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Better Knowledge with Social Media? Exploring the Roles of Social Capital and Organizational Knowledge Management

Pratyush Bharati
University of Massachusetts Boston, pratyush.bharati@gmail.com

Wei Zhang
University of Massachusetts Boston

Abhijit Chaudhury
Bryant University

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ABSTRACT

Purpose – The purpose of this paper is to explore social media's impact on organizational knowledge quality through the theoretical lens of social capital and resource exchange.

Design/methodology/approach – Theory-confirming, quantitative study using panel data collected through web-based survey

Findings – The results show that while social media affect structural capital and cognitive capital directly, it only affects relational capital indirectly through structural and cognitive capital. Moreover, overall social media and the enhanced social capital do help promote organizational efforts in knowledge management, which subsequently leads to higher level of organizational knowledge quality.

Research limitations/implications – All survey respondents were from the U.S., which may limit the generalizability of the findings. The authors also call for more research in establishing the time sequence in the proposed causal relations and in the individual level mechanism through which social media promotes organizational knowledge quality.

Practical implications – This study highlights both the potential and limitations of social media in promoting organizational knowledge management. Businesses must consciously manage the assimilation and use of social media to benefit from them.

Originality/value – The authors position the study at the intersection of social media, social capital, and knowledge management and explicate how social media work through social capital and organizational knowledge management efforts to affect knowledge quality.

Keywords – knowledge quality, social media, knowledge management, social capital

Paper type – Research paper

1. INTRODUCTION

Organizations are investing in social media for communicating with customers, promoting employee collaborations, and integrating with partners and suppliers (Chui et al., 2012, Bughin et al., 2011). There has been plenty of research on the effect of social media, especially on marketing and corporate communication (e.g., see recent sepcial issue Duan, 2013). However, to the extent that firms and individuals are increasingly using social media explicitly or implicitly for knowledge sharing (Bughin et al., 2012), there are very few studies on social media's contribution in enhancing organizational knowledge. In this paper, the authors report a study that attempts to fill this gap by investigating the impact of social media on organizational knowledge quality. For this purpose, the study adapted and further developed Tsai and Ghoshal's (1998) seminal framework on social capital to serve as the theoretical base.

That knowledge is a strategically important resource for sustainable competitive advantage in the economy has long been recognized and acknowledged (Teece, 1998). This notion of the strategic importance of knowledge is partly built on the Resource-Based Theory of the firm (Barney,

1991), which holds that valuable, rare, imperfectly imitable, and non-substitutable resources lead to sustainable competitive advantage. Knowledge owned by organizations can exactly be such a resource (e.g. Grant, 1996, Teece, 1998). The past two decades have witnessed firms proactively engaging in knowledge management hoping to improve performance through better management of what they know{Davenport, 1998 #89;Darroch, 2005 #139}. In their knowledge management efforts, organizations have always tried to take full advantage of what information technologies can offer. In fact, nowadays it is hard to imagine a knowledge management initiative nowadays that is completely technology free (Hansen et al., 1999, Joshi et al., 2010).

One recent IT that has been particularly popular for knowledge management is social media. Social media are Web 2.0 technologies that allow people to produce and share user generated content (O'Reilly, 2007). They enable organizations to connect with their customers, suppliers and vendors in novel ways and timely manner (Kietzmann et al., 2011). Social media assimilation by organizations has seen exponential growth with technologies such as blogs, Facebook and LinkedIn becoming widely adopted by organizations (Bharati et al., 2014). According to the 2011 McKinsey survey, around 70% of the organizations use social technologies such as social networking and blogs to increase speed to access knowledge and around 50% use the social technologies to increase speed to access experts (Bughin et al., 2012). As organizations increasingly use social media for knowledge management (Paroutis and Al Saleh, 2009), researchers are calling for more research in this area (von Krogh, 2012, Panahi et al., 2013). This paper answers this call by exploring the influences of social media on social capital and organizational knowledge management and subsequently their influence on knowledge quality at the organizational level. To be more specific, it investigates the role of organizational social capital as a result of social media based external connections that can aid

the quality of the firm's overall knowledge stock, focusing on the central role played by organizational emphasis on knowledge management.

The authors attempt to make two contributions to the literature with this study. First, this study focuses on the quality of organizational knowledge. Traditionally, knowledge management research were more about of how to increase the volume of organizational knowledge stock (Rafaeli and LaRose, 1993, Wasko and Faraj, 2005). As more recent research shows that more knowledge does not necessarily lead to better performance (Levine and Prietula, 2012, Haas and Hansen, 2007), quality of knowledge contributed or transferred is now drawing more research attention (Wasko and Faraj, 2005, Durcikova and Gray, 2009, Chen et al., 2011, Poston and Speier, 2005). This study follows this trend. Second, the authors position the study at the intersection of social media, social capital, and knowledge management. The research model adapted and extended the work of Tsai and Ghoshal (1998) to social media and knowledge management. In their work, Tsai and Ghoshal (1998) explicated the three dimensions of social capital – structural, cognitive, and relational – and investigated how they affect resource exchange and combination with other firms and ultimately innovations within firms. This study adapted and extended this theoretical model to the management of organizational knowledge in firms by focusing on knowledge exchange and combination – the core of organizational knowledge management initiatives – and subsequently its impact on knowledge quality.

Figure 1 depicts the overall research framework. The rest of the paper is organized as follows: It begins with the theoretical development of the research model and subsequently presents the hypotheses, followed by a description of the survey study that was conducted to assess the research model. Results from the survey study are presented next, along with a discussion of the findings. Considerations of the contributions, limitations, and implications of the study for future

research conclude the paper.

