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Corporate Responsibilities in Internet-Enabled Social Networks

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ABSTRACT. As demonstrated by the popularity of social networking sites such as *Facebook* and *Twitter*, Internet-based social networks have become an important part of daily life, and many businesses are now involved in such networks either as service providers or as participants. Furthermore, inter-organizational networks are becoming an increasingly common feature of many industries, not only on the Internet. However, despite the growing importance of networks for businesses, there is little theoretical study on the social responsibilities of businesses in such networks, and how these responsibilities are affected by different types of networks. This article explores how social network analysis, which has been developed from studies of social networks of individuals, can be used to shed light on corporate responsibilities in social networks.

KEY WORDS: Internet, social networks, legal responsibilities, moral responsibilities, network centrality, structural holes, small worlds, network externalities

Introduction

As demonstrated by the popularity of social networking sites such as *Facebook* and *Twitter*, Internet-based social networks have become an important part of daily life and many businesses are now involved in such networks either as service providers or as participants. Other researchers have made the point that any group mediated by electronic communication technologies can be viewed as a virtual social network (Wellman, 1997). Inter-organizational networks are also becoming an increasingly common feature of many industries (Nohria and Garcia-Pont, 1991; Williams, 2005), not only on the Internet. However, despite the growing importance of networks for businesses, there is little theoretical study on the social responsibilities of businesses in such networks, and how these responsibilities are affected by different types of networks. This article explores how social network analysis, which has been developed from studies of social networks of individuals, can be used to shed light on corporate responsibilities in social networks.

From origins in sociology and anthropology (Freeman, 2004), social network analysis examines actors that are connected directly or indirectly by one or more different relationships. Instead of analyzing dyadic relationships between social actors, social network theory examines the relationships among multiple actors in a network (Borgatti and Foster, 2003), and so is particularly useful in examining outcomes involving multiple actors. For instance, social network analysis has been extensively used in the management field to examine how multiple actors influence issues such as diffusion of innovations (Valente, 1996), stakeholders in organizations (Rowley, 1997), and constraints on unethical behavior in organizations (Brass et al., 1998). This article builds on this previous research to consider how the relationship between members of a social network and their position in the network affect their legal and moral social responsibilities. We focus on networks built on the Internet, as this is where these issues are most clearly demonstrated and where much of the legal and moral debate is centered. By virtue of its global reach and ease of access, the Internet amplifies many of the effects of social networking. Therefore, for instance, it is not uncommon for users of Internet social networking sites to have several thousand followers. However, much of the discussion will also be relevant to non-Internet-enabled social networks.

The article is structured as follows. First, we briefly review some definitions of corporate social responsibility, highlighting some of the problems in establishing legal and moral responsibility in organizational

networks. Then, we briefly review some of the literature on social network analysis, before discussing how each of the network features affects the responsibilities of corporations in such networks.

Definitions of corporate social responsibility

Although the term corporate social responsibility is used nowadays with increasing frequency, as Fisher (2004) has noted, there are many different interpretations of what this entails. We will not attempt in this article to cover all the various definitions that have been suggested, just some key ones, which demonstrate the scope of issues that must be considered. The minimalist view as expressed by Friedman (1970, p. SM17) is that ''there is one and only one social responsibility of business – to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game, which is to say, engages in open and free competition without deception or fraud.'' From the point of view of scope, this definition is fairly straightforward, as it limits objectives to profits and participants to shareholders and competitors.

However, a more common view nowadays is that a business has a wider set of responsibilities, as described by Carroll in his ''Pyramid of Corporate Social Responsibility'' (1999, p. 42). This places economic responsibilities at the foundation but adds legal, ethical, and philanthropic responsibilities. In this view, economic and legal responsibilities are required, ethical responsibilities are expected, and philanthropic responsibilities are desirable for businesses (Ferrell et al., 2000). Schwartz and Carroll (2003) also make the point that these different responsibilities are often interlinked and argue that economic, legal, and moral responsibilities should be viewed as three intersecting domains.

Although social networks can also impinge on economic responsibilities, as will be discussed below, it is particularly in fulfilling the legal and moral responsibilities involving a larger set of actors that a business will encounter ethical issues related to social networks, and so we focus on these aspects of corporate responsibility. Problems have arisen because there is currently no consensus in the literature on the extent of corporate social responsibility, a situation which is also causing problems for the legal profession as well as ethicists, since many aspects of CSR are increasingly enshrined in law.

