor 15. Intracompany transfer or obtained outside.

9—L; 14—S; 7—N; 1—X.

Results were mixed. For the company which did not have sister companies, N was marked, since there was no possibility for intracompany transfer. For other companies, this represented an important factor in cycle make-up. A dairy products company executive stated he might transfer some steel for can manufacture from another location. That transfer would involve a different chain of decision makers than if the firm obtained the steel outside.

"This factor, where a lot of plants are operating, gets to be fun," as one national distribution representative reported it.

I'll have to make a personal opinion here and headquarters disagrees with me on this. It cost my plant money. We have to pay those turkeys what they call Recirculating Management Expense and I can buy it cheaper from somebody else. But each of our plants are integrated in such a manner that I can take delivery on anything from Los Angeles. "Why, that's our shop and it doesn't make any difference where it is, that's our shop," so it comes out of our shop even if it does cost us more to make it ourselves. It's a bitter pill sometime - especially when burden has to be absorbed and that's where the rub comes in. They've got a higher overhead rate than we have and it cost me about thirty percent to do business the other day with Los Angeles. Yet you know what they say down at the Ivory Tower, "it all goes into the same pocket" but I get chewed out if my inventory is too high.

Factor 16. Quality critical or not critical.

21—L; 9—S; 1—N.

Considerable difficulty arose in one group for this and
the following factor. The nature of finished products for all the firms interviewed constituted a universal necessity for critical quality of raw materials (Factor 16) and reliability of vendors (Factor 17). Therefore respondents verbally emphasized the vital importance of these factors. A shift to lower quality or to less reliable vendors would require additional decision makers at several events: Specification, Authorization, Purchasing, Inspection, and Accounting. Factor 16 made a large impact on materials acquisition cycles.


21 -- L; 6 -- S; 4 -- N.

To one company, this factor constituted the most important question in all purchasing. Its representative said:

...and that is deliveries. Does the guy you buy from deliver when he says he's going to? To us [a large national automotive manufacturer] that would be critical [other panelists agreed to this].

In the production firm everything is based on delivery.

An industrial distributor added, "Normally, the delivery promises which you manufacturing firms obtain, are always a little bit longer than what Sales promises."

Results attested such universal need for vendor reliability that a change to lesser reliability would call for different decision makers in materials acquisition cycles.

Factor 17 constituted large importance.
Factor 18. Performance of purchased item subject to guarantee. 15— L; 9— S; 7— N.

"When would we ever purchase an item that wasn't covered by a guarantee? This question doesn't apply to us."

Another respondent replied,

Well, it applies to our company. Our Engineering Department asked us to buy an item costing a lot of money. We couldn't get a guarantee on it. So we told them we wouldn't buy it. They insisted. We pointed out it would wind up as money down the drain. They persisted in their point. So we took it to the highest management in the company. This changes the cycle of decision makers and therefore I can see it's an important factor.

"How did it turn out?"

The top management said, "Buy it," so we did and the item failed as we predicted. Money down the drain.

Some importance attached to Factor 18, but experience varied.

Factor 19. Vendor: governmental body or private. 4— L; 11— S; 15— N; 1— X.

When the vendor is a governmental body such as a water district, or a sewage disposal agency, does it matter?

Would a different group of decision makers be involved than if the vendor were a private source?

Strong response occurred for N— no importance or does not apply.
Factor 20. Vendor: can be foreign or must be domestic.  
15-- L; 12-- S; 4-- N.

Here, company policy would dictate. Debate over the matter rages hotly in high places. The Council for Economic Development stands divided, with members defending foreign buying and others upholding domestic purchases on grounds of defending the American economy.

Would different decision makers be involved if the company faces this choice?

Some panelists were 180 degrees apart on this issue. But most agreed the factor would be involved importantly in defining cycle participants.

"We have a 'Buy America' policy going in our company so we would not have the choice of using the alternative of buying foreign. Therefore my answer has to be N."

Results differed depending upon company policy.

Factor 21. Service from vendor after purchase: critical or we service it ourselves. 13-- L; 15-- S; 3-- N.

A company may face a critical shortage of vendor service and for that reason it proceeds to service equipment which it acquires. Even though a vendor later offers sterling service, this factor may no longer be a choice, due to the
existence now of labor assignment inplant. Results show that some important differentiation would be made in the chain of decision makers if the firm confronted the alternatives of vendor service after purchase or servicing the item by company employees.

Does vendor service of equipment after sale constitute a part of the equipment acquisition? Must the service be free in order to be considered part of the original purchase? Does the seller charge off the "free service" against sales income? After a long time, does the free servicing of the same item of equipment constitute sales promotion for the next purchase and charged off to selling expense? Does the customer keep the acquisition cycle open as long as the vendor will service the equipment free? As one man said:

About four years ago we had a machine tool that wasn't ten years old. We had it down, and when you buy those things you buy them to use sometimes 24 hours a day and when they're down they cost you money, and we had waited 60 days for parts. I just sat down and spent enough money to send a TWX to the supplier's Vice President in charge of sales. I wasn't ugly. I told him, "I want you to get this purchase order and review it," and I gave the number, "and then send me a TWX and tell me if you were in my position and in a market for a machine similar to yours, would you consider your company as a source, based on the service you've given us?" That guy called me on the phone and he said, "Buddy, I'll tell you I wouldn't." But that is of larger importance. You invest some money in a piece of machinery; you expect service.

"Guess we all have some machinery sitting in the shop or warehouse, not running, waiting for service."

This factor was of some importance.
Factor 22. Secrecy involved. 10 -- L; 13 -- S; 8 -- N.

This might involve a new product or a special policy; it might involve inhouse or external matters - anything to do with the acquisition cycle. The secrecy referred to here might pertain to keeping the knowledge from competitors or from customers as to where a firm obtains its special materials or special consulting service or even its normal materials. Consulting agreements with universities might involve professors who may not keep their work private. Additionally, this factor might pertain to the case when a firm hires computer services but does not dare release the company books which disclose work under classified government contract.

A transportation executive stated he has no secrets; "We have a partner in the ICC," and so he marked this factor "N". The Municipal Manager advised, "In our case, we're a public institution and therefore, it's public information. There's no secrecy involved."

A petrochemical firm replied, "It is a large item with us. The kinds of catalyst made and how to make those is a very complicated secret thing, and before we change vendors we would want Research and a lot of people like in our Patent Department to know what we're doing."

Generally, Factor 22 was of some importance to manufacturing firm's cycles. Diverse nature of industrial operations indicate Secrecy to bear great importance for some firms.
Factor 23. **Mode of Transportation:** specified by us or makes little difference. 11 -- L; 13 -- S; 7 -- N.
Little discussion ensued. The response indicated the presence of the Traffic Manager in one chain and not in another: some difference in cycles may exist but not much.

Factor 24. **Purchase for scheduled utilization or for stock.** 12 -- L; 13 -- S; 6 -- N.
The municipal commission representative stated, "This really probably doesn't apply to others. But there's an emergency such as riots which makes this factor of large importance." He went on to say that they use different decision makers in that case; for example, they would waive inspection of quality when the materials are delivered to a riot scene. "We would just get on the phone and do what we can," he stated finally.

Most of the firms ascribed some or large importance to this factor in defining the acquisition cycle.

Factor 25. **Distribution channel:** fixed or prevailing channel not clear. 5 -- L; 13 -- S; 12 -- N; 1 -- X.
Intended here was the way the participants view the incoming product as it moves from the manufacturer through industrial distributors or directly to the acquiring company. Either the channel is fixed and participants know what it is or the prevailing channel is not clear.

Factor 25 seems to make little impact on the cycle.
Factor 26. Freedom to go outside to purchase item ordinarily made by ourselves. 19—L; 7—S; 5—N.

This factor involved the make-or-buy decisions on new products.

Freedom to make or buy "depends upon the local union you have," stated the owner-manager of a metal fabricating firm.

Large impact on decision cycles was reported.

Factor 27. Supply circumstance known by us to be short or long. 19—L; 8—S; 4—N.

Apparent from the results was the panelists' view that important changes occur in the make-up of the materials acquisition cycle when supply shortens. Again, little discussion ensued.

Factor 28. Supply circumstance known by us to be single source or multiple sources. 15—L; 11—S; 5—N.

Results show considerable importance attached to this factor's impact on the decision maker chain.

One distributor stated, "If I were a manufacturer I would want multiple sources. But with us, we are committed to a single source." "You mean, everything you buy, you only buy from one source?" "That's right." A manufacturer added:

Yes, if I wanted a Norton grinding wheel and you didn't have it, I could go anywhere I wanted to and buy it or some other brand. It
doesn't make any difference to me. But he [referring to the distributor] has to buy from Norton because they'd take the line away from him if he brings a competitive line in.

Therefore, as far as the distributor was concerned, he faced "N" choice.

Results overall appeared scattered.

**Factor 29. Supply circumstances known by us to be "substitute material available."** 10—L; 17—S; 4—N.

One respondent noted:

> If we are going to change the chemistry, we would have to involve the chief chemist for approval. If this becomes a repetitive purchase, he would not have to be involved again.

> If we change the color of the anti-freeze, although it's a direct chemical substitute, we have to get Sales involved because we've changed the color.

Results showed this factor to have some important influence on the cycle of decision makers.

**Factor 30. Supply circumstance known by us to be a patented product.** 4—L; 15—S; 11—N; 1—X.

> "We just have to get that material, even though we pay more for it. It's patented." Buying a component part fitted under this factor. "Well, I try to stay away from this if I can, but you can't always. Our engineers specify me out of a lot of sources."

I think each of us are involved at times buying things which are patented. We are concerned, for example, if we are buying, let us say, an electric motor to run this elevator or saw or what-have-you which may have patents on it. We're using it in our operation.
We're not particularly concerned with the fact that it is patented. If, on the other hand we're putting this motor into a product which we are selling, then we may have some interest in patent application or some possible patent infringement.

Other than this comment, little importance attached to Factor 30.

Factor 31. Supply circumstance known by us to be combination of above. 15—L; 13—S; 3—N.

This factor considered the possibility of several of the prior four factors working in conjunction with one another. The ambiguity of individual responses showed that this factor did not contribute as clear an understanding about differences in cycles as the individual questions. Some respondents marked "L" if "L"s appeared among the prior four factors; others seemed to ignore their prior four responses in marking Factor 31. The wording of the question led to ambiguous response.