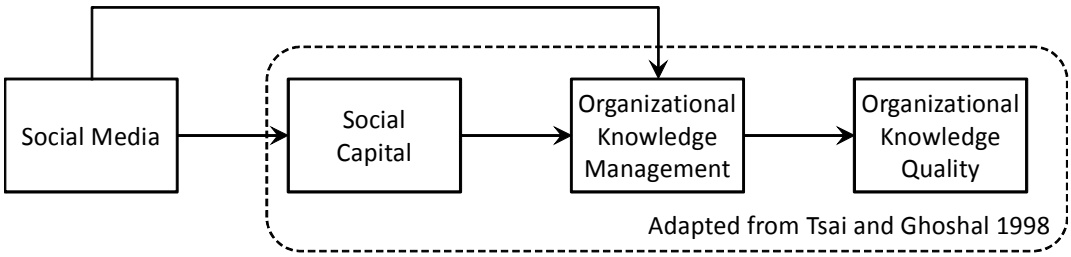

Figure 1: Overall Research Framework

2. THEORETICAL DEVELOPMENT

2.1 Knowledge Management and Knowledge Quality

For organizations engaging in knowledge management, one of their primary concerns has been the lack of employee participation (Davenport and Prusak, 1998), especially with technology-based solutions. Consequently, research efforts in knowledge management have consistently focused on how to motivate knowledge contributions to increase the volume of organizational knowledge asset (Rafaeli and LaRose, 1993, Wasko and Faraj, 2005).

Nevertheless, volume alone is not sufficient to ensure the success of knowledge management efforts. Research has long warned against the pitfall of building a "digital junkyard" filled with knowledge that nobody actually uses (McDermott, 1999). It has been further argued that it is quality, not volume, of the contributed knowledge that affects the success of knowledge repositories (Markus, 2001, Durcikova and Gray, 2009). Knowledge quality matters because knowledge of higher quality is more likely to be successfully transferred and reused (Kane et al., 2005, Zhang and Watts, 2008), and companies who acquire knowledge of higher quality are more innovative and financially better off (Soo et al., 2003).

As organizations pay more attention to knowledge quality, the authors believe that organizational knowledge management initiatives nowadays should lead not only to more knowledge but also – perhaps even more importantly – better knowledge. Following Durcikova and Gray (2009), the

authors define organizational knowledge quality as the extent to which the precision and accuracy of the knowledge acquired by an organization meets the organization's knowledge need. Referring organizational emphasis on knowledge management to the extent to which an organization commits to engaging knowledge management initiatives as their strategic moves (Kearns and Sabherwal, 2006), the authors hypothesize:

H1: A higher level of organizational emphasis on knowledge management is associated with a higher level of organizational knowledge quality.

2.2 Organizational Social Capital and Knowledge Management

Consistent with the interests in organizational knowledge quality and organizational emphasis on knowledge management efforts, in this study the authors are concerned about social capital at the organizational level, which refers to the relationships between organizations and the meanings of these relationships thereby making it an important productive resource that organizations should profit from (Tsai and Ghoshal, 1998).

Social capital has been conceptualized as having three dimensions: structural, relational, and cognitive (Nahapiet and Ghoshal, 1998): Structural dimension of social capital captures the interaction pattern between organizations; relational dimension refers to the relationship assets such as trust nurtured through the interactions; and cognitive dimension describes the extent to which the organizations share a common understanding emerging from these interactions. The interrelations between the three dimensions was explicated, hypothesized and tested by Tsai and Ghoshal (1998). These relationships are re-examined in the context of current study.

2.2.1 Interrelationships between Structural, Cognitive, and Relational Dimensions of Social Capital

Structural links or ties are a fundamental aspect of social capital as they create opportunities for

social capital transactions (Adler and Kwon, 2002). Actors with more frequent and deeper social interactions are more likely to develop similar opinions through their interactions (Granovetter, 1973). In this sense, communications between organizations within a social field help develop understandings and visions shared by the organizations. For example, when an organization and its competitors are interacting with their customers using certain technologies, in the process, they will develop a shared understanding of the use and benefits of the technologies. Social interaction can thus help shape a common set of goals, visions and values (Tsai and Ghoshal, 1998). Therefore,

H2.1: A higher level of structural capital of an organization is associated with a higher level of cognitive capital of the organization.

Interactions between organizations create opportunities for stimulating trust and perceived trustworthiness (Tsai and Ghoshal, 1998). As the social interaction grows trust between an organization and its network of organizations develops. Organizational interactions can thus help build trusting relationships with other organizations. Trust can also induce joint efforts (Ring and Van de Ven, 1994) and can play a pivotal role in the willingness of network actors to share knowledge (Levin and Cross, 2004, Szulanski et al., 2004), constituting the relational dimension of social capital resource (Inkpen and Tsang, 2005). The authors therefore posit:

H2.2: A higher level of structural capital of an organization is associated with a higher level of relational capital of the organization.

Cognitive dimension of social capital implies common values and shared visions between organizations. Meaningful knowledge exchanges require some shared understanding between parties (Nahapiet and Ghoshal, 1998, Grant, 1996). These shared values and interpretations encourage the development of trusting relationships. An entity that shares the network's common

values is likely to be perceived as trustworthy by other members of the network, and trusting relationships between an organization and its network usually means that common goals and values have brought and kept them together (Barber, 1983). Hence the authors hypothesize:

H2.3: A higher level of cognitive capital of an organization is associated with a higher level of relational capital of the organization.

2.2.2 Social Capital and Knowledge Management

Social capital creates channels of communications that promote exchange, creation and recombination of knowledge among individuals, business groups and business partners (Tsai and Ghoshal, 1998). In this way, social capital enables knowledge management activity such as knowledge acquisition (Yli-Renko et al., 2001, Anand et al., 2002), knowledge transfer (Inkpen and Tsang, 2005), and knowledge contribution (Wasko and Faraj, 2005) within and across the firm. Therefore, improved social capital between organizations makes it more feasible for organizations to engage in knowledge management initiatives and easier for employees to participate in the initiatives.

