

## **Customer Segmentation and Predictive Modeling**

*It's not an either / or decision!*

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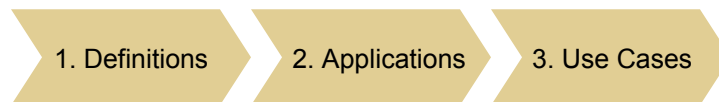
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A baseball player would not leave for the game without a glove and a bat, just as a sculptor is not expected to choose between a chisel or hammer. So why do so many marketing professionals practice their trade with an incomplete set of marketing analytic tools. Two *must-have* tools are customer segmentation and predictive models.

The truth is, the terms customer segmentation and customer predictive modeling are often used interchangeably when in fact they are very different and support different business objectives. This paper will begin to clarify these differences and explain why both tools, not one or the other, are required to effectively compete in today's customer centric marketing landscape. The emphasis will be on the suitable marketing applications of segmentation and modeling as opposed to an overview of the differences from an analytic technique perspective. In an effort to make the concepts less abstract, use case examples are provided throughout.

### Segmentation and Modeling Discussion Flow



## 1. Segmentation and Modeling Definitions

### Customer Segmentation Definition

Let's begin with a brief description of each. *Customer segmentation* is the practice of classifying your customer base into distinct groups. This separation of customers into unique groups is often based on multi-dimensional customer information such as; observed customer purchase and product usage behavior, demographic and lifestyle characteristics, or even self-reported product / service preferences, needs and attitudes.

Properly developed, segmentation insights inform a strategic roadmap intended to take advantage of key profit driving opportunities within each unique customer group. This could be shortening customer purchase cycles, driving higher spend, building greater customer loyalty, deepening cross-product penetration or lowering service and support costs.

I have worked with companies that are comfortable having as few as three unique segments, while other companies require as many as twenty segments to satisfy their data-driven marketing needs. The decision of how many customer segments a company should create is largely dictated by the particular make-up of their customer base and the organizations ability to develop and deliver unique segment-specific marketing treatments.

### Predictive Modeling Definition

*Predictive modeling* is the practice of forecasting future customer behaviors and propensities and assigning a score or ranking to each customer that depicts their anticipated actions. As is the case in segmentation, multi-dimensional customer information is leveraged to identify and isolate customer characteristics that are highly correlated with targeted outcomes.

Whereas in segmentation, a critical consideration is how many segments, a key question in predictive modeling is how many different models will be required. Each model is often devoted to predicting a single behavior. For example, which customers are most likely to buy a specific product or which

customers will spend the most money across your entire portfolio of products over the next twelve months? Two separate predictive models would be required to effectively address each business question. The answer to the number of models a company needs is linked to the number of different profit-driving behaviors a company believes they can influence with customer data-driven campaigns.

## 2. Segmentation and Modeling Applications

### So when is customer segmentation, predictive modeling or both the best tool for the job?

Listed below are several common applications for both segmentation and predictive modeling. The applications are quite different. A single segmentation scheme is sometimes applied across all of the areas listed below, while predictive models are typically developed for a very specific purpose. For example, a company may develop several customer purchase propensity models for each of its key products. The insights gained from each of the models can then be used independently or collectively to shape the targeting strategy for sophisticated product cross-sell campaigns.

The greatest benefits are derived from the effective utilization of both. Far too often companies rely on segmentation as their only means for targeting customers for campaigns. Predictive models are a significantly more precise tool for targeting and are better suited for regular updates and re-calibrations to maintain peak targeting performance.

### Common Applications

Customer Segmentation	Predictive Modeling
A. Informing short and long-term customer investment allocation decisions	A. Identifying targets for marketing campaigns
B. Establishing customer development and management roadmaps	B. Forecasting customer behaviors
C. Tailoring program configuration: product, value proposition, pricing, channel and message	C. Optimizing effectiveness of marketing levers and supporting 'what-if' analysis
D. Guiding and prioritizing research and product development initiatives	D. Measuring impact of specific marketing elements and treatments on subsequent customer behavior

### Common Customer Segmentation Applications

#### A. Making Customer Investment Decisions

The future value of a customer to a business can vary tremendously by segment. Segmentation provides a framework to help identify the optimal customer investment strategy for each unique segment. For some segments, the investment may be directed towards further developing customer relationships, while for other segments the investment is made to introduce new products and services that address unmet customer needs.

