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Corporate Social Responsibility in the Blogosphere

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ABSTRACT. This paper uses social network analysis to examine the interaction between corporate blogs devoted to sustainability issues and the blogosphere, a clustered online network of collaborative actors. By analyzing the structural embeddedness of a prototypical blog in a virtual community, we show the potential of online platforms to document corporate social responsibility (CSR) activities and to engage with an increasingly socially and ecologically aware stakeholder base. The results of this study show that stakeholder involvement via sustainability blogs is a valuable new practice for CSR communications and stakeholder engagement. It also opens new horizons for communicating CSR issues to key constituencies online.

KEY WORDS: corporate communications, corporate social responsibility, corporate weblogs, social networks, stakeholder communication

Introduction

In an environment in which stakeholders are increasingly active in holding corporations accountable for their behavior, companies must not only expose stakeholders to their corporate social responsibility (CSR) efforts, but also engage them. Multinational companies such as McDonald's, whose online engagement practices this paper examines, face public scrutiny from stakeholders online as well as offline (Barnes, 2009; Greenpeace, 2006; Royle, 2005). For instance, several private watchdog Web sites and online communities report on the company's alleged exploitation of animals, people, and the environment. Such growing pressure led McDonald's to participate in various CSR activities, ranging from sustainability reports to engagements with NGOs such as Greenpeace (Royle, 2005).

Among other methods, stakeholder engagement can be fostered via online communication platforms that are devoted to participation and involvement in corporate decision-making. Using the information platforms provided by a number of technological developments collectively referred to as Web 2.0, stakeholders are increasingly able to participate, share, and collaborate online (O'Reilly, 2005, p. 109; 2006). Corporate blogs, a new form of interactive online publication that provides a platform for exchanging opinions and comments on both emerging and existing issues, may prove an ideal instrument for companies to use to engage stakeholders. Not surprisingly, many companies have begun to document their activities using blogs, as Lee et al. (2006) have shown in the analysis of the blogging strategies of the Fortune 500 companies.

This paper looks at a particular practice of corporate blogging, namely, the implementation of blogs focused on a firm's social and ecological responsibilities, known as CSR blogs. Corporate blogs are typically a platform used to discuss pressing issues, and they are particularly effective for engaging stakeholders (Huang et al., 2007; Lee et al., 2008; Smudde, 2005). CSR issues appear to be a natural fit for this communication vehicle because stakeholders with an interest in green and social issues are often particularly interested in opportunities to engage with firms. As a result, many stakeholders may not only be interested in invitations for engagement, but may in fact be eager to do so when given the opportunity.

Hence, a corporate blog devoted to CSR activities may open new frontiers for companies as regards how they interact with their shareholders, consumers and concerned citizens interested on such issues. However, at the same time, a company providing such a weblog (or blog for short) becomes part of the blogosphere and its rules, a network of personal opinions that follow particular dynamics and modes of interaction. Given this challenge, and especially in light of growing stakeholder reliance on Internet sources for information about products and companies (Dellarocas, 2003, 2006), a deeper understanding of structural processes within the blogosphere is necessary. This study attempts to increase this knowledge in the particular domain of corporate sustainability blogging, based on an explorative case study of McDonald's, the company with the most prominent CSR blog at the time of this writing. McDonald's has a blog entirely dedicated to its CSR policy (http://csr.blogs.mcdonalds.com). Although not extremely well established in the blogosphere, the blog is growing in popularity, and continues to rank higher on Technorati than any other CSR blog (rank 98,459). The blog itself is written by Bob Langert, McDonald's Vice President of CSR, and is dedicated to informing the public about the five key issues relevant for McDonald's: balanced active lifestyles, responsible purchasing, people, the environment, and the community.

This study uses social network analysis to understand the structure and relationships between different actors around this prototypical sustainability blog as well as to determine the implications for the broader question of corporate communications and stakeholder management. The results show that corporate blogs are one of the most versatile corporate media to document the interconnectedness between a company and its stakeholder base. On a cautionary note, we want to point out that the paper focuses on the nature of relations built around a corporate blog and the structure of the dialogues held in such a network. The investigation of whether these relationships are meaningful is outside the scope of this paper, as such relationships imply commitment by the corporation no matter which corporate media is used. We begin with a review of the literature related to CSR and Web 2.0, and then we provide an overview of the research methods and the social network analysis performed on the McDonald's blog. Finally, we discuss the implications of this study for researchers and practitioners.

Research issues

Corporate social responsibility and responsiveness

Stakeholder consultation and dialogue is increasingly a part of mainstream business (Business for Social Responsibility (BSR), 2003). The motivation for greater interaction is attributed to both corporate goodwill and changing stakeholder demands, which are becoming increasingly more critical, especially with regard to social and environmental issues (e.g., Carroll, 2007; Frederick, 2008). Corporate social responsiveness has been a topic of academic study for several decades, beginning with Ackerman's (1975) three characteristic behaviors of responsive firms. Responsiveness implies that companies monitor and assess environmental conditions, attend to stakeholder demands, and design plans and policies to respond to changing conditions. Carroll (1979) observed that responsiveness alone is conceptually inadequate to replace the economic, legal, ethical, and discretionary strands of responsibility, as companies can be very responsive to environmental conditions or social pressures, but they may act irresponsibly or unethically in the process. Wartick and Cochran (1985) added that responsiveness complements responsibility but does not replace it. As Wood (1991, p. 693) argues, ''The process of responsiveness contributes an action dimension that is needed to complement the normative and motivational concept of social responsibility,'' along with motivating principles and observable outcomes of corporate and managerial actions.

