How to Segment Industrial Markets

by Benson P. Shapiro and Thomas V. Bonoma

Harvard Business Review

Reprint 84312

HBR
MAY–JUNE 1984

How to Segment Industrial Markets

Benson P. Shapiro and Thomas V. Bonoma

As difficult as segmenting consumer markets is, it is much simpler and easier than segmenting industrial markets. Often the same industrial products have multiple applications; likewise, several different products can be used in the same application. Customers differ greatly, and it is hard to discern which differences are important and which are trivial for developing a marketing strategy.

Little research has been done on industrial market segmentation. None of the ten articles in the *Journal of Marketing Research's* special August 1978 section, "Market Segmentation Research," for instance, dealt with industrial market segmentation in more than a passing manner. Our research indicates that most industrial marketers use segmentation as a way to explain results rather than as a way to plan.

In fact, industrial segmentation can assist companies in several areas:

☐ ***Analysis of the market***—better understanding of the total marketplace, including how and why customers buy.

☐ ***Selection of key markets***—rational choice of market segments that best fit the company's capabilities.

☐ ***Management of marketing***—the development of strategies, plans, and programs to profitably meet the needs of different market segments and to give the company a distinct competitive advantage.

In this article, we integrate and build on previous schemes for segmenting industrial markets and offer a new approach that enables not only the simple grouping of customers and prospects, but also the more complex grouping of purchase situations, events, and personalities. It thus serves as an important new analytical tool.

Consider the dilemma of one skilled and able industrial marketer who observed recently: "I can't see any basis on which to segment my market. We have 15% of the market for our type of plastics fabrication equipment. There are 11 competitors who serve a

Industrial marketers can hardly be blamed for feeling that segmentation is very difficult for them. Not only has little been written on the subject as it affects industrial markets, but such analysis is also more complex than for consumer markets. The problem is to identify the best variables for segmenting industrial markets. The authors present here a "nested" approach to industrial market segmentation. Separated according to the amount of investigation required to identify and evaluate different criteria, the layers are arranged to begin with demographics as the area easiest to assess. Then come increasingly complex criteria, including company variables, situational factors, and personal characteristics. The authors warn, however, that a nested approach cannot be applied in cookbook fashion but rather must be adapted to individual situations and circumstances.

Mr. Shapiro and Mr. Bonoma teach marketing at the Harvard Business School. Each has written or coauthored several previous articles for HBR. This article is based on their book, published in 1983, Segmenting the Industrial Market *(Lexington Books).* *The research for this project was supported by the Marketing Science Institute and the Associates of the Harvard Business School.*

large and diverse set of customers, but there is no unifying theme to our customer set or to anyone else's."

His frustration is understandable, but he should not give up, for at least he knows that 15% of the market purchases one product, and that knowledge, in itself, is a basis for segmentation. Segments exist, even when the only apparent basis for differentiation is brand choice.

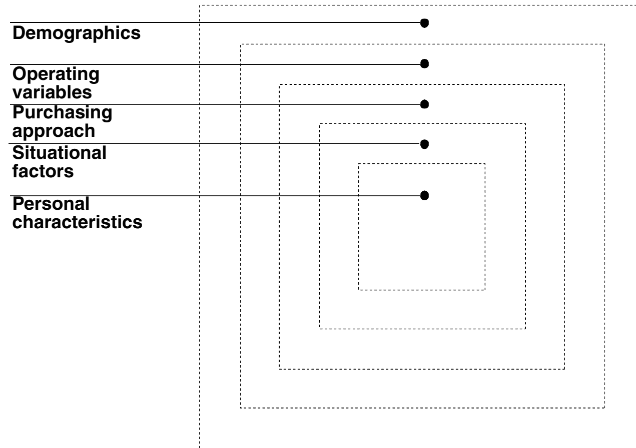
At other times, a marketer may be baffled by a profusion of segmentation criteria. Customer groups and even individual customers within these groups may differ in demographics (including industry and company size), operating differences (production technology is an example), purchasing organization, "culture," and personal characteristics. Usually, a marketer can group customers, prospects, and purchase situations in different ways depending on the variables used to segment the market. The problem is to identify relevant segmentation bases.

We have identified five general segmentation criteria (see *Exhibit 1*), which we have arranged as a *nested* hierarchy—like a set of boxes that fit one into the other. Moving from the outer nest toward the inner, these criteria are: demographics, operating variables, customer purchasing approaches, situational factors, and personal characteristics of the buyers.