To the extent that social capital facilitates organizational knowledge management, organizations must treat it as a productive resource, and consciously take advantage of it. Specifically, the attributes of each dimension facilitates the combination and exchange of knowledge between organizations (Tsai and Ghoshal, 1998). Social interactions are essential to knowledge exchange. Intensive, close social interactions produce stronger ties with closure (Coleman, 1988) that leads to tighter communication between organizations (Hoffman et al., 2005), increasing the depth, breadth, and efficiency of technical and market knowledge exchanges (Yli-Renko et al., 2001). Broad and large number of ties also help organizations to be exposed to diverse and novel external knowledge (Zhao and Aram, 1995), which is important to generating new

knowledge(McEvily and Zaheer, 1999). Structural capital is thus fundamental to successful knowledge management and key asset to organizational knowledge management efforts. A higher level of structural capital should facilitate knowledge management. Having referred organizational emphasis on knowledge management to the extent to which an organization commits to engaging knowledge management initiatives as their strategic moves (Kearns and Sabherwal, 2006), the authors propose,

H3.1 A higher level of structural capital of an organization is associated with a higher level of organizational emphasis on knowledge management.

Cognitive capital is instrumental to knowledge management as it embodies the common interests that inspires knowledge-sharing and the shared understanding that facilitates knowledge-sharing (Wenger, 1998). Such common interests and shared understanding are essential to "share and integrate aspects of knowledge which are *not* common between them" (Grant, 1996, pp.115-116, empahsis original). To the extent that cognitive capital can be a force underlying more effective knowledge management, the authors hypothesize,

H3.2 A higher level of cognitive capital of an organization is associated with a higher level of organizational emphasis on knowledge management.

Relational capital is concerned with the nature of relationships between organizations. It describes the trust between organizations and their commitment to each other (Wasko and Faraj, 2005). Relational capital allows organizations to share knowledge willingly and openly without concern for opportunistic behavior by their counterparts (Tsai and Ghoshal, 1998). It also motivates organizations to absorb acquired knowledge once they have confidence in the competency of the knowledge source that increases the effectiveness of knowledge sharing (Levin and Cross, 2004). Thus relational capital provides the social and cultural environment in

which knowledge management occurs and the authors posit,

H3.3 A higher level of relational capital of an organization is associated with a higher level of organizational emphasis on knowledge management.

2.3 Social Media and Knowledge Management

Knowledge management nowadays inevitably involves technological components (Hansen et al., 1999, Joshi et al., 2010). It utilizes information and communication technologies to improve people-to-people connections (i.e. personalization in Hansen et al., 1999) and/or people-to-document accesses (i.e. codification in Hansen et al., 1999). While deploying codification-based technologies was popular in knowledge management practices, the philosophy underlying such initiatives was criticized (McDermott, 1999) and the value of such efforts doubted (Ko and Dennis, 2011, Haas and Hansen, 2005). Personalization-based technologies, on the other hand, complement codification-based technologies by connecting knowledge owners and knowledge seekers, facilitating the exchange of tacit knowledge.

Some social media technologies were designed to promote knowledge sharing (e.g. online communities and blogs) and knowledge creation (e.g. wikis and crowd-sourcing). Some others were designed to keep people connected (e.g. Facebook and LinkedIn) (Meyer, 2010). Some social media can supply endless reusable knowledge through user-generated content (Kane and Fichman, 2009); some other social media technologies make it easier to access knowledge residing in experts' minds through bridging the temporal and spatial gaps between knowledge seekers and knowledge owners. Moreover, social media allow people to maintain large number of electronic connections. Such connections can be strong enough to foster trust, common value, and deep understanding, thus facilitating knowledge-sharing between users (Baehr and Alex-Brown, 2010). Yet at the same time they can be diversified enough so that new knowledge and

new perspectives can flow through them (Gray et al., 2011, Levin and Cross, 2004). Resultantly, social media facilitates communication (Li et al., 2005), collaboration (Jarvenpaa and Majchrzak, 2010), and innovation (Gray et al., 2011, Meyer, 2010).

Thus social media excel at supporting both people-to-document and people-to-people connections, bringing multi-fold benefits to knowledge management (Andriole, 2010). It is important for organizations to embrace them and consciously utilize them to support their knowledge management initiatives (von Krogh, 2012, Levy, 2009). Conversely, having social media technologies in place would provide the organizations with the necessary technological environment to commit to knowledge management initiatives. Noticing that the adoption and usage of social media – a complex technology over a network of users – is more a process than a decision (Ravichandran, 2005), the authors use organizational social media assimilation to describe the extent to which social media are deployed and used by organizations and posit,

H4: A higher level of organizational social media assimilation is associated with a higher level of organizational emphasis on knowledge management.

2.4 Social Media and Social Capital

Several studies at individual level have produced empirical supports for the positive influence of social media on social capital (e.g. Baehr and Alex-Brown, 2010, Ellison et al., 2007). Social media should positively affect structural capital as electronic connections are capable of both creating new relationships online and maintaining existing ones (Zhao, 2006). As organizations increasingly use social media to connect with customers, suppliers, competitors, and other firms in their industry (Bughin et al., 2011), social media should help improve inter-organizational communications and interactions, increasing structural capital:

H5.1: A higher level of organizational social media assimilation is associated with a higher

level of structural capital of an organization.

Plenty of previous research also showed that electronic connections on which the social media are built can foster trust and build bond between communicating partners. Users adapt to the technical features of communication media over time, circumventing their restrictions (e.g. using off-line meetings to complement online communications) and exploiting their strengths (e.g. utilizing digital interaction histories left online). Even in online communities where communications are text-based and asynchronous and thus considered lean, competency-based and benevolence-based trust can flourish (Zhang and Watts, 2008) and the emotional support between members (Rheingold, 1993) and sense of belonging (Blanchard and Markus, 2004) can be surprisingly strong. Moreover, contemporary social media can now take advantage of multimedia communications (e.g. video blog and Skype), further facilitating the formation of trust between partner organizations such as vendors and suppliers. As organizational members increasingly use social media to interact with their business partners in other organizations, the authors hypothesize,

H5.2: A higher level of organizational social media assimilation is associated with a higher level of relational capital of an organization.