From a corporate perspective, there are several reasons that companies are paying increasing attention to responsiveness. CSR processes may lead to policies and outcomes of corporate practices that are more adapted to societal expectations, thus creating a reputation among stakeholders that will help to attract resources, enhance performance, and build a competitive advantage (Fombrun et al., 2000). In order to realize those benefits, companies should communicate their corporate social responsibilities (APCO, 2004). Socially and economically responsible corporations can enjoy more resilient stakeholder relationships, which lowers the likelihood of regulatory interventions and conflicts with pressure groups and

NGOs (Guay et al., 2004). Evidence suggests that a responsible and responsive company successfully retains current employees and is attractive to potential employees (Fombrun et al., 2000). Furthermore, CSR activities are an important instrument for creating public goodwill and improving a company's image and reputation among customers (Barone et al., 2000; Hoeffler and Keller, 2002; McAlister and Ferrell, 2002). A credible commitment to CSR can help reduce conflicts with NGOs, prevent government interventions, and strengthen a company's brand (Barone et al., 2000; Bhattacharya and Sen, 2004; Brown and Dacin, 1997; Creyer and Ross, 1997; Madrigal, 2000).

Despite such benefits, as Dawkins (2005, p. 109) points out, communication is the missing link in the practice of corporate responsibility. Lewis (2003, p. 361) finds that although many companies are truly committed to fulfilling their corporate responsibilities, they often fail to communicate actively enough with their stakeholders. According to CSR Europe (2000a, b), companies already use a wide range of channels for CSR communication, including social reports, web sites, and advertising (Birth et al., 2008, p. 185). Nonetheless, any initiative that a company takes to achieve trust and legitimacy through responsible corporate behavior necessarily includes its capacity to respond to demands from stakeholders and to communicate with them. For companies, communicating responsible behavior to their stakeholders is of vital importance (Capriotti and Moreno, 2007). CSR activities contribute to the perceived integrity and authenticity of a firm's various brands. On the other hand, tying sustainability issues to companies always also entails the risk of public scrutiny and criticism, especially in the context of online forums such as corporate blogs.

Many researchers point to the growing importance of corporate Web sites in the communication of organizational responsibilities (Esrock and Leichty, 1998, 2000; Maignan and Ralston, 2002). Stuart and Jones (2004, p. 85) argue that Web sites are a valuable communication tool for corporations. They argue that a corporate Web site is able to persuade, inform, and educate stakeholders as well as to interact with them. However, many corporate Web sites currently remain static and do not use the full potential of dialogue-based communication. Integrating CSR issues with corporate objectives remains a difficult balance to strike. However, if executed skillfully, the information platforms collectively referred to as Web 2.0 will provide a wide range of opportunities for companies to interact with customers and other stakeholders, thereby offering new potential for product differentiation and competitive advantage.

CSR and the blogosphere

In contrast to static Web sites and reports, the development of Web 2.0 and weblogs has significant potential for engaging customers and stakeholders in a dialogue. The term Web 2.0 was first coined by O'Reilly (2005, 2006) to summarize various social and technical developments in the Internet realm. The technical foundations that constitute Web 2.0 are, first and foremost, technologies such as AJAX and XML, which enable easy sharing and linking of documents online. Predominant platforms of this new web era are wikis, blogs, and social networks. However, Web 2.0 is not only a technological movement, it is also a social one. The most notable phenomena are social bookmarking (Albrycht, 2006), grassroots responsibility, citizen journalism (Gilmor, 2004), and the spontaneous emergence of smart mobs, informed groups of citizens, who use blogs and wikis (Dearstyne, 2007) for their campaigns (Rheingold, 2002; Trufelman, 2005). Hoegg et al. (2006) attempt to provide a comprehensive definition for these technological and social developments by defining the term Web 2.0 as "the philosophy of mutually maximizing collective intelligence and added value for each participant by formalized and dynamic information sharing and creation." In this way, rather than reducing Web 2.0 to mere software applications, the authors emphasize the social impact of the collective collaborative work that is enabled through technology.

In this rapidly evolving field of online communication and collaboration, weblogs, one of the main communication platforms of the Web 2.0 era, have strong potential for engaging stakeholders on sustainability issues. In their simplest form, weblogs are online publications consisting of short entries, which are usually written in an expressive and authentic style and arranged in reverse chronological order. One of the most important features of blogs is the built-in function that enables commentaries on each of the entries (Kolbitsch and Maurer, 2006; Rosenbloom, 2004; Shi et al., 2007). The commentary function enables open discussion on every entry that is made, and therefore fosters dialogue between blog authors and readers (Zerfass and Boelter, 2005). A blog can be further defined as "a web page where a web logger 'logs' all the other web pages she finds interesting" (Blood, 2004, p. 53), and the process of blogging can be considered as follows: "To blog is to continually post one's own ideas, opinions, Internet links (including those for other blogs), and so on about things on one's own Web site, which is called a web log" (Smudde, 2005, p. 34). These definitions emphasize the fact that blogs are online publications that are regularly updated and are based on the personal opinions of their authors.

It is worth emphasizing that the option to comment on blog entries offers the possibility to link to other blogs. These links can refer either to a single entry or to the blog in its entirety. The comments and links on all blogs in existence on the Internet form a clustered network termed the blogosphere (Schmidt, 2007). Due to the complexity and vitality of the blogosphere, it is almost impossible to accurately estimate the total number of blogs forming this collaborative network. Established blog search engines, such as technorati.com or blogpulse.com, track more than 133 million blogs worldwide (Technorati, 2008). This is not an easy task, considering the vitality of the blogosphere: almost one out of two blogs is abandoned after merely 3 months, but a new blog is set up every 1.4 s (Sifry, 2007). These numbers demonstrate the rising importance of user-generated content for almost every part of society.

