Examining the Use of Social Media in Customer Co-Creation: A Blog Mining Study

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ABSTRACT
Social media have been used by some companies to support customer co-creation in recent years. However, few academic studies have been done to investigate the use of social media for customer co-creation. To understand the current state-of-the-art and future trends about the use of social media for customer co-creation, we conducted a blog mining study to analyze relevant posts on blogs. This blog study reveals some interesting patterns, themes and future trends in this specific area.

Keywords
Social media, customer co-creation, text mining, blog mining

INTRODUCTION
Customer co-creation has received increasing attention in the past few years. Many companies and online retailers such as Nike, BMW Group, Dell.com, Domino’s Pizza, Starbucks, Coca-Cola, McDonald, LEGO, Heineken and Rickshaw Bagworks have been partnering with customers to co-create products or services on the Internet. For example, Domino’s Pizza allows consumers to create their own pizza using a special “build-your-own” pizza tool on the company’s website; Rickshaw Bagworks allows each customer to design and customize their own bag before it is made to order. As co-creation offers personalized experience for customers to meet their specific needs, preference and interests, customer co-creation has become a popular business strategy and an increasingly accepted model for innovation nowadays (Prahalad and Ramaswamy, 2000; Uden, L. and Naaranjoa, 2011; Martini, Massa and Testa, 2012). Through a survey of 311 executives in major industries, Cognizant(2012) found that “organizations that structure their innovation processes by combining internal teams with customer input report higher satisfaction with a variety of innovation areas than companies that don’t employ this structure”. A marketing study conducted by Fuchs, Prandelli and Schreier (2010) reveals that consumers are more likely to purchase products they had a hand in selecting due to a sense of ownership and customers are willing to pay more, have increased future loyalty intentions, and have a higher likelihood of speaking positively about the product.

To further improve customer co-creation experience, many of these companies and online retailers have used social media tools to support the customer co-creation practice recently. Social media tools have been used to engage customers into the interactive co-creation process, share what they have built, get feedback from other customers to improve a specific user-generated design, and even help customers design a product or service together (Blazek,P., Kolb, M., Partl, M. and Streichsbier, 2012). Thus, using social media for customer co-creation is sometimes called social co-creation. The mutual support between customers also reduces the need and cost for the customer service offered by the companies or online retailers (Piller, Vossen and Ihl, 2012). Martini, Massa and Testa (2012) suggest that social media tools can not only help generate creative ideas but also add value to customers’ online shopping and co-creation experience.

More and more businesses realize that they could be rewarded by embracing customers as co-creation partners in their business activities. Customers are now seen as a source of value creation and competitive advantage by many companies (Merchant, 2012). However, there is still a lack of research on the use of social media for customer co-creation. To improve the understanding of the use of social media in customer co-creation, we conducted a blog mining study to examine the latest development, existing issues and trends about social media and customer co-creation. Some researchers have used blog mining to conduct Internet-related research and achieved meaningful results (Rubin, Burkell and Quan-Haase, 2011; Chau and Xu, 2012). As there are few studies on social media for customer co-creation available in academic literature, we considered blog mining as an appropriate approach for our research. The goal of this blog mining study is to help interested researchers understand the current status and future trends of this interesting research area. Companies that are interested in
enabling co-creation with social media can also learn useful insights from this study which can be used to guide their social media for customer co-creation initiatives.

The rest of this paper is organized as follows. Section 2 provides a brief review about the use of social media for customer co-creation and text mining. Section 3 describes our research questions and a blog mining study to answer the research questions. Section 4 discusses the results of the blog mining study and presents the future trends for using social media to enhance customer co-creation. Section 5 presents conclusion.

