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EDITORIAL

Introduction to the special issue on "Data analytics for marketing intelligence"

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Marketing intelligence represents a continuous process of understanding, analyzing, and assessing a firm's internal and external environments associated with customers, competitors, and markets and then using the acquired information and knowledge to support the firm's marketing-related decisions. Marketing intelligence provides a road map of current and future trends in customers' preferences and needs, new market and segmentation opportunities, and major shifts in marketing and distribution in order to improve the firm's marketing planning, implementation, and control.

Marketing intelligence has evolved from a creative process into a highly data-driven process. Data sources for marketing intelligence can come from internal and external. With the advances of information technology and widespread diffusion of database and data warehouse systems in firms, large volumes of internal data useful for marketing intelligence have been generated and maintained by firms. At the same time, the proliferation of WWW and Web 2.0 innovations (e.g., product review websites, social networking communities) dramatically explode external data for marketing intelligence, as measured by sheer volume of data and number of data sources. On the other hand, the increases in competition and volatility of markets and customer preferences/needs require firms frequently updating their marketing intelligence or even retargeting their marketing intelligence directions.

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As a result, the discovery and subsequent maintenance of marketing intelligence becomes more difficult to manage and has been a huge burden to firms. Therefore, the development of effective and efficient analytics techniques for marketing intelligence discovery and maintenance becomes essential and desirable. Accordingly, this special issue solicits high-quality research articles addressing interesting and important research questions related to the broad research area of data analytics for marketing intelligence.

This special issue contains four research articles, covering opinion mining, new service idea generation, sales forecasting, and customer churn prediction. The special issue begins with the paper, entitled "Harnessing Consumer Reviews for Marketing Intelligence: A Domain-Adapted Sentiment Classification Approach," by Yang, Chen, and Chang. This study focuses on the sentiment classification of online product reviews. Specifically, to address the domain-dependency problem typically encountered in sentiment classification and sentiment analysis applications, the authors propose a domain-adapted sentiment-classification (DA-SC) technique for inducing a domain-independent base classifier and using a cotraining mechanism to adapt the base classifier to a specific application domain of interest. The authors use three collections of product reviews (pertaining to cars, computers, and digital cameras) that are collected from a third-party online product review website, RateItAll.com, for empirical evaluation purposes. According to the empirical evaluation results, the proposed DA-SC technique outperforms existing techniques for classifying product reviews into appropriate sentiment categories.

In the second paper, "A New Data Mining Methodology for Generating New Service Ideas," Karimi-Majd and Mahootchi propose a data mining methodology to facilitate the generation of new service ideas. Particularly, their proposed methodology consists of three major phases. The first phase is to use the association rule mining technique to discover customers' behavioral patterns. Subsequently, to improve the understandability of the association rules discovered by the previous component, the second phase employs a well-known clustering technique to group the association rules discovered. Finally, in the third phase, the authors propose a new type of graph, which can be employed to facilitate the process of new service development. Artificial and real datasets are used to illustrate how their proposed methodology works.

In the third paper, "A Sales Forecasting Model for Consumer Products based on the Influence of Online Word-of-Mouth," Chern, Wei, Shen, and Fan attempt to propose a novel sales forecasting model based on the influence of online word-of-mouth (i.e., product reviews). Accordingly, in order to assess the influence strength of a product review on product sales, the authors propose and develop a classification model that considers the properties of the product review (e.g., polarity and sentiment), the characteristics of its reviewer, and the responses from other users. Furthermore, to model the multi-period impact of a product review on product sales, review influence curves are employed and incorporated into the proposed sales forecasting model. Using the real data collected from a well-known cosmetic retail chain in Taiwan, the experimental results suggest that the proposed word-of-mouth-based sales forecasting method outperforms the traditional time-series forecasting models for most of the consumer products examined.

The special issue ends with the paper, "Predicting Customer Churn from Valuable B2B Customers in the Logistics Industry: A Case Study," by Chen, Hu, and Hsieh. This study examines the effect of the length, recency, frequency, monetary, and profit (LRFMP) customer value model for customer churn prediction. Using a dataset that contains 67,849 active business-customers and 1,321 churned business-customers of a large logistics company, the empirical evaluation results show that the five LRFMP variables have varying utilities for churn prediction. For example, length, recency and monetary variables are significant predictors for churn prediction, whereas frequency variable only becomes a top predictor when the variability of the first three variables is limited.

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1 About the Guest Editors

Ching-Chin Chern is a professor of the Department of Information Management at National Taiwan University. She holds a Bachelor Degree in Business Administration from National Taiwan University and a Master Degree of Business Administration from University of Texas at Arlington. She was employed as a system analyst in National Hand Tool Corp., Farmers Branch, Texas from 1987 to 1992. She received her Ph.D. in 1995 from University of Texas at Dallas and joined the faculty at National Taiwan University the same year. During her research period of a doctoral student, she also worked as a research consultant for Bell North Research Lab (BNR), primarily on evaluating telecommunication systems by applying simulation models. Her teaching and research interests are currently concentrated on applying Quantitative Methods to solve problems related to Supply Chain Management. Her work has appeared in numerous journals, including *European Journal of Operations Research*, *Decision Support Systems*, *Omega, IEEE Transactions on Semiconductor Manufacturing*, *Computers & Operations Research,* etc.

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