

Using Data Mining Techniques to Enhance Customer Relationship Management for Credit Card Gold Customers

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Abstract

The usage of a credit card has gradually changed people's consumption behavior in Taiwan. Credit card is used everywhere from food bill, transportation fee, to entertainment purchase. In order to increase market share, every card issuing bank proposes many promotion plans such as decreasing the application criteria, reducing the circulation interest rate and annual fee, and providing bunches of presents, to attract all possible customers. However, comprehensive marketing like this not only cost a lot but limit in its effect. To address the problem, card issuing banks must concentrate on the gold customer who contribute above 80% of the profit for a company. Therefore, it becomes one of the most important topics to operate a customer relationship management (CRM) to consolidate those valuable customers.

Although several researches are initialized to promote better CRM in credit card field, most of them emphasize in the topics of card usage motivation, risk assessment, and fault detection. Few reports are found in discussing the characteristic composition and expenditure behavior of gold customers. In addition, few researches emphasize in studying the pattern changes when time section shifts. Without understanding clearly

the behavior changes, card issuing bank is hard to propose a suitable product and service to gold customers. This makes the lost of the important gold customers unavoidable.

To address above two issues, this research develops a data mining model for improving the operation of credit card CRM. This research will focus on the gold customers of high profits and discuss the consumption behavior changes in different time sections. First, credit card transactions of two years are collected from a case company. In order to understand complicated customer characteristic attributes, LabelSOM method is used to construct customer characteristic clusters and find important demographic characteristics of each group. After understanding the importance of demographic attributes, fuzzy decision tree is used to construct a better classification model for gold customers. Finally, we operate several statistic analysis and observe behavior changes in two different years based on the classification model. It is believed that the proposed model can provide an enterprise a better decision-making.

Keywords: Credit Card, Customer Relationship Management, Data Mining, Self-Organizing-Maps, LabelSOM, Fuzzy Decision Tree.