Factor 32. Contractual commitment by supplier to furnish part of our needs. 13—L; 12—S; 6—N.

This factor involved a situation of some prior circumstance where a firm had a contract with a supplier to furnish part of their needs. The supplier obtained capital equipment to furnish it, and now the firm wonders what its responsibility would be, how much has it obligated itself to him.
How much is a firm obligated to the vendor because they asked him to put in a wrapping machine to wrap his product the way they wanted it? He spent money to furnish part of their need and therefore, according to the panelists, different decision makers involve themselves in the cycle. "I could answer this for my plant, but I know another one of our plants would answer it the opposite way. It's a matter of integrity, I guess." Another panel member stated, "It's not advertised."

Results showed Factor 32 to be of moderate importance.

Factor 32. Company philosophy to maintain economic health of vendors. 8--L; 15--S; 8--N.

A clear cut yes or no answer was expected here, depending upon the vendors considered for this particular acquisition. No, we don't give a darn whether these particular vendors stay prosperous, or yes, we do. If a company held with the stated philosophy, according to the results, additional decision makers would be involved, such as Accounting, to ride herd on the information about how much business the vendor is getting from the buyer, how much new equipment he would be able to buy, and how well his Dun and Bradstreet credit rating stands. As one member stated:

You can look at this factor several ways. I've got a few of them I've developed myself, and it's real important for me to maintain their economic stability. So, that factor has some importance to me. For other vendors, there might not be that same feeling.

He marked the factor "S".
One owner-manager, a vendor for one of the companies present on the same panel, stated, "It should be of large importance." The company buying regularly from him held his firm in high regard, but its spokesman questioned the importance of this philosophy and other panelists joined him. "Our company has a helluva time worrying about our own profit." A second manager agreed, "I don't care if they're healthy or not." "Yeah, but you won't get carbon paper if he goes broke." "Look, we have 1600 suppliers; it's up to them to make a profit on us, not up to us to see that they make it." "That's right, I don't care what they make, and I don't want to know what their profit is because I might kill 'em on the spot." "Let's face it, whenever they tell me, 'We're just not making anything on this,' that's tough. You see, I'm glad you're making a profit but I don't care either way. I'm not unhappy that you do..."

The vendor replied:

"You better care. If I don't make a profit on it, I'm not going to stay in business. If I'm a good supplier and I give you quality product and I give you service, then you should worry a little about me, just like I worry about my suppliers.

"If we were really worried about it we would subsidize the inefficient operator, because eventually you might get inefficient. But is the inefficient operator entitled to a profit?"

At this point the vendor asked, "Why does your company buy sometimes on a cost-plus basis?" Answer: "Because we
haven't done the engineering." The vendor objected:

You have done the engineering. That is something where you have to have a very good vendor-and-company relation. I know. You have got to have a good vendor; you got to have faith in your vendor, and you also got to have a vendor that will produce and give you service and give you the item when you need it. And that vendor has to make a profit to be able to do that.

"I agree," concluded the buying manager. "But it's the vendor's responsibility and not mine. I agree with all of it and I think it's fine, but it's your job to make a profit."

Despite the interesting discussion, it was not a question of whether it would be good to have such a philosophy or not. The question crucial to this research was, would a firm use different decision makers in the cycle when they use this philosophy of maintaining economic health for some vendors? Do different people get involved in making decisions if they use the policy than when they don't?

Pressing the point further, if a firm did follow the philosophy but did not involve different people -- "we do not change decision makers whether we do have the policy or don't have the policy" -- then this factor would be of no importance as a cycle variant for determining who is involved in acquiring materials and what are the decisions they make.

Factor 33 questioned whether or not Purchasing has absolute discretion. One said:

If the Purchasing Department does, then no change would be found in the cycles. If it does
not, then other decision makers would operate in the cycle such as when the Purchasing Manager goes to top management to find out whether he can place the order with someone other than the low bidder.

"Then, too, it happens the other way, does it not, where Purchasing is asked by its management to place the business with a firm out of sympathy for another company." The cycle would differ in that case.

The answers to Factor 33 were mixed; generally, the factor was reported to make some impact on the cycles.

**Factor 34.** Company policy that all salesmen must go through purchasing department before contacting employees.

10— L; 17— S; 4— N.

Does it make a difference that a firm has this policy or does not, or uses it sometimes, sometimes not? The word "contacting" does not mean selling; it means a preliminary step towards selling. The salesman has in mind ultimately making the sale. But his initial contacts may be directly with the shop foreman to help him determine that the seller's material will meet the needs of the shop foreman; "this is the specification; in fact I'll leave this booklet with you, and then you can order out of the booklet." The question here is, does it make a difference as to who the decision makers are, will different people be involved in the cycle if the company uses this policy than if it does not?

In reality, the cycle would be different. If the firm does not use this policy, the Shop Foreman becomes a buyer.
Not just he, but the welder himself would ultimately be a specification maker if the company does not follow this policy. One respondent said:

I think it is up to Purchasing to determine what you can buy for x dollars. If the shop foreman says this is really a good brand and works real well and is a lot better than x brand but you can prove to him that x brand is just as good, why then I think Purchasing should be in on it; they should go through Purchasing to get to other departments so Purchasing knows what's going on.

"Without the policy, you'd have your Foreman or Engineers tied up all day with salesmen."

We require people to pick up a card from Purchasing admitting them to the proper department. We used to have everybody in the institution being a purchasing agent except the Purchasing Department. Not only that; they commit themselves to a supplier and then when you change a supplier, you have a little disagreement with your own men and disappointment by the supplier in not getting the order.

"Engineering Departments are good at that, too."

Results indicated Factor 34 to be of some importance.

Factor 35. Purchasing company dominates suppliers of this item. 2—L; 17—S; 12—N.

The purchasing company does not completely dominate its supplier in order for this factor to operate. Instead, the company dominates its supplier over the products he sells to the company, due perhaps to the large quantities involved, to the large percentage of the supplier's total capacity he commits to the company, or to special equipment which the supplier installs to furnish special products to the acquiring company.
How big a stick does Purchasing raise over a supplier? Does it make a difference?

"I don't want to dominate anybody. I think they ought to make a living off the business they get from me, not to make a killing." "Yet aren't there some of them you dominate by circumstances? You can't help it." "Yes, these that I've developed." "In fact in some cases, there are two or three of them that owe their existence to the business they get out of that plant, and it's almost a captive situation."

Dominance here meant buying a greater percentage of his product than many other companies bought. Perhaps a company ties up 70 percent of the vendor's output. The question here was, do different people in the company become involved once a company takes a power position of that magnitude, where it dominates its supplier?

In a governmental agency's case where most of the buying is by bidding, they don't dominate their suppliers, according to one statement. Do suppliers feel obligated to bid? "No, to the contrary, we've lost many suppliers by bidding. They never get an order; eventually they bow out."

"I think it's a stupid supplier who gets into a position where he is dominated."

"Up to a certain dollar amount, you really don't dominate a supplier."

It would be marked if a company always dominates its suppliers, or never dominates them, or if the cycle does not
change between dominating and non-dominating. A large response of N answers occurred in the results.

Factor 36. Complexity of material: routine, special, or multi-function. 13 -- L; 16 -- S; 2 -- N.

This factor referred to materials, supplies, or services. These descriptions identified an item such as barstock. Simple as it is, barstock is complex because it serves many purposes. Once it gets into a plant, it could be siphoned off and used for many other purposes than first intended. Does it make a difference as to who writes the specifications and how it is bought? Panel responses indicated this factor merits importance.

"When you get into acquiring advertising, that's handled by what I call the Ivory Tower. That's their gripe." In that case there would be a change of decision makers to provide for these complex purchasing conditions. Another respondent agreed:

Yes, for example, we buy from certain suppliers who furnish materials for our advertising department and for our production and for our office. Printing is one big factor for us. They furnish us with part of our box and printed wrap. They furnish us the advertising and they also supply us the envelopes. So there's an overlapping function in my situation. And so I find complexity a factor of some importance.

One panelist stated:

Even acquiring something as routine and mundane as cleaning services you may find yourself involved with eight dozen people within the organization -- different department heads perhaps or shop office heads and Maintenance Department supervisors. We
recently went through acquiring a contract cleaning service in our organization and more people became involved than buying a complete plant.

Results showed some importance for Factor 36.

Factor 37. Social responsibility of company to buy at home locally. 5—L; 13—S; 13—N.

"What does home mean? We're home in the eleven states we operate in," said one executive. The answer was, "home" means in whatever cities a firm operates. "Some firm somewhere says, 'You sell here in my town. I want to sell you some products I make.'"

The term social responsibility may not have been proper. "If we buy locally, it is to our own advantage or a combination of advantages for him and us." Intended by this factor was not the economic one of profit and loss or satisfying taxpayers or other pressures, but more a good neighbor responsibility. The large number of "N" marks indicated that economic sense perhaps overrode neighborliness and that Purchasing had the discretion to buy where it saw fit.

Factor 38. Social responsibility of company to minimize pollution of air, water, land, wells.

14—L; 9—S; 8—N.

If a firm faces this responsibility after not having met it, would different people make up the chain of decision makers? The word "minimize" intended to dismiss the matter of degree—not how much is involved but is it minimized?
Individual responses reflected that this question confused respondents. It appeared that a number of respondents viewed this social responsibility as of large importance generally as a philosophy for doing business. Instead, the question intended to probe for this factor's impact on the makeup of materials acquisition cycles.

Results appeared to be confused.

Factor 39. Social responsibility of company to acquiesce to community governing body. 11--L; 14--S; 6--N.

The company's policy of fighting the local governing body on tax matters, wage settlements demanded by a governing body, and so forth, or alternatively giving in whenever expedient to do so: does this pair of choices influence the chain of decision makers involved in acquiring materials?

A petrochemical firm bucking metropolitan "City" would have one problem. A milk processing company, according to its executive, would have another problem in a "farm community with a couple hundred people." The latter firm in a small community would be more apt to acquiesce to the local population, reported one respondent, because it would affect a larger percentage of them than the giant company would be affecting Metropolitan "City."

Not intended here was the regulatory body such as the Atomic Energy Commission which regulates affairs for the community's health. Factor 39 related to a different type of pressure entirely.
"Is there any company which doesn't acquiesce to some degree? You have to live with the community, after all, beyond a strictly profit-and-loss arrangement."

