

Selected Paper
Number 69

The Marketing Information Revolution

The 1989 Towers/Cresap Lecture

Robert C. Blattberg

The University
of Chicago

Graduate School
of Business

Robert C. Blattberg is the Charles H. Kellstadt Professor of Marketing in the Graduate School of Business at the University of Chicago. He has been a faculty member since 1969. Professor Blattberg received a B.A. degree in mathematics from Northwestern University and MS. and Ph.D. degrees in industrial administration from Carnegie-Mellon University.

Professor Blattberg's primary research is in the area of database marketing. He develops statistical models for new product forecasting, direct marketing, and promotional and price elasticity estimation and has published articles in the *Journal of Marketing Research*, *Management Science*, *Econometrica*, *Journal of Marketing*, and other academic journals. A recent monograph analyzes the uses of scanner information in the food retailing industry, and a book, *Sales Promotions*, was released in January 1990. Professor Blattberg serves as director for the Center for Marketing Information Technology, which focuses on improving marketing productivity and effectiveness by studying how information should be used. He has served as a consultant on database marketing and the development of decision support models to many private firms. He also serves as a director of First Tennessee Bank Corporation (Memphis).

Presented as a lecture on October 10, 1989, at the Monroe Club in Chicago, this Selected Paper is the fourth in a series of lectures sponsored jointly by Cresap, McCormick and Paget and Towers, Perrin, Forster & Crosby.

The Marketing Information Revolution

A Glimpse into the Future

You regularly shop at Bob's Food Emporium, where you use your "frequent buyer card" as you check out. The cashier takes an optical scanning wand and reads the bar code on your card, and your account is automatically credited with the dollar amount of today's purchases. The total dollars you spend over the year entitles you to savings of up to 1 percent. At the end of the year, you receive a certificate for free products at Bob's based on your cumulative spending. Last year this certificate was worth \$50 or half of your average weekly expenditures on groceries. You are also eligible for special coupons from manufacturers who participate in Bob's frequent buyer program.

The card appears innocuous. The frequent-user program is like S&H green stamps, except that participants do not need to bother gluing stamps into books, making the process easier for the customer. Yet this card has the potential to change how consumer products are marketed. The information collected about the customer provides both the retailer and manufacturers with the opportunity to develop highly sophisticated marketing programs.

Let us examine how this frequent-user card will work. The retailer captures and maintains all purchases for the cardholder, making it possible to track and analyze the product categories and brands the customer purchases. A clever retailer

will also collect information from the customer on household characteristics such as address, income, education, family structure, competitive shopping behavior, frequency of shopping, and other pertinent information. This information will enable the retailer and manufacturers to develop highly specialized, one-on-one marketing programs.

Bob's Emporium can develop promotions tailored to individual customers based on their shopping behavior. A family with two teenage boys probably consumes large amounts of milk, bread, soft drinks, luncheon meats, and snack foods. A couple in their seventies may purchase more analgesics, denture products, and prunes. Should the retailer promote the same products to these two highly distinct customers? No. Through specialized direct-mail programs and knowledge of purchasing behavior, a retailer can target promotional mailings for products and brands that each customer regularly purchases.

Is simply maintaining information about demographics all that is required? Again the answer is no. Consider two couples in their forties who are college educated, have household incomes of \$70,000 and have no children. One couple travels extensively and uses convenience products such as microwave gourmet dinners. The other eats at home regularly, buying expensive products such as steaks, fancy desserts, and special breads. The couples have the same demographics but very different purchasing behaviors. The use of specific customer purchasing information is critical in designing promotional strategies for these two couples.

The above examples describe how retailers can use purchase information, but manufacturers can also use these data to design special promo-

tions. Suppose Coca-Cola obtained information about each household's soft drink purchases and identified loyal Coke drinkers. To maintain loyalty to their products, they could offer these households coupons for free Coca-Cola products based on annual Coke purchases. They could also identify loyal Pepsi households and offer them a special incentive such as a free two-week supply of Coke to entice them to switch brands. The result is highly targeted promotions offered by manufacturers to reward brand loyalty or encourage brand switching. Today, firms offer generic promotions and hope through self-selection that the appropriate customers will respond, a method far less cost effective than targeted promotions.