Ultimately, the key factor driving customer investment decisions will be the expected return on that investment. Segmentation not only helps to determine how much to invest in a customer segment, but how to spend it.

### **B. Managing Customer Relationships**

Segmentation also provides an excellent framework to manage the varied needs of customers. Customized customer management and development strategies can be developed for each unique segment. The development plans should include a set of objectives, goals and performance metrics that are derived from the unique opportunities and challenges present within each customer group. The segment-level plans function as a strategic roadmap, supporting business growth and attempting to maximize the potential of each customer relationship.

### **C. Tailoring Marketing Programs**

It has become somewhat of a cliché, but it is true that successful data-driven marketers understand how to communicate with their customers at the right time, right place and with the right message. Distinctive customer preferences and needs represent unique opportunities and challenges that can be pursued by introducing tailored programs for each segment. The make-up of each customer segment and their past and projected behaviors and needs should guide the tailored use of key marketing levers to maximize program effectiveness. The segmentation becomes the centerpiece, supporting program development and ongoing test and learn activities.

### **D. Guiding Product Development and Research**

A comprehensive segmentation solution will highlight the fact that individuals have different product needs and usage patterns. Customers in one segment may use a company's full portfolio of products quite frequently, while customers in another segment may only have a need for a single product that is used sporadically.

Qualitative or quantitative research on segments that contain less active customers often exposes opportunities to strengthen and broaden these customer relationships by introducing new or re-packaged products that meet a specific customer need. Segmentation provides the means to target research and product development activities with the goal of further stimulating customer demand.

## **Common Predictive Modeling Applications**

### **A. Identifying Customer Targets**

Probably the number one application of marketing-oriented predictive models is the selection of customers for programs or campaigns (response modeling). Response modeling attempts to leverage the company's collective knowledge on each individual customer to determine if they are a good candidate for a certain type of marketing program or promotion. The initial development of these models often requires in-market testing to accumulate valuable customer response data and insights. Once collected, each customer can then be assigned a precise score representing their likelihood to respond to a specific program.

It is typical for customer populations to be separated into ten different sub-groups (deciles), with each decile containing a different probability of response. Marketing professionals can then simulate response scenarios and perform return on investment analyses to decide the appropriate number of customers or deciles to include in the program

## **B. Forecasting Customer Behaviors**

I have not encountered a single organization that has not expressed an interest in understanding the future value potential of each one of their customers. Predictive modeling techniques can be used to estimate lifetime customer value, as well as many other key profit impacting customer behaviors: product purchase propensities, expected purchase cycles, aggregate spending levels, customer loyalty, and customer support and service usage.

Behavioral forecasting models are developed to support a broad range of applications including: campaign targeting, financial and operational forecasting, customer investment allocation and inventory planning. The behavioral predictions are made at the individual customer level to support direct marketing activities. However, the results can also be applied and reported at an aggregate level to effectively support business forecasting needs.

## **C. Marketing ROI Optimization**

Predictive models also play an important role as companies attempt to optimize the usage of some of their primary marketing levers, such as: value proposition, price, channel and media mix.

For example, predictive modeling and optimization techniques are often leveraged to help companies get the greatest return on their marketing offer and promotions budgets. In order to do this, the price elasticity curves of different customer groups need to be understood so that the optimal offer can be presented to each customer. This is the offer that provides the greatest incremental lift in sales at the lowest cost to the company. As you may expect, the optimal offer can vary greatly by customer group.

The more sophisticated model-driven, optimization tools are generally designed to allow companies to forecast expected lift in sales under different types of scenarios. This level of insight is invaluable during the program and budget planning process.

## **D. Measuring Impact of Marketing Elements on Customer Behavior**

In today's marketing environment, companies utilize complex, multi-faceted programs to communicate with their customers. Isolating the impact of individual marketing components on subsequent customer behavior can be daunting because individuals are exposed to a variety of messages and offers through many different channels.

It is common for the affect of specific marketing activities (i.e., quarterly vs. bi-annual newsletter) on consumer behavior to be overstated or understated because the impact of other marketing stimuli is not properly accounted for, resulting in a biased measurement. The multivariate nature of predictive modeling provides the means to measure the impact of individual marketing actions on customer behavior in a controlled manner. All of the marketing dynamics are considered in the model so that the affect of any one component can be properly isolated and measured.