In establishing legal responsibility for harm caused to an individual or group, lawyers generally refer to three criteria: a clear causal link between the act and the consequence, knowledge of the likely consequences, and intent to carry out the act (Wright, 1988, 2001). First, in order to prove legal responsibility, it must be shown that the action taken by the defendant led to the (harmful) consequence. If the action taken by the defendant was inconsequential for the result, for example, the result would have occurred anyway without the action of the defendant, then the defendant cannot be held legally responsible. In addition, in determining damages or punishment, courts also generally consider whether the defendant was aware of the likely consequences of his or her actions and clearly intended for the result to occur. For example, most legal systems distinguish between acts that result in death of a human being according to whether the act was intentional or unintentional (murder versus manslaughter in the English legal system).

Philosophers and ethicists have also identified similar criteria for establishing moral responsibility. Goodpaster (1983) distinguished three senses in which moral responsibility applies to businesses: causality, rule-following, and decision making. The first sense of causality is the same as that used by lawyers in determining legal responsibility and refers to the fact that a certain action or event was brought about by the business. The rule-following sense of responsibility refers to the socially expected behavior associated with certain roles. For example, a responsible parent refers to one who looks after the interests of his or her children in accordance with social expectations. The third sense of responsibility refers to responsible decision making, which involves consideration of all relevant facts, integrity of the process, and concern for those affected by the decision.

As can be seen from these definitions, two criteria are common in determining both legal and moral responsibilities of businesses – a causal link between an action of the business and its consequence, and knowledge by the business of the likely consequences. As will be discussed later, both can be problematic where the business is part of a larger interconnected social network.

Indirect responsibilities

Another of the major problems brought about by involvement of businesses in social networks is that businesses must bear responsibility not only for the consequences of their own acts but also for the consequences of acts taken by other parties over which they can be argued to exert some control (Amaeshi et al., 2008). For example, multinational firms such as Nike and Wal-Mart have been held responsible for abuses by their suppliers in less-developed countries (Emmelhainz and Adams, 1999). As now codified in global CSR standards such as the U.N. Global Compact and the Council on Economic Priorities Accreditation Agency's (CEPAA), and Social Accountability International SA8000 standards, it is now generally accepted that businesses have a responsibility to check that their suppliers are complying with international health and safety, labor, and human rights regulations. Maloni and Brown (2006) discuss how responsibilities may also extend to animal welfare, biotechnology, environment, and fair trade in the context of the food industry.

It should be noted that determining responsibility in such cases is also a problem in legal circles, where it is often difficult to establish the legal liability of a business (Pryke, 2006; Ratner, 2001). In legal circles, the term ''complicity'' is used to refer to the indirect involvement of companies in criminal acts, i.e., responsibility where acts are carried out by another party. Two conditions are required to prove complicity. First, the actions of the company must have aided and abetted the abuse. Second, the company must have known that its actions would have had that result. Legal interpretations of ''knowingly'' assisting criminal acts vary. According to international criminal law, complicity does not require knowledge of the specific abuse or a desire for it to have occurred, as long as there was knowledge of the contribution. Therefore, it may not matter that the company was merely carrying out normal business activities, fulfilling contractual obligations, or even complying with national law, if those activities contributed to the abuse and the company was aware or should have been aware of its contribution.

However, even this restricted definition is fraught with difficulties where a network of relationships is involved, and it is difficult to separate the contributions and knowledge of individual members of the network. For instance, Pryke (2006) discusses the legal problems in assigning responsibilities in ''prime contracting,'' an increasingly common public sector procurement strategy where multidisciplinary ''cluster leaders'' are responsible for managing a whole range of subcontractors, who are in turn responsible for carrying out certain assigned tasks in the project. As pointed by Pryke (2006), this arrangement can lead to problems in determining who bears legal responsibilities when things go wrong. This is where understanding the relationships between members of the network and the structure of the network is useful.

Social network analysis

A theoretical approach that has been developed from the study of traditional social networks is social network analysis (Cook and Whitmeyer, 2001; Freeman, 2004). One of the key arguments put forward by social network theorists is that the power and influence of an actor in a social network depend on the structure of the network and the actor's position in the network (Marsden and Friedkin, 1994). Although the theory has its origins in the analysis of social networks of individuals, hence its name, it has found applicability in the analysis of intra- and inter-organizational relationships (Cook, 1977; Hardy et al., 2003). For example, Galaskiewicz (1979, p. 151) argued that organizational power is not so much a function of its direct control of resources, but rather, ''the set of resources that actors [can] mobilize through their existing set of social relationships.''

Many properties of social networks have been identified by researchers as being important in determining an individual's power and influence in a network. These can be divided into two types (Fulk and Boyd, 1991) – relational and structural, as shown in Table I.