Using Bob's customer database it is possible to calculate the value of a customer, which dictates how much the firm should invest in acquiring a new customer. Suppose a customer makes fifty purchases of \$10 each over a year. The incremental gross margin is 50 percent. The customer is worth approximately \$250 per year to the firm. If this is discounted at a high rate, 20 percent, to represent the time value of money and the risk of losing the customer, then the lifetime value of the customer to the firm is \$1,250. The firm can use the lifetime value to determine how much to invest in acquiring this type of customer. Clearly, it would be willing to make a significant investment. Today, few firms know the value of a new customer. However, with detailed purchase and promotional histories, accurate marginal costs, and net present value models, it is possible to make these calculations. This information can then be used to determine the level of marketing investment to make in acquiring new customers

In summary the database available from Bob's frequent buyer card will have the following effect on marketing:

- Promotions will be tailored to individual customer shopping behavior.
- Direct-marketing advertising will be used to target specific customer profiles based on behavioral data.
- Retailer allegiance and brand loyalty will be rewarded through frequent buyer programs.
- The value of acquiring a new customer can be measured.

Detailed purchase, promotional, and demographic information and the effective use of one-on-one marketing tactics make this scenario possible.

The Emergence of Customer Information Firms

Bob's Emporium represents a new institution—a customer information firm, which combines individual purchase histories with profiles of attitudes, demographics, life-styles, and competitive usage to market its products and services. The critical differentiating feature of such firms is that their marketing activities are driven by detailed customer information, not by the type of products or services they market. Customer information firms transcend common distinctions of industrial, consumer, or service marketers. They rely on information to define their markets.

Four examples illustrate how these companies market. These firms are American Express, Citicorp, Spiegel, and Philip Morris. American

Express is a classic example of a customer information firm because of its strong direct-marketing expertise. Through its credit card division, it collects information on customer purchasing behavior. By classifying the types of credit card transactions processed for each customer, American Express is able to profile its cardholders. A customer who purchases a large number of airline tickets is a heavy traveler. Other travel-related companies can then send direct-response advertising to this customer. American Express also contracts with syndicators who “private label” products and services. Because of this detailed information, it has become one of the top ten catalog companies in the United States and has purchased several publishing companies that use direct-marketing as a channel of distribution. Thus, American Express utilizes the information available from its financial services credit card division to generate additional profits by selling products to its customer base.

Another example is Citicorp Information Services, which provides frequent buyer programs to food retailers. Like Bob’s Food Emporium, Ucrops of Richmond, Virginia, in cooperation with Citicorp, began an experiment several years ago in which retailers offered customers frequent buyer cards that resulted in gifts and discounts. Citicorp provided Ucrops with data-processing and marketing expertise to implement the program. Ucrops reports that sales increased 15 percent because of the marketing programs that utilized the database. The significance of the experiment is not Ucrops’s immediate sales increase but the way in which it will change retailing. Retailers will become customer information firms as a by-product of their normal business activities.

Syndicators will develop merchandise to be sold based on purchase patterns, thus allowing retailers to make profits by selling additional products to their existing customers. Citicorp also wants to buy information from retailers and then sell it to manufacturers who in turn will use it to target customers, based on their buying behavior.

Spiegel is a traditional direct marketer. However, it recognized, as have many other catalog companies, that information “drives” its business. It bases promotional decisions on information generated from its customer files or from outside list vendors. The information is assembled in a traditional customer information file. Spiegel then decides which catalogs to send a specific customer based on past purchase behavior. A woman who purchases shoes from Spiegel will be sent an accessories catalog. A customer who purchases sheets will be sent a housewares catalog.

This is not all that Spiegel can do with its customer information. Recently retired CEO Henry A. Johnson believed that Spiegel was not only a catalog marketer but also a life-style marketer. Its customer is an upscale working woman aged twenty-five to forty. This market segment has other needs that Spiegel can meet, such as those for insurance products or travel-related services. From its detailed customer information, Spiegel can determine the profile of customers who respond to different types of services. Does the Spiegel fashion-conscious customer also respond to solicitations for luxury vacations? Information allows Spiegel to expand its product offerings and lower its marketing costs.

Philip Morris and R. J. Reynolds are developing the capability to become customer information firms by creating detailed databases of cigarette smokers. These databases will contain information about brands and amounts purchased, when smokers began smoking, and extensive attitudinal and demographic information. Once collected, this information can be used to target brand-loyal smokers as well as purchasers of competitive brands. These databases give both Philip Morris and Reynolds an advantage over competitors such as Brown and Williamson and Liggett. Both firms can expand their databases to include customers of Kraft and General Foods (Philip Morris) and Nabisco and Standard Brands (Reynolds). These firms could have detailed customer purchase histories on a wide spectrum of consumer non-durable goods. As long as the economic value of the product is large enough, special direct-marketing programs can be developed.

