



Using Predictive Modeling to Optimize Business ROI

by Richard Boire

In the last few years, we have witnessed great structural changes within the economy as companies re-engineer their businesses.

Maximum growth is no longer one prime objective. Companies are now changing their focus towards increasing effectiveness.

New tactics are being employed to accomplish this objective.

For instance, many marketers are now using direct marketing as a prime distribution channel because of its efficiency. This efficiency has been greatly magnified in the last few years, with the increasing importance of database marketing.

Detailed information

Database marketing provides detailed information about the customer, such as demographics, past purchases and attitudes.

With this wealth of information, companies are better able to target their customer for particular products.

Traditionally, the key behavior tracked in direct mail campaigns has been the level of response.

But it is possible to select customers based on their contribution to the bottom line – by measuring the return on investment for past campaigns and projecting return on investment for future projects.

One of the most time-consuming parts of creating a model to measure return on investment (ROI) can be its definition.

Key behaviors

Determining the key behaviors or characteristics of customers is critical. As business complexity increases, the commitment of time in this process will rise.

The financial services industry represents an area which is extremely complex since there are a myriad of components which one must consider, such as product revenue, funding rates, interest revenues and foreign exchange.

The basic definition of ROI is actually quite straightforward: ROI is pre-tax income/investment cost.

Determining which components are critical in pre-tax income and investment cost is not as simple.

The calculation of investment cost in a direct mail program is provided by the response likelihood of a customer. This can be stated as investment cost = cost per mailing piece/response likelihood.

Investment cost

For example, if the cost of a mailing piece is \$1, and the customer has a response likelihood of 10%, then the investment cost would be \$10.

However, the prerequisite in calculating investment cost is a database which provides customer response history. Without any response history, it is impossible to calculate investment cost.

The calculation of pre-tax income (PTI) comprises several basic components. However, each one of the components may vary from industry to industry.

Let's take a look at two industries such as the publishing industry and financial services area.

Components

The components for PTI within publishing would be product fee revenue, product costs, and, to a lesser extent, attrition.

Within the financial services area, the components would be interest revenue, interest costs, product revenue, product costs, credit losses, and, to a much greater extent, attrition.

The one-dimension PTI calculation in the publishing industry would indicate that response models would be sufficient for ROI maximization.

The goal

Selling the most products at the lowest cost is clearly the goal for most publishing companies. However, the financial services sector differs because the customer relationship is complex.

The customer's relationship does not end with the purchase of a product. He/she borrows money, deposits money, buys RRSPs and insurance, and also uses credit cards.

These types of relationships require that many behaviors besides response should also be incorporated into the ROI calculation.

Schematically, this process for PTI might look as follows:

$PTI = \text{interest revenue} + \text{product revenue} + \text{fee revenue} - \text{credit losses} - \text{funding costs} - \text{overhead expenses} - \text{attrition costs}.$

Next challenge

Once ROI is defined, the estimation of future ROI becomes the next challenge. It is

these estimates which will determine how marketers target customers for future campaigns.

These estimates are derived from statistical models. Using information from the database and external demographic sources such as Statistics Canada, the analyst would build response and PTI models.

The output of these models provides the response and PTI estimates for the overall ROI estimate.

The power of these models resides in the strength of the existing databases. Historically, we have seen that models' ability to accurately predict behavior increases as the database is enhanced.

External data

This is because Canadian external data sources are compiled primarily at a postal walk level, while database information provides individual-level data. It is the individual level data which will provide most of the power in building these estimates.

Once ROI estimates are derived, a decision-tool matrix can be provided which can rank-order names by response on the x-axis and PTI on the y-axis.

With this information, marketing can adopt one or more of the following strategies:

1. High pre-tax income and high response equals high return on investment. Mail with incentive.
2. High pre-tax income and low response equals medium return on investment. Use other vehicle, such as telemarketing.
3. Low pre-tax income and high response equals medium return on investment. Mail without incentive.
4. Low pre-tax income and low response equals low return on investment. Do not mail.

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