Some executives attested to the fact that pressures from community governing bodies do indeed force their firms to deviate from normal decision-making cycles, forcing them to involve group or corporate decision makers for authority to deviate from good purchasing know-how analysis.

"About the time the tax assessor is about to come through again, a call from the mayor to a company vicepresident might get other decision makers involved in the cycle," when the mayor asks that special consideration be given a local firm which is bidding for business.

Results indicated this factor to be of importance to the cycles for most of the companies participating in the test.

Chapter V discusses the verification of variables believed to make changes in the makeup of materials acquisition cycles. As a whole, some variables or factors carry much weight for panelists while other variables make little difference and still others receive mixed reaction among the thirty-one purchasing executives who contributed primary data through panel interviews.

Chapter VI reports the interrelationships of cycles, variables, and industrial situations of panel respondents.
CHAPTER VI

INTERRELATIONSHIPS AMONG CYCLES, VARIABLES, AND INDUSTRIAL SITUATIONS

Based on the findings from thirty-one panel interviews, certain patterns emerged showing some interrelationship of responses. Evidence consisted of panel respondents' profile data, their verification or modification of general models of materials acquisition cycles, and their indication of large importance or no importance for the thirty-nine variables believed to influence the makeup of cycles.

Chapter VI presents the evidence starting with verification of hypothetical models of materials acquisition cycles. The intent is to show the characteristics of those respondents who verified and those who modified the models. Next, the chapter aggregates results of panelists' responses to the variables. The chapter concludes by displaying each panelist's profile characteristics with his responses summarized.

Verifiers' and Modifiers' Characteristics

According to the results shown in Table XIII, respondents who verified the Raw Materials hypothetical model typically worked in multiplant firms at the home office with purchase responsibility in excess of $10 million and sales
TABLE XIII
VERIFICATION OF HYPOTHETICAL MODEL OF
THE RAW MATERIALS ACQUISITION CYCLE

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<thead>
<tr>
<th>Subject</th>
<th>Multi-plant or Single Operation</th>
<th>Home Office or Branch</th>
<th>Industrial SIC No.</th>
<th>Purchase Responsibility Class</th>
<th>Company Size by Sales Category</th>
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Variations

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Subjects 28 and 31 reported no conversion of raw materials.
of $100 million or more. For those who modified the Raw Materials cycle model, respondents again worked typically in multiplant firms, but half in home office and half in branches. Purchase responsibility lay between $10 million and $50 million for half, and below $10 million for the balance. Small companies, those with sales below $100 million, and large companies, sales $100 million and more, were evenly divided.

Equipment Model verifiers, as Table XIV indicates, typically worked in multiplant firms at the home office but nearly equally divided as to the three classes of purchase responsibility and large sales vs. small sales. On this last point, the analysis ascribes small sales category to the firms for which no sales data became known; for certain, these firms do not appear on Fortune's list of companies having sales exceeding $131 million, roughly Sales Category C. However, respondents who modified the Equipment hypothetical model evenly divided between large sales and small sales companies with predominate purchase responsibility between $10 million and $50 million, and worked in multiplant firms at the home office.

The MHO Supplies Cycle verifiers showed the same tendency, as Table XV reflects, toward working in multiplant firms at the home office with predominate purchase responsibility between $10 million and $50 million, and a slight favoring of small sales over large. The few modifiers constituted too
### TABLE XIV

**VERIFICATION OF HYPOTHETICAL MODEL OF THE EQUIPMENT ACQUISITION CYCLE**

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### Variations

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### TABLE XV

**VERIFICATION OF HYPOTHETICAL MODEL OF THE MRO SUPPLIES ACQUISITION CYCLE**

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### Variations

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small a group for analysis.

Verifiers of the Services Acquisition Cycle hypothetical model typically worked in multiunit operations at the home office with purchase responsibility $50 million and below, in firms evenly divided between large and small sales. Again the small number of respondents modifying the model left little to analyze, as Table XVI shows.

On the whole, home office respondents tended to verify general models while branch respondents tended toward equally verifying and modifying the models. Why did such a high modification tendency appear among branch respondents?

Operating at the branch level seems both to pose special problems and to provide unique opportunities for modifying the general models of cycles for acquiring raw materials and equipment. Most of the diagrams which Chapter IV presents as variations are modifications reported by respondents who worked in branch locations. Results show that the home office executives tended to verify the general models, except for equipment acquisitions, whereas branch executives tended to modify raw materials and equipment cycles rather than verify general models. This autonomy was also observed in comments made during the actual tests.

Type and Size of Firm

The motley array of industrial classifications and multi-plant or single operation enterprises, as displayed in Tables XIII–XVI, represented little evidence that one type followed
TABLE XVI
VERIFICATION OF HYPOTHETICAL MODEL OF
THE SERVICES ACQUISITION CYCLE

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Variations

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one cycle pattern and another type followed a different one or that any type chose a unique pattern.

Sixteen firms held large revenue categories, A, B, or C. Fifteen held small revenue categories, D, E, F, or G, referring to categories from Table III in Chapter III.

Six (40 per cent) out of fifteen large firms modified the raw materials model; four (28 per cent) out of fourteen small ones modified it. The difference between 40 per cent and 28 per cent is 12 per cent. Two respondents reported no conversion of raw materials.

Ten out of sixteen large firms modified the equipment model; seven out of fifteen small firms modified it. The spread is 15 per cent.

Six out of sixteen large firms modified the MRO Supplies model; two out of fifteen small firms modified it. The corresponding spread is 25 per cent.

Two out of sixteen large firms modified the Services model; one out of fifteen firms in the small category modified it. The spread is 5 per cent.

The hypothetical model for equipment acquisition was farthest from the actual model; over seventy per cent described their own model. This figure reduced by adding the Disposal element to the hypothetical model. About thirteen per cent varied from the Services acquisition general model. Spreads differed at most by 20 per cent, reflecting that large firms modified about as often as small ones.
Accordingly, the hypothesis is confirmed that models can be identified which describe the materials acquisition process in general, regardless of the type and size of the firm.

Test Results by Class Membership

When viewed by Class Membership, the results from respondent verification of the variable factors differ considerably, as this section shows. The factors tabulated in Appendix C which respondents attested to bear large or no importance in determining materials acquisition cycles comprise the lists which follow, disregarding "S" responses as being ill-defined and "X" as of little value. The following results, abbreviated according to Table 1, Chapter III, passed the Majority-Rival Test described in Chapter III.

**Purchase Responsibility Class I**

A majority of the ten panelists having purchase responsibility of less than $10 million (Class I) reported large importance for the following variables as determinants for materials acquisition cycles:

<table>
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<th>Type of goods</th>
<th>Vendor reliability</th>
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<td>First-time ordering</td>
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<td>Equipment purpose</td>
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<td>Cost/cost ratio</td>
<td>Substitute</td>
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<td>Quality</td>
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</table>

**Purchase Responsibility Class II**

A majority of the thirteen panelists whose purchase
responsibility lay between $10 million and $50 million (Class II) reported large importance for the following variables in determining materials acquisition cycles:

- Type of goods
- Urgency
- Equipment use
- Equipment purpose
- Dollar amount
- Quality
- Vendor reliability

Make/buy
Short supply
Combined supply factors
Contractual commitment
Backdoor selling
Antipollution

A majority reported no importance for the Buy-at-home variable.

Purchase Responsibility Class III

A majority of the six panelists having purchase responsibility greater than $50 million (Class III) reported the following variables to have large importance in determining materials acquisition cycles:

- Type of goods
- Equipment purpose
- Share decisions
- Forceful decision makers
- Dollar amount
- Cost/cost ratio
- Make/buy
- Complex material

Multiplant Operation

A majority of the twenty-four panelists in multiplant operations reported large importance for the following variables as determinants of materials acquisition cycles:

- Type of goods
- Urgency
- Equipment purpose
- Forceful decision makers
- Dollar amount
- Quality
- Vendor reliability
- Foreign vendor
- Make/buy
- Short supply
- Combined supply factors
**Single Operation**

A majority of the seven single operation panelists reported large importance for the following variables in determining materials acquisition cycles:

<table>
<thead>
<tr>
<th>Type of goods</th>
<th>Vendor reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equipment purpose</td>
<td>Guarantee</td>
</tr>
<tr>
<td>Cost/cost</td>
<td>Short supply</td>
</tr>
<tr>
<td>Quality</td>
<td>Single source</td>
</tr>
</tbody>
</table>

A majority reported no importance for the Transfer variable.

**Home Office**

A majority of the twenty-three panelists who were located in the home office of their firm reported large importance for the following variables in determining materials acquisition cycles:

<table>
<thead>
<tr>
<th>Type of goods</th>
<th>Cost/cost ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>First-time ordering</td>
<td>Quality</td>
</tr>
<tr>
<td>Urgency</td>
<td>Vendor reliability</td>
</tr>
<tr>
<td>Equipment purpose</td>
<td>Make/buy</td>
</tr>
<tr>
<td>Forceful decision makers</td>
<td>Short supply</td>
</tr>
<tr>
<td>Dollar amount</td>
<td></td>
</tr>
</tbody>
</table>

A majority reported no importance for the Governmental Vendor variable.

**Branch**

A majority of the eight panelists who were located in a branch operation reported large importance for the following variables as determinants of materials acquisition cycles:

<table>
<thead>
<tr>
<th>Type of goods</th>
<th>Quality</th>
<th>Short supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urgency</td>
<td>Vendor reliability</td>
<td>Single source</td>
</tr>
<tr>
<td>Forceful decision makers</td>
<td>Make/buy</td>
<td>Antipollution</td>
</tr>
</tbody>
</table>
The Metals Industries

A majority of the nineteen panelists from companies in the metals industries reported the following variables to be of large importance in determining materials acquisition cycles:

<table>
<thead>
<tr>
<th>Type of goods</th>
<th>Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urgency</td>
<td>Vendor reliability</td>
</tr>
<tr>
<td>Equipment purpose</td>
<td>Make/buy</td>
</tr>
<tr>
<td>Forceful decision makers</td>
<td>Short supply</td>
</tr>
<tr>
<td>Dollar amount</td>
<td>Antipollution</td>
</tr>
</tbody>
</table>

A majority reported no importance for the Governmental vendor variable.

