

Managing customer profitability in a competitive market by continuous data mining

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Abstract

In a near perfect market, competitive marketing strategies are often adapted dynamically and rapidly. The changes in customer behavior are resultant in unpredictable customer profitability and cause inefficient and ineffective marketing planning. In this study, by using data mining techniques, we develop a Customer Profitability Management (CPM) system to achieve marketing goals by leading customers to migrate along pre-determined and desirable tracks. The proposed system emphasizes a continuous interplay between the active and reactive monitoring procedures to identify customer shifts. It has been shown to be an effective approach to help a firm calibrate its marketing tactics with respect to different types of customers in different situations. The proposed mechanism has been applied to a telecom company with promising results.

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1. Introduction

As corporations increasingly come to see customers as important assets, methods for estimating Customer Lifetime Value (the CLV model) have been developed as an important strategic marketing tool. CLV, which appears elsewhere in management literature as ‘customer equity’ and ‘customer profitability’ helps firms quantify customer relationships (Berger & Nasr, 1998), illustrate the profitability of its customers and provides references for the allocation of marketing resources to customers and market segments (Mulhern, 1999). However, existing CLV models still have limits in applicability for three reasons.

First of all, customer behavior is the result of a complex interaction among factors including the level of marketing activity, the competitive environment, brand perception, the influence of new technologies, and individual needs.

Therefore, current CLV models, which predict purchase behavior based on past customer spending patterns or demographic characteristics, are of limited use in predicting future behavior. In order to extend the basic CLV model and effectively apply it to a complicated open market, additional factors must be discussed and considered, including social effects, competitive effects, economic environment, product lifecycle, customer lifecycle, and customers’ purchasing habits, lifestyle, customer satisfaction, price sensitivity and brand loyalty (Hogan, Lemon, & Rust, 2002; Jacobs, Johnston, & Kotchetova, 2001; Mulhern, 1999; Stahl, Matzler, & Hinterhuber, 2003). Without taking account of these factors, CLV models are of limited use, as noted by Libai, Narayandas, and Humby (2002) in which a Markov transition process was proposed to predict the customers’ dynamic behavior. Therefore, research is needed to investigate which factors determine customer profitability (Stahl et al., 2003), and which factors determine the distribution of profitability among consumers (Jain & Singh, 2002; Raaij, Vernooij, & Triest, 2003). However, in the framework of conventional CLV models, it would be too complicated to associate with these factors because of the structural and

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data differences between the factors. Aggregating these factors in order to capture the timing and stochastic nature of revenue flows is almost impossible in a CLV appraisal (Bell, Deighton, Reinartz, Rust, & Swartzet, 2002). Moreover, the probability-based CLV models only guarantee that the models predict well within the time horizon of the collected data, but there is no guarantee for forecasting values beyond that horizon (Bell et al., 2002). For volatile customer profitability, it is especially difficult for a forecasting model to predict dramatic upward or downward trends generated by, for instance, a new product or service provided by a competitor. Therefore, firms need a more flexible model, which would not only able to incorporate managers' judgment calls and other uncertain factors, but also detect changes in customers' behavior. As the result, firms would be able to monitor and calibrate marketing action in response to unpredictable customers' behavior.

Second, existing CLV models provide a static estimate of customer valuation for a given future period to segment customers into several levels of a firm's customer pyramid, such as profitable, less profitable and unprofitable (Raaij et al., 2003; Zeithaml, Rust, & Lemon, 2001). However, dynamic markets require a more tactical view towards these measures. The possible directions in changes, and the possible volatility over customer profitability have been considered as the effective indices to trace the customer behavior (Dhar & Glazer, 2003; Stahl et al., 2003). The direction of customer profitability is a reliable indicator of the customer's status (defecting, upgrading or steady), and volatility represents the possible risk level of a customer's profitability for a firm. Therefore, a mechanism to monitor possible directions and volatility of customer profitability would enable firms to dynamically adjust marketing activity towards their targeted customers.

Third, there is a lack of practical discussion about how to incorporate customer profitability measures into marketing planning (Jain & Singh, 2002). To develop a marketing activity, a firm needs to draw a picture of its customers by combining customer profitability with customer accessibility, needs and attitudes. Analysis of customer profitability is often used to indicate possible consumption patterns of the targeted customers. However, this index may not be sufficient for identifying the customers a firm truly wishes to acquire or retain through allocating additional marketing resources. Further information of customer accessibility and customer attitudes is needed. Customer accessibility represents the possibility of accepting a marketing package by a potential targeted customer or segment, and could be estimated through past marketing or contact records stored in database or given by account/product managers based on their experiences and judgments. Moreover, customer attitudes, such as customers' preferences and their levels of satisfaction, can provide the information for a firm to offer the right marketing packages to meet customers' needs.

In summary, simply relying upon the measurement of CLV to determine Customer Relationship Management (CRM) success can be misleading because it ignores the dynamics of customers' purchasing behavior. Therefore a more practical approach to Customer Profitability Management (CPM) is needed to monitor customers' shifts and to calibrate marketing action for improving customer satisfaction and corporate profitability. The result will be a win–win situation for both firms and their customers, which is the aim of our study.

Based on the discussion above, this paper will be organized as follows. After developing the concept of CPM in Section 2, the framework of CPM will be established in Section 3, in which monitoring customer profitability is emphasized. Then, in Section 4, the criteria with their levels of operations are proposed to facilitate the implementation. A case study of a Telecom CPM will be demonstrated in Section 5. Finally, discussion and conclusions will be drawn in Section 6.

2. The CPM concept

CPM is a continuous process to trace and develop a responsive path for obtaining values from customers, as well as creating values for customers, according to changes in industrial conditions. A clear path can guide a firm to make right strategic choices in determining desired marketing outcomes and allocating limited resources to marketing initiatives. Making strategic choices in response to socio-economic changes from among many possible marketing initiatives is a difficult, yet crucial task for firms. However, an important principle of strategic choice is to select marketing initiatives that can actually raise existing or create new value for customers. Some firms forget this principle and wind up trapped in destructive price wars. Although price reductions may temporarily attract customers, it fails in CPM because products or services without improvements and differentiation cannot retain profitable customers in the long run.

Moreover, the purpose of a responsive path is to respond to unpredictable customer behavior. Although a customer database might allow a firm to trace changes in the profitability of a given customer, strategies derived from data analysis are often too passive to respond to the rapid changes in the market. This study proposes an alternative approach which effectively monitors shifts in customer profitability to help a firm win back defecting customers, detect potential customers, and evaluate the performance of upgrading customers. Such an approach takes a holistic view of a firm's marketing efforts, in which the strategic, tactical and operational efficiencies of Customer Profitability Management (CPM), along with efficient management of tangible and intangible assets allow firms to continually identify value-creating opportunities for increasing customer profitability.

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