Relational properties focus on the transaction content and nature of the relationship between network members and on the form of these relationships. Transaction content refers to what flows or what is exchanged in networks, e.g., resources, information, influence, and social support. The nature of relationships refers to the qualities inherent

TABLE I

Summary of some key social network features

Relational properties
Transaction content
Resources: physical goods, personnel, services
Information: descriptions, opinions, ideas, facts
Influence: power, prestige, legitimation, advice
Social support: comfort, encouragement, inspiration
Nature of the relationship
Importance: significance of the relationship
Frequency: rate of recurrence
Formalization: official recognition
Standardization: defined procedures and units of exchange
Structural properties
Individual members of the network
Distance: number of links connecting two members
Centrality: number of linkages relative to other members
Structural hole: membership in one or more subgroups
Subgroups
Connectedness: extent to which sub-groups are concted
Openness: number of linkages out from the sub-group
Total network
Size: number of members in the network
Network externalities: effect increases with the size of the network
Small world structure: high clustering, short average distance between any nodes

in the relationship between members of the network.

Structural properties describe the way members of the network fit together to form social networks. These can be divided into three levels of analysis: individual members, subgroups, and total networks. Measures of individual members describe differences among the roles they play because of the nature of their connections to other members of the network, e.g., star, liaison, bridge, and gatekeeper (Paulson, 1985; Tichy and Fombrun, 1979). Individuals in certain positions have been shown to possess certain advantages such as access to information or power to block certain actions.

Measures with subgroups as the unit of analysis describe the structural characteristics of clusters within the total network. Most social networks contain areas of concentration or clusters that have more linkages or connections between members than others. This creates differences in interactions between members of different clusters such as differences in strength of relationships and information flow, and hence, differences in influence and knowledge of consequences.

Finally, networks may differ from each other in general characteristics of the total network, such as their size or density. These properties will affect all members of the network in terms of attributes such as the flow of information between members of the network and their ability to coordinate actions. Once again, causal links and knowledge of likely outcomes will be affected.

Social networks, power, and responsibilities

A key assumption in this article is that with greater power comes greater responsibility. The U.S. President Theodore Roosevelt, among others, is believed to have said something similar: ''I believe that responsibility should go with power'' (Brands, 1997, pp. 628–629). Similar arguments have been made by scholars in political science (e.g. Hayward, 2006) and legal theorists (Parkinson, 2002), as well as philosophers (Pink, 2009) who have examined the relationship between the two concepts. A key argument linking power and responsibility is that individuals cannot be held responsible for actions they have no power to change and, conversely, individuals who are in positions of power bear greater responsibility to take actions that result in the greatest good.

Following this logic, I argue that, just as power and influence vary according to properties of the social network and the position within the network, so should responsibility. For example, I argue that central organizations in a network differ from peripheral organizations both in their power and responsibility, and that power and responsibility vary depending on the nature of the relationship between members of the network. Some related study applying social network analysis to ethics in the organizational literature has been done by Brass and Burkhart (1993) and Brass et al. (1998), who suggested that the social network perspective is useful for determining the likelihood of unethical behavior of individuals in a social

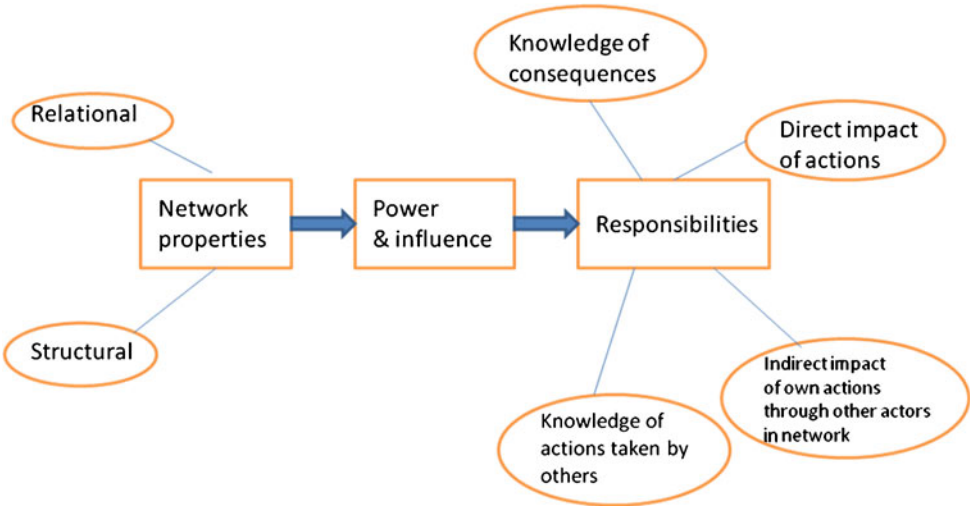

Figure 1. Theoretical relationship between network properties and corporate responsibility.