Raw Materials Acquisition Cycle -- General Model

A majority of the seventeen panelists who verified the general model for the Raw Materials Acquisition Cycle reported large importance for the following variables:

<table>
<thead>
<tr>
<th>Type of goods</th>
<th>Dollar amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urgency</td>
<td>Cost/cost ratio</td>
</tr>
<tr>
<td>Equipment purpose</td>
<td>Vendor reliability</td>
</tr>
<tr>
<td>Forceful decision makers</td>
<td>Make/buy</td>
</tr>
</tbody>
</table>

A majority reported no importance for the Governmental vendor and Distribution channel variables.

Raw Materials Acquisition Cycle -- Modified Models

A majority of the twelve panelists who modified the general model of the Raw Materials Acquisition Cycle reported large importance for the following variables as materials acquisition cycles determinants:
A majority of the thirteen panelists who verified the Equipment Acquisition Cycle general model reported large importance for the following variables in determining materials acquisition cycles:

- Type of goods
- Equipment purpose
- Forceful decision makers
- Cost/cost ratio
- Quality
- Vendor reliability
- Guarantee

Equipment Acquisition Cycle—Modified Models

A majority of the eighteen panelists who modified the Equipment Acquisition Cycle general model reported large importance for the following variables as determinants of materials acquisition cycles:

- Type of goods
- First-time ordering
- Equipment purpose
- Dollar amount
- Quality
- Vendor reliability
- Foreign vendor
- Make/buy
- Short supply
- Single source

MRC Supplies Acquisition Cycle—General Model

A majority of the twenty-three panelists who verified the general model for the MRC Supplies Acquisition Cycle reported large importance for the following variables as determinants of materials acquisition cycles:
Type of goods
Equipment purpose
Forceful decision makers
Dollar amount
Cost/cost ratio

A majority reported no importance for the Governmental vendor variable.

**MRO Supplies Acquisition Cycle -- Modified Models**

A majority of the eight panelists who modified the general model of the MRO Supplies Acquisition Cycle reported large importance for the following variables in determining materials acquisition cycles:

- Type of goods
- First-time ordering
- Urgency
- Equipment use
- Equipment purpose
- Cost/cost ratio
- Quality
- Vendor reliability

- Guarantee
- Foreign vendor
- Secrecy
- Transportation
- Short supply
- Single source
- Antipollution

**Services Acquisition Cycle -- General Model**

A majority of the twenty-eight panelists who verified the Services Acquisition Cycle general model reported large importance for the following variables in determining materials acquisition cycles:

- Type of goods
- Urgency
- Equipment purpose
- Forceful decision makers
- Dollar amount
- Cost/cost ratio
- Quality
- Vendor reliability
- Make/buy
- Short supply
A majority of the three panelists who modified the general model of the Services Acquisition Cycle reported large importance for the following variables as determinants of the materials acquisition cycles:

- Type of goods
- First-time ordering
- Urgency
- Equipment use
- Equipment purpose
- When install
- Forceful decision makers
- Dollar amount
- Make/buy
- Contractual commitment
- Acquiesce to community

A majority reported no importance for the following variables:

- Transfer
- Vendor reliability
- Guarantee
- Governmental vendor
- Short supply
- Buy at home

All Panelists

A majority of the thirty-one panelists reported large importance for the following variables as determinants for the materials acquisition cycles:

- Type of goods
- Urgency
- Equipment purpose
- Forceful decision makers
- Dollar amount
- Cost/cost ratio
- Quality
- Vendor reliability
- Make/buy
- Short supply

Panelists' Profiles and Responses

The purpose for interviewing panelists was to test the hypotheses that patterns exist and can be identified in general, regardless of the type and size of the firm.

Concepts found in published sources combined with a field study of fourteen purchasing managers and led to
formation of general models of materials acquisition cycles and a list of thirty-nine variables which appeared to influence the makeup of cycles.

The general models and variables were submitted to testing with thirty-one purchasing managers. The responses by these executives showed how they verified or modified the general models and variables.

The variety of data which respondents supplied constituted information which is very difficult to relate, as shown by the subjects' responses which follow. In the main, the clinical results show the uniqueness of materials acquisition cycles for particular situations. Yet, patterns exist and can be identified regardless of the type and size of the firm as indicated by Sales Categories using letter designations from Table III and Purchase Responsibility Classes, Table V, in Chapter III.
COMPANY

Petroleum Industry SIC 13
Multiplant Operation
Sales Category E

WORK

Title: Director of Purchasing and Hydrocarbon Sales
Reports to: Treasurer and Controller
Functions: Purchasing materials and inventory controls, transportation (auto and airplane), purchase and sale of natural gas, crude oil and natural gasoline plant products; gas supply for company pipelines and regulatory problems.
Location: Home office
People Responsibility: 12
Purchase Responsibility: Class I

EXPERIENCE

In materials work 10 years
Tractor salesman, railroad instrument man, pipeline engineer

RESPONSES

General Models verified: Services
General Models modified: Raw Materials, Equipment, MRO Supplies

Reported Large Importance:
- Type of goods
- First-time ordering
- Urgency
- Equipment use
- Equipment purpose
- Who installs
- Share decisions
- Cost/cost ratio
- Quality
- Vendor reliability

Guarantee
Foreign vendor
Service after purchase
Transportation
Short supply
Single source
Combined supply factors
Contractual commitment
Vendors' economic health
Buy at home

Reported No Importance:
- Overloaded decision makers
- Make/buy
SUBJECT 2

COMPANY

Engineering and Construction Industry SIC 16
Multiplant Operation
Sales Category E

WORK

Title: Purchasing Agent and Superintendent of Warehouses
Reports to: Vice President - Purchasing
Function: Warehouses and branch office purchasing
Location: Home office
People Responsibility: 10
Purchase Responsibility: Class II

EXPERIENCE

In materials work 17 years
Grocery clerk during high school, accountant, clad-metal rolling mill superintendent, buyer of machine and supply components, sales engineer for major capital equipment to industrial field (steel), construction company warehouse superintendent and purchasing agent, part-time scrap business and retail appliance sales.

RESPONSES

General Models Modified: Equipment

Reported Large Importance:
Type of goods
First-time ordering
Involve people
Equipment purpose
Who installs
Share decisions
Forceful decision makers
Cost/cost ratio
Buy/lease
Quality
Vendor reliability

Foreign vendor
Service after purchase
Secrecy
Transportation
Distribution channel
Short supply
Single source
Substitute
Combined supply factors
Contractual commitment
Vendors' economic health

Reported No Importance:
None
SUBJECT 3

COMPANY

Food Processing Industry SIC 20
Single Operation
Sales Category C

WORK

Title: Purchasing Manager
Reports to: President and General Manager
Function: Purchasing
Location: Home office
People Responsibility: 2
Purchase Responsibility: Class I

EXPERIENCE

In materials work 19 years
Order clerk for oil company order and shipping department, cost and inventory records clerk in present company, office supplies and print buyer, purchasing agent, materials supply and production scheduling manager, purchasing manager.

RESPONSES

General Models verified: All
General Models modified: None

Reported Large Importance:
- Type of goods
- First-time ordering
- Urgency
- Cost/cost ratio
- Quality
- Vendor reliability
- Guarantee

Service after purchase
Secrecy
Transportation
Use/stock
Short supply
Single source
Vendors' economic health

Reported No Importance:
- Overloaded decision makers
- Transfer
- Governmental vendor
- Make/buy
- Antipollution
- Acquiesce to community
COMPANY

Food Processing Industry SIC 20
Multiplant Operation
Sales Category C

WORK

Title: Director of Purchasing
Reports to: Vice President - Administration
Function: Purchasing
Location: Branch
People Responsibility: 8
Purchase Responsibility: Class II

EXPERIENCE

In materials work 19 years
Correspondent in parts and service department, engineer
(mechanical drawing), expediter(materials), buyer,
purchasing agent.

RESPONSES

General Models verified: None
General Models modified: All

Reported Large Importance:

| Type of goods               | Transportation                  |
| First-time ordering         | Use/stock                       |
| Urgency                     | Distribution channel            |
| Involve people              | Make/buy                        |
| Equipment use               | Short supply                    |
| When install               | Single source                   |
| Overloaded decision makers  | Substitute                      |
| Forceful decision makers    | Patented item                   |
| Dollar amount               | Combined supply factors         |
| Transfer                    | Contractual commitment          |
| Quality                     | Complex material                |
| When install               | Buy at home                     |
| Overloaded decision makers  | Antipollution                   |
| Forceful decision makers    | Acquiesce to community          |

Reported No Importance
None
SUBJECT 5

COMPANY

Chemicals Industry SIC 28
Single operation
Sales Category C

WORK

Title: Director of Purchases
Reports to: President
Function: Purchasing
Location: Home Office
People Responsibility: 8
Purchase Responsibility: Class II

EXPERIENCE

In materials work 22 years
Sales, expediting, production, purchasing, government priorities.

RESPONSES

General Models verified: Services
General Models modified: Raw Materials, Equipment, MRO Supplies

Reported Large Importance
Type of goods Guarantee
First-time ordering Secrecy
Equipment use Transportation
Equipment purpose Short supply
Dollar amount Single source
Cost/cost ratio Combined supply factors
Quality Backdoor selling
Vendor reliability Antipollution

Reported No Importance:
Share decisions
Acquiesce to community
SUBJECT 6

COMPANY

Chemical Industry SIC 28
Multiplant Operation
Sales Category D

WORK

Title: Director of Purchasing
Reports to: Chairman of Board (Chief Executive Officer)
Function: Purchasing
Location: Home Office
People Responsibility: 12
Purchase Responsibility: Class II

EXPERIENCE

In materials work 14 years
Mailman and post office clerk, ticket collector excursions boat, oiler on tugboat, farm helper, teacher of physical education and recreation, traffic rate clerk, accounting clerk, shipyard storekeeper electrical supplies, inventory control clerk, assistant purchasing agent, purchasing agent, director of purchases

RESPONSES

General Models verified: MRO Supplies
General Models modified: Raw Materials, Equipment, Services

Reported Large Importance:
- Type of goods
- First-time ordering
- Urgency
- Equipment use
- Equipment purpose
- Who installs

When install
Share decisions
Dollar amount
Foreign vendor
Make/buy
Contractual commitment

Reported No Importance:
- Overloaded decision makers
- Forceful decision makers
- Buy/lease
- Transfer
- Vendor reliability
- Guarantee

