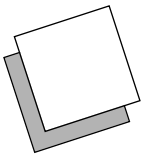

A practical yet meaningful approach to customer segmentation

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Introduction

There are many analytic methods for market segmentation. Demographic segmentation is the most traditional approach to segmentation. Newer approaches have also taken into consideration buyer attitudes, motivations, patterns of usage and preferences. Companies that capture customer and purchase information use such information to analyze and market to their customer base. This practice has come to be known as database marketing. In the past decade, declining costs of technology along with a desire to better understand customers and to enhance and measure marketing efforts have rapidly expanded the use of database marketing across a variety of industries. Indeed, analysis of customer and purchase information has become the foundation of database marketing practice.

The value of customer focussing

A deeper understanding of customers has validated the value of focussing on them. It is now generally accepted that it costs about five times more to gain a new customer than to keep an existing one, and ten times more to get a dissatisfied customer back (Massnick, 1997). Studies across numerous industries have also shown that a five-point increase in customer retention can increase profits by more than 25 percent (Reichheld, 1996).

With numbers like these, it is no wonder that database marketing is quickly becoming a powerful tool for mainstream businesses. It is expected that the overall market for software and services using data mining technology will grow from approximately $3.3 billion in 1996, to more than $8 billion by 2001 (Meta Group, 1997). Driving such rapid growth are database marketing applications such as:

- customer retention;
- cross-selling and up-selling;
- campaign management;
- market, channel, and pricing analysis; and
- customer segmentation analysis.

While the availability of customer purchase information has allowed marketers to develop richer, more sophisticated customer segmentation schemes, simplicity has also proven its place. For years, catalog companies and other direct marketers have used RFM (recency, frequency and monetary value) analysis to segment their customer base and optimize the purchase response rates of their marketing efforts (Hughes, 1994). Time and time again, RFM has been challenged by innovative conceptual approaches made possible by new technologies such as neural networks. Yet direct marketers continue to rely on RFM because the lift experienced using alternative methods does not typically warrant the costs of implementing those methods. There are costs associated with increased technical complexity, especially that of taking the analysis away from marketers and

putting it into the hands of programmers and statisticians. Also important are the costs of interpretation and communication – as marketers need to develop actionable strategic and tactical decisions from the research findings.

The purpose of this article is to introduce a simple yet powerful approach to customer segmentation. It is called the Customer Value Matrix. Its effectiveness lies not only in that it identifies key customer segments, but also in that it highlights suitable marketing strategies and tactics in a manner that can be readily communicated and easily implemented.

RFM too complex for small businesses?

Background

The Customer Value Matrix was developed from a desire to apply RFM to the small-business retail environment. After months of working with several small retailers trying to apply RFM within their businesses, it became obvious that RFM was too complex and time-consuming for them. The problem was that, while RFM was relatively simple conceptually, the resulting segmentation was often difficult to understand and even more difficult to put into action. Using just three values per variable, RFM analysis yields 27 customer segments (see Table I – RFM analysis). For RFM analysis to be actionable, the marketer must understand which groups can be combined for a particular strategy or tactic.

Group 1 : R=<90 days, F=<3 times and M=<$100
Group 2 : R=<90 days, F=<3 times and M=$100-$250
Group 3 : R=<90 days, F=<3 times and M=>$250
Group 4 : R=90-180 days, F=<3 times and M=<$100
:
:
Group 25: R=>180 days, F=>6 times and M=<$100
Group 26: R=>180 days, F=>6 times and M=$100-$250
Group 27: R=>180 days, F=>6 times and M=>$250

Closer examination of the RFM analysis highlighted the co-linearity of the Frequency of Purchase and the total Monetary Value variables. That is, an additional purchase by a given customer results in an increase in the total monetary value of that customer. Given this finding, Charles Edmundson (also a principal at TargetSmart[1], Inc.) suggested using Average Purchase Amount instead of the total Monetary Value of a customer. In doing so, we removed the co-linearity between the two variables. Also, for the sake of greater clarity, the variable Frequency of Purchase was changed to Number of Purchases. These changes represented refinements over conventional RFM analysis; however, they did not resolve the problem of ending up with too many segments to interpret and to work with.