LITERATURE REVIEW

Use of Social Media for Customer Co-creation

There are extensive literatures about customer co-creation. Prahalad and Ramaswamy (2004b) consider co-creation as the process during which consumers take an active role and co-create value together with the company. Roser et al. (2009) define customer co-creation as a form of collaborative creativity initiated by firms to enable innovation with their customers. Piller and Ihl (2010) describe customer co-creation as “a set of methods that establish an active, creative and social collaboration between producers and customers (users) in the context of new product development”. Kohler, Fueller, Matzler and Stieger (2011) suggest that co-creation often occurs during the innovation process and joint product development activities. For example, more and more customers are co-creating value with the company by generating and evaluating new product ideas, elaborating, evaluating, or challenging product concepts, and creating virtual prototypes (Kohler, Fueller, Matzler and Stieger, 2011). According to Di Gangi and Wasko (2009), co-created value is defined as the mutual benefits gained by the organization and users when engaging in a user-generated content website. In order to successfully co-create value, both the users and the organization must capture benefits. Co-created value typically takes place when interactions between the customer and the company occur (Grönroos, 2010). Thus, managing the quality of the interaction between the company, customers, and customer communities is critical for value co-creation (Prahalad and Ramaswamy, 2004a; Fyrberg and Jüriado, 2009).

An interaction platform is needed to engage customers into the value co-creation process. Ramirez (1999) advises that companies should provide tools to customers to actively involve them in the co-design or co-development of future offerings. Interaction platforms, related tools/resources and incentives should be leveraged to encourage customers to participate in the innovation activities and to facilitate firm-customer-customer interactions during the value-creating process (Piller, Vossen and Ihl, 2012). Furthermore, a company needs to develop strategies to effectively use and support the interaction platform because a company’s interaction with a customer may have both positive and negative impacts on the customer’s value creation (Grönroos, 2010).

Social media tools hold great promise as an interaction platform for implementing customer co-creation (Sawhney, Verona and Prandelli, 2005; Ogawa and Piller, 2006; Antorini, Muniz and Askildsen, 2012). Social media may allow a company to engage customers more efficiently and at a lower cost than using traditional communication and marketing tools such as flyers, TV ads and broadcasting (Martini, Massa and Testa, 2012). In particular, social media made it possible to engage a larger number of customers to contribute to a co-design or co-development initiative (Piller, Vossen and Ihl, 2012). By using social media to obtain customer input and feedback directly throughout the product development life cycle, companies lower the “risk that the product will not meet consumer needs upon launch” (Williams, Gownder and Wiramihardja, 2010). Recently, social media tools such as Facebook, Twitters, Blogs, Wikis, Foursquare, YouTube and Discussion Forums have been used as the interaction platforms to enable customer co-creation by some companies. By using social media as the interaction platform, individual customers and customer communities share, co-create, discuss, and modify user-generated content and products (Kaplan and Haenlein, 2010; Kietzmann et al, 2011).

There are few academic researches investigating the inter-relationship of customer co-creation and social media (Martini, Massa and Testa, 2012). A search of the literature only found several studies that investigate the use of social media for customer co-creation. Martini, Massa and Testa (2012) conducted a case study with a large Italian food manufacturer company and examined this company’s customer co-creation practice enabled by social media. They found that this company used social media tools to engage customers into generating both incremental and radical innovative ideas. By working closely with customers to realize new user-generated ideas or suggestions, social media change this company’s innovation practice from the initial stage of idea exploitation to a stage in which both idea exploitation and exploration are simultaneously accomplished. Piller, Vossen and Ihl (2012) proposed a typology of co-creation activities to assess the impact of social media in innovation processes based on customer co-creation. Their study found that social media can not only make economic-exchange relations more collaborative and social, but also turn relations formerly based on social-exchange.
into "money markets" (relations relying on economic exchange) with strong competition among actors. For example, customers can sell their co-designed products to their clients.

**Text Mining**

As an emerging technology, text mining aims to extract meaningful information from unstructured textual data (Hung and Zhang, 2008; Liu, Cao, and He, 2011; He, Zha and Li, 2013). To glean useful information from a large number of textual documents quickly, it has become imperative to use automated computer techniques (Liu, Cao, and He, 2011; He, 2013a). Text mining is focused on finding useful models, trends, patterns, or rules from unstructured textual data (Hung and Zhang, 2008; Romero, Ventura and Garcia, 2008; Abdous and He, 2011). Different from traditional content analysis, the main purpose of text mining is to automatically identify useful patterns or trends hidden in the text documents (He, 2013b; Zhong, Li, and Wu, 2012).