Lenhart (2006) points out that 90% of weblogs are dialogue-based. Often, the comments that accompany a post are more compelling to many readers than the post itself. In addition, many blog audiences represent coherent groups of experts or individuals. Even large companies such as Cisco, Dell, Ford, and HP have used blogs to reach opinion leaders, innovators, and early adopters (Kent, 2008). In this context, this study explores the various interactions within the blogosphere around a corporate sustainability blog. In general, a corporate blog dedicated to CSR issues aims to inform and persuade a firm's key constituencies over the long term (Fleck et al., 2007). We expand upon this idea and strive for a deeper understanding of the embeddedness of a sustainability blog within the blogosphere. Accordingly, the central research rationale of this paper is to determine whether CSR blogs allow companies to establish relationships with the various actors in the blogosphere, and to analyze how these relationships affect corporate communications and stakeholder management.

Research methods

This case study of the McDonald's CSR blog uses the analytical methods derived from social network analysis, which describe social environments as relationship patterns among interacting units (Wasserman and Faust, 1994). Very few studies report the application of social network analysis to the business ethics research community to date. With the examination of online stakeholder relationships still in an early stage, single-case studies are considered an adequate means for first attempts to explore phenomena and to build theories (Benbasat et al., 1987; Eisenhardt and Graebner, 2007; Yin, 2003).

We further adapted the methods of social network analysis to accommodate the network structures of the Internet. Networks can be described in simple terms as a set of discrete elements (known as vertices or actors), and as a set of connections (known as edges) that link the elements. These vertices and edges can be formed by almost any object, such as people and friendships (Rapoport and Horvath, 1961), computers and communication lines (Faloutsos et al., 1999), chemicals and reactions (Fell and Wagner, 2000; Jeong et al., 2000), scientific papers and citations (Price, 1965), and hyperlinks and the Web sites in which they are embedded.

Much of the vocabulary of social network analysis, such as actor centrality, path lengths, cliques, and connected components, is derived from graph theory (Newman et al., 2006), which requires a certain amount of adaptation in order to apply to online networks. Thus, there is the developing field of hyperlink network analysis, which uses the tools and methods derived from social network analysis. In an extension of this field, scholars have begun to assign actor attributes to Web sites, since they reflect the communicational choices and agendas of their respective owners (Jackson, 1997). Web sites function as nodes through which information travels among users. Hence, hyperlinks represent a network among people, organizations, or nations, which allows an interpretation of the social structure of online communication based on the structure of hyperlinks (Park, 2003). Given that blogs are a highly individual manifestation of a Web site, social network analysis is an appropriate way to explore networks formed by weblogs.

Based on this approach, this research relies on a snowball technique to analyze an ego-network centered on a well-established blog, McDonald's CSR blog entitled ''Open for Discussion.'' Snowball techniques, which start from one or a set of focal actors, are extremely popular among network scientists as a way to collect data. In a second step, all the actors connected to the focal set of actors are identified, and the procedure is repeated with the newly identified actors, further extending the network (Hannemann, 2001). There is no set rule for when to finish the procedure, but it is generally deemed satisfactory if (a) the number of newly identified actors tends to be zero or (b) if the researchers' capacities have reached a limit (Jansen, 2003). On a cautionary note, this procedure is unable to identify isolated populations, which means that relationships and solidarity in ego-networks tend to be overstated (Hannemann, 2001). This must be taken into account when interpreting the results of snowball methods. Despite these limitations, snowball methods remain valuable tools for investigating the social environment of a focal actor, and they have already been successfully applied in blog research (Herring et al., 2005).

The main sources for data on the blogosphere are the blog of interest, the blog host (web services such as blogger.com who maintain multiple weblogs), and search engines. Studies by Schuster (2004) and Bachnik et al. (2005) show that the blog host provides a wide range of network data. In addition, the blog search engine Technorati provides a multitude of data to researchers, including both incoming and outgoing links that can be collected using Technorati's Application Program Interface (API). In addition, the Technorati rank provides valuable insight into the respective popularity of each blog. The Issuecrawler application used in a recent study by Bruns (2007) is another means of automated data collection that can be used to compile a list of URLs. It is important to note that researchers using services such as Technorati and Issuecrawler are relying on third-party data. A potential, albeit limited, remedy is the possibility of collecting blog network data manually by surfing from blog to blog, as shown by Herring et al. (2005).

We decided to collect data for the McDonald's sustainability blog using custom php software (Kirchhoff, 2007). The software uses the API of Technorati.com to collect all blogs linking to the McDonald's CSR blog. The data were collected using the snowball technique with two iterations starting from the focal blog. In the first step we identified 228 nodes, and 18,311 nodes were identified in the second iteration. From those 18,539 nodes, we identified 2,596,770 links. We also counted multiple links between two Web sites. Altogether, 1.5 GB of plain text data representing the URLs was collected. The dataset was then exported to the network analysis software package UCInet 6.0 (Borgatti et al., 2002) and visualized with Netdraw (Borgatti et al., 2002) and Pajek 1.02 (Batagelj and Mrvar, 1998). Our analysis produced a framework that indicated the degree to which this particular corporate blog is embedded in the blogosphere and its relationships with customers, media outlets, and stakeholders. This framework is discussed in detail below.

Additionally, in order to illustrate our findings and provide further information on the investigated blogs, we collected archival material on the McDonald's CSR blog. Providing additional material of a different nature is a very common approach in case study research (Yin, 2003), as well as in social network analysis (Jansen, 2003; Scott, 2000; Wasserman and Faust, 1994). For instance, we extracted the number of posts, the authors, and their positions from the blog archive. To quantify the discussions taking place on the ''Open for discussion'' blog, we counted the frequency of comments from users on posts and the reaction of McDonald's bloggers to the posts. The overall intention for conducting this additional analysis was to look at not only the structure of the community, but also its context. However, we caution that we did not intend to discover any semantic or content structure within parts of the blogosphere. Instead, we focused on the constraints and opportunities for dialogue resulting from the surrounding network structure, which is presented below.