Governmental vendor
Transportation
Short supply
Buy at home

Guarantee

Guarantee
COMPANY

Chemical Industry SIC 28
Multiplant Operation
Sales Category B

WORK

Title: Plant Purchasing Agent
Reports to: Manager of Plant Services
Function: Purchasing
Location: Branch
People Responsibility: 7
Purchase Responsibility: Class II

EXPERIENCE

In materials work 16 years
Military, brewery assistant purchasing agent, chemical plant purchasing agent

RESPONSES

General Models verified: Services
General Models modified: Raw Materials, Equipment, MRO Supplies

Reported Large Importance:
  Type of goods
  Urgency
  Equipment use
  Quality
  Foreign vendor
  Secrecy
  Complex material
  Antipollution

Reported No Importance:
  Buy/lease
  Guarantee
  Transportation
  Use/stock
  Vendors, economic health
SUBJECT 8

COMPANY

Stone, Clay, and Glass Products Industry, SIC 32
Multiplant Operation
Sales Category A

WORK

Title: Assistant Director - Purchasing
Reports to: Director - Purchasing
Function: Buying
Location: Home Office
People Responsibility: 13
Purchase Responsibility: Class III

EXPERIENCE

In materials work 12 years (2 military)
Laborer (summer), salesman, Air Force officer, cost
analyst, purchase analyst, buyer, project pur-
chasing agent, purchasing administrator

RESPONSES

General Models verified: Raw Materials, MRO Supplies
General Models modified: Equipment, Services

Reported Large Importance:

Type of goods
Equipment purpose
When install
Forceful decision makers

Reported No Importance:

Urgency
Involves people
Equipment use
Share decisions
Cost/cost ratio
Transfer
Vendor reliability
Guarantee
Governmental vendor
Foreign vendor
Service after purchase

Dollar amount
Buy/lease
Make/buy

Secrecy
Distribution channel
Short supply
Substitute
Patented item
Combined supply factors
Contractual commitment
Vendors' economic health
Backdoor selling
Purchaser dominates
Buy at home
SUBJECT 9

COMPANY

Metal Producing Industry SIC 33
Multiplant Operation
Sales Category B

WORK

Title: Assistant General Purchasing Agent
Reports to: General Purchasing Agent
Function: Purchasing - all urban development and foreign construction.
Location: Home Office
People Responsibility: 125
Purchase Responsibility: Class III

EXPERIENCE

In materials work 19 years
Airforce Navigator, electrical engineer, purchasing

RESPONSES

General Models verified: All
General Models modified: None

Reported Large Importance:
- Type of goods
- Equipment purpose
- Share decisions
- Forceful decision makers
- Dollar amount
- Vendors' economic health
- Complex material

Reported No Importance:
None
SUBJECT 10

COMPANY

Metal Producing Industry SIC 33
Multiplant Operation
Sales Category A

WORK

Title: Manager, Purchasing Services
Reports to: Vice President - Purchasing
Functions: Staff, research, office service
Location: Branch
People Responsibility: 30
Purchase Responsibility: Class X

EXPERIENCE

In materials work 15 years
Entirely in purchasing, buying MRO and capital equipment

RESPONSES

General Models verified: All
General Models modified: None

Reported Large Importance:
Type of goods
Equipment use
Equipment purpose
Who installs
Forceful decision makers
Dollar amount
Buy/lease
Transfer
Vendor reliability

Guarantee
Foreign vendor
Secrecy
Make/buy
Single source
Patented item
Combined supply factors
Antipollution

Reported No Importance:
When install
Share decisions
Cost/cost ratio

Governmental vendor
Distribution channel
Backdoor selling
SUBJECT 11

COMPANY

Metal Producing Industry SIC 33
Multipurpose Operation
Sales Category G

WORK

Title: District Credit Manager, Branch Office Manager
and Buyer
Reports to: District Sales Manager
Functions: Inside sales, buying, warehousing
Location: Branch
People Responsibility: 10
Purchase Responsibility: Class X

EXPERIENCE

In materials work 43 years
Grocer wholesale clerk, shipping department office, superintendent of warehouse, general sales clerk, outside sales – metals, office management, buyer, credit.

RESPONSES

General Models verified: Equipment, MRO Supplies, Services.
General Models modified: Raw Materials

Reported Large Importance:
Type of goods
First-time ordering
Urgency
Forceful decision makers
Cost/cost ratio
Buy/Lease
Quality
Vendor reliability

Governmental vendor
Foreign vendor
Transportation
Use/stock
Make/buy
Short supply
Single source
Backdoor selling

Reported No Importance:
When install
Guarantee
Service after purchase
Patented item
Contractual commitment

Vendors' economic health
Purchaser dominates
Buy at home
Antipollution
Acquiesce to community
SUBJECT 12

COMPANY

Metal Producing Industry SIC 33
Multiplant Operation
Sales Category C

WORK

Title: Director, Staff Services - Purchasing
Reports to: Vice President - Purchases
Functions: Purchasing research, office management,
utility and food service contracts.
Location: Home office
People Responsibility: 7
Purchase Responsibility: Class II

EXPERIENCE

In materials work 18 years
Purchasing, inventory control, production control

RESPONSES

General Models verified: Raw Materials, MRO Supplies,
Services
General Models modified: Equipment

Reported Large Importance:
Type of goods
Urgency
Equipment use
Equipment purpose
Who installs

Reported No Importance:
Share decisions
Overloaded decision makers
Forceful decision makers
Quality
Vendor reliability
Guarantee
Governmental vendor
Secrecy
Use/stock
Distribution channel

Dollar amount
Buy/lease
Foreign vendor
Make/buy

Short supply
Contractual commitment
Backdoor selling
Purchaser dominates
Complex material
Buy at home
Antipollution
Acquiesce to community
SUBJECT 13

COMPANY
Metal Fabricating Industry SIC 34
Single Unit Division of Multiunit Firm
Sales Category C (Total Firm)

WORK
Title: Materials Manager
Reports to: General Manager
Functions: Purchasing, inventory control, production
Order writing, traffic, shipping, receiving, and warehousing
Location: Home Office
People Responsibility: 21
Purchase Responsibility: Class I

EXPERIENCE
In materials work 25 years
Apprentice pharmacist, cost accountant, all phases of purchasing

RESPONSES
General Models verified: Services
General Models modified: Raw materials, Equipment, MRO Supplies

Reported Large Importance:
- Type of goods
- Urgency
- Equipment purpose
- Dollar amount
- Cost/cost ratio
- Quality
- Vendor reliability
- Foreign vendor
- Secrecy
- Use/stock
- Short supply
- Single source
- Contractual commitment
- Backdoor selling
- Antipollution
- Acquiesce to community

Reported No Importance:
- Governmental vendor
SUBJECT 14

COMPANY

Metal Fabricating Industry SIC 34
Multiplant Operation
Sales Category E

WORK

Title: Manager of Purchasing
Reports to: Treasurer
Function: Purchasing, merchandising
Location: Home Office
People Responsibility: 13
Purchase Responsibility: Class II

EXPERIENCE

In materials work 27 years
Accounting, sub-contracting, purchasing

RESPONSES

General Models modified: Equipment

Reported Large Importance:
- Equipment use
- Equipment purpose
- Buy/lease
- Make/buy
- Antipollution
- Acquiesce to community

Reported No Importance:
- Type of goods
- First-time ordering
- Overloaded decision makers
- Cost/cost ratio
- Governmental vendor
- Foreign vendor
- Service after purchase
- Secrecy
- Short supply
- Single source
- Patented item
- Combined supply factors
- Vendors' economic health
- Backdoor selling
- Purchaser dominates
- Complex material
- Buy at home
SUBJECT 15

COMPANY

Metal Fabricating Industry SIC 34
Single Unit Operation
Sales Category G

WORK

Title: President and Purchasing Agent
Reports to: Customer
Functions: All functions of company
Location: Home Office
People Responsibility: 3 in Purchasing
Purchase Responsibility: Class I

EXPERIENCE

In materials work 22 years
Journeyman for fabricating company, World War II
submarine tender, started own fabricating company
after leaving Navy.

RESPONSES

General Models verified: All
General Models modified: None

Reported Large Importance:
- Type of goods
- First-time ordering
- Urgency
- Involve people
- Equipment use
- Equipment purpose
- When install
- Forceful decision makers
- Cost/cost ratio
- Buy/lease
- Quality
- Vendor reliability
- Guarantee
- Foreign vendor

Service after purchase
Use/stock
Distribution channel
Make/rent
Short supply
Combined supply factors
Contractual commitment
Vendors' economic health
Backdoor selling
Complex material
Antipollution
Acquiesce to community

Reported No Importance
- Share decisions
- Transfer
- Governmental vendor
- Substitute
- Patented item
SUBJECT 16

COMPANY

Metal Fabricating Industry SIC 34
Multiplant Operation
Sales Category B

WORK

Title: Purchasing Agent
Reports to: Works Manager
Function: Purchasing
Location: Branch
People Responsibility: 3
Purchase Responsibility: Class I

EXPERIENCE

In materials work 25 years
Common laborer, window trimmer, stock clerk for
retail merchandise, railroad clerk and switchman,
traffic, factory representative, automobile
salesman

RESPONSES

General Models verified: MRO Supplies, Services
General Models modified: Raw Materials, Equipment

Reported Large Importance:
Type of goods
First-time Ordering
Equipment purpose
Share decisions
Forceful decision makers
Dollar amount
Cost/cost ratio
Transfer
Quality
Vendor reliability
Guarantee

Reported No Importance:
When install
Secrecy
SUBJECT 17

COMPANY

Metal Fabricating Industry SIC 34
Multiplant Operation
Sales Category G

WORK

Title: Vice President - Procurement, Stores, Materials
Reports to: President
Functions: Purchasing, receiving, stores-warehousing
Location: Home Office
People Responsibility: 60
Purchase Responsibility: Class III

EXPERIENCE

In materials work 25 years
Navy supply officer, management trainee - purchasing and production, production control, purchasing material control

RESPONSES

General Models verified: All
General Models modified: None

Reported Large Importance:
Type of goods
First-time ordering
Urgency
Share decisions
Forceful decision makers
Dollar amounts
Cost/cost ratio
Quality
Vendor reliability

Governmental vendor
Use/stock
Make/buy
Short supply
Combined supply factors
Complex material
Antipollution
Acquiesce to community

