Chapter 9
Test Design and Analysis

Abstract Another cornerstone of database marketing is testing. Testing provides transparent evidence of whether the program prescribed by sophisticated data analyses actually is successful in the marketplace. Much of the testing in database marketing is extremely simple — select 20,000 customers, randomly divide them in half, run the program for one group and not the other, compare results. However, there are several issues in designing and analyzing database marketing tests; we discuss these in this chapter.

9.1 The Importance of Testing

Capital One may be the one of the most successful credit card companies today (Cohen 2001). The secret to the success is its test-and-learn management philosophy that Capital One calls its Information Based Strategy (IBS). Capital One conducted 45,000 tests in the year 2000, which on average is 120 per day. For example, once Capital One comes up with an idea for a new product offering, it attempts to find a target population by testing the new product with various promotional campaigns to various samples of customers. Based on the test results, Capital One identifies what types of customers are most receptive to the new product and what should be the corresponding promotional campaign. It sometimes even conducts additional tests to fine-tune the strategy. Capital One always makes important marketing decisions (e.g., customized pricing, promotion, and packaging) through a series of tests.

Database marketers should not invest a large amount of company resources unless its expected benefit is greater than the costs. Frequently it may not be easy to calculate the expected benefit because the future is uncertain. Unless you are absolutely sure that it will succeed, you should conduct tests to make an informed decision. The objective of testing is to obtain more information before committing a large amount of resources and, hence, reduce the risk of possible failure. The field of database marketing is particularly amenable to tests because companies have addressable customer databases and hence can
randomly assign its customers to various treatment conditions, and observe the results.

While Capital One is the acknowledged leader in database marketing tests and is known for extensive use of testing, most database marketers consider testing an integral part of the way they do business. Database marketers test various decisions including media choice, the development of promotional campaign, the selection of mailing lists, choice of message format, and so on. Moreover, the decision-making process is really “closed-loop.” A campaign is revised based on a test, the modified campaign is tested, then implemented, and then the results are used to suggest further tests, and so on. That is, information learned from a test or from full-scale campaigns become inputs to the next tests, which in turn feed the next round of testing and full campaign roll-outs.

9.2 To Test or Not to Test

Probably the first question that should be asked before conducting a test is the most basic – should a test be conducted? As discussed, testing provides information to aid in making correct management decisions. However, information is usually obtained at a cost. Testing costs may include the cost of time delay as well as its administrative cost. For example, to assess the benefit of a loyalty program or a churn management program, one really should run the test for about a year. This is typically not practical. The database marketer must think through whether useful information can be gleaned from a 1 or 2-month test. Hence the decision to collect information or data can be analyzed to see if the expected benefit of the information exceeds its collection costs.

We discuss two approaches for deciding whether to run a test. The first is based on decision analysis and is called the “Value of Information.” This potentially quantifies how much the database marketer should be willing to spend on a test. The second approach, “Assessing Mistargeting Costs,” is more conceptual, but provides a framework for thinking about whether or not to conduct a test.

9.2.1 Value of Information

Testing provides information. In this section we discuss the fundamental concepts in quantifying the value of information. We first study a decision tree that is very useful for understanding complex decision-making problems. Using the decision tree, we show how to calculate the “value of perfect information” and then extend to the problem of computing the “value of imperfect information.”