What was needed was a simplified, more practical version of RFM. First, we focused on the two variables that best expressed the value of a customer:

Variable	Value 1	Value 2	Value 3
Recency of purchase	< 90 days	90-180 days	> 180 days
Frequency of purchase	< 3 times	3-6 times	> 6 times
Monetary value (total)	< $100	$100-$250	> $250

Table I. RFM analysis

Number of Purchases and Average Purchase Amount. The third variable, Recency, provides interesting information that can be combined with the two key variables, but so can other important variables such as Type of Purchase or Length of Relationship. Using just Frequency of Purchase and Average Purchase Amount was part of the answer, the other was simplifying the segmentation to a 2×2 matrix.

An effective analytical tool?

Matrices have been effectively used to assist in the understanding of information for decision-making purposes. Perhaps the most commonly known matrix is Boston Consulting Group's (BCG) Growth-Share Matrix, which focuses on allocation of resources given the market share position and growth potential of a given set of business opportunities (Henderson, 1967; Porter, 1980). The BCG Growth-Share Matrix can be applied to market segments, products or even countries. BCG's Growth-Share Matrix segments business opportunities into clearly defined groups (Cash cows, Stars, Dogs and Question marks). The use of a relatively straightforward scheme and easy-to-understand quadrant identifiers has made the BCG Matrix an effective analytical tool. The BCG Matrix adds further value by implying what managerial strategies and tactics are to be followed with each business segment. Businesses that have high relative market share in low-growth markets (Cash cows) can be used to fund other developing businesses, while low-relative-share businesses in low-growth markets are likely to be cash traps (Dogs).

Simplifying the RFM analysis to focus on the customer-value-based variables, Number of Purchases and Average Purchase Amount, and using a 2×2 matrix to communicate the resulting segmentation proved to be instrumental in arriving at a practical yet meaningful approach to customer segmentation.

Methodology

Creation of a Customer Value Matrix requires some basic customer and purchase information and involves a relatively simple methodology.

Data

Customer identification number

The data needed to develop the Customer Value Matrix are: A customer identification (ID) number, the date of a purchase and the total amount of the purchase. The customer ID number is used to associate purchases with the appropriate customer. This customer ID may come from a business' accounting program, point-of-sale system or any other means that a business has to collect customer and purchase information. (One of the small retailers we worked with started with two years of customer invoices stored in shoe boxes.) The total Number of Purchases is simply a count of the unique dates for a given customer's invoices. (Note that this method eliminates the problem of over-counting multiple purchases in a single visit but may under-count multiple visits on the same day.) The total amount of each purchase is used to calculate the Average Purchase Amount.

Other variables that can be used in conjunction with the Customer Value Matrix may or may not require additional data. Recency can be determined by the date of the last purchase. Likewise, the Length of Relationship can be derived from the first and last purchase dates. Using the Type of Purchase in conjunction with the Customer Value Matrix requires the collection of product type data (SKU, product class or category). Geographic, demographic or even customer-preference information can also be used in

conjunction with the Customer Value Matrix as long as such data are collected on most of the customers.

The amount of historical data to be used with the Customer Value Matrix depends on the frequency of purchase for any given business. A retail or service business with relatively high purchase frequency, such as a dry cleaner, florist or take-out and delivery restaurant, may require only one year's worth of customer purchase information. On the other hand, a business with relatively low purchase frequency, such as a bike shop, jeweler or high-end apparel retailer, may prefer two to four years of customer purchase history.

Segmentation

The segmentation process using the Customer Value Matrix first requires the calculation of the average values for the Number of Purchases and Average Amount Spent. Once the average values for the axes are determined, each customer is allocated to one of the four resulting quadrants. The final step is to obtain quadrant-summary-level information that begins to highlight the key differences between the resulting customer segments.

The average value for the x-axis, or Average Number of Purchases, is calculated by taking the total number of purchases for the customer base and dividing it by the total number of customers in the customer base (see Table II – Average Number of Purchases). The average value for the y-axis, or Average Purchase Amount, is derived by taking the total revenue and dividing it by the total number of purchases (see Table II – Average Purchase Amount). The axes' averages then serve to separate the high and low values on each scale.

Each customer is uniquely allocated

The next step in the Customer Value Matrix process is to compare each customer's Average Number of Purchases and Average Purchase Amount to the derived average values for the whole customer base. Each customer is then uniquely allocated to one of the four quadrants based on whether they are above or below the axis averages. The derived customer segments are summarized as follows (see Figure 1 – The Customer Value Matrix):

Summary segment information

Summary customer and purchase information for each of the four quadrants reveals insights into the derived customer segments. Examination of totals and averages for each customer segment provide useful measures (see Table III – Segment Summary Information).