Nothing has been said about industrial marketers since the examples have focused on consumer products. The opportunity also exists for industrial marketing firms to apply the same principles, and some already have. When an industrial firm's sales force sells directly to the user, the transition to a customer information firm is far easier because the number of customers is much smaller. It can use its direct sales force to develop detailed customer profiles that include information about the decision maker, the purchaser, the user, and the influencer. This file can also contain information about normal product usage, competitors that sell to the account, and the sales potential of the account. More sophisticated customer information files may contain an organizational flow

chart of the firm, noting who is responsible for each type of decision. Personal information about influential individuals may also be maintained. While this may sound like the year 2001, the technology already exists to maintain such information. Most firms' sales forces, however, do not want to communicate this information back to headquarters; ironically, it would be of great value to them if it were available on a systematic basis. It could improve the effectiveness of marketing activities and identify other types of products and services that the firm could sell.

In summary, there are a growing number of firms that can be classified as customer information firms. These firms have developed extensive customer databases to market their existing products more efficiently and to identify potential customers for other products and services. These firms will emerge as leading competitors in their industries because they are able to maximize sales to their customer base. They gain additional revenue by knowing more about their customers than competitors do so that they can efficiently sell what customers need.

How Will Customer Information Change Marketing?

This section identifies the changes customer information will make through installed base marketing, product development, advertising, and pricing and promotions.

Installed Base Marketing

By analyzing direct-marketing companies' promotional expenditures, the economic conse-

quences of the trade-off between acquiring new customers and selling to existing customers becomes apparent. In general, existing customers are far more profitable than new customers because they have already “agreed” to purchase from the firm. The barriers of resistance to becoming a customer have been overcome. While acquiring new customers is important, it is essential to focus a significant part of the firm’s marketing effort on its current customer base. This is called installed base marketing. In marketing to its installed customer base, the firm needs to identify products and services that will (1) appeal to customer needs and (2) be consistent with the image of the firm. Companies such as Sears have utilized their customer affinity to market other types of products to their customer base. Sears sells Allstate insurance, launched the Discover card, and acquired Coldwell Banker and Dean Witter.

This raises the interesting issue of affinity to the organization. For example, the American Association of Retired People (AARP) and the United States Automobile Association (USAA, an insurance company catering to retired military officers) have strong customer affinity created by an “allegiance” among group members. Retired people feel they are discriminated against and need a lobby in Washington. AARP offers them a solution. Because they feel an affinity, AARP can market products to this group and thus serves a “retailing” function. Since they understand their members’ needs, AARP can offer better products and services to their affinity group.

What does this imply for other firms? To exploit its customer database, a firm must create an affinity with its customers. Thus, a company

like Spiegel needs to focus on an image that emphasizes its unique servicing ability to busy, hard-working women of the relevant age and income range. It can then promote other products or services that meet this segment's needs.

Information makes it possible for a firm to become an installed base marketer. This requires a detailed customer database and a focus on creating an affinity with the customer base. If successful, firms lower their marketing costs because they sell existing customers new products or services. Without information, it is difficult to target the firm's existing customers and to determine the effectiveness of different marketing programs.

Product Development

Marketing to an installed customer base raises issues about how firms should develop and introduce new products or services. Firms normally develop new products that provide a fit between their existing production technology and specific customer needs. Which customer needs are met is constrained by the firm's current technology. Research and development is based on utilizing the firm's current level of product and technical knowledge. Meeting customer needs is, therefore, tempered by the business and markets the firm serves. Can a broader perspective be applied to product development? More specifically, instead of constraining the firm on the basis of its current production and technical expertise, could the firm focus on the affinity group it is serving? Can USAA provide other services that its affinity group, retired military officers, wants? Yes, but the firm must not look at its technical expertise to determine what to provide;

it must focus on customer affinity and provide products and services consistent with it.

This strategy of product development requires a radically different expertise. The firm must be expert in providing the services and products its affinity group desires. For example, suppose Toys “R” Us, a successful retailer of children’s toys, asked what its affinity group is. Through research, it finds its affinity image is providing leisure-time and educational activities for children ages one to ten. Could Toys “R” Us begin to provide summer camps and other types of leisure-time activities? Yes, they could be highly effective at selling these services because parents feel they are experts in providing children with leisure-time activities. Could they provide computer classes for children? Yes, if the classes were consistent with leisure-time activities. The alternative approach would be for Toys “R” Us to view its expertise as retailing (a production-driven orientation) and then enter other forms of retailing. Unfortunately, this traditional approach does not maximize the consumer franchise because the firm has not determined how to market additional products and services to its existing customer base.