Empirical results

McDonald's CSR blog is currently the most prominent CSR blog in the blogosphere, although according to Internet statistics provider Alexa (2008), less than 1% of the web traffic generated by the www.mcdonalds.com domain is generated by the domain www.csr.blogs.mcdonalds.com. This means that the majority of Web site visitors are primarily looking for information about the company that does not necessarily involve discussion with the company or its representatives. People may be interested in basic information such as where to find a restaurant, the current stock price, employment opportunities, or the ingredients in a product. Although less than 1% sounds quite small, the CSR blog is a niche for the most active users known as lead consumers or opinion leaders. This division into two major types of web traffic can be assumed to apply to other companies as well. For example, most users visit the Dell Web site to order or configure a computer instead of to communicate with the company. The few who do engage in dialogue, however, provide valuable feedback. Therefore, we conclude that mostly highly engaged customers and stakeholders take advantage of the opportunity to interact with a company via its weblog.

From January 2007 to May 2008, there were 53 entries by 11 different authors (see Table I). According to the typology of corporate blogging strategies developed by Lee et al. (2006), McDonalds uses a top-down approach in which a group of employees blogs about a niche topic. Similar strategies are used at Dell, Cisco, EDS, and Amazon, while for instance Boeing and GM rely on blogs from a leading executive. Each entry or post from McDonald's from January 2007 to May 2008 had an average length of 375.4 words, and each post generated an average feedback of 3.1 user comments in response. On average, every other user comment led to a reaction from one of the 11 McDonald's bloggers. Within the blog, McDonald's provides not only the name of the author, but also his or her job title. Most of the authors work within the McDonald's CSR office, while one is from the human resources department and another from an environmental department within the company. Their positions range from senior manager to vice president. This indicates that the company prefers that only high-ranking officials blog, rather than to portray itself as a blogging company like Microsoft or Sun Microsystems, where almost every employee is allowed and encouraged to blog (Lee et al., 2006). The McDonald's strategy of reacting to comments demonstrates an approach of creating a very active and open communication with stakeholders, which rarely occurs in corporate blogs of Fortune 500 companies. The usual lack of reactions seen on corporate blogs is of no value to the blogging company, because it terminates the dialogue and inhibits valuable user feedback (Fieseler et al., 2008).

TABLE I

Statistics about McDonald's CSR blog

Statistics about McDonald's CSR blog	
Number of posts	53
Number of authors	11
Average post length (words)	375.4
Average number of comments per post	3.1
Average number of answers per post	1.4

Web site statistics from Alexa (2008).

Beginning with these user reactions and comments, we looked in subsequent iterations at the network formed between the company and the blogosphere. As described in the previous section, the degree to which a blog is embedded within the blogosphere can be analyzed using techniques from social network analysis.

Our investigation of the blog began with an analysis of the ego-network and with identification of the most prominent and active actors within the blogs. In the language of network science, the ego is the focal node (Hanneman and Riddle, 2005; Jansen, 2003), which is, in our case, the McDonald's CSR blog. Next, we looked at the context in which all of the identified core blogs are embedded. This is necessary to understand the motives and background of the blogs that link directly to the McDonald's CSR blog. The nodes or blogs that directly connect to the McDonald's focal blog make up the neighborhood (Hanneman and Riddle, 2005). From there, the ego-network was enhanced by a further iteration, and we again identified the most prominent actors. A second iteration provided information about those parts of the blogosphere that were closely related to the McDonald's CSR blog. In network analysis, this is often referred to as a two-step-neighborhood ego-network, meaning that there is a maximum of two steps distance between a blog and the focal node (McDonald's). Because the Internet is a decentralized network, with the number of sites and links growing exponentially with each iteration, we reasoned that a third iteration would not provide significantly more knowledge. Previous research from Gruhl et al. (2004) and Kumar et al. (2004, 2005), who also analyzed large blog networks, showed that there are either very densely clustered networks of intense discussion over a short period of time or almost no community structures in blog networks. Both findings suggest that an impact will only be made on other blogs within the nearest neighborhood of a focal blog. In addition, the 18,539 blogs we identified are at the larger end of manageable datasets. Previous studies from Kumar et al. (2004) and Herring (2005) have also relied on population sizes from 10,000 to 25,000 blogs for their interpretation of blog community structures.

Figure 1 shows the ego-network of the McDonald's CSR blog, which is represented by the large circle in the center. All the other blogs within the network are shown as surrounding smaller circles. We mainly identified blogs about CSR issues, technology review, and marketing blogs, as well as a large number of personal blogs that form the immediate vicinity of the McDonald's blog in the blogosphere. The relationships represented by the links are the comments and recommendations of highly engaged users, and are therefore a useful indicator of the activity and engagement of the opinion leaders who form a network. We formally measured each comment and link as an edge between two nodes in the ego-network of the McDonald's CSR blog.

The network consists of 228 nodes with a density of 0.2548, which means that one quarter of all the possible relationships among the blogs within the network actually exists. Each relation is thereby an indicator for a communicational action between at least two bloggers. Usually, those actors do not know the other actors' real-world egos, but instead engage with their online alter egos in discussions about specific issues. In potential contrast to face-to-face communication, this online conversation occurs in a public forum. For the McDonald's blog, the network discussion is about CSR, and is written in an authentic and personal style.