network. For example, they argue that unethical behavior is more likely to occur where there are strongly connected, dense subgroups,or cliques of individuals in the network, whereas if the entire network is highly connected, the likelihood of unethical behavior occurring is reduced owing to increased chances of detection. However, I suggest that the social network perspective is useful not only for examining the likelihood of unethical behavior within an organization but also has considerable power in determining the scope of corporate social responsibility where the organization itself forms part of a larger inter-organizational network. In the following sections, I examine how each of the properties of the network described above in Table I can affect different aspects of corporate social responsibility (Figure 1).

Effect of relationship on corporate responsibilities

We begin by considering the effect of the nature of the relationship and the content of the transaction between two or more parties in the network on their relative responsibilities. Two types of effect can be identified in each case: *direct responsibilities* resulting from actions of the focal organization and *indirect responsibilities* resulting from actions of related parties over whom the focal organization has power.

Nature of relationship

A key feature of the relationship between actors in a social network, which has been examined in many studies is their relative power (Friedkin and Johnsen, 1997). For example, common differences in power in recognized in social settings are that between parent and child or between superior and subordinate. It is also commonly accepted that those in positions of power bear greater responsibility for their own actions compared with those in weaker positions and in many cases, bear responsibility for the actions of those over whom they have power. For example, parents may be held legally liable for actions taken by their children, and military commanders may be held responsible for actions undertaken by their subordinates. This assumption is generally undisputed, and major Internet companies such as Amazon and E-Bay recognize this to some extent in their consumer protection schemes in the event of disputes with affiliates.

A second feature by which relationships can be distinguished is the directionality of the relationship, e.g., giver–receiver, supplier–customer. In most cases, it is the giver or supplier of a good who bears the greatest responsibility in such transactions. For instance, suppliers are generally held responsible for harm resulting from goods supplied to customers (Lantos, 2001) and according to some authors (e.g., Smith, 1995), suppliers also have a responsibility to respect consumers' rights to be informed and to

choose. However, in cases of supplier dependency on a single powerful customer, sometimes customers have also been held responsible for actions that harm their suppliers. For example, the US retail giant Walmart has been criticized for forcing Rubbermaid, a captive supplier, into an unwelcome merger by significantly reducing Rubbermaid's shelf-space in retaliation for increasing its prices (Hopkins, 2003). The UK retailer Marks and Spencer has also been sued for breach of implied contract by one of its long-term suppliers which it dropped after many years (Blois, 2003). Directionality is also a relationship attribute in which indirect responsibilities are readily seen. Increasingly, multinational corporations are being held responsible for actions that may harm their suppliers as well as being held responsible for abuses by their suppliers, and many have instituted ethical supply chain programs to ensure that they meet their social responsibilities to suppliers and their workers (Warhurst, 2005), no matter how far down the supply chain the actual workers may be. This may be particularly problematic for pure Internet-based businesses where suppliers are globally dispersed and are themselves involved in relationships with many, possibly hundreds of, other suppliers. This makes the tracing and attributing of responsibility even more difficult.

A third key feature of relationships between actors in the network by which they are often distinguished is the strength of ties. Strong ties are characterized by high frequency, reciprocity, emotional intensity, and intimacy, whereas weak ties are characterized by infrequent interaction and low effect (Granovetter, 1973). Since partners with weak ties interact infrequently and are less likely to be affected by each other's actions, the mutual influence of the partners would generally be expected to be lower. Thus, the impact of actions taken by a company such as Google, which is used daily by millions of users worldwide, is likely to be much more significant than that of a company whose website is rarely visited. In such a case, I would argue that the responsibilities are greater.

Transaction content

Social responsibility may also vary according to the type and quantity of resource being exchanged. An example is the case of Rice v Paladin Enterprises where a woman sued the publisher of the instruction manual "*Hitman: A Technical Manual for Independent Contractors*" for the acts of triple homicide carried out by a hired assassin who was using the book for instruction. The case is still a matter of some debate among lawyers regarding whether or not publishers, including Internet sites, bear responsibility for acts carried out by their readers (Kastanek, 2004). However, had the publisher supplied the weapons to carry out the act as opposed to simply providing information, the question of responsibility would probably be less debated.