To the extent that social media facilitate knowledge sharing, it must support the development of cognitive capital, "a shared code or a shared paradigm that facilitates a common understanding of collective goals and proper ways of acting in a social system (Tsai and Ghoshal, 1998, p.465)." Such shared code, paradigm, and common understandings are indispensable for effective knowledge sharing (Wenger, 1998). While traditionally researchers have emphasized the importance of frequent, face-to-face communications in shaping the common understandings, more recent research suggested that social media such as online communities can be a fertile

environment for the emergence of common understandings (Zhang and Watts, 2008). Social media is even more important for the development of cognitive capital across organizational boundaries where employees at different organizations are usually separated from each other geographically. By bridging the temporal and space gap, social media increases the opportunities for employees at different organizations to engage each other and to collaborate with each other. Thus firms that are interacting using social media are more likely to develop a common understanding. Moreover, the content generated through social media provides employees with the congealed materials over which the they can contemplate over meanings and negotiate the shared code or paradigm, facilitating the emergence of common understanding in the distributed setting (Wenger, 1998). Thus the authors posit,

H5.3: A higher level of organizational social media assimilation is associated with a higher level of cognitive capital of an organization.

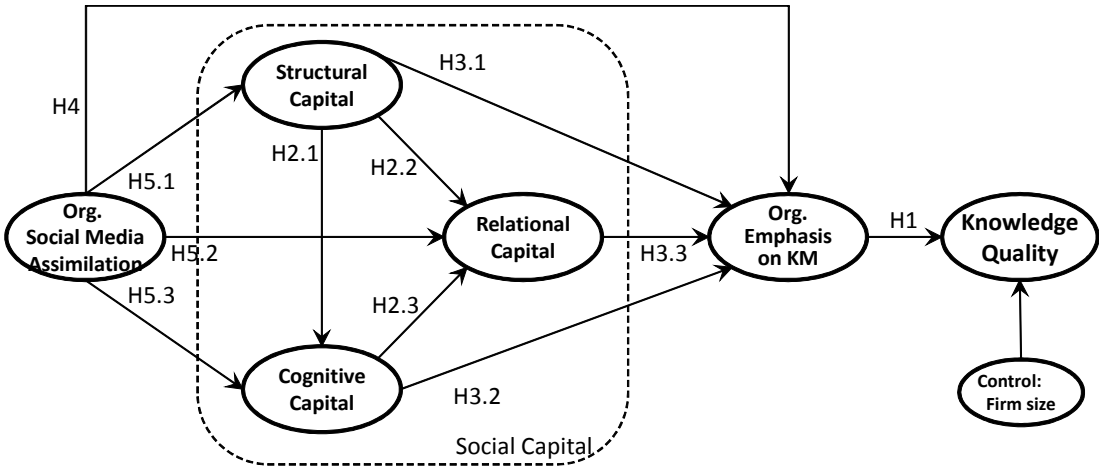

Figure 2: Research Model with Hypotheses

The hypotheses described above are depicted graphically in Figure 2, together with the control variable, firm size. It has been well established in the IS literature that firm size is often a proxy for resource slack and infrastructure (Mohr and Morse, 1977). It is included here to isolate the

effects from these factors on knowledge quality.

3. RESEARCH METHOD

Social networks and knowledge management initiatives are inherently field-based. Accordingly, the authors chose to test the above theoretically-derived research model with real-world data collected from surveying employees who were familiar with social media technology, social network, and knowledge management initiatives in their organizations.

3.1 Measures

The survey instrument was developed by adopting and adapting existing measures from previous research (see Appendix I for details on the measurements of constructs and sources). All constructs except organizational social media assimilation were reflective and were measured with seven-point Likert scales. For organizational social media assimilation, representative social media technologies (web services, blogs, LinkedIn, and Facebook) were taken into account and a formative construct was used and items were measured with the Guttman scale (Fichman, 2001). A firm interacts with other institutions in its environment through its marketing, procurement and the management sides. Through its marketing activity, a firm interacts with customers and competitors; through procurement it interacts with suppliers; and through its management side it comes into contact with government, media, auditors, potential employees and so on. Social capital research has been usually focused on one of the above three channels of interactions and often on only one type of institution. For example, in Leana and Pil (Leana and Pil, 2006) the research was based on a school community; in Tsai and Ghoshal (1998), the focus was on internal business units. Liao and Welsch (2005) in their research on social capital in small firms cast a wider net and their items included friends and firms for structural capital, well respected people and community leaders for cognitive capital, and relational capital was based on banks,

governments and community groups.

For this study the authors took a similar approach to that in Liao and Welsh (2005), measuring structural capital on the basis of quality and time spent in communication with customers, cognitive capital on the commonality of vision with competitors, and relational capital with trust and non-exploitative relationship with suppliers. In doing so, the authors hope to include a more comprehensive view of organizational social capital but reduce the number of questions the survey respondents need to answer.

3.2 Data Collection

A web-based survey questionnaire was administered to collect the data and test the proposed model (Figure 1). The population for this study was chosen by a professional market research company based in the United States. The company had over 6 million members across various industry verticals and professions, including more than 1.25 million members in its US business panel. It could offer panelists across 40 business profiles and 300 consumer panel segmentations. . With this large number of panelists on its rolls, it could offer panel members with much finer granular attributes to suit academic research. This kind of survey process provides greater control (based on the attributes selected), and is getting embraced by IS researchers (Bulgurcu et al., 2010).

The identities of participants were kept confidential by the company. The population selected for this study was information systems professionals and managers who should be familiar with organizational social media technologies supporting knowledge management. To encourage participation, the respondents were given a points-based incentive redeemable for prizes. A total of 725 individuals were invited to access the survey developed on Survey Monkey. Since the survey asked respondents to answer questions on their organizations' behalf, the 725 individuals

were further asked screening questions to ascertain that they were familiar with social media and knowledge management initiatives in their organizations as well as their organizations' connections to the suppliers, customers, and competitors. The participants were not informed that the screening questions served as exclusion criteria. Out of the 725 individuals who accessed the survey, 319 made it past the screening questions and were invited to complete the survey. Some respondents entered invalid answers in textboxes or failed to complete the survey. The deletion of these cases and the initial screening for outliers resulted in a final sample size of 283.