Detailed segment information

Earlier, it was discussed that to simplify customer segmentation, the Customer Value Matrix focussed on the Number of Purchases and the

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Average number of purchases = total number of purchases/total number of customers
Total number of purchases = 5,207
Total number of customers = 2,024
Average number of purchases = 5,207/2,024 = 2.6 purchases per customer

Average purchase amount = total revenue/total number of customers
Total revenue = $1,491,530
Total number of purchases = 5,207
Average purchase amount = $1,491,530/5,207 = $286.44 per purchase

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Table II. Customer value matrix axes' averages (for a high-end apparel store)

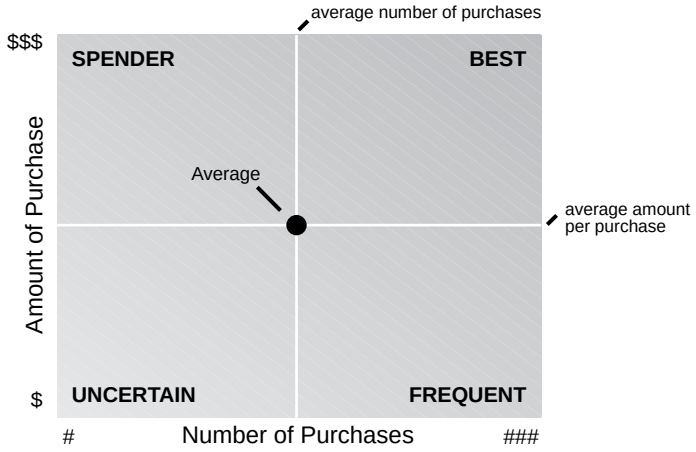

Figure 1. The customer value matrix

Segment summary info	Best	Frequent	Spenders	Uncertain
Totals for each segment				
• Number of customers	247	379	459	939
• Percentage of all customers	12.2	18.7	22.7	46.4
• Total revenue	$595,919	$379,064	$370,312	$146,235
• Percentage of all revenue	40.0	25.4	24.8	9.8
• Number of purchases	1,248	2,159	608	1,192
• Percentage of all purchases	24.0	41.5	11.7	22.9
Averages for each segment				
• Revenue per customer	$2,413	$1,000	$807	$156
• Index vs. all customers	3.27	1.36	1.09	0.21
• Purchases per customer	5.1	5.7	1.3	1.3
• Index vs. all customers	1.96	2.21	0.51	0.49
• Revenue per purchase	$477	$176	$609	$123
• Index vs. all customers	1.67	0.61	2.13	0.43

Table III. Segment summary information (same high-end apparel store)

Average Purchase Amount as the primary variables, as they best portray the value of a customer. Using the Customer Value Matrix as the foundation, any number of variables may be overlaid on the segmentation to gain greater detail with regard to the customer base. Additional variables may be geographic, demographic or purchase-related, such as the recency of a purchase (see Table IV – Customer Value Matrix with Recency) or the length of the customer relationship.

"Drill-down" of information

In addition to being able to compare the proportion of customers or dollars associated with a particular value (for example, Recency of purchase of 0 to 3 months), the same type of summary information that was obtained for each of the quadrants or key customer segments can be derived for each value within each segment (see Table V – Summary Information on Recency for Best Customers). An even deeper level of "drill-down" information can be obtained by holding a value for a particular variable constant (for example, customers who purchase a particular brand of suits) to then examine these customers along other variables (such as Recency of purchase) within the context of the Customer Value Matrix segments.

It is important to note that when a specific variable is selected, the Customer Value Matrix still reflects the total value of the relationship with the selected customers. Even when the selection is for a particular type of purchase

Number of customers / percentage of all customers	Best (%)	Frequent (%)	Spenders (%)	Uncertain (%)
Months since last purchase				
• 0 to 3	123/6.1	223/11.0	108/5.3	320/15.8
• 3 to 6	63/3.1	90/4.4	92/4.5	192/9.5
• 6 to 9	42/2.1	31/1.5	106/5.2	133/6.6
• 9 to 18	19/0.9	35/1.7	153/7.6	294/14.5

Table IV. Customer value matrix with recency (same high-end apparel store)

Months since last purchase	0 to 3	3 to 6	6 to 9	9 to 18
Totals for best customers				
• Number of customers	123	63	42	19
• Percentage of all customers	6.1	3.1	2.1	0.9
• Total revenue	$340,349	$141,251	$82,799	$31,520
• Percentage of all revenue	22.8	9.5	5.6	2.1%
• Number of purchases	728	285	166	69
• Percentage of all purchases	14.0	5.5	3.2	1.3
Averages for best customers				
• Revenue per customer	$2,767	$2,242	$1,971	$1,659
• Index vs. all customers	3.76	3.04	2.68	2.25
• Purchases per customer	5.9	4.5	4.0	3.6
• Index vs. all customers	2.30	1.76	1.54	1.41
• Revenue per purchase	$468	$496	$499	$457
• Index vs. all customers	1.63	1.73	1.74	1.59

Table V. Summary information on recency for best customers

(e.g., customers who purchased ties), the segments or sub-segments still reflect the overall customer value, not just that of the selected item.