The quantity exchanged might also make a difference. For example, some commentators have attributed the success of the U.S. President Obama's political campaign to his ability to raise small sums from many individual donors using the Internet and not rely on the traditional sources of campaign funds from big business (Stanton, 2009). Many argue that this makes his administration more democratic and less prone to corrupt influences, the point being that obligations (and responsibilities) are generally greater when large amounts of resources are donated from a small number of donors.

Effect of structural network properties on corporate responsibilities

Individual level

A common structural network measure which affects responsibility is distance, usually measured by the number of links between actors. In general, actors have the greatest impact and influence on those closest to them, and the impact of their actions and their influence on other actors in the network decreases with distance. This is commonly recognized in legal circles as the concept of "proximity" in cases of negligence. The closer the relationship, the more likely a duty of care is owed (Posner, 1972).

However, social network analysis suggests a more nuanced way to examine relative positions of actors in a network and suggests other measures which may be important. Two key factors have been identified in previous studies as being key determinants of power in the network – occupying a central position in the network and occupying a "structural hole" in

the network. The first factor draws on study on social capital by Coleman (1990) and Bourdieu (1980), who argue that the power and influence of individuals stem from their central position in the social network of which they are a part. The second factor stems from study by Burt (1992), who argued that firms that are able to act as "bridges" between two relatively unconnected parts of a network are able to gain more control over actors in the network. Organizations which occupy a central position or a structural hole in the network, it is argued, have greater power and influence compared with organizations that do not because of their greater ability to mobilize resources from other network participants (Brass and Burkhart, 1993; McEvily and Zaheer, 1999).

Thus, according to social network theory, the influence of companies A and B in the network shown in Figure 2 would differ. Company A occupies a central position in the network and all actors are directly linked to it. Social network theory would predict that the organization would hold significant influence over the other actors in the network (Friedkin and Johnsen, 1997). Central companies in the Internet search arena such as Google and Yahoo! thus acquire certain legal and moral responsibilities simply by virtue of their position in the network and indeed, such companies are often the target for intense scrutiny (e.g. Brenkert, 2009; Dann and Haddow, 2007). It is doubtful if the same scrutiny would be applied to a less central company in the same circumstances.

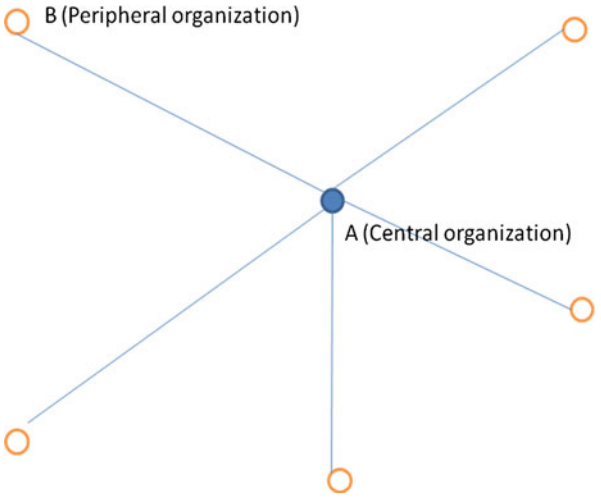

Figure 2. Centrality.

In addition, by virtue of their central position, central companies are more likely to be aware of the actions undertaken by other actors in the network and so run a higher risk of having knowledge of acts for which they can be held legally or morally responsible. For example, while it is plausible that peripheral employees of Enron were not aware of all the wrongdoings of the organization, it is a less plausible defense for central actors in the organization such as the CEO and CFO (Pasha, 2006). This highlights the dangers for social networking sites such as Facebook, which aim to fulfill precisely that central network role on the Internet, linking hundreds and thousands of individuals who otherwise are unconnected to each other. By virtue of their centrality in the network and their role as network enabler, it could be argued that Facebook holds considerable corporate responsibility for any wrongdoing or harm that result from activities on the network even if they do carry out the act themselves. Even if they were not aware of any wrongdoing, it may be argued that they should have known. This may be the case even when members transmit information directly to each other using P2P technologies (Fetscherin, 2005; Lu, 2006). Similar legal defenses were dismissed in the case of file-sharing site, Napster, which was forced to shut down in 2001 (Sama and Shoaf, 2002; Zapeda, 2002). Other file-sharing sites such as Gnutella, Freenet, and eDonkey2000 have escaped that fate as they are decentralized and can claim to have no knowledge of illegal file sharing.

The second factor which has been highlighted in the literature as a determinant of power is the occupation of "structural holes" (Figure 3). As with centrality, it can be expected that organizations which occupy a structural hole will be able to exert a greater influence over partners in the network and so have a greater commensurate responsibility for the consequences of its own actions and actions taken by partners.

