INDUSTRIAL CONSUMER BEHAVIOR: TOWARD AN IMPROVED MODEL

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Abstract

This paper reports the findings of an extensive literature search and significant number of open ended interviews regarding how industrial equipment purchases are made. The authors find that a paradigm for the process can be constructed which will help researchers design empirical tests. The authors discuss key concepts of the interpersonal interactions which constitute industrial buying behavior. The process paradigm developed tends to confirm previous authors in that a two stage process seems to be quite general.

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Introduction

In recent years, the field of organizational buying behavior has witnessed an impressive array of articles. It is our purpose to briefly review a representative body of the available literature and report our findings on an ongoing research project which deals with some specific issues. An initial model specification is provided together with guidelines for future research.

Literature Review

As Sheth (1977) has observed, contrary to popular belief, there are literally hundreds of studies dealing with various aspects of the organizational buying process. We plan to focus on some of the major articles of the past ten years which, we feel, represent conceptual or empirical advances in understanding this behavior. In order to perform the review, we have combined the conceptualization provided by Sheth (1977) and Webster and Wind (1972) to create a series of categories which represents the basic propositional structure. These include:

1. Environmental and organizational background factors
2. Buying center factors
   a. Group and individual factors
   b. Group and individual decision process
3. Overt behavior
   a. Communication dynamics
   b. Purchase dynamics

Each paper is categorized based on the particular aspect of the behavior it examines. In addition, we also examine some methodological issues including data collection methodology, respondents, sample sizes and analysis techniques and article focus. Table 1 gives an overview of the 21 papers included in the review. Of the 21, 10 are conceptual while 7 are strictly empirical. The remaining 4 are limited empirical with some conceptual ideas.

It seems that there is a degree of consensus about the important concepts. For example, roles of various individuals have been examined, search behavior has been explored and so have purchase patterns and source loyalty. On the negative side, important concepts regarding the decision making unit have not been extensively investigated. In addition, important preconditions to decision making unit have not been explored. Such preconditions could include important triggering events and environmental factors which impact the organization buying process.

On another level of analysis, the overview suggest that there is some need to harden definitions of the major concepts. Precise and generalizable concept definitions are generally not available for concepts such as search, buying roles, and organizational environment variables. This lack of definition presents an opportunity for future significant research.

The major deficiency in the studies reported to date is a lack of substantial empirical testing of propositions. The sample sizes of most studies are quite small. Interviews often are obtained from purchasing agents who may not have a significant role in the decision making process (especially for large ticket items such as computer systems). While consumer (retail) data for frequently purchased goods are widely available and much sophisticated analysis has been performed to find key segments and variables affecting the purchase decisions, we are unaware of any comparable data bases in the organization buying context. Thus, a great opportunity exists for this type of research.

The Present Study

The present study is designed to fill some gaps found in the previous studies. Specifically the following areas are investigated:

1. What are the steps in the buying process? Are there any triggering events that start off the decision process?
2. What is the decision making unit (DMU) composition?
3. What is the role of the salesman in the buying process?

Methodology

In the present study, we examine the purchasing behavior as it related to office equipment. To accomplish our task, interviews were conducted with 18 sales representatives and 50 companies to gather information on the above research questions. The research is somewhat exploratory, but its overall direction is towards building a comprehensive model of buying process.

Interviews with Sales Representatives

Rationale. The rationale for conducting interviews with sales representatives was two-fold. First, sales representative interviews could provide a sufficiently detailed picture of decision making processes and could thereby serve as a basis for formulating a comprehensive interview guide for use in interviews with organizations. Second, interviews with sales representatives could provide insights as to inter-organiza-