Table 1 provides sample demographics. The sample covered a broad range of industries. Most respondents were from the private sector, with around 75% from organizations with more than 100 employees. Most respondents (71.7%) identified themselves as IT professional. While the authors certainly wish more managers and executives had participated in the survey, it should be noted that all respondents passed the screening questions. More than 40% of the respondents also reported a management experience of more than 3 years and an overwhelming majority of the respondents (86.2%) had been working for more than 5 years. Hence the authors are confident that the respondents were qualified to answer the survey questions.

Insert Table 1 Here

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4. RESULTS

The measurement and structural model are evaluated by the component-based partial least squares (PLS) approach with the Smart-PLS software package (Ringle et al., 2005). The PLS approach is appropriate for this exploratory research as the phenomenon being studied is relatively new and new theory needs to be developed (Henseler et al., 2009). Moreover, both

formative and reflective constructs are used in this study, which made PLS particularly attractive (Chin, 1998).

4.1 Assessment of Measurement Properties

Table 2 presents the psychometric properties of the constructs included in this study. Measurement quality of reflective constructs is assessed by investigating the convergent validity, individual item reliability, composite reliability, and discriminant validity of the measurement model (Barclay et al., 1995).

Insert Table 2 Here

The authors examined the convergent validity using factor loadings and cross-loadings of the indicators on their reflective constructs, Average Variance Extracted (AVE) and composite reliability (See Table 2). All reflective item factor loadings were significant and greater than 0.70. The AVE values were greater than 0.50. Composite reliability is the recommended measure (Chin, 1998) as it overcomes some of Cronbach's Alpha deficiencies by taking into account the different indicators loadings (Henseler et al., 2009). The reflective construct measure loadings were above the recommended threshold of 0.70 for composite reliability (Yi and Davis, 2003).

Insert Table 3 Here

The discriminant validity of constructs was assessed by comparing the square roots of the AVEs with other correlation scores in the correlation matrix. Table 3 shows that none of the construct

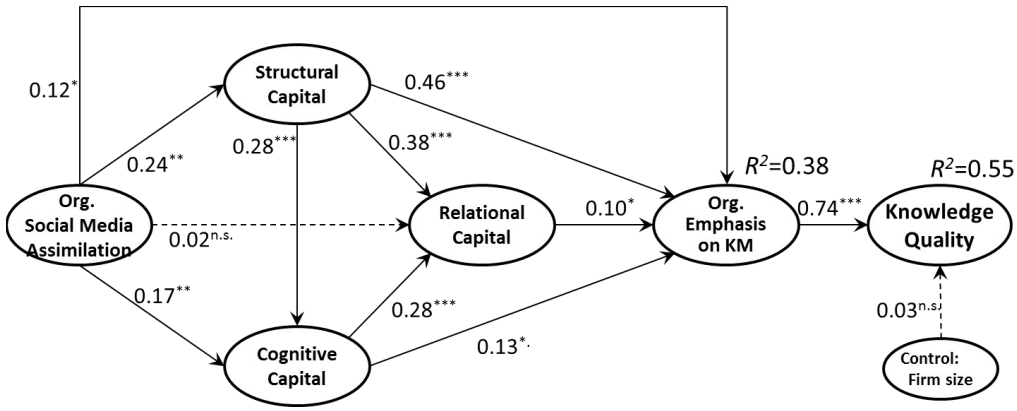
correlations (non-diagonal entries) exceeded the corresponding square root of AVE (diagonal entries). This suggests that the measures of each construct correlated more highly with their own items than with items measuring other constructs (Fornell and Larcker, 1981). This ensures the discriminant validity of the constructs in the research model.

Insert Table 4 Here

The extent of multicollinearity among constructs is assessed using variance inflation factor (VIF). VIF values below 3.3 indicate the absence of multicollinearity (Diamantopoulos and Siguaw, 2006). The authors calculated the variance inflation factors (VIF) to assess the extent of multicollinearity among constructs. The VIF scores ranged from 1.02 to 1.35 considerably below the threshold value of 3.3. For the formative construct VIF scores ranged from 1.23 to 1.32 and are well below 3.3, indicating that multicollinearity was unlikely to be an issue with the data. The extent of common method bias was assessed using the Harman's one-factor test. In this test all constructs are entered into an unrotated principal component factor analysis. The threat of common method bias is high if a single factor accounts for more than 50 percent of variance (Harman, 1960, Mattila and Enz, 2002). The results show that no single factor accounts for the bulk of the variance and, therefore, common method bias was unlikely. Unlike reflective constructs, the different dimensions of formative constructs are not expected to demonstrate internal consistency and correlations (Chin et al., 1996). Formative constructs as compared to reflective constructs do not have to exhibit internal consistency or reliability (Chin, 1998, Gefen et al., 2000, Petter et al., 2007). Absolute item weights were examined to determine the relative contribution of items constituting each formative construct (Chin et al., 1996). Table 4 shows

that all item weights were significant and contribute to the formative construct. Taken together the results suggest that the instrument has acceptable measurement properties.

4.2 Assessment of Structural Model



**p < 0.05; **p < 0.01; *** p < 0.001*

Figure 3: PLS test of the proposed structural model

PLS structural model results are shown in Figure 3 and summarized in Table 5. The model accounts for 55 percent of variance in organizational knowledge quality and for 38 percent of the variance in organizational emphasis on knowledge management. Firm size, the control variable, appeared to have no effect on organizational knowledge quality.

As shown in Figure 3, the effect of organizational emphasis on knowledge management on knowledge quality is significant and positive ($\beta = 0.74$, $p < 0.001$), supporting H1. Hypotheses H2s are about the interrelationships between three dimensions of social capital, structural capital, relationship capital, and cognitive capital. Replicating Tsai and Ghoshal (1998), this study hypothesized that structural capital will be positively associated with cognitive capital (H2.1) and relationship capital (H2.2), and cognitive capital will be positively associated with relationship capital (H2.3). Indeed, the path coefficients for the three hypothesized associations are all positive ($\beta = 0.28$ for H2.1; $\beta = 0.38$ for H2.2; and $\beta = 0.28$ for H2.3) and highly significant at $p < 0.001$ level. Hypotheses H2s are thus supported, providing another empirical

evidence to the theoretical arguments made by Tsai and Ghoshal (1998) regarding the interrelationships between the three dimensions of social capital.