Once again, some firms aim to fulfill precisely that role of filling structural holes on the Internet. For example, the travel site Expedia not only allows booking of airfares but also aims to provide a one-stop shop for booking of accommodation, car hire, and insurance. While such sites provide a much

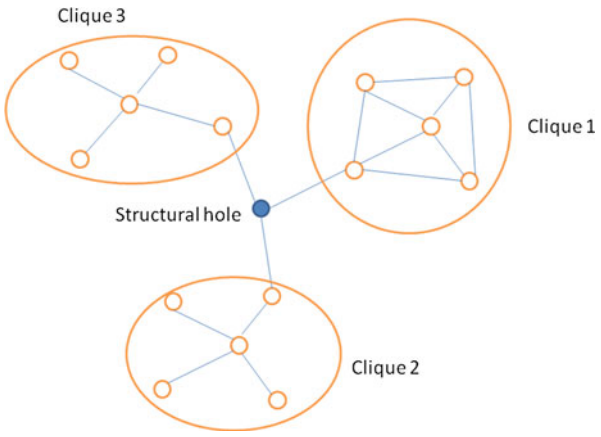

Figure 3. Structural hole.

valued service which saves consumers time in making travel bookings, they do raise issues about the extent of responsibility when bookings go wrong, for example, if a hotel booked through the site fails to live up to its expectations. The Expedia website, like others, contains a lengthy description of the limitations of legal liability for incorrect information but this still leaves open the question of who bears responsibility for other errors such as cancellation of hotel bookings resulting from missed flight connections.

In other cases, the role of the broker may be less innocent and some would argue responsibilities are much more significant. For example, consider the case of arms brokers who act as middlemen between arms dealers and arms buyers in illegal arms deals. Although the arms buyers clearly carry responsibility for acts resulting from the use of their arms, and to some extent the dealers may as well for supplying the arms, the arms brokers also carry heavy responsibility for bringing the two parties together, and some would argue that the brokers are complicit in the acts of murder that result from the arms transactions they facilitate (Misol, 2004). The same arguments can be applied to hacker sites on the Internet that collect and provide information to hack software. Although they may claim that they are simply acting as intermediaries in providing information, as in the case of Napster (Zapeda, 2002), it can be argued that they are guilty of complicity in the illegal acts that users undertake as a result of knowledge gained from them.

Sub-network level

Besides increasing the power of actors who can bridge between them, the presence of sub-networks within the network can affect power and responsibilities of other actors within the network. For example, the extent to which sub-groups are connected will affect the impact of actions by an individual actor. Social movement theory (McCarthy and Zald, 1977) argues that the ability to mobilize resources is critical to creating successful social movements. Highly connected groups are better able to coordinate and combine resources, compared with groups which are disconnected, and so the connected groups would be expected to create a higher impact. The increase in cyber-activism or social movements where members are connected via the Internet is a practical demonstration of how the Internet is changing the dynamics of social and political mobilization (Carty and Onyett, 2006). However, the ability to easily coordinate actions worldwide is not without dangers. Some authors have also highlighted the use of the Internet by terrorist groups to coordinate their attacks (Arquilla and Ronfeldt, 2001). The risk of the wrongful use of such technologies is particularly evident where groups are closed. The presence of cliques or closed subgroups has long been identified as one of the factors that prevent knowledge transfer in a network (Cowan and Jonard, 2004). In such networks some "secret" information tends to circulate only among privileged insiders of a clique and is rarely revealed to outsiders, a state sometimes enforced – as in the case of secret societies – by solemn oaths of secrecy. It has also been suggested that this lack of knowledge by outsiders tends to encourage unethical behavior in organizations (Brass et al., 1998), and cliques have often been cited as a source of corrupt behavior in some states (Alam, 1989). Begley et al. (2010) argue that such unethical behavior is more likely where there is strong competition between networks as members of each network seek to promote the interests of their own members.

Total network level

Properties of the network as a whole may also determine responsibilities for network members.

The most obvious is the size of the network. Where there are many individuals and organizations in the network, the potential for harmful consequence increases. For example, although the consequences for individuals may be difficult to compare, as measured in dollars of damages, the responsibility of some financial institutions that led to the current global financial crisis affecting millions worldwide has undoubtedly been greater than that done by fraudster Bernard Madoff, who defrauded a few thousand clients (Parsons, 2009).

