Chapter 36

Customer Relationship Management and Data Mining: A Classification Decision Tree to Predict Customer Purchasing Behavior in Global Market

Niccolò Gordini
University of Milan – Bicocca, Italy

Valerio Veglio
University of Milan – Bicocca, Italy

ABSTRACT

In the global market of today, Customer Relationship Management (CRM) plays a fundamental role in market-oriented companies to understand customer behaviors, achieve and maintain a long-term relationship with them, and maximize the customer value. Moreover, the digital revolution has made information easy and fairly inexpensive to capture. Thus, companies have stored a large amount of data about their current and potential customers. However, this data is often raw and meaningless. Within the CRM framework, Data Mining (DM) is a very popular tool for extracting useful information from this data and for predicting customer behaviors in order to make profitable marketing decisions. This research aims to demonstrate the classification decision tree as one of the main computational data mining models able to forecast accurate marketing performance within global organizations. Particular attention is paid to the identification of the best marketing activities to which firms should concentrate their future marketing investments. The criteria is based on the loss functions that confirm the accuracy of this model.

INTRODUCTION

Globalization draws new competitive boundaries, modifying the traditional concepts of time and space (Brondoni, 2008a, 2008b, 2008c). In the global market, companies have crossed spatial and temporal borders (both regional and cultural), selling their products to customers located everywhere and have been aided greatly by the digital revolution that has permitted them to interact with a large amount of data.

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In this new, global, and highly competitive (D'Aveni, 1994) arena, a company has to think in terms of market-orientation and not only in terms of product orientation and marketing orientation in order to achieve competitive advantage. If competitive advantage was once based on structural characteristics such as market power, today the emphasis has shifted to capabilities that enable a company to consistently deliver superior value to its customers (Slater & Narver, 1994). As a result, the concept of market-orientation (Kohli & Jaworski, 1990; Narver & Slater, 1990) was developed, which emphasized the establishment of effective information processes and capabilities within the firm to understand the expressed and latent needs of customers, thus making firms more efficient and effective in managing customer relationships (Boulding, 2004). A bulk of research (Day, 1994; Gordini, 2010, 2012; Kohli & Jaworsky, 1990; Jaworski & Kohli, 1993; Narver & Slater, 1990; Slater & Narver, 1994, 1998, 1999) has highlighted that a market-orientation provides a strong foundation to reach superior customer value and competitive advantage. Among the most commonly cited, Narver and Slater (1990) stated that "market orientation consists of three behavioral components (customer orientation, competitor orientation, and inter-functional co-ordination) and two decision criteria (long-term focus and profitability)."

Jaworski and Kohli (1993) suggest that market-orientation is "the organization wide generation of market intelligence pertaining to current and future needs of the customers, dissemination of intelligence horizontally and vertically within the organization, and organization wide action or responsiveness to it." Day (1994) simply states that market orientation represents superior skills in understanding and satisfying customers. In a later study, Slater and Narver (1994) highlight that a company is market-oriented when "its culture is systematically and entirely committed to the continuous creation of superior customer value." Deshpandé et al. (1993) define customer value "as the set of beliefs that puts the customer's interest first, while not excluding those of other stakeholders such as owners, managers, and employees, in order to develop a long-term profitable enterprise." Specifically, "this entails collecting and coordinating information on customers, competitors, and other significant market influencers to use in building that value" (Slater & Narver, 1994). Thus, the heart of market orientation is its customer focus. In addition, today's customers have such varied needs and preferences that it is not possible to group them into large homogenous populations to develop marketing strategies (Shaw et al., 2001). In fact, each customer wants to be served according to his individual and unique needs. Hence, marketing decisions based on traditional segmentation approaches and not on a market orientation, result in a poor response rate and increased costs.

Slater and Narver (1994) suggest that market oriented companies have to understand cost and revenue dynamics of not only current customers but also of future target buyers. Therefore market-oriented companies are committed to understanding both the expressed and latent needs of their customers (Day, 1994; Gordini, 2010, 2012; Kohli & Jaworsky, 1990; Slater & Narver, 1994, 1998, 1999) as reacting only to customers' expressed needs is usually inadequate for the creation of competitive advantage in a global market. Certainly, market-oriented companies do not ignore the expressed needs of their customers, but they have to realize that, since competitive advantage is often temporary, the firm must understand how customers' needs are evolving and develop innovative solutions to such needs (D'Aveni, 1994). Therefore, the greater the market orientation of the firm, the greater the proportion of its activities oriented towards understanding latent needs. Developing a long-term relationship with customers is the best way to know the customers' expressed and latent needs and to enable them to become loyal (Dowling, 2002). Consequently, customer relationship management becomes a fundamental

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