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Analysis of Market Based Shopping Behaviour

Mili Srivastava*
IT Department& MTU
India

Prof.Archana Singh
MCA & Amity University
India

Abstract—

The growth of target marketing was facilitated by two factors: the availability of information and increased computer power. We're all familiar with the data explosion. Beginning with credit bureaus tracking our debt behaviour and warranty cards gathering demographics, we have become a nation of information. Supermarkets track our purchases, and Web sites capture our shopping behaviour whether we purchase or not!

As a result, it is essential for businesses to use data just to stay competitive in today's markets. Targeting models, which are the focus of this book, assist marketers in targeting their best customers and prospects.

Keywords— Information, markets, Supermarkets, Models, Shopping Behaviour, target modelling.

I. INTRODUCTION

In the years following World War II, the United States experienced an economic boom. Mass marketing swept the nation. Consumers wanted every new gadget and machine. They weren't choosy about colors and features. New products generated new markets. And companies sprang up or expanded to meet the demand. Eventually, competition began to erode profit margins. Companies began offering multiple products, hoping to compete by appealing to different consumer tastes. Consumers became discriminating, which created a challenge for marketers. They wanted to get the right product to the right consumer. This created a need for target marketing— that is, directing an offer to a "target" audience. The growth of target marketing was facilitated by two factors: the availability of information and increased computer power. We're all familiar with the data explosion. Beginning with credit bureaus tracking our debt behavior and warranty cards gathering demographics, we have become a nation of information. Supermarkets track our purchases, and Web sites capture our shopping behavior whether we purchase or not!

As a result, it is essential for businesses to use data just to stay competitive in today's markets. Targeting models, which are the focus of this book, assist marketers in targeting their best customers and prospects. They make use of the increase in available data as well as improved computer power. In fact, logistic regression, defining the Goal The use of targeting models has become very common in the marketing industry.

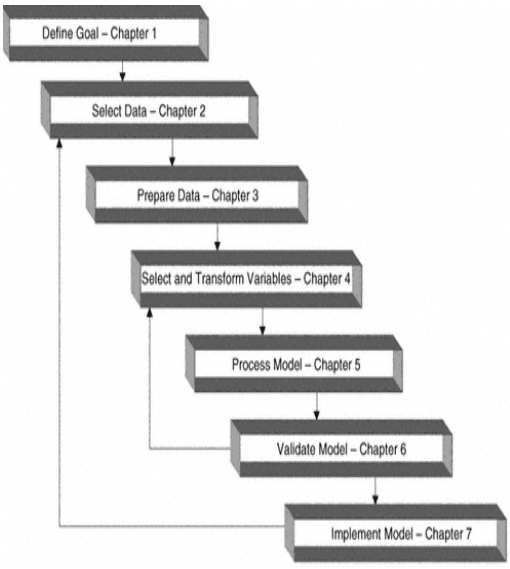

Figure 1.1

Steps for successful target modelling. Probability of likelihood for an action, such as response to an offer or default on a load. A descriptive model is just as it sounds: It creates rules that are used to group subjects into descriptive categories.

Companies that engage in database marketing have multiple opportunities to embrace the use of predictive and descriptive models. In general, their goal is to attract and retain profitable customers.

1.1 Profile Analysis

An in-depth knowledge of your customers and prospects is essential to stay competitive in today's marketplace. Some of the benefits include improved targeting and product development. Profile analysis is an excellent way to get to know your customers or prospects. It involves measuring common characteristics within a population of interest.

Demographics such as average age, gender (percent male), marital status (percent married, percent single, etc.), and average length of residence are typically included in a profile analysis. Other measures may be more business specific, such as age of customer relationship or average risk level. Others may cover a fixed time period and measure average dollars sales, average number of sales, or average net profits. Profiles are most useful when used within segments of the population of interest.