Text mining techniques have been used to analyze large amounts of textual data. Abdous and He (2011) used text mining techniques to analyze the online questions posted by video streaming students and identified a number of learning patterns and technology-related issues. Fuller, Biros and Delen (2011) used text mining to detect deception and lies in real world data. Their results show that automated text mining techniques have the potential to aid those who must try to detect lies in text. Hung (2012) used clustering analysis as an exploratory technique to examine e-learning literature and visualized patterns by grouping sources that share similar words, attribute values and coding rules. Some major applications of text mining include: clustering, information extraction (text summarization), and link analysis (Hung, 2012; Zhong, Li, and Wu, 2012). Currently, there are a wide range of tools that can be used for text mining and analysis, such as the SPSS Modeler (formerly Clementine), Leximancer, SAS Enterprise Miner and NVivo. Due to the powerful capabilities of text mining, it is believed that applying text mining to textual data including messages posted on social media such as blogs can yield interesting findings (He, 2013b; Barbier and Liu, 2011; Chau and Xu, 2012).

**A BLOG MINING STUDY**

**Research Questions**

The number of companies that adopt customer co-creation into their product or service development activities is steadily growing (Piller, Vossen and Ihl, 2012). The growth creates many opportunities for researchers to understand the inter-relationship between social media and customer co-creation. To understand the current state-of-the-art and future trend about the use of social media for customer co-creation, we conducted a blog mining study to answer the following research questions:

- What themes can be found by mining blog posts related to the use of social media for customer co-creation?
- What are the possible trends regarding the use of social media for customer co-creation?

**Methodology**

In an effort to answer the above research questions, we decided to conduct a text mining analysis of relevant blog posts. When text mining techniques are used to analyze blog posts, sometimes it is called blog mining (Rubin, Burkell and Quan-Haase, 2011). Mining blog posts is a valuable method for conducting Internet-related research (Chau and Xu, 2012). As blog contents are created by self-motivated bloggers who are independent of this study and are publicly available online, blogs are considered a useful information source (Rubin, Burkell and Quan-Haase, 2011). As combining customer co-creation with social media is a relative new and hot topic, relevant discussions are often posted by online customers, technology consultants, marketing professionals and innovation experts on blogs first before they appear in academic publications. For instance, many blog posts provide successful examples, discuss specific methods to attract innovative customers to the open innovation activities, and the strategies to optimize customer co-creation activities. Thus, those blogs are a very useful data source for learning about the latest development, existing issues and trends about social media and customer co-creation. A limitation with blog mining is that the information on blogs is not peer reviewed as journal publications and often represents personal opinions and attitudes. Thus, researchers need to be careful of the bias on blog posts when they analyze the content of blog posts.

As a result of the mining, we identified some interesting themes and insights associated in this specific research area. Below
is a description of the procedures and findings.

- First, we conducted Google Blog Search (http://www.google.com/blogsearch) with the phrase: “social media” + co-creation. Google Blog Search is specially designed to retrieve content from blogs that are freely and publicly available on the Internet. After the query search, Google returned a large number of blog posts that are created by numerous Internet bloggers. As a result, Google showed a message that more than 47400 results were found in 0.10 seconds as of Feb. 16, 2013. However, a step-by-step examination of the result pages found that Google actually displayed only 345 relevant blog posts (as of Feb. 16, 2013) and automatically filtered other blogs posts which were considered to very similar to the first 345 blog posts. Figure 1 displays the number of related blog posts by year from 2008 to 2012 (excluding Year 2013). The figure indicates that enabling co-creation with social media was a new phenomenon in 2008 but has gradually received more attentions over the past several years. The number of blog posts about co-creation with social media reached a peak in 2011 and only slightly declined in 2012.

![Figure 1. The number of related blog posts by year](image)

- Secondly, we used two popular text mining and analysis software, SPSS Clementine text mining tool and NVivo 9, to analyze the content collected from the blog posts. We mainly used SPSS Clementine’s linguistic methods (extracting, grouping, indexing, etc) to explore and extract key concepts, generate categories, and help us quickly gain insights from the textual data. We mainly used NVivo 9 software to conduct various query searches. The query searches were mainly used to test ideas, find interesting patterns, connections, and unusual information based on the research questions. By following the three steps (pre-processing, applying text mining, and evaluating the mining results and recognize actionable information), we were able to identify new knowledge including patterns, issues and themes from the collected textual data. Typically, conducting text mining and analysis requires continuous evaluation of the data and multiple rounds of refinement to achieve rich findings (He, 2013a; Romero and Ventura, 2010).
Results
As a result of the mining of our sample data set, we were able to quickly identify and summarize a number of themes. Then we grouped these themes into different categories. Tables 1 list some of the main themes we found.