Effects may be multiplied in certain types of networks. Another feature of many social networks is what economists have termed ''externalities.'' In general, an externality arises when an individual's production or consumption decision directly affects the production or consumption of others through mechanisms other than market prices. A network externality describes a specific effect that depends, not on the product or service itself, but on external factors in the networks with which the product is associated. An example of the economic impact of network externalities is ''Metcalfe's law'' (Hendler and Golbeck, 2008). Named after Ron Metcalfe, the founder of local area network provider 3-Com, the ''law'' states that the utility of a network increases with the square of the number of users. As more users join a network, it becomes more and more attractive to other users to join. When people stop joining, the growth diminishes rapidly. Social networking sites such as Twitter are particularly prone to this type of behavior. Such sites rely on users posting content about their activities as well as users joining to read that content. In systems terms, such networks are subject to strong ''positive and negative feedback'' which may lead to increasing returns to scale (Arthur, 1996). This is often amplified in many Internet social networks because of the large numbers of individuals involved. In general, network externalities magnify the effects resulting from other network features network centrality and structural holes so that central firms increase in centrality as more and more firms wish to establish a relationship and as firms from other subnetworks join existing clusters around the lead firm. The danger is that wrong information rapidly circulates at an increasing rate through the network, leading to much greater harm.

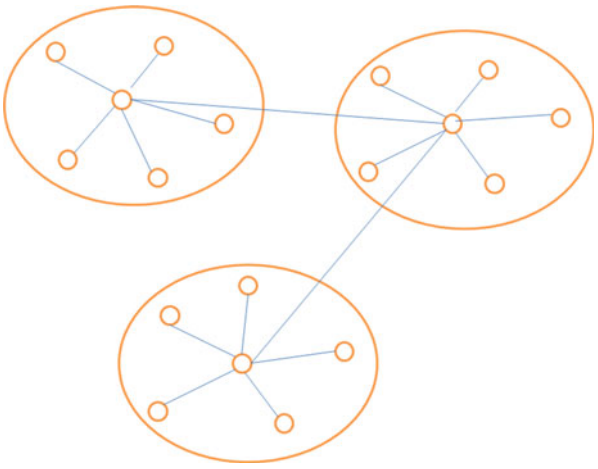

Figure 4. Small worlds network.

Finally, a feature of certain networks which has intrigued many network analysts is the small world network (Baum et al., 2002). Although some networks are characterized by one or a few dominant firms who occupy central positions or structural holes, a number of empirical studies have shown that networks of organizations are frequently characterized by uneven structures composed of regions in which firms are more or less densely interconnected (Figure 4).

These characteristics are consistent with the notion of small worlds, which typically have the following properties. First, they are highly clustered, which means that two randomly chosen participants of a given site have a relatively large probability of being immediate neighbors. Second, the distance between any two sites, measured as the number of links along the shortest path in the network joining the two sites, is on the average very small as compared with the total number of sites or links. The effect is that information can be quickly passed among any individuals in the network. This effect was first demonstrated in social networks by Milgram (1967), who showed that the average distance between individuals in the network of acquaintances of the entire U.S. population was as short as five links. One implication of a small world network structure is that members of such networks will find it more difficult to mount a defense that they were not aware of wrongdoings of others in the network, while providers of information may find it more difficult to claim they could not foresee the spreading of information they provide.

As in the case of centrality and structural holes, some Internet sites have been established specifically to take advantage of this small-world feature of networks. For example, the Internet site sixdegrees.org aims specifically to capitalize on the small world effect to raise money for charity. Set up by actor Kevin Bacon, the site is based on a popular trivia game, the Six Degrees of Kevin Bacon, based on the assumption that any actor can be linked through his or her film roles to actor Kevin Bacon within six steps. Sixdegrees.org extends the concept to allow users to donate money to favorite charities of celebrities. In this case, the organization uses its position to raise money for good causes, but at the same time, it does raise the possibility of abuse by other organizations in similar positions with less noble motives. For instance, Pagallo and Ruffo (2009) are optimistic about P2P technology-based small world networks that can allow users to obtain information from the network without compromising data privacy issues, but there is also a danger from potential misapplication of such technologies. With the increasing power of Internet technologies comes a greater risk of massive effects spreading rapidly throughout the network. For example, the small world network structure enables rapid information transfer, which is excellent if the information is correct, but which could have devastating consequences if it is incorrect or malicious, as shown most clearly by the rapid spread of computer viruses.

Conclusions

As discussed in this article, paying attention to social networks is now becoming increasingly important for businesses. As they become involved in a larger number and wider ranging set of business and stakeholder networks, they are being required to consider the wider economic, social and environmental consequences of their actions. However, determining corporate social responsibilities of businesses in such networks is often problematic owing to the complexity of relationships between actors in the network. This article showed how social network theory developed from studies of individual social networks can be used to more clearly analyze corporate responsibilities in such social networks.

