

Introduction to Successful Association Data Mining

Introduction

Data mining has resulted from the recent convergence of large databases of customer or member information, high speed computer technology and sophisticated analytical techniques.

The use of data mining tools represents a phenomenal opportunity for associations to improve the performance of organizational, marketing and delivery strategy and create long term sustainable growth.

Data mining describes a series of tools that allow associations to comprehensively understand the relationship of members to the association by analyzing their historical behavior with the association. By creating analytical models of member behavior it is possible to make predictions of future member behavior to guide organizational, marketing and delivery strategy.

This article represents an introduction to the potential of these tools, and a brief description of the data mining process.

Data Mining

What is data mining and why is it important to associations?

Traditionally, associations have used commonly accepted market research techniques such as surveys and focus groups to collect information on member needs and to guide the development of business strategy. Association Laboratory currently provides these services as a core product in response to this market need.

Data mining is a relatively new technique designed to leverage an organization's data to increase the accuracy of assumptions on member and customer behavior. This improves the effectiveness of the association's marketing and other strategies.

Since the widespread adoption of computer technology during the 1990's, many associations have created databases containing extensive information on member behavior. Examples of commonly monitored behaviors include conference registrations, volunteer participation and membership renewal.

In addition, marketing specialists and statisticians have developed new techniques to extract predictive information from large databases. These new techniques allow for the analysis of extremely large amounts of data that otherwise would not have been possible. Common uses of these techniques were the analysis of large credit card databases to determine spending patterns of specific customer segments.

The convergence of the existence of this behavioral data with these new techniques for analysis has created a tremendous opportunity for associations to implement data mining.

Data mining is generally described as the extraction of predictive information from large databases. It is designed to address two key business objectives¹.

- The prediction of trends and behaviors to guide strategy development and specific marketing activities and;
- The discovery of unknown patterns of behavior that represent risks or opportunities for the organization.

Data mining allows for individualized understanding of the association's market and the determination of specific strategies that improve the return on marketing investment.

How does data mining work?

Data mining uses sophisticated analytic techniques to search large volumes of data. In searching this data, these techniques build models for patterns that accurately predict member and/or customer behavior.

By understanding anticipated future member behavior the association can proactively develop strategies to take advantage of this knowledge.

Two keys to successful data mining is a large, integrated store of membership data linked by a common denominator such as member number and an in-depth understanding of the association business processes within which data mining is to be applied such as new member prospecting, membership retention, etc.

While some associations have a well established membership database with extensive information on member behavior, the integration of several different databases such as membership, conference registration and product sales works equally well.

The key is the common identifier so that individuals can be matched to data across different databases.

What is the process for data mining?

While the data mining process is customized to each organization's unique needs, data mining involves some of the following key steps.

1. Identify the primary business objectives of the association.

Like a carpenter's toolbox, the tools of data mining can be used to build different types of models. The first step is to identify which business goals, for example member retention, new product sales or increased conference attendance are most important. Based on this decision, the correct series of tools can be applied to the data to build the corresponding behavioral model.

2. Identify the existence and availability data.

The next step is to identify what association behavioral data exists that will be relevant to the identified business goals. If the quality of data is not suitable for an accurate model then recommendations on future data collection and storage strategies can be made at this stage to guide future member relationship management.

¹ Kurt Thearling, Director of Strategic Technology at Capital One and co-author of *Building Data Mining Applications for CRM*

3. Consolidate data into a temporary data warehouse.

Association data is sometimes contained in an association management software system such as IMIS, but just as frequently is stored in multiple databases for different association functions or domains such as conference registration or membership. For analysis, all data needs to be consolidated so that it can be treated consistently.

4. Clean the data so that missing and invalid values are treated and all known valid values are made consistent.

The purpose of this step is to identify gaps, flaws or other problems with the data and establish protocols to clean or otherwise treat these records so that the final accuracy of the model is maximized.

5. Transform the data for more robust analysis².

Data transformation involves altering the distribution of variables to allow for the use of statistical methodologies that require data to be linearly related to an objective variable and to create new variables by combining existing variables to form ratios.

6. Implement data mining algorithms³.

Based on the data and the desired business outcomes, a data mining algorithm or combination of algorithms is selected for analysis. These algorithms include classical techniques such as statistics, neighborhoods and clustering but also next generation techniques such as decision trees, networks and rule based algorithms.