Following Tsai and Ghoshal (1998) and focusing on knowledge as the most important resource that should be consciously managed by organizations, this study posited that social capital will positively influence organizational knowledge management initiatives through H3s. The path coefficients from all three dimensions of social capital to organizational emphasis on knowledge management are indeed positive and significant ($\beta = 0.46$, $p < 0.01$ for structural capital; $\beta = 0.13$, $p < 0.05$ for cognitive capital; and $\beta = 0.10$, $p < 0.05$ for relational capital). Hence H3s are supported.

Insert Table 5 Here

Hypotheses H4 and H5s concern the impacts of social media on organizational knowledge management and social capital. The path coefficient from organizational social media assimilation to organizational emphasis on knowledge management is positive and significant ($\beta = 0.12$, $p < 0.01$), in support of H4. While the results suggest that organizational social media assimilation does positively affect structural capital and cognitive capital as hypothesized in H5.1 and H5.3 ($\beta = 0.24$, $p < 0.01$ and $\beta = 0.17$, $p < 0.01$, respectively), this study found no support for H5.3 as the path coefficient from organizational social media assimilation to relational capital is not significant at $p < 0.05$ level ($\beta = 0.02$).

5. DISCUSSION

As organizations increasingly use social media for knowledge management, in this study the authors explored how social media could affect organizational knowledge quality. This study

employed the Tsai and Ghoshal (1998) framework of the impact of social capital on resource sharing and integration. It refocused the framework on knowledge management and knowledge quality and extended it to include social media, arguing that social media positively affects social capital and organizational knowledge management, which ultimately lead to superior organizational knowledge quality. The framework was tested and confirmed using panel data.

The results showed significant relationship between organizational emphasis on knowledge management and organizational knowledge quality. As few studies have focused on organizational knowledge quality, this study offers a rare glimpse into the effect of organizational knowledge management efforts on the quality of knowledge they own. To organizations who are concerned about the quality of their knowledge stock, the findings that organizations that are committed to knowledge management indeed are more likely to own better knowledge is reassuring.

To explore what could have affected organizational knowledge quality, the authors did an *ad hoc* test of the direct links to organizational knowledge quality from the three dimensions of social capital and organizational assimilation of social media. Interestingly, none of these links were significant at $p < 0.05$ level. It is plausible that the enhanced organizational emphasis on knowledge management leads to overall improved knowledge quality above and beyond the improvement caused by social capital. The statistical links between social capital and knowledge quality could have been masked but it could also suggest the central role played by organizational efforts towards knowledge management. Therefore, social media may have provided the technical tools while social capital may have facilitated the linkages to external knowledge, yet, it still requires concerted knowledge management efforts by organizations before they can reap the benefits of knowledge management, i.e. knowledge of higher quality.

Future studies can focus more on the links between organizational social capital and knowledge quality and shed more light on how social capital may impact knowledge quality.

The study confirmed the validity of the Tsai and Ghoshal (1998) framework in the knowledge management context, highlighting the close relationship between social capital and organizational knowledge management efforts. The three dimensions of social capital – structural, relational, and cognitive – are all significantly associated with each other as expected. Moreover, structural capital and cognitive capital are positively associated with organizational emphasis on knowledge management. The impact of relational capital on organizational emphasis on knowledge management is also significant. All these findings lend strong support to the theoretical arguments the authors made following Tsai and Ghoshal (1998).

To explore the influence of social media on knowledge management, the authors argued that social media usage could facilitate organizational knowledge management efforts and the development of social capital. The research model conceptualized organizational social media assimilation– the extent to which social media is adopted and used by organizations – as antecedents to organizational emphasis on knowledge management and social capital. The results showed a strong, positive link from organizational social media assimilation to organizational emphasis on knowledge management, suggesting that social media can be a powerful facilitator for organizational knowledge management efforts. The links from social media to structural capital and from social media to cognitive capital are also significant and positive. Thus social media usage does appear to help increase social interactions that promote increased communication between organizations, leading to higher level of social capital. It also facilitates the emergence of common understanding shared by organizations, promoting cognitive capital.

While the authors argued that organizational social media assimilation should be positively

associated with relational capital, data analysis suggested that this is not the case. Rather, the data analysis hints that social media affects relational capital indirectly through structural capital and cognitive capital. This finding was unexpected, but not totally surprising. Relational capital embodies the relationship assets such as trust developed through the interactions within the social network. Trust in the knowledge-sharing context is built on the perception of the ability and benevolence of the trustees (Levin and Cross, 2004, Mayer et al., 1995). While social media afford the users the opportunities to interact and collaborate, it alone does not dictate the formation of trust. It is through interactions and collaborations that users develop perceptions of ability and benevolence of their counterparts in other organizations, which in turn lead to the formation of trust toward other organizations. As structural capital develops through interactions and cognitive capital develops through collaborations, and both structural and cognitive capital promotes the development of relational capital, the effect of social media on relational capital might be just indirectly through structural and cognitive capital.

6. CONCLUSIONS

6.1 Summary of Findings

This article reports a study at the intersection of social media, social capital, and knowledge management, examining the impact of social media on organizational knowledge quality through the theoretical framework on social capital offered by Tsai and Ghoshal (1998). The authors argued that organizational assimilation of social media helps to grow social capital between organizations, which facilitate knowledge management efforts in organizations and subsequently lead to organizational knowledge of higher quality.

Panel data collected through a survey supported the research model: While organizational assimilation of social media positively affect organizational social capital, the social capital's

effects on organizational knowledge quality is indirectly through organizational emphasis on knowledge management, and so is the organizational assimilation of social media's effects on organizational knowledge quality.