TABLE 1

OWERVIEW OF KEY ARTICLES

Reference	Givens		Buying Center			Behaviors		Focus		Methodology			
	Environment	Organization	Group Factors	Individual Factors	Decision Process	Communication Dynamics	Purchase Dynamics	Conceptual	Empirical	Mode of Data Collection	Respondents	Analysis Technique	Sample Size
Cardozo & Cagley(71)				X	Supplier Choice		X		X	Lab Exp't	Industrial Purchasers	Simulation	64
Choffray & Lillien (78)			Buying Center		X		X	X					
Gronhaug(76)	X	X		Buying Motives	Search					Mail Q'nair	Buyers	Tabs	48
Lambert et al(77)				Attitudes re Source	Post-choice				X	Lab Exp't	Purch Agents Engineers	Game	77
Luffman(74)	X			Dissatis-faction	Search				X	Inter-view	Purch Agents	Tabs	14
Magee & Bean(76)				Role of Purch A				X		Lit. Review			
Mathews et al(72)						Buyer/Seller Dyad			X	Lab Exp't	Students	Game	300
Myers & Lamm(76)			Attitudes Perceptions					X					
O'Shaughnessy(77)		Buying Rules	Conflict Resolve	Goals			X	X	X	Previous Study			NA
Pettigrew(78)				Gatekeeper	X		X		X	Case Study		Tabs	1 Firm
Scott & Wright(76)				Evaluation Criteria			X		X	Sales Rep Q'nair	Purch Agents Engineers	Regression	27
Sheth(73)	A Comprehensive Model of Industrial Buyer Behavior							X					
Webster(69)		New Prod Adoption						X					
Webster(70)				Opinion Leaders		Informal		X	X	Inter-view	Purch Agents	Tabs	58
Webster(78)	A Review of Models and Measurement Technology							X					
Weigand(68)	An Overview of Factors Affecting the Buying Function							X					
Wind & Robinson(68)	Discussion of Attempts to Simulate the Buying Process							X					
Wind(70)							Source Loyalty		X	Case Study		Regression Discriminant	1 Firm
Wind(71)			Buying Center					X	X	Inter-views	Buyers & Users		2 Firms
Wind(78)	A Review of Recent Developments							X					
Zaltman & Bonoma(77)	An Overview of Organizational Buyer Behavior							X					
							Total	13	10				

tion differences (since sales personnel call upon many different organizations). Such information would then aid in the development of hypotheses.

While interviews with sales representatives have a number of virtues, we have been careful to observe a number of inherent limitations of such data. First, it is apparent that sales representatives do not have an opportunity to observe the entire decision process; much interaction between participants in decision making takes place when the sales representative is absent. In many instances, exclusion of the sales person is deliberate on the part of members of the customer organization. Thus, sales representatives are at best only able to provide a partial picture of the decision processes and decision determinants.

A second limitation on this data source is a function of the sales representative's vested interest and role in the decision process. Since sales personnel are expected to influence decisions, they may tend to attribute more influence to themselves than might actually be warranted.

Despite these limitations, sales representatives provide an unusual perspective and have unique knowledge concerning decision processes and for this reason interviews with such persons are incorporated within this work.

Respondent Sample. Given the hypothesis-seeking objectives of this activity, the sample of sales representatives was selected to provide diversity rather than generality.

As part of this investigation, interviews were carried out with 18 sales representatives in the mid-Atlantic section of the U.S., the sales people represented a number of different firms. The sample contained representatives who operated in urban as well as in suburban and rural environments.

Interview Content

Respondents were asked to describe three different customer organizations: 1) consumer groups having the "simplest" decision process, 2) those have the "most complicated" decision process and 3) those having a "typical" decision process. For the most part, decision complexity was defined by respondents in terms of organizational size; that is, the "most complicated" decision processes were found in larger organizations, while the simplest decision processes were associated with the smallest.

The results of these interviews were distilled and then used as input for developing a methodology to carry out subsequent interviews in consumers' organizations.