An investigation of the relationships among nodes also provides useful information about the prominence of each actor. In simple terms, the more an

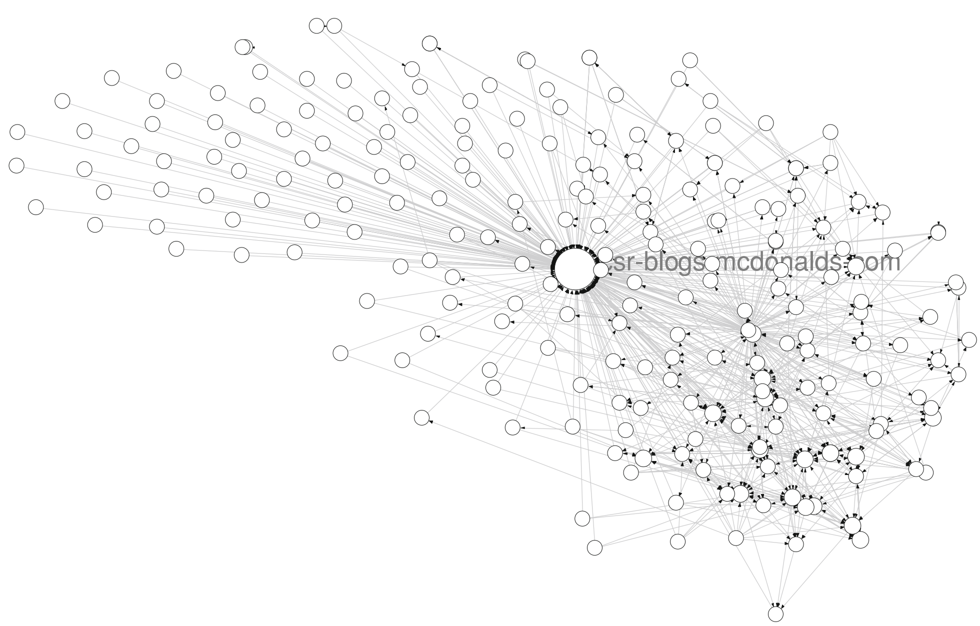

Figure 1. Ego-network of the McDonald's CSR blog [1-step neighborhood n = 228, arrows indicate the direction of the relationship, visualized with NetDraw (Borgatti et al., 2002)].

actor is involved in relationships with others, the more prominent he is. As most networks follow a power distribution, only a few key bloggers would be expected within the McDonald's networks. This is also visible in the graphic representations generated by UCINET software packages, including Netdraw (Figure 1) and Pajek (Figure 2), where the number of incoming arrows indicates the prominence of the blog within the network, based on the number of incoming links calculated by Indegree.

Prominence in networks is a vague concept and is difficult to measure. The idea guiding the term is often referred to as status (Katz, 1953; Moreno and Jennings, 1938; Proctor and Loomis, 1951; Zeleny, 1940). Prominent actors with high status can be defined as those who are extensively involved in relationships with other actors (Wasserman and Faust, 1994). Knoke and Burt (1983) divide the concept of prominence into two different classes: centrality and prestige. The first category, actor centrality, answers the question of whether an actor is involved in many relationships or not, although whether the actor is receiving or transmitting information within the network is of no particular interest. Expressed simply, a central actor is involved in many (non-directional) ties (Bavelas, 1948). The second category, prestige, involves prestigious actors, i.e., those with many ties. In this way, prestige is a more refined concept than centrality, but it requires directional data (Wasserman and Faust, 1994).

Analysis of the most prominent blogs helps to define the surroundings of the McDonald's CSR blog and the overall agenda of the network's most important players. We decided to measure blog prominence based on the level of activity of each blog within the network. The level of activity of an actor can be measured by Freeman's degree of centrality. The NrmDegree was chosen as a measure of the activity of each blog relative to the size of the network. The NrmDegree is the Freeman degree normalized by the size of the network. It is also interesting to investigate the overall activity or prominence of a blog relative to all other blogs within the network. Therefore, we decided to measure SHARE, the centrality measure of the actor divided by the sum of the centralities of all the actors in the network (Freeman, 1979; Hanneman and Riddle, 2005; Wasserman and Faust, 1994). SHARE allows us to interpret a blog's importance within a given network. A high degree within the McDonald's network means involvement in many relationships (for example, through comments and links), and more importantly involvement with other blogs. A low degree indicates a marginal importance of a blog within the McDonald's network.

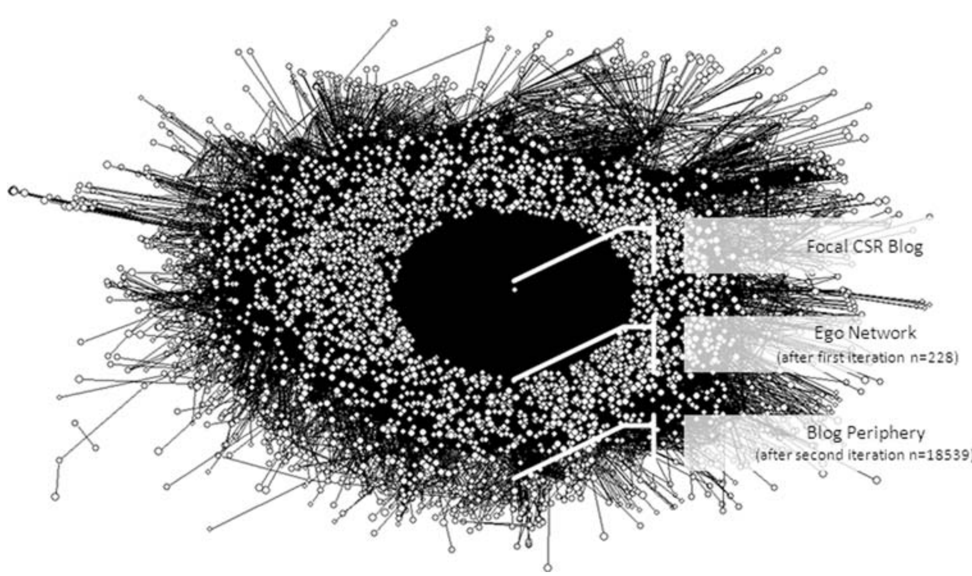

Figure 2. Ego-network of the McDonald's CSR blog based on two iterations [2-step neighborhood ego-network, n = 18,539, visualized with Pajek 1.02 (Batagelj and Mrvar, 1998)].