6.2 Limitations of the Research and Findings

As one of the first studies empirically investigating the relationship between social media and knowledge management, this study was exploratory in nature and certainly with some limitations. It was limited to the United States and thus its generalization has obvious geographical limitation and does not account for country-specific differences. Although the survey method was appropriate for testing the theoretically-deducted research model in field settings, the authors were not able to compensate all the limitations imposed by the survey method. For example, survey respondents generally provide a positive evaluation of their own organizations and this may bias surveys. The quantitative data of this study is based on perceptions of individuals assessing at an organizational level and inter-organizational level. While the authors made efforts to ensure that the respondents are knowledgeable and experienced to answer questions at this level, the results are still based on their perceptions and not on measurable output.

Finally, the quantitative data were collected using a survey instrument in a cross-sectional manner. The implied directions of the hypotheses – as shown in the research model (Figure 2) – were based on theoretical induction. The statistical analyses presented in the paper certainly cannot confirm the causality of the links proposed in the model. Moreover, research has also indicated that existing knowledge can well influence the assimilation of technologies (Ravichandran, 2005), including social media. To clarify the time sequence in the causal relations, future research needs to collect time series data, perhaps by surveying the same

respondents in the organizations at different time instances, which will be both theoretically intriguing and practically important.

6.3 Implications for Practitioners and Researchers

Despite these limitations, this study has significant implications to both practitioners and researchers. As more organizations contemplate using social media for knowledge management, this study should interest practitioners. It shows that while social media affect structural capital and cognitive capital directly, it appears to affect relational capital only indirectly. Moreover, while social media usage does seem to affect organizational knowledge quality, the impact seems indirectly through social capital and organizational emphasis on knowledge management. Thus this study highlights both the potential and limitations of social media in promoting organizational knowledge management. While it is reassuring to know that social media can help improve organizational knowledge quality, the effect is not direct and automatic. Businesses must consciously manage the assimilation and use of social media to benefit from them. One way to do so is to use them to grow social capital in all three dimensions and to facilitate knowledge management. Just investing in social media technologies is not sufficient.

To researchers, this study contributes to a better understanding of the intersection of social media, social capital, and organizational knowledge management. It adapted the Tsai and Ghoshal (1998) framework to the context of organizational knowledge management and extended it to include social media as the antecedent. It explicates how social media affects organizational knowledge quality. In doing so, the study provided one glimpse into the rather complicated dynamics between social media and organizational knowledge management.

Integrating social media with knowledge management, this study contributed to literature in both areas. While research in social media has so far focused more on the implications of its

marketing capability that allow businesses to engage with customers in innovative ways (e.g., see recent special issue Duan, 2013), this study explores how social media can affect organizational knowledge, arguably one of the most important resources for organizations to gain sustainable competitive advantage. In this sense, this study deepens the understanding of the business value of social media, especially in areas beyond marketing.

As organizations increasingly adopt social media as a tool for knowledge management, the reported study is both timely and important (von Krogh, 2012, Ford and Mason, 2013). Most importantly, it focused on organizational knowledge quality rather than volume. Organizations who have initiated knowledge management quickly learn that while it is relatively easy to increase the volume of knowledge inventory, it is much more difficult to ensure the quality of knowledge contribution (McDermott, 1999). Now with social media comes endless user generated content (O'Reilly, 2007). Yet the quality of the user generated content has always been a concern (e.g. Denning et al., 2005). The research model suggests and the results confirm that social media can have a positive influence, albeit indirectly, on the overall organizational knowledge quality.

While there have been limited number of studies on the impact of social media on social capital (e.g. Burke et al., 2011, Ellison et al., 2007), this study differs from earlier efforts in two aspects. First, in terms of level of analysis, this study concerns social capital at organizational level and explores how social media adoption and usage affect inter-organizational social capital. Second, in terms of the technologies under study, this study attempted to treat social media collectively rather than focusing on one particular kind of social media. The authors believe such organizational-level analysis involving more than just one social medium is especially important for us to understand how organizations can use social media in general as a strategic tool to

attain sustainable competitive advantages.

This study explored whether social media can help grow social capital and facilitate organizational knowledge management. The results indicate that social media indeed can be a viable technological choice to enhance organizational knowledge management efforts. Based on the Tsai and Ghoshal's (1998) framework, this study investigated in more detail how social capital affects knowledge management. The results suggest that the three dimensions of social capital – structural, relational, and cognitive – indeed have affected knowledge management positively. Of course, this finding could be limited to the reported study only, and closer examination of how social capital affects knowledge management appears to be an interesting area for future research.

Finally, this study showed that organizational emphasis of knowledge management plays a central role in bridging social media and knowledge quality, indicating strongly that the organizational involvement is indispensable in knowledge management. It suggests that organizational processes and practices that enhance quality knowledge gathering and utilization should work in concert with, rather than solely reliant on, social media technologies. Researchers have long warned against over-reliance on technologies in knowledge management (e.g. McDermott, 1999), but there have not been much quantitative evidence of this important notion. In this sense, findings from this study help to fill a gap in the literature.

6.4 Possible Areas for Future Research

Findings from this study suggest many opportunities for future exploration in this area. Among the many possibilities, the following three seem most interesting and promising. First of all, the authors call for future research in both comparable and contrasting research settings and with more refined measures to test the generalizability and validity of the findings.

Second, future research is needed in establishing the time sequence in the proposed causal relations. For example, future research may need to collect time series data, perhaps by surveying the same respondents in the organizations at different time instances. Researchers may also consider using qualitative studies to triangulate the findings reported in this study. Such studies are both practically important and theoretically intriguing

Finally, the current study focused on the overall effects of social media, social capital, and knowledge management on knowledge quality at organizational level. While the findings of the positive effects are reassuring, the study didn't concern the individual level mechanism through which social media promotes social capital and facilitates knowledge management and exactly how they work together to improve organizational knowledge quality. Future individual-level research in this area should further enrich the understanding of the complicated dynamics between social media, social capital, knowledge management, and knowledge quality.