Extensive theoretical and empirical research in the social network literature has established that there are relationships between various relational and structural network properties and the social power and influence of individuals or organizations in the network. Normative arguments have also been made in a number of fields, notably philosophy and political science, for power to be linked to responsibilities. Combining the two streams of research, this article shows how the properties of the social network and the positions of organizations within those networks should affect the social responsibilities of organizations. Table II summarizes the discussion of how each of the network properties discussed affects corporate social responsibilities.

This research also has practical implications for determining the social responsibilities of organizations in a complex network of relationships and offers some guidelines for factors which need to be considered. Most research on responsibility, particularly in the legal field, has focused on dyadic relationships between two parties, such as contracts between supplier and customer, but there has been little study which examines responsibilities in more complex networked relationships. This article provides a way to analyze such cases. It should also be noted that although we have focused on Internet-enabled networks, as these are where the issues are most clearly demonstrated, similar issues arise in non-Internet-enabled networks so that the same ideas can be applied.

Further research

A number of ideas for further research are suggested from this article. More theoretical study is needed to examine the relationships between specific network structures and specific social responsibilities. Although this author has examined some of the key network properties that appear in the social network literature as well as some of the key aspects of corporate responsibility as defined by previous scholars, there are many other properties of social networks and aspects of responsibilities which still remain to be examined.

Besides the theoretical study required to refine the concepts and theories, more empirical study needs to be done to develop and test the ideas set out here.

TABLE II

Summary of effects of social network properties on corporate responsibilities

Network feature	Effect on direct responsibilities	Effect on indirect responsibilities
Relationship properties		
Nature of relationship	Actors in position of power have greater	Actors in position of power have greater influence on other actors in network and greater indirect responsibility
Transaction content	Actors bear direct responsibility for consequences of resources they provide and transactions they engage in freely	Actors who provide critical, specific resources to other actors carry greater responsibility for resulting actions than those who provide general resources
Individual member properties		
Distance	Impact of actions and influence are greatest on those closest	Impact of actions and influence decrease with distance between actors
Centrality	Actions of central actors have greater effect on other actors in network	Central actors have greater influence on other actors in network and greater indirect responsibility
Structural hole	Actors occupying a structural hole may greater direct impact and responsibility for actions that draw on resources of the subgroups they connect	Actors occupying a structural hole may greater indirect influence and knowledge of actors in subgroups they connect
Subgroup properties		
Connectedness	Members of a clique are more likely to have greater direct impact on each other compared with non-members	Members of a clique are more likely to have greater knowledge and influence of actions of other members of the clique compared with non-members
Openness	Members of a closed subgroup are more likely to have greater direct impact on each other compared with an open subgroup	Members of a closed subgroup are more likely to have greater knowledge and influence on actions of other members of the clique compared with an open subgroup
Total network properties		
Network size	Actions of a connected actor have a direct impact on a greater number of others	Actions may have an indirect impact through a greater number of actors
Network externalities	Presence of network externalities magnifies potential impact of actions	Presence of network externalities magnifies potential impact of actions
Small world structure	Small world structure increases impact on other actors in the network with whom they are directly or indirectly linked	Small world structure increases likelihood of knowledge of actions of others in the network

While there has been extensive research on social networks, there has been very little study which has examined the ethical issues, including responsibilities, in such networks. One of the barriers may have been difficulties in measuring or determining corporate responsibilities. However, there are now various CSR indices which might be adapted, and some of the ideas presented here may lead researchers to develop more reliable measures. As described in this article, corporate responsibility has a number of aspects, including economic, legal, and moral aspects, some of which may be easier to

determine than others, and so it may be useful to limit studies to certain responsibilities. For example, one possibility may be to examine cases of legal responsibility from the perspective of social networks since legal responsibility may be easier to assess. This might also have the potential to influence law-makers in this field, who are currently trying to grapple with the issues raised by Internet-based networks such as speed of transmission of information, accessibility, etc.

Further study could also examine the development of social networks over time and how these changes have affected responsibilities of network members. Network positions and responsibilities of firms are not static and may change over time (Chen and Ronowski, 2006; Gulati and Gargiulo, 1999). This is particularly relevant given the rapid technological changes that have been taking place in some industries, particularly in Internet-related technologies. These are continuing to raise new ethical and legal questions (e.g., Lee, 2005). The question of time is also important given the recent trends to incorporate issues of sustainability into corporate responsibility. Not only are businesses being required to examine the impact of their actions on current stakeholders, but they are also being asked to consider the impact on future generations. This requires an examination of current network relationships and also how these relationships may change in the future.

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