Toys “R” Us might reject the concept of offering camps, computer classes, and other activities to its market segment because it does not have the internal operational expertise. This may be a legitimate concern, but then all expansion will then be driven by its production expertise rather than the needs of its customer base. If a firm wants to market to its installed base, it must learn how to develop production, operational, and technical expertise that transcends markets. This is not an easy task, but it is how Sears entered the insurance business. Today,

Allstate is more profitable than the retail stores of Sears Merchandise Group.

Advertising

It is easy to see how advertising benefits from customer information: media become more targeted when users of the product or service can be identified. If Merrill Lynch's advertising agency had a list of all households with a net worth over \$2 million, it could design one-on-one marketing programs to contact these households directly. Now Merrill Lynch must rely on the untargeted mass medium of television, in which a small percentage of the viewers have any interest in its products. Detailed customer and prospect databases can make advertising far more cost effective.

Having customer files and the ability to sell additional products (add-ons) means that the firm can separate advertising into two types, depending upon whether the household or business is a current customer or a prospect. Lead products can be advertised to prospects, whereas add-on products can be advertised to the current customer base. For example, Time-Life uses mass advertising to generate initial subscribers (or prospects) and direct marketing for renewals and other add-on products (such as Time-Life books). Mass advertising is used for the lead product, but the more efficient tools of direct marketing are used once someone is a customer. The implication is that mass media will have a very specialized purpose-reaching prospects cost-effectively. Targeted tools will substitute once a prospect becomes a customer.

Pricing and Promotions

Theorists discuss the use of price discrimination to maximize a firm's profits. The difficulty in implementing this concept lies in obtaining relevant data. With the availability of individual purchase histories, one can price by individual. For example, suppose a bank has individual customer purchase histories (called a customer information file), which would allow it to set different prices for each customer. Consider checking accounts. Customer 1 has bought only one product from the bank, a checking account with a small balance. Customer 2 has a similar checking account, a loan, and a certificate of deposit. Customer 2's business is very profitable to the bank. Although both customers have the same checking balances, the bank may be willing to give customer 2 a free account because of the total profitability of the relationship. The bank would not want to lose customer 2 to another bank because its checking account fees are too high.

A customer purchase database is essential to the development of relationship pricing. Quantity discounts can then be offered based on the profitability of the total customer relationship.

Another advantage of customer purchase histories is to analyze how acquisition pricing affects total profitability. Time-Life offers prospects significant price discounts (in the form of premiums) to become subscribers. They may break even or lose money on the initial subscription to a magazine. However, by tracking renewal rates and additional purchases, Time-Life can determine the profitability of the acquisition offer. Clearly the larger the initial promotion, the higher the subscription rate. The key is the

customer segments. Production will be forced to become market oriented, not focused on mass production efficiency. In the 1970s firms focused on manufacturing costs. They wanted to determine how to produce fewer models and thus gain economies of scale. But customers wanted products that match their individual tastes. Therefore, the firm's strategy must combine user needs and production efficiencies.

In a recent article, Ron McTavish states, "At the core of the changes in the factory is the new generation of flexible manufacturing systems which lie between two extremes: assembly line production and the hand craftsman. The most significant change for marketing is the ability of these systems to make products in batches at a cost per unit, regardless of batch size, equal to or even less than that associated with mass production. The marriage of low-cost, mass production methods with all the variety of customized engineering is increasingly in grasp."* The author then offers an example. A manufacturer of saws has developed a computer-driven, laser-cutting system capable of producing specialized blades to suit the needs of individual customers. The sales representative takes a terminal to the customer's office, discusses specific needs, and then punches a button to activate the laser to cut the specialized blades desired at the saw firm's plant. Thus flexible production, in combination with customer information, allows the firm to tailor products to the specific needs of its customer.

A firm should be willing to produce products that fit the specific needs of customers and are

*Ron McTavish, "Factory of Future' May Be New Era for Marketing," *Marketing News* (October 9, 1989): 10.

consistent with the consumers' image of the firm. This means that when that firm can sell a product it does not currently manufacture but that is consistent with its image, it acquires the product or service and "brands" it. Production therefore needs to add another function—acquisition of products and services. This requires the ability to manage quality control with outside suppliers whose products will be branded and sold.

Accounting

Financial statements value a firm based on tangible assets, though goodwill may be included in the balance sheet. Unfortunately, plant and equipment are viewed as assets but customers are not. Direct-marketing firms are able to compute the lifetime value of a customer, yet it does not appear on their financial statements. In purchasing a firm or in estimating whether a firm's value is increasing or decreasing, it is essential to understand what is happening to the size and value of the customer base. Sales statistics do not value the customer base properly. Sales is a measure of customer response over a fixed interval. The lifetime value of a customer is a measure similar to an asset, not to a short-run performance measure. By developing measurements of the lifetime value of a firm's customer base, marketing expenses can be evaluated on how efficiently they produce assets. Changes in a firm's lifetime value can be compared to marketing expenses to measure their long-term impact.