The methodology for the development of the Customer Value Matrix demonstrates that a relatively simple yet effective customer segmentation is indeed possible. For small retailers who are time-constrained, the basic level of the Customer Value Matrix provides substantial value. Businesses that desire a greater depth of understanding can achieve it by overlaying additional variables onto the basic Customer Value Matrix segmentation.

Viable marketing strategies

Strategies and tactics

As is the case with BCG's Growth-Share Matrix, a significant benefit of the Customer Value Matrix is its ability to suggest viable marketing strategies. The analysis yields insights into marketing strategies and tactics for each quadrant (or segment) and other marketing strategies that may cross segments (or quadrants).

Segment-specific strategies and tactics

When viewing customers in the quadrants of the Customer Matrix Analysis, the quadrant-specific strategies to follow are quite intuitive. Retention of Best Customers is essential, as they represent the foundation of the business. With Spenders, who have demonstrated a capacity for high average purchase amounts, the most appropriate strategy to follow is to build purchase frequency. On the other hand, for Frequent Customers, who have proven their loyalty via repeat purchases, the best strategy is to increase the average

purchase amount via bundling, cross-selling and up-selling. Among Uncertain Customers, the most appropriate strategy to follow can be best described as "pick but be choosy", focussing efforts only on those Uncertain Customers who are new or who have a great affinity to a specific type of product.

Recognizing deserving customers

Effective retention tactics for Best Customers include acknowledgement and recognition that they are deserving customers. Of all customers, Best Customers are most worthy of appreciation and special treatment. While such rewards may include preferential discounts, Best Customers are more likely to feel appreciated through higher quality or more frequent communications, timely information about new products or services, and special events that allow them to relate to your business and other customers who share their interests. A perfect example of a high-appreciation communication comes from Abby's Hallmark, a Hallmark Gold Crown independent retailer, which mails a birthday card to its Best Customers on the month of their birthday. Even though there is no offer or discount associated with the birthday cards, a typical month reveals the quality of the response: 350 Best Customers targeted at a mailing cost of $302 including labor, 63 percent of whom came in and made a purchase within the following 60 days, resulting in $5,839 in revenue. Sound proof of the sales power of strong relationships.

To build purchase frequency, marketing strategies for Spenders should, above all, reinforce those customers' connection with the business. Communications should encourage the idea of repeat business by providing timely, relevant information of the products and services provided, by emphasizing the unique aspects of the business and by tapping into natural or typical purchase cycles. Comtech, a Motorola dealer and retailer of two-way radios, cellular phones and pagers to businesses and safety organizations, simply used a note to remind its 38 Spenders of the service support and value that the company provides (no mention of discounts). In the following couple of months 25 percent of its Spenders responded by using Comtech's support function or making a purchase, resulting in $4,344 in sales.

Increasing average purchase amounts

The value of Frequent Customers stems from their proven pattern of repeat purchases. Marketing strategies for Frequent Customers need to leverage their relative familiarity with and loyalty to the business, with the objective of increasing their average purchase amounts. Typical tactics to accomplish this include the cross-selling and up-selling of products and services. A practical example of up-selling comes from Grassfield's, a men's clothier, that promoted upscale suits to its Frequent Customers. This particular tactic achieved high relevance by targeting customers who wore suits in eight particular sizes that were in overstock, offering an attractive discount of $200 on high-end suits in those particular sizes, a likely up-sell from their typical suit purchase. Grassfield's sold 56 suits in 39 transactions from 1,164 notes mailed, bringing in $43,307 on an average sale of $1,110. As important as the resulting sales was the fact that the actual markdown ended up to be around 15 percent, far less than would have resulted from a typical overstock clearance.

Uncertain Customers tend to be the largest group, often representing half of the customer base but only 10 percent of the revenue. The lower value represented by Uncertain Customers means that the most appropriate strategy with this group is typically to think twice about marketing to them.