<table>
<thead>
<tr>
<th>Category</th>
<th>Main Themes</th>
</tr>
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<tbody>
<tr>
<td>Benefits</td>
<td>- Bringing better products to market more quickly</td>
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<td></td>
<td>- Developing products at lower costs and reduced risks</td>
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<td></td>
<td>- Accelerating innovation</td>
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<td></td>
<td>- Gaining deep marketing insights</td>
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<td></td>
<td>- Getting more advocates</td>
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<td></td>
<td>- Increasing customer loyalty</td>
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<td></td>
<td>- Improving business process</td>
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<td></td>
<td>- Facilitating organizational change</td>
</tr>
<tr>
<td>Issues, concerns or challenges</td>
<td>- How to identify innovators and valuable contributors from the customers?</td>
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<td></td>
<td>- How to monitor and correct incorrect usage information in the customer co-creation process?</td>
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<td></td>
<td>- How to assess, revise and optimize the co-creation process to achieve a satisfactory outcome?</td>
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<td></td>
<td>- Niche market only due to small sample size: a small number of customer co-creators may be not representative of the whole customer population</td>
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<td></td>
<td>- Copyright concerns (customers may demand certain property rights)</td>
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<td></td>
<td>- Conflicts between customers’ interest and organizational interests or product development direction</td>
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<td></td>
<td>- Regulatory concerns in certain industries such as healthcare</td>
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<td></td>
<td>- Risk management such as potential loss of control, trust issue</td>
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<td></td>
<td>- Budget concerns caused by the cost of running co-creation contests or campaigns</td>
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<tr>
<td>Co-creation Strategies/Methods</td>
<td>- Incentives (financial payment, licensing contract, non-monetary acknowledgments)</td>
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<tr>
<td></td>
<td>- Campaigns, challenges, contests, competitions</td>
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<td></td>
<td>- Hold online group meetings</td>
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<td></td>
<td>- Seek input from private or specialized virtual community</td>
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<td></td>
<td>- Crowdsourcing</td>
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<tr>
<td>Examples/Case Studies</td>
<td>- Case studies, use cases and examples from various companies such as Coca-Cola, mcdonald and Nike</td>
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<tr>
<td></td>
<td>- Case studies and examples from various countries such as the USA, Europe, and Latin American</td>
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<td></td>
<td>- Interview transcripts with experts</td>
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<td></td>
<td>- Sharing experience and lesson learned</td>
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<tr>
<td>Education/training</td>
<td>- Co-creation related workshops and conferences</td>
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<td></td>
<td>- Co-creation related books</td>
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<td></td>
<td>- Best practice guides on developing in-house co-creation planning and facilitation skills</td>
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<tr>
<td>New trends</td>
<td>- Integration of social co-creation and CRM</td>
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<td></td>
<td>- From co-creation towards structural collaboration</td>
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<td></td>
<td>- More small businesses adopt co-creation</td>
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<td></td>
<td>- More brands will create ongoing co-creation platforms to invite ideas from customers</td>
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</tbody>
</table>
DISCUSSION

Main Patterns/themes

A discussion of the main patterns/themes from the blog mining is listed as follows.