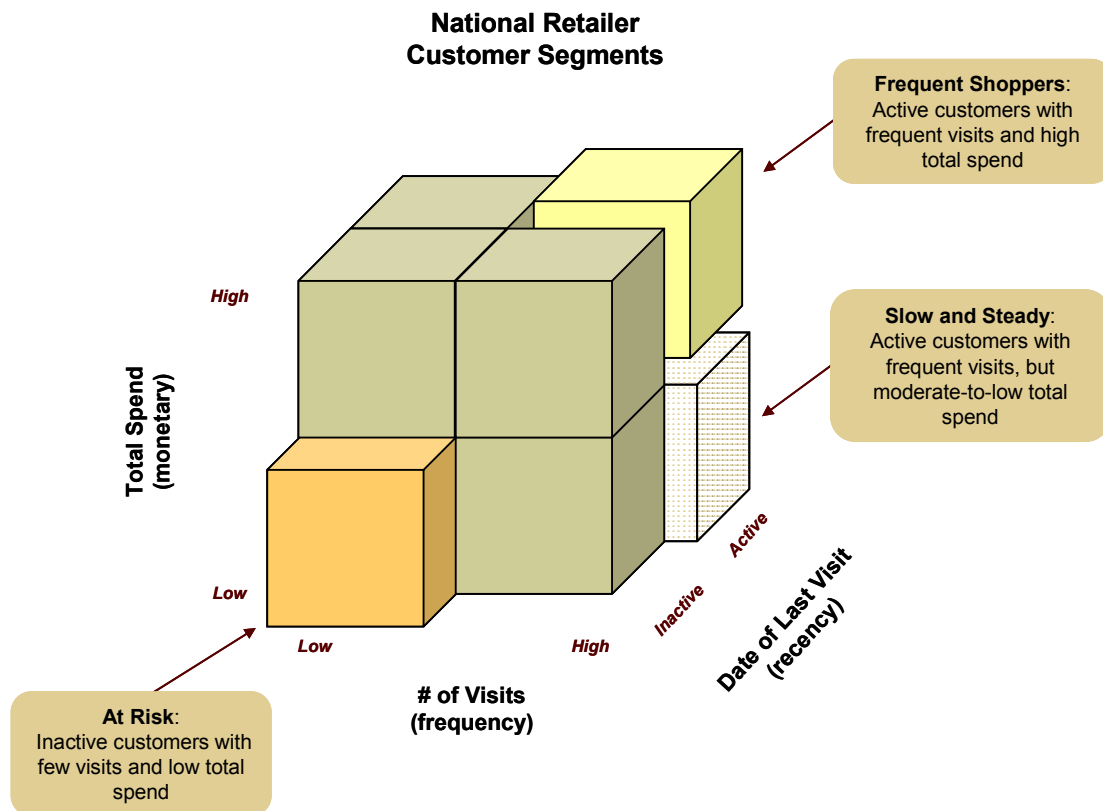
Many companies are turning to predictive modeling (marketing mix models) to better understand the impact of advertising across different channels so that media mix investments are informed by quantitative measures of expected yield.

### 3. Segmentation and Modeling Use Case Examples

#### Best Practices: Leveraging both Segmentation and Models for Optimal Marketing Impact

Segmentation and modeling each have a broad range of applications that should be leveraged within any customer-centric marketing organization. However, a common thread that consistently sets apart world class data-driven marketers from the rest is how these companies fully understand the strengths of each analytic toolset and develop programs that feature their collective benefits.

Perhaps the best way to illustrate the integrated use of segmentation and modeling is through the use of a hypothetical example. In the situation depicted below, a national retailer (retail store and online channels) has developed eight customer segments. Customers are separated along the following key shopping dimensions: *recency* of last visit, *frequency* of visits and *monetary* amount.



Three of the customer segments are highlighted. *Frequent Shoppers* are the retailers best customers, shopping regularly and spending a large amount per visit. The *Slow and Steady* segment contains active customers; however, they spend significantly less per shopping occasion. *At Risk* customers have not shopped with this retailer recently and have never fully engaged with this national retailer.