Table II shows the most active blogs within the ego-network of the McDonald's CSR blog. Although the McDonald's CSR blog is the focal actor in the network, working to initiate engagement and relationships with other blogs, other blogs are more prominent in the network. Based on the number of incoming links (Indegree, Table II), the first three blogs are responsible for more than 70% of the network's activity. This is unsurprising, as these domains represent blog-hosting services (AOL, Wordpress, Blogher), which are aggregators for numerous private blogs and therefore represent a large number of private conversations.

Among the remaining prominent blogs, atinachile, consumerevangelist, and PSD blog can be described as blogs that discuss CSR issues and topics. Since these blogs reflect on issues relevant to CSR communication, and they were clearly identified as important nodes within the network, we took a closer look at the content of these blogs to understand their relationship with the McDonald's CSR blog.

Atinachile (www.atinachile.cl) presents information about a local Chilean citizens' movement. Their interest in McDonald's results in 14 posts naming the McDonald's company. One of these posts emphasizes the importance of innovation for Chile's development. McDonald's was used as an example to underline the innovative power of the company. Emerging threats and opportunities for local Chilean restaurants were discussed. Such blog posts are valuable information for McDonald's, as they provide insight into local sentiment.

Consumerevangelist (www.churchofthecustomer.com) is a well-known blog written by Ben McConnell, who has published books about turning consumers into passionate advocates of a company. The link between McDonald's and this blog results from 37 posts regarding primarily customer issues and the company's products. McConnell is read by many journalists and is often cited in the traditional media. Forbes, for example, calls his work ''the word of mouth gospel'' (McConnell and Huba, 2008). McConnell has become a considerable source of influence with relevant importance as a virtual opinion leader.

PSD blog (http://psdblog.worldbank.org/) is an acronym for Private Sector Development blog, and is maintained by the World Bank. Their relationship to McDonald's results in six posts about developmental and ecological issues. According to statements in the ''About us'' section of the blog, ''The Private Sector Development blog (PSD blog) gathers together news, resources and ideas about the role of private enterprise in fighting poverty. The blog is informal and represents the quirks and opinions of the bloggers, not the World Bank Group'' (Worldbank, 2008). Although the blog is a semi-official source of information, it is a credible source for people with interest in development policy. Similar to the consumer evangelist blog, the PSD blog is an important virtual opinion leader for McDonald's within a certain community with highly specialized interests.

From a public relations perspective, these actors in the McDonald's network can be considered opinion

TABLE II

Overview of the most active blogs in the ego-network of the McDonald's CSR blog

Rank	Blog name	Degree	NrmDegree	Share
1	journals.aol.com	9002	0.754	0.344
2	wordpress.com	5392	0.452	0.206
3	blogher.org	5296	0.444	0.202
4	journals.aol.com.journalseditor.magicsmoke	555	0.046	0.021
5	www.atinachile.cl	528	0.044	0.020
6	customerevangelists.typepad.com	520	0.044	0.020
7	blog.holtz.com	382	0.032	0.015
8	moblogsmoproblems.blogspot.com	346	0.029	0.013
9	psdblog.worldbank.org	337	0.028	0.013
10	csr.blogs.mcdonalds.com	274	0.023	0.010

leaders. The blogs magicsmoke, blog.holtz, and moblogsmoproblems deal with topics related to marketing, communication, and technology. It seems that the McDonald's launch of an ambitious project to bring discussions of CSR issues into an emerging technological environment is gaining the attention of actors with diverse perspectives and agendas.

Among the blogs mentioned above, only three can be considered as opinion leaders on issues relevant to communicating CSR issues. Nevertheless, we identified a large number of individual conversations between the company and various stakeholders that were aggregated by bloghosters such as AOL, Wordpress, or blogher, or that came from stand-alone actors such as privately run blogs.

In conclusion, only 5% of the network link activity refers to CSR-dedicated topics, while the greatest proportion of identified conversation is anecdotal in character and involves day-to-day online conversations. In addition, we identified those theme aggregators that report on the novelty that a multinational company would dedicate a blog to CSR. Those aggregators have different agendas, including branding, marketing, and technology review. Starting from the focal blog dedicated purely to CSR, this topic is touched upon by many other blogs with heterogeneous backgrounds in various contexts. It is worth emphasizing that these results indicate that, within the McDonald's blog network, CSR issues are not the exclusive topic of discussion, but instead provide the momentum to engage others in discussion, linking, and commenting about the blog and the company.

The analysis of blogs directly linked to the McDonald's CSR blog provides information about the vicinity of the focal blog, immediate concerns, and the structurally most important influencers. It is also important to look at the wider context and surroundings of the blog. To analyze the degree to which the McDonald's CSR blog is embedded within the blogosphere, we performed one further iteration of data collection using the snowball technique. In addition to the 228 nodes linked to the focal actor (the McDonald's CSR blog), another 18,311 nodes were identified as linked within one further iteration of data collection using the snowball technique. This exponential growth of the network is typical for large decentralized networks such as the Internet, and has been described previously in the literature (Albert et al., 1999).

