Text Mining to Identify Customers Likely to Respond to Cross-Selling Campaigns: Reading Notes from Your Customers

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ABSTRACT

This paper reports on the results of extracting useful information from text notes captured within a Customer Relationship Management (CRM) system to segment and thus target groups of customers likely to respond to cross-selling campaigns. These notes often contain text that is indicative of customer intentions. The results indicate that the notes are meaningful in classifying customers who are likely to respond to purchase multiple communication devices. A Naïve Bayes classifier outperformed a Support Vector Machine classifier for this task. When combined with structured information, the classifier performed only marginally better. Thus, customer service notes can be an important source of predictive data in CRM systems.

KEYWORDS
Classification, Cross-Selling, Customer Relationship Management, NMF, Non-Negative Matrix Factorization, Text Mining

INTRODUCTION

Companies in the marketplace have many ways of interacting with customers, such as by way of the Internet, call centers, kiosks, etc. Managing these multiple connections, or channels, is becoming more challenging. The various channels afford companies with opportunities to interact with customers by both transmitting and receiving information from customers. In multichannel customer management, the customer is at the heart of strategies for creating value for the company (Neslin et al., 2006). Customer relationship management (CRM) systems are an effective way for companies to manage their multitude of marketing channels.

CRM systems allow companies to move toward customer-centric marketing approaches rather than persisting with more traditional brand- or product-centric approaches. With this transition...
to customer-centric marketing, many companies are realizing different customers yield different economic contributions to their companies. A logical question to follow such a realization is how can these customers be identified and what tools are needed to manage and maximize the processes related to cultivating relationships with these customers? It has been suggested that the stronger the level of CRM technology a company uses, the greater is its ability to initiate, maintain, and if need be terminate customer relationships (Reinartz, Krafft, & Hoyer, 2004). This paper identifies a means for extracting useful information from text notes captured within a CRM system that can be used to segment and thus target groups of customers likely to respond to cross-selling campaigns. These notes often contain text that is indicative of customer intentions. Armstrong et al. (2000) have demonstrated that intention-based forecasting models can be more accurate than models built solely from structured data on past sales. The presented method suggests a way to deepen the use of data that is normally captured and maintained within CRM repositories.

BACKGROUND

Companies are spending large amounts on systems for managing and servicing customers, mostly in the form of CRM systems. But, many companies are failing to see the expected returns with an estimated 55% of CRM projects failing (Rigby, Reichheld, & Schefter, 2002). Regardless of whether success or failure is achieved, companies are using CRM systems and related technologies to become more customer-centric. Customer-oriented companies have the ability to mass customize and personalize information for individual customers (Teo, Devadoss, & Pan, 2006). CRM enables businesses to acquire, get to know, and service customers according to their specific needs. CRM systems have three primary types of functionality, which are operational, analytical, and collaborative (Teo, et al., 2006). Of greatest interest in the present study is the collaborative functionality because it enables a business to interact with its customer to better service them.

Collaborative CRM systems are a means to engage customers in relationship marketing. Relationship marketing is attracting, maintaining, and developing customer relationships (Voss & Voss, 1997). Relationship marketing requires a deep and personalized understanding of the customer’s needs and characteristics, something service industries are well suited to do because of their personalized interactions with their customers (Voss & Voss, 1997).

This study develops and tests a method for using customer service notes captured from a call center and stored within a service company’s CRM repository with the goal of predicting which customers are likely to positively respond to a cross-selling campaign. It is well recognized that companies can increase their profits by identifying and altering marketing approaches to their different customer segments (Zeithaml, Rust, & Lemon, 2001). We show that text mining free-form customer service notes as a way to segment customers can result in predictive models that are as good as or better than models developed using only structured data.

The paper is organized in the following manner. Section two reviews literature on research trends related to cross-selling and text mining. Section three presents a framework for applying text mining techniques to identify customers likely to respond to cross-selling efforts. Section four outlines a methodology for evaluating the usefulness of the framework for identifying customers for cross-selling. Section five reports the results of text mining experiments used to test the framework. The final section discusses and concludes this study.

LITERATURE REVIEW

Cross-Selling and Customer Value

Presenting the right product or service to the right customer at an appropriate time helps to increase the lifetime value of a customer (Kumar, 2006). Companies use customer relationship management
Data Mining and Business Intelligence: A Comparative, Historical Perspective
www.igi-global.com/chapter/data-mining-and-business-intelligence/142704?camid=4v1a

Using Business Analytics for Strategic Alignment and Organisational Transformation
www.igi-global.com/article/using-business-analytics-for-strategic-alignment-and-organisational-transformation/83475?camid=4v1a