The specific algorithm is selected based on the particular business objective to be achieved and the quality of the data to be analyzed.

7. Develop conclusions and make recommendations.

Based on the results of the data mining algorithms, an analysis is conducted to determine key conclusions from the analysis and create a series of recommendations for consideration by the association.

At the completion of this process, the association has a robust understanding of its membership markets, their behaviors and a set of recommended strategies designed to take advantage of this knowledge on both a tactical and strategic level.

Following the development of conclusions from the data mining process, additional primary research using traditional market research techniques can be implemented to add to the association's understanding of the motivations behind a particular market's behavior.

² Gary Saarevirta, principal consultant at Loyalty Consulting

³ Excerpted from the book *Building Data Mining Applications for CRM*, by Alex Berson, Stephen Smith and Kurt Thearling

Examples of Data Mining Applications

The following briefly describes some potential applications of data mining tools to a variety of common association business objectives.

Membership Retention

Using data mining tools, the association can create a comprehensive profile of members most at risk to drop their membership. By understanding the nature of this at-risk group the association can create intervention strategies to address this group's concerns.

In addition, a specific list of members at risk can be created so that letters or other communications can be targeted to the at risk group not only increasing the results of intervention efforts but reducing expenses through the elimination of wasted promotional resources.

New Membership Acquisition

The group of members most active, engaged and participative with the association can be identified. The profile of these members can be compared to groups of non-members to identify which individuals have the highest odds of joining the association and which specific programs, services and thus messages might produce the most successful new membership promotion.

Increased Membership Participation

The group of members most active, engaged and participative with the association can be identified. By understanding how these high value members interact with the association, specific opportunities for expanded cross-selling and increased interaction can be identified. For example, do individuals routinely purchase educational materials following their membership retention?

This knowledge of behavior can also be used to guide promotional efforts and specific lists of individuals who match the likely behavior pattern can be generated for these efforts.

Increased Conference Attendance

Data mining can be used to identify the group of members whose behavior demonstrates they are most likely to attend conferences so that these events can be configured to specifically meet their educational and other needs.

In addition, specific lists of members most likely to attend a conference can be used to guide promotional efforts so that marketing dollars are used more effectively while attendance is increased.

Increase Educational Product Sales

Data mining can be used to identify and profile the group of members or customers predicted to use different educational products. Individuals most likely to use distance learning can be targeted for these efforts, while members most likely to use publications can be targeted for these efforts.

As in other examples, a specific list of these individuals can be produced to guide promotional efforts and avoid wasting marketing dollars and improve sales performance.

Sponsorship or Advertising Sales

Data mining can be used to create very detailed descriptions of your members and customers that can be used to communicate their value to potential sponsors or advertisers. This micro-targeting increases the opportunities to build long term meaningful relationships with sponsors or advertisers by specifically matching member groups to their business goals.

Conclusion

Historically, the association community is the last to benefit from advances in marketing knowledge. Too often, large corporations with extensive expertise and financial resources are the only organizations capable of utilizing new techniques.

Data mining is an opportunity for the association community to participate in the leading edge of new innovation. The industry is already well positioned to use data mining techniques and the investment in these tools provides for a significant return on investment.

About the Providers

Association Laboratory has worked since early 2005 in collaboration with The Blackstone Group's Advanced Analytics Group to design a data mining model customized to the unique needs of the association community.

This model utilizes insights gained through nearly 7 years of research into what works and what doesn't in association organizational, marketing and delivery strategy.

Association Laboratory Inc.

Association Laboratory Inc. specializes in the research and development of business strategy for associations. Founded in 1999, the company is an award winning consulting firm serving a nation-wide client base of trade, professional and credentialing organizations.

Association Laboratory Inc. has established a national reputation for excellence in the delivery of consulting services to associations. The respect for the company's innovation and abilities is evidenced by continued participation as conference speakers, authors in industry publications and service in local and national association leadership positions.

For more information on Association Laboratory visit the company's website at www.associationlaboratory.com. You can contact Association Laboratory in Chicago at 312.466.5702 or by email at marketing@associationlaboratory.com.

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