Exhibit 1 shows how the criteria relate to one another as nests. The segmentation criteria of the largest, outermost nest are demographics—general, easily observable characteristics about industries and companies; those of the smallest, innermost nest are personal characteristics—specific, subtle, hard-to-assess traits. The marketer moves from the more general, easily observable segmentation characteristics to the more specific, subtle ones. This approach will become clearer as we explain each criterion.

We should note at this point that it may not be necessary or even desirable for every industrial marketer to use every stage of the nested approach for every product. Although it is possible to skip irrelevant criteria, it is important that the marketer completely understand the approach before deciding on omissions and shortcuts.

EXHIBIT 1
Nested Approach



DEMOGRAPHICS

The outermost nest contains the most general segmentation criteria, demographics. These variables give a broad description of the company and relate to general customer needs and usage patterns. They can be determined without visiting the customer and include industry, company size, and customer location.

The Industry. Knowledge of the industry affords a broad understanding of customer needs and perceptions of purchase situations. Some companies, such as those selling paper, office equipment, business-oriented computers, and financial services, market to a wide range of industries. For these, industry is an important basis for market segmentation. Hospitals, for example, share some computer needs and yet differ markedly as a customer group from retail stores.

Marketers may wish to subdivide individual industries. For example, although financial services are in a sense a single industry, commercial banks, insurance companies, stockbrokerage houses, and savings and loan associations all differ dramatically. Their differences in terms of product and service needs, such as specialized peripherals and terminals, data handling, and software requirements, make a more detailed segmentation scheme necessary to sell computers to the financial services market.

Company Size. The fact that large companies justify and require specialized programs affects market segmentation. It may be, for example, that a smaller supplier of industrial chemicals, after segmenting its prospective customers on the basis of company size, will choose not to approach large companies whose volume requirements exceed its own production capacity.

Customer Location. The third demographic factor, location, is an important variable in decisions related to deployment and organization of sales staff. A manufacturer of heavy-duty pumps for the petrochemical industry, for example, would want to provide good coverage in the Gulf Coast, where customers are concentrated, while putting little effort into New England. Customer location is especially important when proximity is a requirement for doing business, as in marketing products of low value-per-unit-weight or volume (such as corrugated boxes or prestressed concrete), or in situations where personal service is essential (as in job shop printing).

As noted, a marketer can determine all of these demographic variables easily. Industry-oriented and general directories are useful in developing lists of customers in terms of industry, size, and location. Government statistics, reports by market research companies, and industry and trade association publications provide a great deal of demographic data.

Many companies base their industrial marketing segmentation approach on demographic data alone. But while demographics are useful and easily obtained, they do not exhaust the possibilities of segmentation. They are often only a beginning.

OPERATING VARIABLES

The second segmentation nest contains a variety of segmentation criteria called "operating variables." Most of these enable more precise identification of existing and potential customers within demographic categories. Operating variables are generally stable and include technology, user/nonuser status (by product and brand), and customer capabilities (operating, technical, and financial).

Company Technology. A company's technology, involving either its manufacturing process or its product, goes a long way toward determining its buying needs. Soda ash, for example, can be produced by two methods that require different capital equipment and supplies. The production of Japanese color televisions is highly automated and uses a few large, integrated circuits. In the United States, on the other hand, color TV production once involved many discrete components, manual assembly, and fine tuning. In Europe, production techniques made use of a hybrid of integrated circuits and discrete components. The technology used affects companies' requirements for test gear, tooling, and components and, thus, helps determine a marketer's most appropriate marketing approach.

Product and Brand-Use Status. One of the easiest ways, and in some situations the only obvious way, to segment a market is by product and brand use. Users of a particular product or brand generally have some characteristics in common; at the very least, they have a common experience with a product or brand.

Manufacturers who replace metal gears with nylon gears in capital equipment probably share perceptions of risk, manufacturing process or cost structure, or marketing strategy. They probably have experienced similar sales presentations. Having used nylon gears, they share common experiences including, perhaps, similar changes in manufacturing approaches.

One supplier of nylon gears might argue that companies that have already committed themselves to replace metal gears with nylon gears are better customer prospects than those that have not yet done so, since it is usually easier to generate demand for a new brand than for a new product. But another supplier might reason that manufacturers that have not yet shifted to nylon are better prospects because they have not experienced its benefits and have not developed a working relationship with a supplier. A third marketer might choose to approach both users and nonusers with different strategies.