Figure 2 shows the extended network, including 18,539 blogs. The McDonald's CSR blog is depicted at the center of the network. Radiating around the main object of investigation, the previously identified blogs are shown as connected to a complex network with numerous actors and relationships. At the periphery of the network, weakly connected nodes or groups of nodes are clearly visible. A structure as complex as this is difficult to interpret from the perspective of a single actor with regard to one other actor, but clearly it is almost impossible for McDonald's to proactively manage such a large, complex, and diverse network. However, the company can potentially monitor its surrounding elements in the blogosphere to identify emerging issues and to express its position in an authentic and expressive style. The unofficial and personal character of a blog also provides various opportunities to create less formal conversation with stakeholders and to test their reactions to certain positions better than through other corporate media such as press releases or annual reports, which are more formal.

Table III shows the most active blogs in the extended network. Again, bloghoster and search engines play an important role within the network. The three most prominent actors are responsible for only approximately 30% of the network activity. This again reflects the decentralized character of the Internet. The importance of the McDonald's CSR blog has decreased within the larger network. It is not surprising that, within the extended ego-network, the importance of CSR-related topics and discussions remains small and even broader in scope than in the original ego-network. Among the ten most active blogs, none are dedicated to CSR issues. Thus, we conclude that the influence of the McDonald's CSR blog is minimal compared to that of the remaining network actors.

Nevertheless, McDonald's gains access through this blog to a diverse spectrum of communities that discuss a wide range of topics and issues. In this way, our analysis shows that although the direct impact of sustainability blogs is not proximate, and in the broader periphery it is very diffuse, they nevertheless enable companies such as McDonald's to foster meaningful relationships within the blogosphere,

TABLE III

Overview of the most active blogs in the network around the McDonald's CSR blog

Rank	Blog	Degree	NrmDegree	Share
1	journals.aol.com	875,347	0.016	0.195
2	peopleconnection.aol.com.journals	141,119	0.004	0.054
3	wordpress.com	107,020	0.003	0.041
4	blogsearch.google.com.blogsearch	26,301	0.001	0.010
5	blogher.org	17,361	0.001	0.007
6	www.midmarketmaven.com	13,420	0.000	0.005
7	slashdot.org	13,286	0.000	0.005
8	reddiggulo.us	12,297	0.000	0.005
9	blip.tv	11,835	0.000	0.005
10	www.webpronews.com	10,743	0.000	0.004
979	csr.blogs.mcdonalds.com	274	0.000	0.000

relationships that involve business contacts as well as customers. Moreover, blogs serve as a basis for intense dialogue between companies and their stakeholders, though not in the traditional sense of dialogue, but rather in a form suiting social media, as will be shown in the following section.

Discussion and conclusions

Although balancing the needs of all the stakeholders has been part of CSR efforts all along, the dynamics are changing with the advent of Web 2.0. Previously, CSR efforts primarily involved strong and organized pressure groups that raised awareness through campaigns. However, opportunities for grassroots efforts to engage multinational companies are growing. The built-in function of blogs to comment on posts provides every user with the opportunity to react to statements made in a corporate blog. By the same token, this feature gives corporations the opportunity to react to user comments, thus enabling a dialogue-based relationship between the company and its stakeholders.

However, even in the case of McDonald's, the influence of the company's blog on the overall network agenda remains marginal. Our results show that the discussions held on the McDonald's CSR blog do not necessarily permeate the blogosphere. Only those parts of the blogosphere bound tightly to the blog itself share issues and topics, whereas more distant parts tend to reflect the decentralized and heterogeneous character of the Internet. Blogs that are closely tied to the McDonald's blog discuss issues in a much more narrow sense and in a way that is more closely related to the initial character of a post, while more distant blogs discuss issues from a diverse set of perspectives. Nevertheless, both types of blogs enable McDonald's to diffuse into communities it would otherwise reach only with difficulty.

It is important to note that the audiences of online discussion platforms are rather small in comparison to the mass media audience. In contrast to the large and predominately passive audience of mass media, blogs only attract those who actively look for conversation and engage in discussions within the blogosphere. This scenario is both positive and negative: the McDonald's CSR blog does not have a direct impact on a large public sphere, but it can indirectly reach this larger sphere through opinion leaders. Sustainability blogs reach a very active and well-informed clientele, which is a customer demographic of great interest for marketers since they tend to be early adopters, influencers, and multipliers. Already in the 1950s, Katz and Lazarsfeld (1955) developed the so-called Two Step flow of Communication theory, which advanced the notion that information flows do not usually form a direct, uninterrupted connection between a communicator (such as a media outlet) and a recipient. Instead, information follows a moderated line extending from a communicator to an opinion leader, and finally to that leader's followers. So far, extensive research has addressed the individual characteristics of these opinion leaders, but only a small portion of this research has examined the network structure around these leaders. For instance, Coleman et al. (1957) and Burt (1987) investigated information diffusion in networks by focusing on the characteristics of the individuals. Relatively few studies have been devoted to the description of word-of-mouth influence on image formation and decision-making in large-scale networks (Godes and Mayzlin, 2004; Leskovec et al., 2007).

In contrast to the traditional concept of a dialogue with the public, we propose the concept of micro-dialogues to describe this special case of symmetric communication. Micro-dialogues are created between an organization and highly engaged audiences in online spaces, and they deal with a previously defined range of topics and issues. Micro-dialogues are special in the sense that weblogs and other participative media have almost no gate-keeping mechanism, enabling conversations without formal hierarchies. In the case of the McDonald's blog, stakeholders can freely and directly interact with a multinational company on critical issues such as working conditions or environmental stewardship Instead of formal hierarchies; discussions in weblogs allow any and all interested parties to read and also comment, which results in a public review process that engenders authenticity, transparency, and credibility.