This "pick but be choosy" strategy is the key to efficient use of marketing resources. Nevertheless, among this large customer group, there are sub-segments that should still be pursued, such as those who are new or have a strong product affinity. For example, Treads, a bike shop with more than 6,000 Uncertain Customers, chose to focus on new Uncertain Customers, who numbered fewer than 200. Response among these new Uncertain Customers was 18 percent and resulted in $11,000 in revenue – clearly a winning proposition. Had the same offer been sent to all Uncertain Customers the cost would have been closer to $6,000 and would have likely experienced a much lower response rate that may have made the promotion a net loser.

Cross-segment strategies and tactics

There are many marketing strategies and tactics that are not necessarily segment-specific. Among the most significant cross-segment strategies that can be applied within the context of the Customer Value Matrix are product affinity and customer retention.

Generating the desired response

Product affinity is important because past purchase behavior is key to developing customer communications that are more likely to be relevant and to generate the desired response. Focussing on customers who have previously bought a particular product or service serves to minimize marketing costs while maximizing the likely impact of the promotion. An interesting example is that of Robert Vance Ltd, a fashion retailer with a passion for cigars. Sending a cigar-related offer to all of its customers would likely have resulted in a relatively low response, and it may have even offended some customers. Still, Robert Vance created a marketing communication highlighting the cigar-related merchandise it carries (including cufflinks, ties, embroidered shirts, etc.), along with a promotional offer of a personalized cigar band with a purchase of $100 or more. The offer was sent to 158 customers who had previously bought cigar-related merchandise (13.6 percent of all Robert Vance customers). The results were quite convincing: 19 customers (12 percent response) came in, spent on average $181, for a total of $3,439. Since the promotion was made within the context of the Customer Value Matrix, the marketer also learned that even though Best Customers made up only 11 percent of the targeted customers, they accounted for 32 percent of the responders and 36 percent of the associated revenue.

Retention-oriented tactics

Retention is critical to any business that generates repeat purchases because, as previously mentioned, a small increase in customer retention can dramatically increase profits. Retention-oriented tactics typically focus on strengthening customer relationships early on, for example, by using a welcome letter to new customers, or trying to win back customers who have not been in for a while. An example of the latter is Abby's Hallmark's efforts targeting Best and Frequent Customers who had not made a purchase in the previous six months (for whom the average annual number of purchases is 8.4 times for Best and 8.3 for Frequents). To get a very precise measure of the impact of the retention effort, the marketer relied on control groups (some of the target Best and Frequent customers were not sent the communication). The results revealed the value of such retention efforts: 28 percent of the targeted Best Customers made a purchase vs. 13 percent of the Best Customers in the control group; among Frequent Customers, 37 percent of the targeted group made a purchase vs. 17 percent for the control group. Interestingly enough, there was no discount associated with this retention

effort. It simply reminded the customers of the strong relationship that they historically shared. With a mailing cost of $220 including labor and $2,098 in resulting sales, this retention effort provided an immediate return.

As demonstrated, the Customer Value Matrix assists in identifying relevant, segment-specific marketing strategies and tactics, and it enhances the assessment of cross-segment strategies and tactics. Most important to owners and managers of small business and franchises, the use of the Customer Value Matrix makes it feasible to identify and implement suitable marketing strategies and tactics that provide a substantial return on marketing investment.

Local vs. global

Focussing at a local level

The Customer Value Matrix is best applied at a local level, focussing on the customer base for a single store, rather than averaging across multiple stores. In doing so, the local segments derived truly reflect the specifics of the local customer base within the context of the local market environment. In a world of increasing diversity and intense competition, a marketer, using any segmentation technique with a perspective broader than local, runs the risk of missing opportunities or not identifying potential problem areas. Even the most sophisticated segmentation schemes, if applied on a global or national basis, are not likely to pick up on important local nuances. Customers can differ greatly from one part of the country to another. Even within a major city, there can be significant differences (see Table VI – Impact of Grouping Outlets using the Customer Value Matrix). Such differences are likely to go beyond demographics and may include purchase behavior and product usage. The local competitive environment can also impact local customer differences. In one store's trade area there may be few competitors, while in another, competition may be quite intense.