Each of these customer segments is further explored to provide examples of how predictive models can be used in conjunction with the segmentation solution to identify growth opportunities and support the development of extremely targeted programs.

### **Frequent Shopper Segment**

*Primary Marketing Objective:* Recognize and Defend

#### *Integrated use of Marketing Analytic Tools:*

Customers in this segment generate the most profit for the organization. It is critical that the national retailer maximize retention of these best customers. Furthermore, the company needs to fully comprehend why these customers prefer to shop with them and leverage this knowledge in an effort to influence customers in lower performing segments to migrate to the Frequent Shopper segment.

Predictive models can be developed to forecast customer's *retention probability*. In this case, two types of retention are important to understand: customer retention and revenue or spend retention. A decline in either of these rates would weaken the profitability of the organization. Customer behaviors that are likely be useful in predicting a potential decline in retention are: a decrease in the length of time between shopping occasions, purchasing in fewer product categories, reduced utilization of one or both of the primary channels (online or store).

Implementing a retention model would give the retailer a way to proactively detect any Frequent Shoppers that may be a retention risk. Armed with this knowledge, the organization can quickly communicate with these customers and attempt to offset this anticipated decline in shopping behavior with targeted offers or incentives.

### **Slow and Steady Segment**

*Primary Marketing Objective:* Cross-Sell and Stimulate Incremental Activity

#### *Integrated use of Marketing Analytic Tools:*

These customers shop fairly regularly but do not provide the same level of revenue to the organization as the Frequent Shoppers. This is because they purchase from a smaller number of product categories and typically only use the in-store channel.

Two sets of models could help marketers at this organization identify opportunities to increase the spend behavior of these customers: *product purchase propensity models* and *online shopping propensity model*. The objective of the product purchase models would be to identify the best cross-sell opportunities and convince more Slow and Steady customers to purchase across a broader set of product categories.

The online purchase propensity model would be designed to identify Slow and Steady customers with the greatest likelihood of using the online channel. Once identified, incentives can be used to entice Slow and Steady customers to begin to use the online channel in addition to the retail outlets, creating the potential for more shopping occasions.

## At Risk Segment

*Primary Marketing Objective:* Selectively Engage and Cross-Sell

*Integrated use of Marketing Analytic Tools:*

Either the current value proposition or awareness of the value proposition appears to fall short for this group of customers. Customers in this group have spent very little with the national retailer and have not shopped online or at any of their retail locations for a long time. Conducting research to gain a deeper understanding of why these customers do not regularly shop at the national retailer would be very useful. These insights could lead to a refinement of the value proposition that causes At Risk customers to favorably change their shopping behaviors.

Incentives or offers may be required to get these customers to become more engaged. Because this group has not contributed significant profits to the company in the past, it would be inappropriate to provide offers that only lead to one additional visit. The goal would be to develop an *offer optimization* engine, informed by predictive models, that identifies the best offer sets for distinct groups of At Risk customers and leads to sustainable and profitable shopping behavior. This ensures that the offer investment is distributed in a way that maximizes the expected return.

In addition, the development of a *long-term customer value* model would help determine the amount the national retailer should be willing to invest in certain At Risk customers. Having visibility into the longer-term value of each customer allows the national retailer to only target At Risk customers with an expected ROI equal to or above acceptable corporate standards.

## In Summary

### Utilize a Complete Marketing Analytics Toolset

Segmentation without modeling or modeling without segmentation should be considered an incomplete analytic toolbox.

Segmentation provides a robust foundation for designing, testing, measuring and rolling out tailored marketing programs. However, an exhaustive understanding of all expected customer behaviors can not and should not be built into the segmentation solution. Instead, predictive models, developed outside of the segmentation solution, should be viewed as a set of companion tools that help expose additional opportunities and provide the means to achieve an even greater level of targeting precision.

It is common practice to begin the journey into marketing analytics with the development of a segmentation scheme or a single predictive model. However, the analytic roadmap needs to provide the vision for how and when the complete suite of analytic tools can be drawn upon to fully exploit the benefits of data-driven customer marketing. The roadmap will help the organization pace itself, integrating tools in a way that supports the company's ability to act on the insight these powerful tools provide, and building on each success.

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