Interviews with Industrial Consumers

Rationale. Interviews were undertaken with industrial consumers to accomplish three major objectives. First, we wished to elaborate and refine our understanding of the decision making process beyond the preliminary knowledge gained through sales representative interviews. As part of this activity we wished to develop a more precise picture of decision steps and the roles of individuals who participated in the decision process.

A second objective of these interviews focused on the definition of key variables that need to be considered for predicting and forecasting equipment choice. Our concerns regarding key variables encompassed:

1) attributes of equipment
2) background and relative influence of decision participants
3) conditions inside and external to the organization itself.

Finally, a third objective of consumer-interviews was to aid in the development of methodology for:

1) gaining access to organizations for the purpose of interviewing multiple participants in decision making.
2) defining key parties in the decision process, and
3) pinpointing which equipment acquisition decisions would serve as a most useful focus for data-gathering.

Establishment Sample. A convenience sample of fifty organizations were encompassed in data collection and cut across a variety of industries. Data collection was primarily focused upon organizations in the mid-Atlantic region. The interviews were conducted personally by the authors and their colleagues.

Interview Content. Interview questions were open-ended in nature and interviewers were provided with an extensive array of probing items to refine information provided in response to open-ended questions. The interview guide examined a number of issues surrounding the organization, its decision making process and specific machine choices.

Findings

Group Structure and Decision Making

We find that Webster and Wind's (1972) notion of the decision making unit (DMU) is a useful heuristic for describing the group structure within which decision making takes place. For the purpose of this effort, the DMU may be defined as one to four persons who gather information and make buying decisions.

Within the DMU, there appear to be four distinct roles; individuals may, however, serve multiple roles. The roles include:

1) The signing authority - the person who must take ultimate financial responsibility for the decision, and who is the highest status member of the DMU (but not necessarily the most influential).
2) The proposal preparer - an individual who takes the responsibility for gathering information, for interfacing with potential suppliers and for pulling together technical and cost information in the form of an internal proposal for equipment acquisition.
3) The key influential - a person who is frequently superior to the proposal preparer in the organization, works closely with the proposal preparer in developing information and presenting it to top managers.
4) The key operator or key user - an individual who works directly with the equipment and who provides input to the proposal preparer concerning needs and requirements.

These roles appear to be relatively consistent across different organizations. In small organizations several or even all of these roles may be vested in a single individual.

One issue that became apparent through the interviews

was the fact that the structure and number of persons in the DMU is not strictly a function of organization size. In a large construction firm, for example, two individuals constituted the DMU for a 150-person organization. The Director of Personnel prepared the proposal and the Vice President for Project Management exerted signing authority.

Several additional key points might be made regarding the DMU and its functioning. First, it was fairly obvious from the interviews that some participants have greater influence over the decision than others. In general, it appears that the bulk of influence was attributable to the key influential and to the proposal preparer, who often stated that they equally shared influence over the decision (up to a shared total of 70 to 80 percent of control over the decision). The remaining influence was attributed to the signing authority.

A second point regarding DMU functioning relates to what Pettigrew (1975) has termed the gatekeeping function performed by DMU members. According to Pettigrew (who views organizational purchasing as a political process) the industrial buyer serves a gatekeeping role by filtering and translating information between suppliers and the organization. These gatekeeping functions are performed by both the key influential and the proposal preparer on multiple occasions during acquisition decisions.

Role of the sales representative. The foregoing discussion has been focused upon employees who participate in decision making. Individuals from outside of the organization may also impact upon decision making; of particular concern here, is the role of the sales representative.

At the outset of the project and early in the effort, we believed that sales representatives had considerable influence over the decision process and may actually serve as members of the DMU. Interviews with sales representatives, for example, suggested that sales persons in some instances may serve as consultants or ex-officio members of the DMU. Recognizing that information from sales representatives may be biased regarding the extent of their actual influence over the decision, information from interviews in customer establishments provides additional perspective on this issue.