Current customers are a different segment from prospective customers using a similar product purchased elsewhere. Current customers are familiar with a company's product and service, and company managers know some-thing about customer needs and purchasing approaches. Some companies' marketing approaches focus on increasing sales volume from existing custom-ers, either by customer growth or by gaining a larger share of the customer's business, rather than on additional sales volume from new customers. In these cases, industrial sales managers often follow a two-step process: first they seek to gain an initial order on trial, and then they seek to increase the share of the customer's purchases. Banks are often more committed to raising the share of major customers' business than to generating new accounts.

Sometimes it is useful to segment customers not only on the basis of whether they buy from the company or from its competitors, but also, in the latter case, on the identity of competitors. This information can be useful in several ways. Sellers may find it easier to lure customers from competitors that are weak in certain respects. When Bethlehem Steel opened its state-of-the-art Burns Harbor plant in the Chicago area, for example, it went after the customers of one local competitor known to offer poor quality.

Customer Capabilities. Marketers might find companies with known operating, technical, or financial strengths and weaknesses to be an attractive market. For example, a company operating with tight materials inventories would greatly appreciate a supplier with a reliable delivery record. And customers unable to perform quality-control tests on incoming materials might be willing to pay for supplier quality checks. Some raw materials suppliers might choose to develop a thriving business among less sophisticated companies, for which lower-than-usual average discounts well compensate added services.

Technically weak customers in the chemical industry have traditionally depended on suppliers for formulation assistance and technical support. Some suppliers have been astute in identifying customers needing such support and in providing it in a highly effective manner.

Technical strength can also differentiate customers. Digital Equipment Corporation for many years specialized in selling its minicomputers to customers able to develop their own software, and Prime Computer sold computer systems to business users who did not need the intensive support and "hand holding" offered by IBM and other manufacturers. Both companies used segmentation for market selection.

Many operating variables are easily researched. In a quick drive around a soda ash plant, for example, a vendor might be able to identify the type of technology being used. Data on financial strength is at least partially available from credit-rating services. Customer personnel may provide other data, such as the name of current suppliers; "reverse engineering" (tearing down or disassembly) of a product may yield information on the type and even the producers of components, as may merely noting the names on delivery trucks entering the prospect's premises.

PURCHASING APPROACHES

One of the most neglected but valuable methods of segmenting an industrial market involves consumers' purchasing approaches and company philosophy. The factors in this middle segmentation nest include the formal organization of the purchasing function, the power structures, the nature of buyer-seller relationships, the general purchasing policies, and the purchasing criteria.

Purchasing Function Organization. The organization of the purchasing function to some extent determines the size and operation of a company's purchasing unit. A centralized approach may merge individual purchasing units into a single group, and vendors with decentralized manufacturing operations may find it difficult to meet centralized buying patterns.[1] To meet these different needs, some suppliers handle sales to centralized purchasers through so-called national account programs and those to companies with a decentralized approach through field-oriented sales forces.

Power Structures. These also vary widely among customers. The impact of influential organizational units varies and often affects purchasing approaches. The powerful financial analysis units at General Motors and Ford may, for example, have made these companies unusually price-oriented in their purchasing decisions. Or a company may have a powerful engineering department that strongly influences purchases; a supplier with strong technical skills would suit such a customer. A vendor might find it useful to adapt its marketing program to customer strengths, using one approach for customers with strong engineering operations and another for customers lacking these.

Buyer-Seller Relationships. A supplier probably has stronger ties with some customers than with others. The link may be clearly stated. A lawyer, commercial banker, or investment banker, for example, might define as an unattractive market segment all companies having as a board member the representative of a competitor.

General Purchasing Policies. A financially strong company that offers a lease program might want to identify prospective customers who prefer to lease capital equipment or who have meticulous asset management. When AT&T could lease but not sell equipment, this was an important segmentation criterion for it. Customers may prefer to do business with long-established companies or with small independent companies, or may have particularly potent affirmative action purchasing programs (minority-owned businesses were attracted by Polaroid's widely publicized social conscience program, for example). Or they may prefer to buy systems rather than individual components.

A prospective customer's approach to the purchasing process is important. Some purchasers require an agreement based on supplier cost, particularly the auto companies, the U.S. government, and the three large general merchandise chains—Sears, Roebuck; Montgomery Ward; and J. C. Penney. Other purchasers negotiate from a market-based price, and some use bids. Bidding is an important method for obtaining government and quasi-government business, but because it emphasizes price, bidding tends to favor suppliers that, perhaps because of a cost advantage, prefer to compete on price. Some vendors might view purchasers who choose suppliers via bidding as desirable, while others might avoid them.