This way, Web 2.0 facilitates and structures more direct engagement between companies and stakeholders. It may lead to conversations that involve raising issues, discussing priorities, and solving and implementing. Eventually, CSR initiatives will involve stakeholders more directly and dynamically than previous channels of communication. The McDonald's CSR blog is strongly connected to various actors within the blogosphere, but the present study shows that only closely connected actors share topics with the focal blog. The influence of the focal blog shrank to marginal with another iteration, which leads to the conclusion that most micro-dialogues remain confined within a certain community. The viral effects of Web 2.0 that receive so much attention in the media are much less frequent than micro-dialogues among highly engaged communicators about very specific issues. Of course, there are relevant micro-dialogues that do not directly involve the company, meaning that customers and stakeholders can initiate meaningful conversation on critical issues outside the McDonald's blog. Therefore, it is necessary to know the elements surrounding the focal blog in the blogosphere to identify such discussions, and then to know and learn from them and ideally participate in them.

The motivation for more interaction with stakeholders stems not only from corporate goodwill, but also from changing stakeholder demands. Stakeholders are becoming increasingly more critical, especially with regard to social and environmental issues. The conclusions derived from this single-case design can of course only be a first step toward a richer and more complex theory as proposed by Eisenhardt and Graebner (2007). Future research in the field of web-based CSR, also with regard to micro-dialogic processes on different levels and stages might prove very worthwhile to better understand and manage social responsibility in even more networked societies. As can be seen from the example of the presidential campaign of Barack Obama, which utilized online social networks to keep abreast of critical social issues, micro-dialogic processes are indeed effective. Quantitative and conceptual research that links theory and concepts from business ethics, social network science, and dialogic communications toward a more integrative framework of CSR in a Web 2.0 environment could help attain sustainability communication a similar effectiveness.

There are several ways that companies can foster CSR engagement in the blogosphere. As the present research shows, every company can use publicly available data about weblogs as a starting point to analyze how embedded their own blog is within the larger blogosphere. Based on our analysis, we suggest using a combination of three types of information about the weblog to view it from different angles.

Sources of data for such a network-based communication approach are known as web metrics, and can be obtained from providers such as Google or Alexa, who provide basic information about each site. Such static data provide information about passive stakeholders who only read the blog and their activity. Information about ingoing and outgoing links could be collected through the bloghoster or from services like Technorati. The information about the surrounding structure gives the company the opportunity to identify the most influential stakeholders in the network. Furthermore, analysis of the agenda of the most active blog provides insight into the stakeholders' fields of interest and the various surrounding communities. Finally, the blog itself is a valuable source for data, as it provides insight into users and their behaviors (Carson, 2008; Griffin, 2007; Ka Cheung et al., 2007). A closer look at each post helps to answer simple questions such as whether readers prefer short or long posts, which topics create the most feedback, and which issues are read often but not commented on. Judd et al. (1991) and Viney (1983) have already pointed out that content analysis is a reliable and valid method to discover a variety of psychological states. As this exploratory case study shows, integrated analysis of these three types of data gives an in-depth overview about conversations on a blog. Clearly, such data must be gathered continuously to be relevant.

This procedure is not only about gathering information passively. It is also about engaging actively in micro-dialogues. One interesting variant of corporate blogging is for a company to blog about concrete challenges in its CSR strategy, or to let certain stakeholders write about their perspective on, or provide input about, CSR initiatives. As our analysis has shown, the blogosphere is a very diverse space with interest in specific micro-topics. A blog provides various opportunities to fulfill stakeholder demands for discussing these issues, whereas other large-scale corporate media are unable to do so. Therefore, we argue that companies should listen carefully to users' demands. In addition, social media demand a certain amount of community self-management to ensure a successful platform with meaningful relationships. Companies that fear such openness may prefer to use media other than a blog.

From the perspective of online community management, we therefore recommend taking the readership seriously, reading posts carefully, and giving reflective feedback on user comments. In blogging on sustainability, corporations receive the ability to engage stakeholders in a different way, a way that in the best case treats stakeholders seriously, seeks to find common understandings and solutions, and genuinely engages in dialogue. As previously stated, micro-dialogues are proxies for face-to-face communications about similar issues between the company and its stakeholders, and are therefore highly important. In addition, the identification of structurally important actors within the network helps to understand the popularity of certain issues, which is sometimes surprising.

The results of this study applying social network analysis to corporate sustainability blogs suggest that blogs can reach engaged and critical audiences in a long-tailed Internet more effectively and cost-efficiently than do face-to-face or offline communication methods. Therefore, we conclude that CSR blogs could become useful communication tools in the future. They provide a new means of access to stakeholders with interests in specific topics, such as sustainability issues. Blogging about sustainability issues takes patience and openness, and interaction should be sincere and transparent in order to be fruitful.

Web 2.0 is regarded as a buzzword by some, while others primarily see the technical features of this new web era. In contrast, we like to emphasize that Web 2.0 has fundamentally changed the stakeholder environment of organizations by connecting the various and diverse perspectives of all stakeholders through platforms such as blogs. Those platforms allow organizations to engage with their stakeholders on issues of almost every kind. However, such dialogues can only be fruitful if the company accepts that it is now only one voice among many others. Furthermore, it must be willing to allow stakeholder engagement on its own platforms, even when that engagement is critical. If not, stakeholders will find a way to express criticism without interacting with the company.

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