1.2 Segmentation

Targeting models are designed to improve the efficiency of actions based on marketing and/or risk. But before targeting models are developed, it is important to get a good understanding of your current customer base. Profile analysis is an effective technique for learning about your customers. A common use of segmentation analysis is to segment customers by profitability and market potential. For example, a retail business divides its customer base into segments that describe their buying behavior in relation to their total buying behavior at all retail stores. Through this a retailer can assess which customers have the most potential. This is often called "Share of Wallet" analysis. A profile analysis performed on a loan or credit card portfolio might be segmented into a two-dimensional matrix of risk and balances. This would provide a visual tool for assessing the different segments of the customer database for possible marketing and/or risk actions. For example, if one segment has high balances and high risk, you may want to increase the Annual Percentage Rate (APR). For low-risk segments, you may want to lower the APR in hopes of retaining or attracting balances of lower-risk customers.

1.3 Response

A response model is usually the first type of targeting model that a company seeks to develop. If no targeting has been done in the past, a response model can provide a huge boost to the efficiency of a marketing campaign by increasing responses and/or reducing mail expenses. The goal is to predict who will be responsive to an offer for a product or service. It can be based on past behavior of a similar population or some logical substitute.

1.4 Risk

Approval or risk models are unique to certain industries that assume the potential for loss when offering a product or service. The most well-known types of risk occur in the banking and insurance industries. Banks assume a financial risk when they grant loans. In general, these risk models attempt to predict the probability that a prospect will default or fail to pay back the borrowed amount. Many types of loans, such as mortgages or car loans, are secured. In this situation, the bank holds the title to the home or automobile for security. The risk is limited to the loan amount minus resale value of the home or car. Unsecured loans are loans for which the bank holds no security. The most common type of unsecured loan is the credit card. While predictive models are used for all types of loans, they are used extensively for credit cards. Some banks prefer to develop their own risk models. Others banks purchase standard or custom risk scores from any of the several companies that specialize in risk score development. For the insurance industry, the risk is that of a customer filing a claim. The basic concept of insurance is to pool risk.

1.5 Activation

Activation models are models that predict if a prospect will become a full -fledged customer. These models are most applicable in the financial services industry. For example, for a credit card prospect to become an active customer, the prospect must respond, be approved, and use the account. If the customer never uses the account, he or she actually ends up costing the bank more than a non responder. Most credit card banks offer incentives such as low-rate purchases or balance transfers to motivate new customers to activate

1.6 Attrition

Attrition or churn is a growing problem in many industries. It is characterized by the act of customers switching companies, usually to take advantage of "a better deal." For years, credit card banks have lured customers from their competitors using low interest rates. Telecommunications companies continue to use strategic marketing tactics to lure customers away from their competitors. And a number of other industries spend a considerable amount of effort trying to retain customers and steal new ones from their competitors. Over the last few years, the market for new credit card customers has shrunk considerably. This now means that credit card banks are forced to increase their customer base

primarily by luring customers from other providers. Their tactic has been to offer low introductory interest rates for anywhere from three months to one year or more on either new purchases and/or balances transferred from another provider.

1.7 Lifetime Value

A lifetime value model attempts to predict the overall profitability of a customer (person or business) for a predetermined length of time. Similar to the net present value, it is calculated over a certain number of years and discounted to today's dollars. The methods for calculating lifetime also vary across products and industries. As markets shrink and competition increases, companies are looking for opportunities to profit from their existing customer base. As a result, many companies are expanding their product and/or service offerings in an effort to cross sell or up -sell their existing customers. This approach is creating the need for a model that goes beyond the net present value of a product to one that defines the lifetime value of a customer or a customer lifetime value (LTV) model.

1.8 Linear Regression

Simple linear regression analysis is a statistical technique that quantifies the relationship between two continuous variables: the dependent variable or the variable you are trying to predict and the independent or predictive variable. It works by finding a line through the data that minimizes the squared error from each point.

1.9 Logistic Regression

Logistic regression is very similar to linear regression. The key difference is that the dependent variable is not continuous; it is discrete or categorical. This makes it very useful in marketing because we are often trying to predict a discrete action such as a response to an offer or a default on a loan.

1.10 Neural Networks

Neural network processing is very different from regression in that it does not follow any statistical distribution. It is modeled after the function of the human brain. The process is
one of pattern recognition and error minimization. You can think of it as taking in information and learning from each experience. Neural networks are made up of nodes that are arranged in layers. This construction varies depending on the type and complexity of the neural network.