Reported No Importance:
Equipment use
Who installs
When install
Guarantee
Transportation

Distribution channel
Contractual commitment
Vendors' economic health
Backdoor selling
SUBJECT 18

COMPANY

Machinery Industry SIC 35
Multiplant Operation
Sales Category G

WORK

Title: Manager of Material
Reports to: Director of Manufacturing
Functions: Purchasing, Traffic, Stores, Inventory
Control, Shipping
Location: Home Office
People Responsibility: 35
Purchase Responsibility: Class II

EXPERIENCE

In materials work 16 years
Purchase expediter, buyer, assistant purchasing agent,
purchasing agent, manager of purchases, assistant
plant manager, manager of material

RESPONSES

General Models verified: All
General Models modified: None

Reported Large Importance:
Type of goods
Urgency
Involve people
Equipment purpose
Share decisions
Overloaded decision
makers
Forceful decision makers
Dollar amount
Cost/cost ratio
Transfer
Quality

Vendor reliability
Service after purchase
Use/stock
Make/buy
Short supply
Substitute
Patented item
Combined supply factors
Complex material
Antipollution
Acquiesce to community

Reported No Importance
Equipment use
Guarantee
Governmental vendor
Foreign vendor
Distribution channel
Single source

Contractual commitment
Vendors economic health
Backdoor selling
Purchaser dominates
Buy at home
SUBJECT 19

COMPANY

Machinery Industry SIC 35
Multiplant Operation
Sales Category D

WORK

Title: Assistant Purchasing Manager
Reports to: Purchasing Manager
Functions: Purchasing
Location: Home Office
People Responsibility: 27
Purchase Responsibility: Class II

EXPERIENCE

In materials work 5 years.
Drafting, college teaching, constructions inspection,
value analysis analyst and manager, assistant
purchasing manager.

RESPONSES

General Models verified: Raw Materials, MRO Supplies,
Services
General Models modified: Equipment

Reported Large Importance:

<table>
<thead>
<tr>
<th>Type of goods</th>
<th>Secrecy</th>
</tr>
</thead>
<tbody>
<tr>
<td>First-time ordering</td>
<td>Make/buy</td>
</tr>
<tr>
<td>Urgency</td>
<td>Substitute</td>
</tr>
<tr>
<td>Dollar amount</td>
<td>Combined supply factors</td>
</tr>
<tr>
<td>Transfer</td>
<td>Contractual commitment</td>
</tr>
<tr>
<td>Foreign vendor</td>
<td>Complex material</td>
</tr>
</tbody>
</table>

Reported No Importance:

<table>
<thead>
<tr>
<th>Equipment purpose</th>
<th>Distribution channel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who installs</td>
<td>Single source</td>
</tr>
<tr>
<td>When install</td>
<td>Patented item</td>
</tr>
<tr>
<td>Overloaded decision</td>
<td>Backdoor selling</td>
</tr>
<tr>
<td>makers</td>
<td>Purchaser dominates</td>
</tr>
<tr>
<td>Cost/cost ratio</td>
<td>Buy at home</td>
</tr>
<tr>
<td>Vendor reliability</td>
<td>Antipollution</td>
</tr>
<tr>
<td>Governmental vendor</td>
<td>Acquiesce to community</td>
</tr>
<tr>
<td>Transportation</td>
<td></td>
</tr>
<tr>
<td>Secrecy</td>
<td></td>
</tr>
<tr>
<td>Make/buy</td>
<td></td>
</tr>
<tr>
<td>Substitute</td>
<td></td>
</tr>
<tr>
<td>Combined supply factors</td>
<td></td>
</tr>
<tr>
<td>Contractual commitment</td>
<td></td>
</tr>
<tr>
<td>Complex material</td>
<td></td>
</tr>
</tbody>
</table>
SUBJECT 20

COMPANY

Machinery Industry SIC 35
Multiplant Operation
Sales Category E

WORK

Title: Purchasing Agent
Reports to: General Manager - Division
Functions: Purchasing, inventory control, stenographic department, receptionist, mail and general files
Location: Branch
People Responsibility: 9
Purchase Responsibility: Class I

EXPERIENCE

In materials work 17 years
Sales, accounting, purchasing, advertising, personal services, electronics, inventory control, drafting profit center, engineering plant

RESPONSES

General Models verified: Services
General Models modified: Raw Materials, Equipment,
MRO Supplies

Reported Large Importance:

- Type of goods
- First-time ordering
- Urgency
- Equipment purpose
- Who installs
- When install
- Share decisions
- Forceful decision makers
- Cost/cost ratio
- Buy/lease
- Transfer
- Quality
- Vendor reliability

Guarantee
Foreign vendor
Service after purchase
Transportation
Distribution channel
Make/buy
Short supply
Single source
Substitute
Contractual commitment
Backdoor selling
Complex material
Buy at home

Reported No Importance:

- Combined supply factors
- Antipollution
SUBJECT 21

COMPANY

Machinery Industry Sic 35
Multiplant Operation
Sales Category D

WORK

Title: Manager, Purchasing and Production Control
Reports to: Factory Manager
Functions: Purchasing and production control, traffic (inbound), leased truck operations
Location: Branch
People Responsibility: 16
Purchase Responsibility: Class II

EXPERIENCE

In materials work 25 years
Planner for aircraft manufacturer, production planning supervisor for another manufacturing firm, manager of planning and production control for present company

RESPONSES

General Models verified: MRO Supplies, Services
General Models modified: Raw Materials, Equipment

Reported Large Importance:
- Type of goods
- Urgency
- Overloaded decision makers
- Cost/cost ratio
- Quality
  
  Vendor reliability
- Service after purchase
- Short supply
- Single source
- Vendors' economic health

Reported No Importance:
- Share decisions
- Governmental vendor
- Make/buy
SUBJECT 22

COMPANY

Machinery Industry SIC 35
Multiplant Operation
Sales Category C

WORK

Title: Assistant Director of Purchases and Corporate Real Estate Manager
Reports to: Director of Purchases and Corporate Real Estate Board
Functions: Purchasing, stores, printing, scrap and salvage, idle plant and real estate department
Location: Home Office
People Responsibility: 75
Purchase Responsibility: Class III

EXPERIENCE

In materials work 17 years
Plant engineering, purchasing, and industrial real estate

RESPONSES

General Models verified: All
General Models modified: None

Reported Large Importance:
Type of goods
Equipment purpose
Share decisions
Forceful decision makers
Dollar amount
Cost/cost ratio

Reported No Importance:
First-time ordering
Urgency
Who installs
When install
Governmental vendor
Single source
Guarantee
Use/stock
Make/buy
Substitute
Combined supply factors
Patented item
Contractual commitment
Vendors' economic health
Backdoor selling
Purchaser dominates
Buy at home
SUBJECT 23

COMPANY

Electrical Equipment Industry SIC 36
Multiplant Operation
Sales Category C

WORK

Title: Director of Purchases
Reports to: Executive Vice President
Function: Purchasing and Traffic
Location: Home Office
People Responsibility: 30
Purchase Responsibility: Class II

EXPERIENCE

In materials work 41 years
Field sales, production sales manager, general sales
management, purchasing

RESPONSES

General Models verified: All
General Models modified: None

Reported Large Importance:
Type of goods
First-time ordering
Involve people
Equipment purpose
Share decisions
Forceful decision makers
Dollar amount
Cost/cost ratio
Buy/lease
Quality
Vendor reliability

Guarantee
Governmental vendor
Service after purchase
Use/stock
Make/buy
Short supply
Substitute
Combined supply factors
Contractual commitment
Complex material
Antipollution

Reported No Importance:
Urgency
When install:
Secrecy
Transportation
Distribution channel

Vendors' economic health
Purchaser dominates
Buy at home
Acquiesce to community
COMPANY

Electrical Equipment Industry XIC 36
Multiplant Operation
Sales Category A

WORK

Title: Manager, Purchases and Transportation
Reports to: Director of Projects
Function: Purchasing nuclear plant components, trans-
portation, plant order services; purchasing
services
Location: Home Office
People Responsibility: 58
Purchase Responsibility: Class III

EXPERIENCE

In materials work 23 years
Teacher, trade association field representative,
refinery lab technician, sales supervisor for oil
company, purchasing staff assistant, purchasing
agent, manager of purchases, manager of purchases
and transportation

RESPONSES

General Models verified: MRO Supplies, Services
General Models modified: Raw Materials, Equipment

Reported Large Importance:
Type of goods
Equipment use
Equipment purpose
Forceful decision makers
Dollar amount
Cost/cost ratio
Buy/lease
Transfer
Quality
Vendor reliability
Guarantee

Reported No Importance:
Involve people
Share decision
Governmental vendor

Foreign vendor
Secrecy
Transportation
Make/buy
Short supply
Single source
Substitute
Patented item
Combined supply factors
Purchaser dominates
Complex material

Use/stock
Antipollution
SUBJECT 25

COMPANY

Electrical Equipment Industry SIC 36  
Single Plant Operation  
Sales Category G

WORK

Title: Purchasing Agent  
Reports to: Vice President - Purchasing and Personnel  
Function: Purchasing  
Location: Home Office  
People Responsibility: 1  
Purchase Responsibility: Class I

EXPERIENCE

In materials work 23 years
Order filler, service station attendant, sales clerk,  
office manager, accountant, production control  
manager, purchasing agent

RESPONSES

General Models verified: MRO Supplies, Services  
General Models modified: Raw Materials, Equipment

Reported Large Importance:  
Type of goods  
Urgency  
Dollar amount  
Quality  
Vendor reliability

Guarantee  
Make/buy  
Short supply  
Contractual commitment  
Complex material

Reported No Importance:  
Who installs  
When install  
Transfer

Distribution channel  
Patented item  
Purchaser dominates  
Buy at home
SUBJECT 26

COMPANY

Automotive and Aircraft Industry SIC 37
Multiplant Operation
Sales Category A

WORK

Title: Purchasing Agent
Reports to: Material Director
Function: Buyer, general stores (nonproductive materials), paint and as required stores items
(productive materials)
Location: Branch
People Responsibility: 19 - 7 salary, 12 hourly
Purchase Responsibility: Class II

EXPERIENCE

In materials work 22 years
Draftsman, accountant, material analyst, director of technical publications, IBM supervisor, production control, material control, CMP control, buyer, purchasing agent