It became clear in the course of interviews with DMU members that the role of sales representatives in the decision process was focused upon three activities:

1) stimulating or identifying needs
2) providing information
3) facilitating decisions

The role of sales representatives in stimulating or identifying needs was restricted to certain circumstances. That is, sales personnel were usually in a position to have such influence when they initiated the first contact. When the organization initiated contact with the sales personnel, needs had already been defined to some extent.

The role of sales personnel in providing information is almost universal. Thus, sales representatives work closely with the proposal preparer and provide information to support proposal development. Such information can be either technical or financial or both. DMU members were particularly dependent upon the sales representative for translating costs into terms they could understand. Thus, manufacturers create a condition that leads to dependency upon the sales representative, a dependency that makes sales personnel essential to the buying process.

While the sales representative may play these various roles or employ different strategies as a means of influencing decisions, members of the DMU made it quite clear that the sales representative is considered an "outsider." In short, the DMU members (particularly the proposal preparer) frequently exert a "gatekeeping" function (alluded to earlier) with respect to the sales representative. In particular, they minimize contacts that the sales representative has with higher level management, often precluding access to the signing authority within the DMU. Such gatekeeping practices may be used by DMU members for their own ends to increase the influence that they have over the decision (a similar point has been made by Zaltman & Bonoma, 1977).

Steps in the decision process. At project initiation we generated no explicit assumptions or hypotheses regarding the steps involved in the consumer choice process. However, it became evident during the literature review and throughout the interviews that developing an understanding of decision process steps was essential for further work on consumer choice.

Other researchers have also conceptualized the decision process in step-wise terms and a review of these concepts is in order to provide perspective for examining interview results.

Luffman (1974) for example, characterized the decision as consisting of three phases:

1) A qualifying phase - where a product need stimulates supplier search activity and preliminary evaluation of identified suppliers. The end result of this phase is a set of qualified suppliers.
2) A determining phase - where a specific quote is obtained from the sales representative. The end result of this activity is a more circumscribed list of suppliers and a set of attitudes (i.e., relative preferences) regarding those suppliers.
3) A confirmatory phase, where further evaluation of suppliers is undertaken on the basis of more specific criteria, and a buying decision is made.

Choffray & Lilien (1978) have recently developed a similar conception of the steps entailed in the buying decision. These authors point to three stages consisting of:

1) Elimination of supplier alternatives which do not meet organizational requirements.
2) Formation of decision participant's preferences, and
3) Formation of organizational preferences.

Hillier (1975) has taken the stage-dependent view of the decision process one step further, but focusing on

1) "precipitation" of the purchase (i.e., "triggering" conditions)
2) product specification
3) supplier offer and selection of the most suitable supplier, and
4) degree of satisfaction with the purchase and with the supplier.

Thus, Hillier encompasses post-decision consequences of a particular purchase decision within his framework.

Other investigators (cf. Lambert, Dornoff & Kernan, 1977) havealso given attention to attitudinal consequences of specific purchase decisions within organizations.

Finally, we might focus attention upon the five-stage conceptualization of purchase decision making enunciated by Rewoldt, Scott & Warshaw (1969). The authors suggests that industrial buyer behavior may be viewed as a problem-solving process entailing:

1) recognition of a problem (i.e., a felt need)
2) search for alternative solutions
3) evaluation of alternatives
4) purchase decision, and
5) post-purchase evaluation of alternatives

There appear to be several common threads running through these differing conceptions of the steps in the buying process:

- The decision process is iterative.
- A central element of the decision process involves search and selection from among alternatives.
- The ordering of steps in the process appears to be the same across conceptualizations.

It is clear, however, that researchers differ in terms of the beginning and end points of the decision process. Some authors begin with need recognition, others begin with elimiting inappropriate suppliers. Several authors terminate the buying process with a specific decision or with the formation of preferences; others focus on post-decisional consequences and post-choice dissonance.