- A high level of customer engagement with social media is needed to ensure that customers will persistently contribute to the co-creation process regardless of financial payment (Piller, Vossen and Ihl, 2012; Martini, Massa and Testa, 2012). Simply reaching out to customers or superficial engagement are not enough to realize a successful social co-creation.
- Besides seeking input from the general public, companies can use social media to engage specialized online communities composed of designers, developers, programmers, engineers, healthcare professionals and others (Parkja, 2012; MSLGroup, 2013).
- Incentives are important to customer co-creation. Companies must reward the customers as the co-creator because co-creation requires a lot of time and efforts. Reward can be in different formats including financial payments, public recognition, etc. A study by Nambisan and Baron indicates (2007) that customers’ actual experiences and their beliefs about the expected benefits significantly influence their actual continued participation in value co-creation.
- Employing multiple strategies to engage customers on social media. For example, companies can use activities such as challenges, contests, competitions, online group meetings, and crowdsourcing to attract the general public and specialized online communities (Piller, Vossen and Ihl, 2012). Many of these activities typically include phases for entry submission, community voting, and selection of winners.
- Currently, customer co-creation was most applied in the early product development stage such as idea generation or customization (Frost and Sullivan, 2011). More involvements in the whole product development cycle such as co-production, decision making for pricing, co-launching, co-advertising and co-marketing of the product are needed (Bellegem and Ruyck, 2012).
- Identifying which social media tools should be used for customer co-creation. Williams (2010) suggests that companies use social asset tracking scorecard to score their ability to utilize different social media tools and use social co-creation maturity index to assess the relative maturity of each social media tool for co-creation purposes.
- Companies need to share with their customers about how they use customer input and co-creation in the whole business process so that customer would be motivated to continuously participate in the co-creation (Dijk, 2012; Piller, Vossen and Ihl, 2012).
- Managing the risks involved in the co-creation process. Gassmann, Kausch and Enkel (2010) identified some negative side-effects associated with co-creation such as dependence on customers’ views, interests, behaviour, personality and experience, potential loss of know-how, etc. Dijk (2012) suggests that good community management and clear rules of engagement can tackle many of the risks during the co-creation process.

Future Trends

We identified a few trends related to social media for co-creation.

- Integrating social co-creation with CRM (Customer relationship management). As social media continue to grow, it becomes necessary to combine the social media data with existing customer data in the CRM system. Technology companies such as Salesforce and Dell are making social CRMs which add social media to existing CRM systems (Parkja, 2012).
- Develop mobile social co-creation apps. As more and more customers use mobile devices to access websites and social media, there is a strong need to develop mobile social co-creation apps. It is expected that an increasing number of platform-specific mobile social co-creation apps will be offered by companies to facilitate social co-creation (Parkja, 2012; MSLGroup, 2013).
• The co-creation community will continue to grow. More and more customers will be involved in co-creation and develop values by interacting with companies (Zwass, 2010). In addition, big brands will be more likely to build their own social co-creation platforms since they have more resources and relatively higher level of experience with social media; small businesses will increasingly use existing online crowdsourcing communities such as Quirky, Zooppa, Innocentive, Jovoto, MoFilm, Neocha Edge and Brandfighters to build customer co-creation communities and expand their innovation capability (Parkja, 2012; MSLGroup, 2013).

• More systematical and structured collaboration. Customer co-creation will continue to expand to more systematical and structured collaboration which involves the whole life cycle of product or service development and the customer knowledge will be integrated into all the decision processes of a company (Cook, 2008; Andreu, Sanchez and Mele, 2010; Belleghem and Ruyck, 2012).

CONCLUSION AND FUTURE RESEARCH

More and more companies are using customer co-creation as a way to engage consumers and meet customers’ desire to influence products or services. By engaging customers to create new products/services or improve existing products/services, companies can gain a deeper understanding on customers’ behavior and desires, adapt more quickly to changing trends and achieve sustainable competitive advantage (Roser et al., 2009; Martini, Massa and Testa, 2012).

Social media tools offer a creative way for customers to develop value by collaborating or interacting with companies and other customers. Combining customer co-creation with social media tools is not only a natural extension of the co-creation process but also an effective platform to engage customers for innovation (Sloan, 2010). The results of this blog mining study show that customer co-creation is a growing trend and there are still many open research issues, concerns and opportunities along the line of social co-creation. These issues and concerns will have to be effectively addressed or overcome in order for social co-creation to become more effective. For example, many companies do not know how to measure or assess their social media efforts for customer co-creation. As a result, it is hard for them to decide whether their social media investments are paying off. To solve this issue, new assessment metrics will have to be developed. As far as our future research is concerned, we plan to survey a few companies that are using social media for customer co-creation in order to get a deeper understanding and insights of issues and concerns that are related to social co-creation. Eventually we hope to develop some guidelines to help companies develop effective social media strategies and approaches for customer co-creation.

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