How can the lifetime value be computed? The answer is through the development of historical customer-retention statistics, marginal costs of the products sold, promotional expenditures, and

pricing to the customer. For example, suppose a customer's purchases from an office catalog total \$300 per month. The customer has been estimated (through statistical models) to have a purchasing lifetime of two years. Through computing marginal costs and promotional costs, the marginal profit per month from this customer is calculated at \$60, or \$720 per year. At the end of the first year, the firm still has an asset worth \$720. Nowhere in the firm's financial statement does this appear, though it appears indirectly in financial analysts' reports through cash flow and future profit projections. If the firm stops promoting prospects in the second year, sales and profits look very good. However, the value of the firm drops because the value of its customer base has declined. Thus, firms that attempt to reduce investment in the maintenance of their customer base will have a lower asset value at the end of the year.

A new type of accounting report could be created that computes the value of the firm's customer franchise, and accountants who understand how to develop statistical models of purchase behavior could audit the value of this asset. With such a tool, the firm could report its customer value to the capital markets, who would react just as they do to an earnings statement and balance sheet.

Management Information Systems

Clearly the area of the firm, other than marketing, that will undergo the most radical change is data processing or, in its more sophisticated form, management information systems (MIS). MIS will be critical to the use of marketing information, even though it currently is more

proficient at managing transactional systems such as order entry or general ledger systems than managing databases. The problem is that knowledge of the types of computers and software required to become a database specialist is beyond the current expertise of MIS.

What type of expertise does the MIS department require? First, MIS must learn how to develop the tools and skills related to managing relational databases. Instead of teams of COBOL programmers working with large data sets, new specialists who are knowledgeable in database management are needed. Second, marketing executives must learn to work with MIS in the management and access of customer databases. Most marketing executives do not understand the application of database capabilities to marketing issues and therefore are very poor in communicating their needs to MIS. This poses problems to the MIS department because they cannot translate user requirements into the design of marketing databases.

A new breed of MIS specialist will need to emerge who understands marketing applications and database management and who functions as chief liaison between management information services and the marketing department.

In summary, just as the marketing department will need to change, so will the firm. Production will focus on flexible systems that provide specialized products to different customers. Accounting will need reports that inform the firm about the changing value of its customer base. MIS will develop database specialists who work closely with marketing to design comprehensive customer databases and to facilitate access to these databases.

Societal Issues

The key factor that empowers the marketing information revolution is the availability of data. The issue that most concerns consumers and managers is the privacy of the individual. A firm will know a customer's income, marital status, net worth, credit rating, products purchased, vacations taken, and services used. When the firm sends solicitations based on this information, customers become incensed. Consumer groups have begun to lobby Congress and state legislatures to enact laws against the use of such information. Clearly, users of information should be sensitive to these issues but often are not when trying to gain a competitive edge. Abuses will occur.

What is the cost of limiting access to detailed customer information? Efficiency. With the capability to target specific customer needs, a firm can reduce marketing costs and sell customers products they want. Product design and marketing become more efficient. If the government says that no firm can solicit customers based on detailed demographics, then reaching the appropriate market becomes more difficult. Most mass marketing exists only because the firm cannot cost-effectively identify and target specific segments. With detailed customer information, it becomes far more effective to use one-on-one marketing tools. Tailored promotions offer a customer greater value at a lower cost from the firm. The implicit result is a lower price for the good or service.

There is a trade-off between efficiency and privacy that governmental agencies and consumers must understand. The government has allowed firms to compile and access personal data. There is the risk, though, that regulation

will emerge to limit the use of financial and personal demographic data. This will result in higher costs to consumers, who must decide whether greater privacy is worth the price.

Concluding Comments

In their 1986 annual report, Foote, Cone, and Belding stated that information was going to replace capital as the most important asset of the firm. has used “Information Power” as a theme for one of its issues. The **Harvard Business Review** has published an article titled “Information as a Competitive Advantage.”

Marketing is beginning to capitalize on the use of information. A new type of marketing is emerging, database marketing, whose purpose is to utilize information to improve the efficiency and effectiveness of marketing. Upper management must face the strategic decision whether to commit the resources and time required to become a customer information firm. This new strategic focus is fraught with frustration and difficulty, but, without it, a firm could be at a competitive disadvantage.