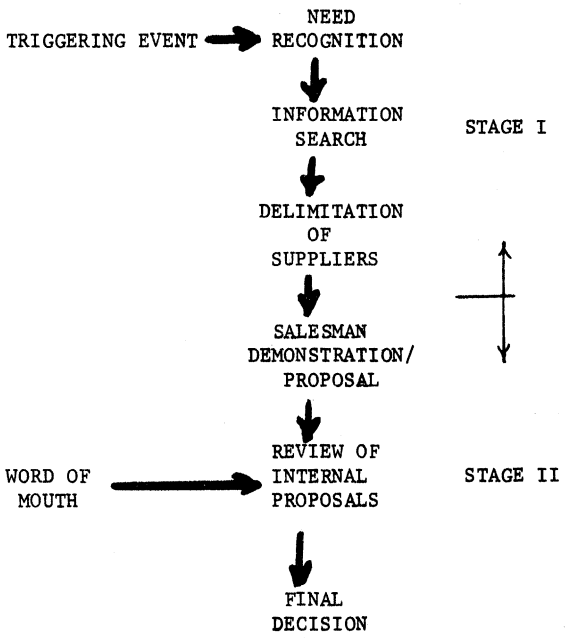
The Industrial Buying Process

With this material as background, we analyzed the interviews and constructed a preliminary conceptualization of decision making employed in acquisition of industrial equipment. An overview of this preliminary conception is shown in Figure 1. This conceptualization assumes a continuous flow of actions from the search for suppliers, through machine need assessment, a demonstration and proposal on the part of the sales representatives, an internal review of proposals and a final decision. This view of the buying process reveals that there are two major stages in the process; a first stage that results in delimitation of feasible suppliers and a second stage involving detailed analysis of remaining suppliers and a final decision.

Need Recognition. At a particular point in time, it becomes clear to the DMU that there is a need for a new piece of equipment. This need could become apparent due to increasing production demands. Another major cause could be the failure of an existing piece of equipment due to excessive age or a work overload. In any event, a triggering event occurs which create the perceived need.

Information Search. Members of the DMU begin collecting information from a number of sources including sales people, advertisements in mass media, word of mouth from associates, brochures and many others. With this information, the DMU begins to define the general character of the equipment configuration which they perceive to most closely meet their needs. They may decide, for example, that several small capacity machines are more appropriate than one large machine. The technical nature of the machines is decided without reference to particular brands of machines.

FIGURE 1
OVERVIEW OF THE PURCHASE DECISION STEPS



Delimitation of Suppliers. Once the technical nature of the machine(s) have been decided, the DMU determines which suppliers can provide the appropriate machines. In many cases, only one supplier is feasible. However, more frequently, several suppliers can provide the needed equipment. The budget constraints given by top management are also used in the evaluation.

Sales Demonstration/Proposal. Sales people from the feasible suppliers are asked to provide demonstrations of the equipment. The demonstrations show the DMU members the size, speed, complexity of operation and many other details. After such demonstrations, the sales people usually prepare a proposal including pricing plans and whatever technical and economic options which they feel are appropriate. These are converted into an internal proposal by the proposal preparer and are carefully reviewed by the DMU.

Word of Mouth. Current users of the various brands of the feasible machines are often contacted to obtain information. This information can often serve to eliminate a supplier. A common piece of information is the reliability of the machinery in question. If current users report unhappiness, the supplier is likely to be eliminated. Other information elicited includes ease of operation, staffing costs, supplies expense and other such information.

Final Decision. If more than one supplier is still feasible, the DMU discusses the options and chooses the brand of machine, the price option and other details within the decision complex. In general, the decision is by consensus. However, certain DMU members can carry higher decisions weight than others.

Conclusions

We have tried to highlight important trends and weaknesses in the current organizational buying literature. In addition, we have performed some initial explora-

tions involving structured discussions with decision makers. This activity has been directed at mounting an empirical test of the model posited here. The literature indicates such a test is warranted and should lead to new insight into multiple decision maker models.

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