Purchasing Criteria. The power structure, the nature of buyer-seller relationships, and general purchasing policies all affect purchasing criteria. Benefit segmentation in the consumer goods market is the process of segmenting a market in terms of the reasons why customers buy. It is, in fact, the most insightful form of consumer goods segmentation because it deals directly with customer needs. In the industrial market, consideration of the criteria used to make purchases and the application for these purchases, which we consider later, approximate the benefit segmentation approach.

SITUATIONAL FACTORS

Up to this point we have focused on the grouping of customer companies. Now we consider the role of the purchase situation, even single-line entries on the order form.

Situational factors resemble operating variables but are temporary and require a more detailed knowledge of the customer. They include the urgency of order fulfillment, product application, and the size of order.

Urgency of Order Fulfillment. It is worthwhile to differentiate between products to be used in routine replacement or for building a new plant and those for emergency replacement of existing parts. Some companies have found a degree of urgency useful for market selection and for developing a focused marketing-manufacturing approach leading to a "hot-order shop"—a factory that can supply small, urgent orders quickly.

A supplier of large-size, heavy-duty stainless steel pipe fittings, for example, defined its primary market as fast-order replacements. A chemical plant or paper mill needing to replace a fitting quickly is often willing to pay a premium price for a vendor's application engineering, for flexible manufacturing capacity, and for installation skills that would be unnecessary with routine replacement parts.

Product Application. The requirements for a 5-horsepower motor used in intermittent service in a refinery will differ from those of a 5-horsepower motor in continuous use. Requirements for an intermittent-service motor will vary depending on whether its reliability is critical to the operation or safety of the refinery. Product application can have a major impact on the purchase process and purchase criteria and thus on the choice of vendor.

Size of Order. Market selection can begin with the individual line entries on the order form. A company with highly automated equipment might segment the market so that it can concentrate only on items with large unit volumes. A nonautomated company, on the other hand, might want only small-quantity, short-run items. Ideal for these vendors would be an order that is split up into long-run and short-run items. In many industries, such as paper and pipe fittings, distributors break up orders in this way.

Marketers can differentiate individual orders in terms of product uses as well as users. The distinction is important; users may seek different suppliers for the same product under different circumstances. The pipe-fittings manufacturer that focused on urgent orders is a good example of a marketing approach based on these differences.

Situational factors can greatly affect purchasing approaches. General Motors, for example, makes a distinction between product purchases—that is, raw materials or components for a product being produced—and nonproduct purchases. Urgency of order fulfillment is so powerful that it can change both the purchase process and the criteria used. An urgent replacement is generally purchased on the basis of availability, not price.

The interaction between situational factors and purchasing approaches is an example of the permeability of segmentation nests. Factors in one nest affect those in other nests. Industry criteria, for instance, an outer-nest demographic description, influence but do not determine application, a middle-nest situational criterion. The nests are a useful mental construct but not a clean framework of independent units because in the complex reality of industrial markets, criteria are interrelated.

The nesting approach cannot be applied in a cookbook fashion but requires, instead, careful, intelligent judgment.

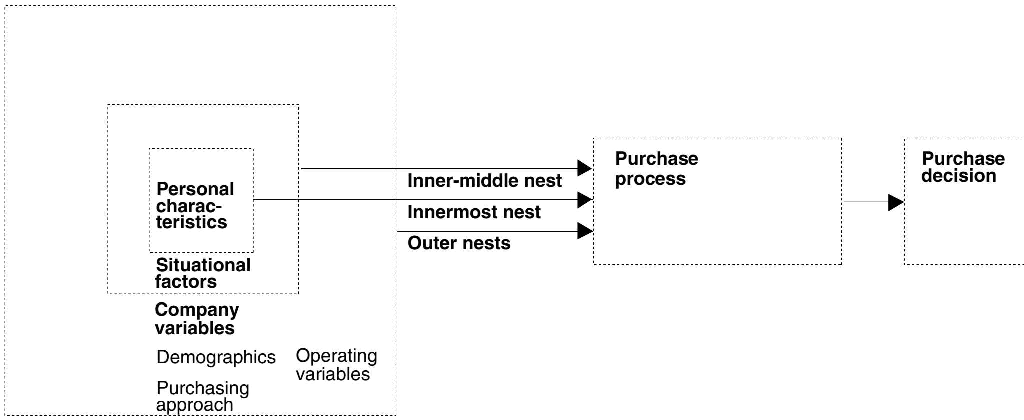
BUYERS' PERSONAL CHARACTERISTICS

People, not companies, make purchase decisions, although the organizational framework in which they work and company policies and needs may constrain their choices. Marketers for industrial goods, like those for consumer products, can segment markets according to the individuals involved in a purchase in terms of buyer-seller similarity, buyer motivation, individual perceptions, and risk-management strategies.

