

Industrial Marketings

New Challenge:

The Computerized Buyer

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ELECTRONIC DATA PROCESSING IS CHANGING BUYER-SELLER RELATIONSHIPS—INCREASED INFORMATION, INCREASED BUYER SOPHISTICATION, AUTOMATIC PURCHASING SYSTEMS ALL COMBINE TO CREATE A NEW ENVIRONMENT FOR THE INDUSTRIAL MARKETER

This paper¹ reports an in-depth study of the impact of electronic data processing upon the industrial buying decision-making process and discusses implications for marketing and sales strategies. Interviews were held in 15 companies, which represent a balance of manufacturing and service organizations located from the midwest to the east coast. These companies mainly used EDP supported systems to purchase maintenance-repair-operating (MRO) and production items, although in several instances non-routine purchases were involved.

Executives who influence purchasing at all levels of the organization were interviewed: corporate purchasing, corporate systems personnel, plant level purchasing managers, buyers and materials handlers. Discussions concerning purchasing's interface with other functions were also conducted with marketing and production personnel, as well as with some key suppliers of the organization.

EDP Development

Based upon these interviews, five stages of EDP evolution in the firm can be identified. In the first stage, the EDP system has just been

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introduced to the company. The purchasing manager has access to data which is essentially spun off from the accounting records of the company. Quantities of data related to purchasing are available, but there is little organization and analysis. Stage 2 involves the manipulation of data by the EDP system into simple reports. The purchasing manager has specified "relevant" information which is sorted and presented to him. Dollars spent per item and by vendor are examples of the type of information that becomes available.

In the third stage an open loop decision model is developed. That is, the buyer is part of the decision loop within an EDP system. For example, the buyer may provide a requisition to the computer which supplies him with a listing of past purchases. The buyer then makes a decision based upon the information and returns the order to EDP. The EDP system prints the order and follows its progress through expediting and delivery.

The next development, stage 4, is a closed loop system. Input information from the buyer is reduced to an order for a specific number of units. The EDP system selects the vendor, prints orders, and follows the process until the product is delivered. In the final step, stage 5, the computer program may place the order directly through the vendor's computer. In this stage, sophisticated quantitative models and methods are used to support purchasing activities. The purchasing agent's role becomes that of supplying standards and auditing performance. Throughout the development of the system, the role of the purchasing agent changes. As routine tasks are taken over by an automated system, time is created for other activities.

The Buying Task

The model of industrial buying behavior developed by The Marketing Science Institute suggests three classes of purchases exist in the firm. (Robinson, et al., 1967). By utilizing those classes, a reference point is created for weighing the impact of EDP based systems upon the purchasing function.

The *rebuy* situation is characterized as a replenishment process with an iterative buying task. Since product requirements have been established, the purchasing department need only to select a vendor from a list of acceptable suppliers. At the polar extreme, the *new task* situation requires information first about product requirements and then involves a search process to obtain information for evaluating sources of supply. Within this process, past experience may have only minor value in the decision process and the search for new solutions. As a middle-ground, the modified rebuy

task evolves from either extreme task. Thus, internally, product requirements may be redefined or, externally, a current supplier may prove unreliable. In either situation, new information requires integration with past experience.

Since only the rebuy class of purchase can be effectively handled solely within the purchasing department, the concept of "buying center" has emerged. Thus, as information and decisions are required across several functional or divisional areas, the notion of the buying center provides an expanded focus for analyzing purchasing decisions and the impact of EDP systems on purchasing behavior.

EDP Impact

The impact of the buying center's use of EDP was found to be a function of: (1) the class of purchase: rebuy, modified rebuy, or new task, and (2) the buying center's stage in the evolutionary process. In the initial stage of its introduction into the buying center, the computer has little impact upon the buyer's decision making. In the second stage, however, decisions affecting rebuy and modified rebuy classes of purchasing are influenced by the output of the EDP system. Buyers now have the information available to develop national or regional contracts. In many companies, reports that evaluate vendor performance are now also available and become the basis for vendor selection decisions. In addition, the buyer now has a better base of information from which to develop a bargaining strategy. The new task purchase, however, is not greatly affected at this stage.

In the third stage, the open loop system, both the rebuy and modified rebuy type of purchase is greatly affected by the computerization of the purchasing system. In several of the companies observed, the open loop system was activated by an input from another computer program by the initiation of a purchase requisition. The purchasing program then responded by supplying a historical record of the last ten purchases of that item. The buyer then has one document which presents price, volume, dates of purchase and other pertinent data for the product, whereas previously several locations would have needed to be searched to accumulate this data. Based upon the purchase history, the buyer could then make a decision either to place an order with some supplier or to search for additional vendors. In this stage the computer also handles documentation and follow-up for the order once it has been placed for both rebuy and modified rebuy purchases. EDP systems were also observed to send out reminders requesting acknowledgment or updating of

purchase orders. The computer system also supports bid solicitation and evaluation in the third stage.

Another important outcome of the open loop purchasing system is that the buyer now has more time to search for additional suppliers and evaluate the offerings of current suppliers. The new task type of purchase benefits from this additional available time, as proposals for these major purchases can be more carefully and critically evaluated. In addition, the computer can be used to solicit, analyze, and manipulate bids for new task type items.