As Table VI demonstrates, grouping outlets into a single Customer Value Matrix can distort the specific situation of each outlet. In this example, using the Customer Value Matrix generated from Group ABC, Outlet A would end up with a disproportionate number of Best Customers, because Outlet A's Average Revenue per Purchase and Average Number of Purchases are above Group ABC's respective averages. Conversely, Outlet B would end up with a disproportionate number of Uncertain Customers, even though its Average Revenue per Customer is greater than that of the larger Outlet C. It may be that Outlet B faces more competition or maybe that it is in an area of lower

Customer value matrix information	Outlet A	Outlet B	Outlet C	Group ABC
Number of customers	5,419	8,126	12,768	26,313
Revenue	$419,242	$386,273	$489,521	$1,295,036
Number of purchases	21,392	23,903	26,326	71,621
Average number of purchases	3.9	2.9	2.1	2.7
Average revenue per customer	$77.37	$47.54	$38.34	$49.22
Average revenue per purchase	$19.60	$16.16	$18.59	$18.08

Table VI. Impact of grouping outlets using the customer value matrix

purchase capacity, and as such it is doing a good job relative to its potential. The problem is that by using the Group ABC Customer Value Matrix segmentation, Outlet B's competitive situation could actually be weakened.

Understanding the consequences of aggregating outlets is important because corporate marketers' desire for centralized control can impact local performance. When corporate marketers focus on a broad, centralized segmentation, they can end up favoring strong outlets while assisting to perpetuate problem outlets. In addition, due to the scale cost advantage and logistics of implementation, centralized marketing efforts tend to have a bias against very small targeted efforts. Simply stated, it is unlikely that centralized efforts would generate local, personalized communications targeting multiple groups of dozens or few hundreds of customers who share some relevant characteristics. It is also unlikely that centralized, corporate efforts would be able to take advantage of truly local, event-driven opportunities – for example, local celebrations such as a neighborhood festival, a winning sports team or the high school dance.

Even in the case of centrally-driven, multi-outlet or franchised businesses, there is great value to using the Customer Value Matrix to segment and target customers at a local level. Of course, there are significant challenges to proper implementation. Taking advantage of local relationship marketing requires an approach that is easy and affordable enough to be pursued locally. The local personnel, time constraints and marketing skills must also be considered.

Managerial implications and recommendations

Keeping things simple

When it comes to customer segmentation, there is great value to keeping things simple. Segmentation schemes that are derived from sophisticated statistical modeling techniques have their place in that they may help us better understand customers. However, if the derived segmentation does not lend itself to proper communication, it is likely to present a challenge to the development and implementation of strategies and tactics. Customer segmentation using the Customer Value Matrix provides a particularly viable alternative, especially when it comes to small, multi-outlet or franchised businesses. The value of Customer Value Matrix lies in its simplicity, its ability to highlight and communicate suitable marketing strategies and tactics.

For small- and mid-sized independent businesses, focussing marketing efforts on local relationship marketing directed primarily at customers provides the means to compete effectively on their strongest competitive advantage – the relative closeness to their customers. When it comes to location, pricing and advertising, small- to mid-sized businesses are at a significant disadvantage relative to their larger competitors. They simply do not have the resources nor scale to compete effectively. However, small- to mid-sized businesses are well-suited to build strong customer relationships, leveraging their closeness to their customers. Using customer-focussed direct marketing allows these businesses to concentrate their marketing resources where they provide the greatest return on investment and to fight effectively to retain customers and grow their business. For such businesses, the Customer Value Matrix provides an affordable, easy to implement segmentation methodology that delivers substantial value relative to the amount of effort involved.

When it comes to centrally-driven, multi-outlet or franchised businesses, the bottom line is that local relationship marketing requires that corporate marketers work with their local outlets, leveraging each other's comparative advantage. It is clear that corporate marketing should be responsible for the overall image and branding of the company. It also makes sense that corporate marketing be responsible for some centralized marketing efforts, such as those associated with new product introductions or prospecting for new customers. In marketing to existing customers, corporate can play a critical role in sharing a strategic vision, sharing its marketing expertise and providing logistical support. On the other hand, local outlets are best suited to serve as a locally distributed marketing network that can effectively deliver highly targeted, "high-touch" communications and events that are more relevant and result in higher response rates. This synergy between corporate marketing and local outlets in the use of local relationship marketing can have a great impact on customer retention, sales and profits.

Note

1. TargetSmart! Software (Initial release, 9/97); Generates the Customer Value Matrix based on input customer and purchase information. The TargetSmart! software also provides customer value reports on segments and sub-segments, makes it easy to target groups of customers and automatically measures the result of every marketing effort initiated from the software. For additional information call TargetSmart, Inc., at 303.698.2233.

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