RESPONSES

General Models verified: All
General Models modified: None

Reported Large Importance:
Type of goods
Urgency
Involve people
Equipment use
Equipment purpose
Overloaded decision makers
Dollar amount
Transfer
Quality
Vendor reliability

Use/stock
Short supply
Single source
Combined supply factors
Contractual commitment
Vendors' economic health
Backdoor selling
Buy at home
Antipollution
Acquiesce to community

Reported No Importance:
Buy/lease
SUBJECT 27

COMPANY
Automotive and Aircraft Industry SIC 37
Multiplant Operation
Sales Category A

WORK
Title: Director of Purchasing and Traffic
Reports to: Vice President - Purchasing and Traffic
Functions: Purchasing and traffic
Location: Home Office - headquarters of one of two major groups
People Responsibility: 5
Purchase Responsibility: Class III

EXPERIENCE
In materials work 21 years
Plant maintenance, stockroom, purchasing

RESPONSES
General Models verified: Raw Materials, Services
General Models modified: Equipment, MRO Supplies

Reported Large Importance:
- Type of goods: Transfer
- First-time ordering: Governmental vendor
- Urgency: Foreign vendor
- Equipment use: Service after purchase
- Equipment purpose: Secrecy
- Share decisions: Make/buy
- Forceful decision makers: Backdoor selling
- Dollar amount: Complex material
- Cost/cost ratio: Antipollution
- Buy/lease

Reported No Importance:
None
SUBJECT 28

COMPANY
Transportation Industry SIC 40
Multiplant Operation
Sales Category C

WORK
Title: Purchasing Agent
Reports to: Vice President - Purchasing and Materials
Function: Purchasing
Location: Home Office
People Responsibility: 3
Purchase Responsibility: Class II

EXPERIENCE
In materials work 25 years
Railroad purchasing - all phases, trucking industry

RESPONSES
General Models verified: Services
General Models modified: Equipment, MRO Supplies
General Models omitted: Raw Materials (no conversion)

Reported Large Importance:
- Type of goods
- First-time ordering
- Urgency
- Involve people
- Equipment use
- Equipment purpose
- Who installs
- Share decisions
- Overloaded decision makers
- Forceful decision makers
- Dollar amount
- Quality
- Vendor reliability
- Guarantee

Reported No Importance:
- Cost/cost ratio
- Transfer
- Governmental vendor
- Secrecy

Foreign vendor
Service after purchase
Transportation
Make/buy
Short supply
Single source
Substitute
Combined supply factors
Contractual commitment
Purchaser dominates
Complex material
Antipollution
Acquiesce to community
Distribution channel
Patented item
Transfer
Vendor at home
SUBJECT 29

COMPANY

Transportation Industry SIC 45
Multiplant Operation
Sales Category C

WORK

Title: Supervisor - Purchasing - Ground Services
Reports to: Director - Purchasing - Administrative
Function: Purchasing
Location: Home Office
People Responsibility: 8
Purchase Responsibility: Class I

EXPERIENCE

In materials work 20 years
Department store stockroom, airlines stores department, maintenance, inventory control, purchasing

RESPONSES

General Models verified: All
General Models modified: None

Reported Large Importance:
- Type of goods
- First-time ordering
- Equipment use
- Who installs
- Dollar amount
- Buy/lease

Reported No Importance:
- Overloaded decision makers
- Forceful decision makers
- Distribution channel
- Purchaser dominates
SUBJECT 30

COMPANY
Wholesale Industry SIC 50
Single Unit Operation
Sales Category G

WORK
Title: Purchasing Agent
Reports to: Vice President
Functions: Purchasing
Location: Home Office
People Responsibility: 3
Purchase Responsibility: Class I

EXPERIENCE
In materials work 22 years
Delivery truck driver, shipping and receiving clerk,
price clerk, purchasing agent and store manager

RESPONSES
General Models verified: Raw Materials (shelf items for
sale; no conversion), Equipment (shelf items for
sale), MRO Supplies (for use), and Services
General Models modified: None

Reported Large Importance:
Type of goods
First-time ordering
Equipment use
Who installs
Dollar amount
Buy/lease

Reported No Importance:
Overloaded decision makers
Forceful decision makers
Distribution channel
Purchaser dominates
SUBJECT 31

COMPANY

Municipal Government SIC 93
Single Unit Operation
Sales Category G

WORK

Title: Superintendent of Purchasing
Reports to: Purchasing Member, Board of Commissioners
Functions: Purchasing, receiving
Location: Home Office
People Responsibility: 3
Purchase Responsibility: Class I

EXPERIENCE

In materials work 7 years
Administrative apprentice, sales management, accounting, payroll, purchasing

RESPONSES

General Models verified: Equipment, MRO Supplies, Services
General Models modified: None
General Models omitted: Raw Materials (no conversion)

Reported Large Importance:
- Type of goods
- First-time ordering
- Involve people
- When install
- Forceful decision makers
- Buy/lease

Reported No Importance:
- Equipment purpose
- Share decisions
- Cost/cost ratio
- Transfer
- Governmental vendor
- Secrecy
- Transportation

| Quality       | Vendor reliability
| Guarantee    | Backdoor selling
| Acquiesce to community |
| Distribution channel |
| Make/buy |
| Substitute |
| Patented item |
| Purchaser dominates |
| Buy at home |
| Antipollution |
As profile results show, respondents exhibited a variety of industrial situations. Their company sizes differed, their executive responsibilities differed, their backgrounds differed. Yet no major distinctions arose which differentiated the non-manufacturing responses from those of the manufacturing firms. In the main, type of firm as shown by classifications and size of firm as indicated by Sales Category or as Purchase Responsibility made little difference in determining materials acquisition cycles.

One characteristic clearly made a difference. Home Office respondents tended to verify general models while Branch respondents tended to modify materials acquisition cycles as often as they verified them.

Overall, as Chapter VI indicates, varied industrial situations led to diversity in responses. Yet patterns were found to exist and were identified which describe the purchase decision process in general, regardless of the type and size of the firm.

On the whole, ten factors emerged from the results of testing the primary findings regarding cycle variables. Factors largely influencing the makeup of materials acquisition cycles among the firms studied were Type of Goods, Urgency, Equipment Purpose, Forceful Decision Makers, Dollar Amount, Cost/Cost Ratio, Quality, Vendor Reliability, the Make-or-Buy Decision, and Short Supply.

Chapter VII summarizes results and states implications.
FINDINGS, CONCLUSIONS, AND IMPLICATIONS

The research conducted an inquiry into a limited number of industrial firms. It sought to determine if the general pattern of purchase decision making forms a cycle that can be identified and if ascertainable factors might be defined which change the makeup of materials acquisition cycles.

Findings

Research results indicate that when manufacturing concerns acquire materials, decision makers take action in a sequence of decision events forming a pattern. Because of recurring use, the pattern forms a cycle. The cycle of events typically includes decision elements which may be titled as: Ideas, Needs, Specifications, Inventory Control, Authorization, Purchase, Shipment Inbound, Receipt and Inspection, Movement, Storage, Installation, Use, Disposal, Accounting, and Payment. Movement may be either directly to Use or to Storage and thereafter followed by Movement to Use.

The cycle concept arises because the pattern recurs time after time. When a cycle ends, it begins again for some new item or for a rebuy of the same item. In fact, a cycle may start while a prior cycle still operates. The cycle
does not tie into itself at its extremes, that is, Payment does not lead directly to commencing another cycle of Ideas, Needs, Specifications, and so forth. When Ideas, Needs, and Specifications have served their respective functions, then the cycles recur without them, starting at the Inventory Control element which acts as the beginning point after the initial cycle runs its course.

Thus, some of the elements serve once-and-for-all purposes until opportunities arise for new products or simpler specifications, or until such pressures as customer complaints or competitors' innovations alert the firm's decision makers to initiate a whole cycle anew.

In the typical recurring cycle, Use triggers Inventory Control, that is, the Use element reaches a definable point of usage which triggers Inventory Control decision makers to initiate a new cycle.

Four patterns comprise materials acquisition cycles for a manufacturing firm, one each for acquiring Raw Materials; Equipment; Maintenance, Repair, and Operating Supplies; and Services. Raw Materials acquisition cycles typically include Inventory Control. Equipment acquisition cycles generally exclude Inventory Control and add Installation. Since some materials deteriorate in storage or become obsolete or surplus, a Disposal element appears in cycles for acquiring Raw Materials, Equipment, and MRO Supplies, followed by settlement made to the Accounting element. Services acquisition cycles
prove to be simplest of all since they exclude Shipment, Movement, and Storage.

Modifications appear in the cycles because of certain situations. For example, the Accounting element precedes Use when a firm audits vendors' invoices, claims discounts, and authorizes payment before materials are used. This condition represents a logical modification of the typical cycle; for some firms, this modification constitutes the typical cycle. Thus, unique situations modify typical cycles to meet particular needs.

Variable factors influence the makeup of cycles. On the whole, ten factors emerged as vitally modifying the makeup of materials acquisition cycles among the firms studied. Factors constitute independent variables while cycles comprise dependent ones taking a particular makeup dependent upon the impact of these ten factors: Type of Goods, Urgency, Equipment Purpose, Forceful Decision Makers, Dollar Amount, Ratio of Item Cost to Final Product Cost, Quality, Vendor Reliability, the Make-or-Buy Decision, and Short Supply.

Conclusions

Conclusions with regard to cycles are as follows and contain the primary hypotheses that were proved to be valid by the research.

1. Patterns exist in the business environment describing the decision process used in manufacturing firms to acquire industrial goods and services.
2. Patterns vary in specific detail. Yet, models were identified that describe the process in general, regardless of the type and size of the firm.

3. Elements were found which are common to all cycles, while certain other elements serve special functions. The patterns contained elements which perform functions for particular situations, leading to the concept of particularized cycles for individual companies.

4. Decision makers varied in titles but congruencies were found that appropriately defined all functions.

5. Adequacy of the general models was demonstrated for describing a majority of the situations studied. However, the modification of one or more decision elements improved the definition of the general model for special or unique situations.

6. External environment factors were found to exert influence at distinct points in the cycles as shown within the lists of advisors at various decision elements.

7. Most of the firms studied appeared to follow general models. Yet, to meet special needs, individual firms modified the approach. The modifications by respondents in this limited study illustrate the range of variations, yet by no means exhaust them.

