

Applying Data Mining Technology to Enhance Customer Relationship Management in Credit Card Business

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ABSTRACT

In the recent year, financial groups in Taiwan are allowed to provide diverse financial services. One stop shopping service has become the key on which a financial enterprise can survive under extensive competitions. Among all consumer-banking products, credit card is most attractive to consumers. The magnificent increase in credit card market leads banks to put more efforts in understanding the behavior of customers. Therefore, customer-oriented Customer Relationship Management (CRM) turns into one of the most important topic for the enterprises.

In order to conduct better CRM, most credit card related researches focus on issuing principle decision, fraud transaction detection, and customer profile description. However, few efforts are conducted upon the discussion of the consumption behavior changes over time of the consumer group, which contribute most in the credit card business. To bridge the gap, this research aims at the analysis of the consumption behaviors of the very important person (VIP) in two different time intervals. First, VIP data, including customer profiles and purchase transactions, of two time intervals are screened for this analysis. Then apriori algorithm is used to generate association rules for each time interval. The rules in the two time intervals are then calculated for their

respective similarity measure (s_i, s_j), difference and modified difference measures ($\delta_{ij}, \delta'_{ij}$) according to three types of rules : Emerging Pattern Rule, Unexpected Change Rule, Added/Perished Rule. Meanwhile, the rules for all different types are found using a user-defined rule match threshold (RMT). Finally, significantly changed rule set is found using evaluation for degree of change measure (α_{ij}) for each types.

The system mentioned above has been successfully built using COBOL, JCL, IBM Intelligent Miner, VB program, and Access database. In this study, it was found that the VIP group often visits department stores, supermarkets, gas stations, restaurants, home appliance stores, and recreation sites. In addition, the customers' consuming behaviors are detected based on the three mentioned rule types. This allows managers to find critical changes of VIP customers from a large amount of data. The decision planners can benefit by the finding and maximize the utility of their limited resources to establish suitable marketing strategies for different types of customers.

Keywords : Data Mining, Association Rule, Credit Card, Customer Relationship Management, Decision Management