Design and Development of Intelligent Decision Support Prototype System for Social Media Competitive Analysis in Fashion Industry

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ABSTRACT
This paper describes the design and development of an intelligent decision support system (IDSS) for competitive analysis of social media in the fashion industry. A web-based prototype system is designed and developed to assist in monitoring the growing Internet media, protect fashion brands and products, and provide support for social media competitive analysis in the fashion industry through social media. In this study, a social media value grid that allows managers to use social media technology in the fashion business and add value for managers is proposed. Four propositions are presented as the research agenda in examining the ability of social media technology to improve the operations management of a fashion company.

KEYWORDS
Business Value, Intelligent Decision Support System, Fashion Industry, Sentiment Analysis, Social Media

INTRODUCTION
The use of social networking sites (SNS), such as Facebook, Weibo, Twitter, and Instagram has rapidly proliferated among people. Large organizations as well as innovative small- and medium-sized enterprises (SMEs) can benefit from the adoption of social media tools in business (Wamba & Carter, 2014). Social media serve not only as a communication or information sharing platform, but can also generate business value, such as building customer loyalty, raising customers’ awareness of brand image, predicting customers’ preference, facilitating information flow, creating customers’ intimacy, and raising revenue (He, Zha, & Li, 2013; Schniederjans, Cao, & Schniederjans, 2013). Social media are related to business value in two aspects. First, companies can use social media to affect customers’ behavior. Rishika, Kumar, Janakiraman, and Bezawada (2013) found that the more frequently the customers participate in a firm’s SNS, the more frequently the customers would visit the company’s site. Second, customers can use social media to share their purchases with their peers that

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may affect on peers’ purchasing preference. Customers’ opinions expressed in social media platforms play a significant role in influencing the behavior of other social media users (Mostafa, 2013).

eMarketer (2013) stated that by 2017, approximately 2.33 billion people will be using SNS. Nowadays, customers actively leave messages on online platforms to express their feelings or comments. These activities have even become part of their daily habits. Thus, we can foresee that huge amounts of information will be contributed into the social media every second from companies and individuals, which could translate to enormous business value and opportunities that can be generated from this ocean of information. Therefore, we consider a study on enhancing business value through the use of social media to be very important.

Studies on enhancing business value through the use of social media take two directions. First, a number of studies have focused on how companies utilize social media as tools to affect customers’ behavior to create business value. For instance, Kaplan and Haenlein (2014) provided suggestions for companies on how to adopt social media tools to launch marketing campaign. Tuten and Solomon (2013) demonstrated various methods for marketers to understand the use of social media platforms to influence customers’ activities, and a large number of companies have actually posted their brand messages on social media platforms to foster business relationships with customers (Vries, Gensler, & Leeflang, 2012). Second, researchers have also expounded on the importance of user generated content (UGC), particularly opinions and product reviews contributed by users, and found that the wide adoption of social media tools can attract more UGC, which contains valuable implicit business information. Mostafa (2013) stated that opinions expressed in social media platforms have a significant role in enhancing business success. Netzer, Feldman, and Fresko (2012) indicated that UGC could aid companies in exploring what customers write about their products as well as the products of their competitors. Wang, Wang, and Yin (2014) also mentioned that online product reviews help detect product weakness, whereas Smith, Fischer, and Chen (2012) stated that realized UGC helps enhance consumer engagement.

Competitive intelligence can effectively assist companies in understanding their strengths and weakness and improving customer satisfaction (Lau, Lee, & Ho, 2005; Dey, Haque, Khurdiya, & Shroff, 2011). If companies can effectively utilize the huge number of comments from customers posted on social media platforms and manage them well, these comments could help companies maintain their sustainable competitive advantage and create business value. Thus, we aim to illustrate how social media can aid in capturing useful information from the ocean of information by applying text mining technique.

Numerous researchers have already explored the importance of applying the text mining technique in social media to extract information in different industries. He et al. (2013) extracted the unstructured content on Facebook and Twitter by adopting the text mining technique to conduct a competitive analysis on three large pizza chains. Abrahams, Jiao, Wang, and Fan (2012) showed the use of text mining technique in social media to improve automotive quality management.

The application of text mining in social media in the fashion industry is important as it could assist companies to utilize UGC fully in the following aspects. First, the fashion industry requires fast update and needs to be monitored closely. If companies can keep pace with the news, they can effectively predict the next fashion trends. Information from different social media platforms varies considerably. The proper application of text mining can aid in the extraction of useful information from a vast array of social media platforms. Second, the fashion industry is highly dependent on customer preferences. Social media provide a wide sharing platform for users; with text mining, fashion companies can extract customers’ comments via the social media platforms. Thus, we found a common norm between social media and the fashion industry.

Despite its importance, there is lack of study investigating the practicality and business value of using the text mining technique to perform social media competitive analysis in the fashion industry. The present study aims to explore whether text mining in social media can assist the fashion industry in creating business value and to investigate how social media and text mining can be utilized in the
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