The fourth stage creates a closed loop system; the computer will now automatically order items in the rebuy class. Thus, for MRO and production items the computer receives, from other programs, a notification that the inventory level has been reduced to a reorder point. Programs then automatically process an order from a preselected supplier. Although it is possible to program sharing of orders over more than one supplier, this was generally not observed. For the bulk of these purchases, as with those of the modified rebuy class, only one vendor would be listed as a source of supply. In many cases, quantity and price arrangements are pre-negotiated, resulting in considerable savings to the purchasing company.

While rebuy classes of purchases are made automatically by the EDP system, items that fall in the modified rebuy class remain in the open loop system. Here the computer program rejects notification of a reorder point and routes appropriate information to the buyer. Thus, through the integration of inventory and purchasing programs, the computer may supply more timely information to the buyer. This situation results in the buyer being better informed and provides an "information advantage" over salesmen calling on him.

In the fifth, and last, stage identified, the computer system becomes a creative management tool. Although few firms were found to be at this stage of evolution, it is on the horizon. While this study observed firms who are leaders in the computerization of buying centers, many purchasing departments are beginning to evolve along similar lines. Thus, marketing managers will need to expand their strategies to effectively compete in industrial markets.

MARKETING IMPLICATIONS

As the impact of the computerization of buying centers is expanded, marketing managers will be required to develop innovative strategies. The major implications for industrial marketers are: (1) increasing competition

as the number of suppliers is reduced, (2) more sophisticated purchasing men, and (3) more sophisticated tools of analysis. While much of this impact is yet to come, evidence from the frontier firms observed indicates that a new industrial marketing environment has been established. Several examples will illustrate these trends.

Increased Competition

In the initial phase of bidding analysis more suppliers will be contacted, as sophistication is increased. With more information available, buyers will also tend toward annual vendor contracts, generally reviewing the vendor list once a year. Thus, while more vendors will be contacted, fewer suppliers will be awarded orders.

This implies that for rebuy items vendors will obtain a special position from which to build a firm relationship with the purchasing firm. Once a vendor obtains an annual contract, it becomes extremely difficult for competitors to obtain orders for that product. Only when the vendor's product fails to meet purchasing standards, or these standards are revised, will competitors be able to gain access as a source of supply.

The Purchaser

EDP is generating a new class of purchasing executive at the corporate level whose responsibility is to structure purchasing problems rather than to handle routine paper work. Some companies indicated the emergence of a structural staff member whose time was devoted to creative decision making. Such individuals are going to create for the firm a more extensive search for purchasing alternatives.

In many instances the buyer now has more up-to-date information than the marketing representative calling on him. One buyer reported that he would obtain a status report on vendor performance and would refuse to talk with the salesman if current orders were outstanding.

Tools of Analysis

The computer's use in buying centers is producing more sophisticated forms of analysis being applied to purchase decisions. For example, programs were developed in some buying centers for the solicitation and analysis of bids. Suppliers are offered a number of ways to respond to request for bids; in one firm volume and geographic area were prime considerations. The computer program then analyzed the approximately

1400 combinations of bids to obtain a minimum cost to the firm. The initial computer run offered a saving of approximately \$120,000. The program was then rerun changing geographic and other subjective parameters, which yielded smaller savings, approximately \$100,000. Thus the firm could now let contracts based upon new information which demonstrated cost and effectiveness trade-offs.

The computer is also being used to support the negotiation of large contracts. One firm described a situation in which a computer terminal was used in a bargaining session. The direct input of information for sales representatives to analytical programs provided immediate output. It was reported that the marketing representatives were most disconcerted to watch their information being analyzed and evaluated on the spot. Another impact on bargaining position is through the accumulation of greater statistical data for the evaluation of vendor performance, which can strengthen the buyer's position.

The more sophisticated analysis which computer programs offer also challenges marketing strategies. For example, one vendor had developed a plan by which they would stock all items the buyer required and would guarantee 24 hour delivery at a preset price. This price was at a premium for the service offered, but the seller's argument was that it would save the buyer money on carrying costs. To evaluate this proposal, the buyer used a time sharing program that analyzes the plan under several price/volume alternatives. This analysis indicated that the plan would not cut costs, and hence, the offer was rejected. Previously the buyer would not have been able to produce such calculations; the computer provided him the opportunity for a more thorough analysis.

SUMMARY

Sales managers can expect larger orders in the future. As contracts are negotiated on a national basis, companies will find that they are dealing in annual requirements of a single product. All negotiation and contact by purchasers will take place at a higher level in the organization.

It is possible that companies will have to have missionaries and/or service salesmen at one level for their customers and a negotiator salesman at a higher level. In other words, the negotiator will be dealing with the higher organizational level purchasing analyst who will be subjecting the purchasing decision to much more rigorous analysis. In the promotion areas there appear to be needs for different advertising levels, and promotion appeals not only on company services but also on rigorously analyzed economic offers.

Sales managers might also look for a marriage of company computer systems in the near future. Increased centralization on the part of the purchasing organization is going to point the way toward direct connection between the sales and purchasing computers. It was reported that many vendors had trouble adjusting to requests for additional information needed by the buyer's computer programs. A company will have to change its bid format and methodology to perhaps be compatible with their potential customer's computer system.

REFERENCE

Patrick J. Robinson, Charles W. Faris, and Yoram Wind, *Industrial Buying and Creative Marketing* (Boston: Allyn & Bacon, Inc., 1967).

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