Chapter VII

Prediction of Survival and Attrition of Click-and-Mortar Corporations

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INTRODUCTION

The World Wide Web has taken the retail industry by storm. In a short span of 5 to 6 years, millions of users around the globe have been introduced to the Web. Whether shopping for merchandise or simply searching for information, the Web has become the avenue of choice for consumers. According to a recent research report by the Angus Reid Group (www.angusreid.com), as of the end of the year 2000, nearly 120 million of the estimated 300 million worldwide Internet users have already made an online purchase. The Boston Consulting Group (www.bcg.com) estimates the e-tailing market to be about $36 billion by 2001. More than half of all online transactions are still made in the US, with the typical American online shopper making seven purchases over three months with a total spending of $828. Advertising, word of mouth, enhanced security, convenience, and the fun of random surfing are among the various factors frequently cited for the popularity of online shopping. This alternate “shopping mall” has led to a tremendous growth in the number of online companies that have started selling merchandise on the Web, ranging from pet supplies to garden tools to cosmetics. Among these companies, there are some that have a physical presence in retailing, like Barnes and Nobles, Wal-Mart, etc. We call them the brick-and-mortar corporations. There are others
which engage solely in online transactions with no physical presence. We call them the click-and-mortar corporations, examples of which are Amazon.com, buy.com, furniture.com, etc.

According to Forrester Research (www.forrester.com), the business-to-consumer e-business market hit $42.3 billion in 2000 and is likely to cross $60 billion in 2001; the business-to-business market is expected to skyrocket to $1 trillion by 2003. It seems that the click-and-mortar companies are likely to reap huge profits in the future due to the increased business base. Yet, in a report published in April 2000, Forrester Research has indicated that weak financial strength, increasing competitive pressure, and investor flight will drive most click-and-mortar companies out of business by 2001. Echoing the same concern, the CEO for Gartner Group, Michael Fleisher, has predicted that 95 to 98 percent of all click-and-mortar companies will fail over the next 24 months. Following their prediction, we have witnessed several click-and-mortar corporations go out of business very rapidly within the first quarter of 2001, and many announced workforce reductions of up to 30%. Though there are many companies doing good business, there are many more exhibiting signs of weakness. At this critical juncture, the obvious question becomes which of these corporations will succeed and which will fail in the next few years. Are there any specific characteristics that set the winners apart from the losers? What does it take for a click-and-mortar corporation to survive in the long run as the consumer base for e-commerce continues to expand? Neural networks are a good tool to determine the relationship between the characteristics of such firms and their likelihood of survival.

**CASE STUDY**

We propose to study the click-and-mortar corporations in order to predict whether they will survive or experience attrition in the next 2-3 years. Several data mining techniques have been suggested in the literature for similar applications (Bose and Mahapatra, 1998). We use the multilayered feedforward neural network (MFNN) for this classification problem. A related problem to the problem of determination of survival/attrition of corporations is the widely studied problem of bankruptcy prediction for corporations (Barniv, Agarwal and Leach, 1997; Agarwal, Davis and Ward, 2001). All these studies have successfully used MFNNs to classify and predict the survivability of firms using financial data collected for these firms. This is known as the two-group classification problem. A subgoal of our study is to identify the key financial variables that affect the performance of click-and-mortar companies in predicting their survivability.
Performance Measures and RTB Optimization
Wenxue Huang, Yuanyi Pan and Jianhong Wu (2014). Encyclopedia of Business Analytics and Optimization (pp. 1847-1855).
www.igi-global.com/chapter/performance-measures-and-rtb-optimization/107373?camid=4v1a