From a search of selected literature in the field of purchasing and from interviews with purchasing executives in
forty-one firms, general patterns were found for the decision process. The purchasing literature proved comprehensive and accurate as evidenced by drawing from published sources eight of the ten factors which the research verified as largely influencing the makeup of materials acquisition cycles. All likely could have been found by interviews but proved to be available from the literature for use in the research in a way which extended their use beyond readily available knowledge. To this extent, the hypotheses agreed with and extended the current body of knowledge.

Many features denoted unique industrial situations among the firms studied. Yet no major distinctions appeared in the interviews which differentiated the nonmanufacturing responses from the manufacturing ones nor responses of large firms from small ones. Many features distinguished respondents from each other, leading to difficulty in relating responses to respondent characteristics.

In one feature, however, major distinction clearly appeared. Home Office respondents tended to verify general models whereas Branch respondents tended to modify them as often as they verified them.

Implications

The research does not make an assessment of an individual firm's situation, saying, "This is the way it ought to be done." Instead, the research findings point out important generalities which seem to be practised in common by
The study has developed illustrative models and patterns by which other industries could be approached in a wide variety of cases.

As evidenced by the findings, modifications of the cycle are sometimes needed to meet special or unique needs, yet the basic pattern can serve as a point of departure and modification can be appraised in terms of the unique factors that are thought to justify them.

To apply the research findings to the situation within an individual firm, an executive might follow this three-step process:

Step 1 — Cycles. Determine which general or modified model most closely resembles the company's situation.

Step 2 — Elements. Indicate the elements for all events in the cycle and denote the persons who participate at each element either as decision maker or advisor.

Step 3 — Variables. Select the variables from the total list of thirty-nine factors which influence the makeup of the firm's materials acquisition cycles, determine who becomes involved, denote their place in the cycles, instruct them in their functions, and hold them accountable. Thus, a cycle might include persons below the executive level who become involved when reordering, for example, as reported in the study for Factor 2. The Class Memberships which relate profile data to responses may serve as guides for identifying variables appropriate to the situation.
Judicial use of the concepts illustrated by the research could lead to greater control of the total materials acquisition process.

In view of management's current concern for greater control of the total decision making process, significant action could be taken as a result of the findings.

While past assignments of decision makers have stemmed from personal considerations, the challenge now is to have the determinations made in terms of the overall system and its requirements. Two basic reasons may account for the trend toward analyzing more in terms of decision processes and relations rather than struggles for personal power and the like: 1) increasingly technical problems at all stages of the cycle, such as competitive ideation, complex specifications, and economic purchase analysis, and 2) tremendous potential of the systems concept itself enhanced by electronic data processing. Thus, the concept of analyzing cycles adapts to the trend.

Consequences follow from a company identifying its particular materials acquisition cycles. Newly employed and newly promoted executives may be oriented more quickly by studying the firm's cycles. Executives and others participating in the decision process for acquiring goods and services may see more clearly the impacts which their decisions make within the total system.

Using the cycles analysis concept, the firm's ultimate
goal might be to discover the routine nature of its situation, to set boundaries by fixing upper and lower limits of authority in order to make the desired outcome attainable by routine decisions, and to turn the cycle over to routine procedures or to a computer. This then frees the purchasing manager to concentrate on the exceptions and to give attention to important work which requires his personal deliberation. He becomes freed from routine decisions, a worthy goal for any company executive.

Organizational structuring could develop a better total systems viewpoint to utilize the full effect of human resources within materials acquisition cycles.

Personnel Department efforts might become more effective, to recruit, select, and place employees as needed to staff existing departments in the cycle.

Within their own firms, sales executives may improve their communications of forecasts and customers' needs, leading to clarifying the firm's own procurement needs for raw materials.

Cycle analysis constitutes an extremely effective sales tool as sales personnel study cycles within their own companies and thereby understand the decision process in the firms they approach: who makes the decisions, what kinds of decisions they make, and who consults with them within the organization on specifications, quantity, and price.

Vendor evaluation could become more closely related to
company decisions, leading to better quality, service, and price, through improved communications between buyers and sellers.

The concept of cycle analysis could be a long time in coming. Provincial attitudes in functional departments such as Accounting, Receiving, Stores, and so forth may obscure the phenomenon of materials acquisition cycles as a total working system of interrelated decision makers.

Executive problems are anticipated in applying the concepts of the study. Some executives may begin to see the cycles as a series of interrelated judgments calling for more authoritarian control instead of calling for integration through team effort.

Over a period of time the influence of variables likely will change in importance, dependent upon the decision makers, company growth, product lines, economic conditions, and other factors.

Further research indicated

Further research may benefit the field of industrial purchasing along the lines of the following directions.

A descriptive study should prove helpful which identifies changes in the practice of purchasing: evidence of democracy and team effort, changing loyalty, horizontal linking crossing department lines for communicating information, and use of the computer in certain segments of industry.
An indepth study of branch location materials acquisition cycles could arrive at value judgment of what is and what ought to be. As revealed by the present study's findings, limited to a small number of firms, branch respondents tended to modify general models as often as they verified them, whereas home office respondents tended to verify general models of materials acquisition cycles. Branch executives may face small order problems and other shortcomings which necessitate or encourage modifications. Perhaps they continually claim problems of exceptions.

Retesting of selected participants in the present study might reveal changes in beliefs as other factors change in the business-economic environment.

The psychological implications of legitimacy of personal power in view of what knowledge is really required constitute extremely valuable material for the individual firm to study. Factor 11, Forceful Decision Makers, emerged as an important variable. The executive's own intellectual prowess may give him something to stand on. Alternatively he may feel weak and therefore act in a nonforceful manner in face-to-face discussions within the cycle. How he performs as a decision maker derives from varied background support, inherent in which are his skills as a negotiator within his own company and the company's philosophy toward personal power.

The changes in other steps in the cycle indicate the need for predicting the changes in the purchasing function in
the chain of events leading to the acquisition of industrial goods and services.

The owner-manager typically holds onto procurement as his personal function. Research might confirm the view of purchasing as a vital executive activity.

The success of the systems approach to purchasing should be measured against results from the functional approach, that is, viewing the purchasing executive as a team member with other decision makers rather than merely the agent who purchases for his firm.
<table>
<thead>
<tr>
<th>Activity</th>
<th>Initial Spadework</th>
<th>Preliminary Screening</th>
<th>New Ideas Sourcing</th>
<th>Concept Testing</th>
<th>Final Model Developing</th>
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<tbody>
<tr>
<td></td>
<td>Library Search</td>
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<td>Library Search</td>
<td>Library Search</td>
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<tr>
<td>5 Preliminary Interviews in New York City</td>
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<td>Data Analysis</td>
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<td>2 Pilot Interviews in the Southwest</td>
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<td>Thesis Writing</td>
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<tr>
<td>9 Prime Interviews in the Southwest</td>
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<td>31 Panel Interviews in Atlanta--5, Fort Worth--5, Milwaukee--6, Pittsburgh--8, St. Louis--7</td>
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<tr>
<td>National Association of Purchasing Management</td>
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APPENDIX B

CHECKLIST OF VARIABLES
Factors which may determine the material acquisition cycles in my company:

L - Large importance  N - No importance or
S - Some or small importance  doesn't apply
X - Don't know or no opinion

1. Raw material, equipment, MHC supplies, or services.
L

2. Ordering first time, reordering, or ordering once and for all
S

3. Urgent, routine delivery, or time unspecified.
S

4. Involve fewer people to reduce delay, or many people to obtain benefits.
L

5. Equipment: produces product or supplies service (such as electric motor for sawing logs or hoisting passengers)
L

6. Equipment for replacement item, additional capacity, process change, new process or product.
L

7. Equipment installed: by ourselves or others.
N

8. Equipment installed on receipt or stored first, installed later.
N

9. Manpower: one man show or all functions filled by different persons.
S

10. Participants overloaded with work at the moment or operating routinely.
L

11. Strength or weakness of participants.
L

12. Dollar amount of the purchase (under $200, over $1000)
N

13. Ratio of purchase cost to final cost of product.
L

14. Buy or lease.
L

15. Intracompany transfer or obtained outside.
S

16. Quality critical or not critical.
L

L

18. Performance of purchased item subject to guarantee.
N

19. Vendor: governmental body or private.
20. Vendor: can be foreign or must be domestic.

21. Service from vendor after purchase: critical or we service it ourselves.

22. Secrecy involved.

23. Mode of transportation: specified by us or makes little difference.

24. Purchase for scheduled utilization or for stock.

25. Distribution channel: fixed or prevailing channel not clear.

26. Freedom to go outside to purchase item ordinarily made by ourselves.

Supply circumstance known by us to be:

27. short or long

28. single source or multiple sources

29. substitute material available

30. patented product

31. combinations of above

32. Contractual commitment by supplier to furnish part of our needs.

33. Company philosophy to maintain economic health of vendors.

34. Company policy that all salesmen must go through purchasing department before contacting employees.

35. Purchasing company dominates suppliers of this item.

36. Complexity of material:

routine, standardized (such as cleaning service)
special characteristics bypassing purchasing department (such as advertising service)
serves more than one function
Social responsibility of company to:

37. buy at home locally
38. minimize pollution of air, water, land, wells
39. acquiesce to community governing body.
APPENDIX C

RESPONSES BY PANELISTS
### RESPONSES BY PANELISTS HAVING PURCHASE RESPONSIBILITY LESS THAN $10 MILLION (CLASS 1)  

Majorities indicated

<table>
<thead>
<tr>
<th>Factor</th>
<th>Large Importance</th>
<th>Small Importance</th>
<th>No Importance</th>
</tr>
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<td>(9)</td>
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<tr>
<td>2</td>
<td>(7)</td>
<td>3</td>
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<td>(7)</td>
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TOTAL RESPONSES OF
THE NINETEEN COMPANIES FROM
THE METALS INDUSTRIES

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MAJORITY AND RIVAL TABLES*

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* Majority means the next whole number larger than half the total vote. Rival is computed to be the nearest whole number to, but not exceeding, one-third the total vote. As a result, the majority is equal to or larger than three-halves its rival.
BIBLIOGRAPHY

Books


Articles

"Can You Safely Rely on Titles to Indicate Purchasing Influence?" Sales Management, 70, April 1, 1953.


"Who Has a Voice in Purchasing and Where Do They Look for Data?" *Sales Management*, 64, January 1, 1950.

Reports


Unpublished Material