2. SELECTING THE DATA SOURCES

The world of data mining is experiencing an information explosion. The amount and complexity of data are expanding. And as companies embrace Web sites as a marketing and CRM tool, the amount of data is increasing exponentially. To enhance their data mining efforts, many companies are diligently collecting, combining, and scrubbing data. The first step in making the best use of any data source is to understand the nature of the data as well as how it is gathered and managed.

2.1 Behavior of collecting data

Depending on the industry, this type of data may include elements like sales amounts, types and dates of purchase, payment dates and amounts, customer service activities, insurance claims or bankruptcy behavior, and more. Web site activity is another type of behavioral data. A Web site can be designed to capture sales as well as click stream behavior or the exact path of each Web site visitor.

2.2 Psychographic of data

Traditionally associated with market research, this type of data is mainly collected through surveys, opinion polls, and focus groups. It can also be inferred through magazine and purchase behavior. Due to increased competition, this type of data is being integrated into customer and prospect databases for improved target modeling and analysis. Psychographic data brings an added dimension to predictive modeling.

2.3 Predictive Stability Cost

- Demographic Medium High Low
- Behavioral High Low High
- Psychographic Medium Medium High

2.3.1 Internal Sources

Internal sources are data sources that are housed within a company or establishment. They are often the most predictive Some typical sources are the customer database, transaction database, offer history database, solicitation tapes, and data warehouses.

2.3.2 Customer Database

A customer database is typically designed with one record per customer. In some organizations, it may be the only database. If that is the case, it may contain all the sales and/or activity records for every customer. It is more common, though, that the customer database contains the identifying information that can be linked to other databases such as a transaction database to obtain a current snapshot of a customer's performance.

Even though there may be wide variation among companies and industries, the following list details some key elements in a typical customer database:

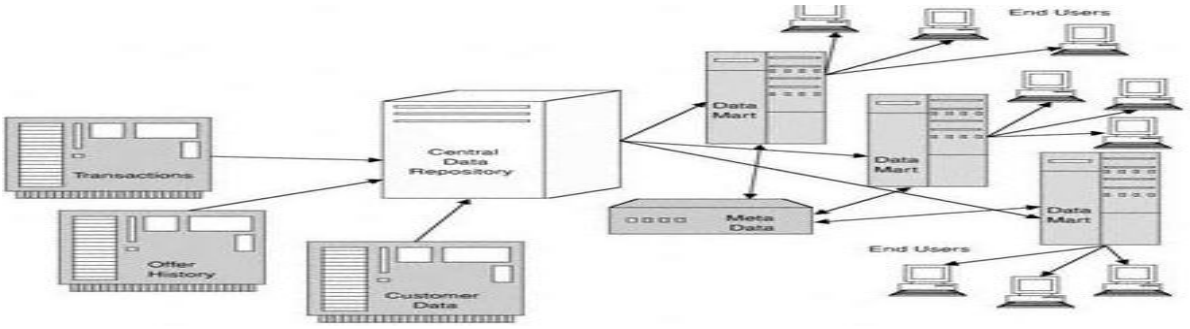

Figure 2.2 A typical data warehouse.selecting the Data Sources

2.3.3 External Sources

The pressure is on for many companies to increase profits either through acquiring new customers or by increasing sales External sources consist mainly of list sellers and compilers. As you would expect, list sellers are companies that sell lists to existing customers. Both of these initiatives can be enhanced through the use of external sources.

2.3.4 Sampling Methods

In most situations a simple random sample will serve your modeling needs. If you plan to develop a model to replace a current model, it is important to capture the behavior of the prospects that your current model would not normally select.

3. ACKNOWLEDGMENTS

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4. CONCLUSION

Supermarket is essential for businesses to use data just to stay competitive in today's markets. Targeting models, which are the focus of this book, assist marketers in targeting their best customers and prospects. They make use of the increase in available data as well as improved computer power.
To enhance their data mining efforts, many companies are diligently collecting, combining, and scrubbing data.

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