Some buyers are risk averse, others risk receptive. The level of risk a buyer is willing to assume is related to other personality variables such as personal style, intolerance for ambiguity, and self-confidence. The amount of attention a purchasing agent will pay to cost factors depends not only on the degree of uncertainty about the consequences of the decision but also on whether credit or blame for these will accrue to him or her. Buyers who are risk averse are not good prospects for new products and concepts. Risk-averse buyers also tend to avoid untested vendors. Some buyers are meticulous in their approach to buying—they shop around, look at a number of vendors, and then split their order to assure delivery. Others rely on old friends and past relationships and seldom make vendor comparisons.[2] Companies can segment a market in terms of these preferences.

Data on personal characteristics are expensive and difficult to gather. It is often worthwhile to develop good, formal sales information systems to ensure that salespeople transmit the data they gather to the marketing department for use in developing segmented marketing strategies. One chemical company attributes part of its sales success to its sales information system's routine collection of data on buyers. Such data-gathering efforts are most justified in the case of customers with large sales potential.

EXHIBIT 2
Classification of Nests



REASSEMBLING THE NEST

Marketers are interested in purchase decisions that depend on company variables, situational factors, and the personal characteristics of the buyers. The three outer nests, as *Exhibit 2* shows, cover company variables; the fourth inner-middle nest, situational factors; and the innermost nest, personal characteristics.

Moving from the outer to the inner nests, the segmentation criteria change in terms of visibility, permanence, and intimacy. The data in the outer nests are generally highly visible (even to outsiders), are more or less permanent, and require little intimate knowledge of customers. But situational factors and personal characteristics are less visible, are more transient, and require extensive vendor research.

An industrial marketing executive can choose from a wide range of segmentation approaches other than the nested approach. In fact, the myriad of possibilities often has one of the four following outcomes:

☐ ***No segmentation.*** "The problem is too large to approach."

☐ ***After-the-fact segmentation.*** "Our market research shows that we have captured a high share of the distribution segment and low shares of the others; thus we must be doing something right for customers in high-share segments."

☐ ***Superficial segmentation.*** "While we know all banks are different, it's easier to organize marketing plans around banks because we can identify them and tell the salespeople whom to call on." This dangerous outcome gives a false sense of security.

☐ ***Obtuse, convoluted, and disorganized segmentation.*** "We have a 300-page report on market segmentation and customer buying patterns, but there is just too much information in there. So we have decided to focus on insurance companies and hospitals to avoid another two-day market planning meeting."

The hierarchical structure approach is easy to use. Marketers can, in most cases, work systematically from the outer nests to the inner nests. They can run through the whole set of criteria and identify important factors that otherwise might be neglected. And they can balance between reliance on the easily acquired data of the outer nests and the detailed analyses of the inner nests.

We suggest that a marketer begin at the outside nest and work inward because data are more available and definitions clearer in the outer nests. On the other hand, the situational and personal variables of the inner nests are often the most useful. In our experience, managers most frequently neglect situational criteria. In situations where knowledge and analysis exist, a marketer might decide to begin at a middle nest and work inward or, less probably, outward.

After several attempts at working completely through the process, companies will discover which segmentation criteria are likely to yield greater benefits than others and which cannot be considered carefully without better data. A warning is necessary, however. A company should not decide that an approach is *not* useful because data are lacking. The segmentation process requires that assessments of analytic promise and data availability be made independently. The two steps should not be confused. When the necessary data are gathered, managers can weigh segmentation approaches.

A fine line exists between minimizing the cost and difficulty of segmentation by staying in the outer nests on the one hand and gaining the useful data of the inner nests at appreciable direct and indirect cost on the other. The outer-nest criteria are generally inadequate when used by themselves in all but the most simple or homogeneous markets because they ignore buying differences among customers. Overemphasis on the inner-nest factors, however, can be too expensive and time-consuming for small markets. We suggest achieving a sense of balance between the simplicity and low cost of the outer nests and the richness and expense of the inner ones by making the choices explicit and the process clear and disciplined.

1. *See* E. Raymond Corey, "Should Companies Centralize Procurement?" *Harvard Business Review* (November–December 1978): 102.

2. For further discussion, *see* Thomas V. Bonoma, "Major Sales: Who *Really* Does the Buying?" *Harvard Business Review* (May–June 1982): 111, and Benson P. Shapiro and Ronald Posner, "Making the Major Sale," *Harvard Business Review* (March–April 1976): 68.