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Appendix I: Survey Measures

Construct	Variable	Item	Source
Knowledge Quality (Reflective)	KQ1	The content of organizational knowledge available in the knowledge-based systems meets my needs.	Durcikova and Gray (2009)
	KQ2	Overall, the quality of knowledge available in the Knowledge-based systems is high.	
	KQ3	Knowledge available in the knowledge bases is accurate.	
Organizational emphasis on Knowledge Management (Reflective)	OEKM1	Knowledge and intellectual capital are viewed as key organizational assets.	Kearns and Sabherwal (2006)
	OEKM2	We have ready access to expert knowledge within the organization.	
	OEKM3	Organizational knowledge is codified and made available to all employees.	
Social Capital			
Structural Capital (Reflective)	STR1	We spend considerable time on meetings and telephone conversation with our important customers.	Leana and Pil (2006); Teo *et al*. (2003)
	STR2	We engage in open and honest communication with our customers.	
Relational Capital (Reflective)	REL1	We know our suppliers on a personal level.	Yli-Renko *et al*. (2001)
	REL2	In our relationship with suppliers neither side takes any advantage.	
Cognitive Capital (Reflective)	COG1	We share the same vision of the industry as our competitors.	Leana and Pil(2006) Teo *et al*. (2003)
	COG2	Competitors who are important to us think that new technologies are useful.	
Organizational Social Media Assimilation (Formative)	OSMA1	What is the status of use and implementation of Web services?	Fichman (2001)
	OSMA2	What is the status of use and implementation of social media tools such as LinkedIn and Facebook?	
	OSMA3	What is the status of use and implementation of Blogs?	
Firm Size (Control Variable)	LSZ	What is the total number of people (full time equivalents) employed in your firm? (Natural Log)	Mohr and Morse (1977)

Table 1: Sample Demographics					
Position of Respondent in Organization	**Frequency**	**Percentage**	**Respondent Management Experience (Year)**	**Frequency**	**Percentage**
CEO/Senior Manager	5	1.8	0-3	163	57.6
Manager/Supervisor	70	24.8	4-6	49	17.3
IT Professional	203	71.7	7-9	32	11.3
Other	5	1.8	10+	39	13.8
			Respondent Work Experience (Year)		
			0-5	39	13.8
Industry*			6-15	135	47.7
Banking	18	6.4	16-25	57	20.1
Education and government	40	14.1	25+	52	18.4
Finance and insurance	29	10.2	**Size of Organization (Number of Employees)**		
Health-care, retail and wholesale trade	61	21.6	0-100	76	26.9
IT, telecommunications, and professional services	121	42.8	101-1,000	72	25.4
Manufacturing and transportation	34	12.0	1,001-10,000	65	23
Utilities and other	38	13.4	10,000+	70	24.7

Note: *Organizations could belong to more than one industry

Table 2: Psychometric Properties of Reflective and Formative Constructs								
Construct	**CR****	**AVE**	**Indicator**	**Mean**	**Median**	**SD**	**Weight (Formative)**	**Loading (Reflective)**
KQ (Reflective)	0.94	0.83	KQL1	4.73	5.00	1.29	-	0.91
			KQL2	4.79	5.00	1.31	-	0.94
			KQL3	4.96	5.00	1.25	-	0.89
OEKM (Reflective)	0.85	0.66	OEK1	5.37	6.00	1.32	-	0.80
			OEK2	5.30	6.00	1.37	-	0.88
			OEK3	4.39	5.00	1.51	-	0.75
STR (Reflective)	0.81	0.68	STR1	5.17	5.00	1.31	-	0.76
			STR2	5.53	6.00	1.13	-	0.89
REL (Reflective)	0.87	0.77	REL1	4.97	5.00	1.22	-	0.89
			REL2	4.80	5.00	1.15	-	0.87
COG (Reflective)	0.83	0.71	COG1	4.77	5.00	1.28	-	0.79
			COG2	5.18	5.00	1.06	-	0.89
OSMA (Formative)	-	-	OSM1	5.36	6.00	1.94	0.54	-
			OSM2	4.19	4.00	2.16	0.30	-
			OSM3	3.94	4.00	2.12	0.41	-

Note: KQ = Knowledge Quality; OEKM = Organizational Emphasis on Knowledge Management; STR = Structural Capital; REL = Relational Capital; COG = Cognitive Capital; OSMA = Organizational Social Media Assimilation; CR = Composite Reliability; AVE = Average Variance Extracted. N = 283. All loadings are significant at $p < 0.001$ level.

Table 3: Square Root of AVE and Latent Variable Correlation						
	KQ	**OEKM**	**STR**	**REL**	**COG**	**OSMA**
KQ	**0.91**					
OEKM	0.74	**0.81**				
STR	0.49	0.57	**0.82**			
REL	0.44	0.38	0.46	**0.88**		
COG	0.33	0.34	0.32	0.39	**0.84**	
OSMA	0.19	0.27	0.24	0.14	0.23	**NA***

Notes: KQ = Knowledge Quality; OEKM = Organizational Emphasis on Knowledge Management; STR = Structural Capital; REL = Relational Capital; COG = Cognitive Capital; OSMA = Organizational Social Media Assimilation. Diagonal elements (bold) are the square roots of average variance extracted (AVE) by latent constructs from their indicators, except NA = Not Applicable (for formative construct). N = 283.

Table 4: Loadings and Cross-Loadings						
	KQ	**OEKM**	**STR**	**REL**	**COG**	**OSMA**
KQ1	**0.91**	0.66	0.44	0.42	0.27	0.20
KQ2	**0.94**	0.72	0.48	0.43	0.31	0.17
KQ3	**0.89**	0.64	0.43	0.35	0.31	0.15
OEKM1	0.59	**0.80**	0.48	0.22	0.28	0.25
OEKM2	0.63	**0.88**	0.48	0.31	0.23	0.27
OEKM3	0.58	**0.75**	0.43	0.40	0.32	0.14
STR1	0.33	0.41	**0.76**	0.26	0.24	0.17
STR2	0.47	0.53	**0.89**	0.48	0.28	0.22
REL1	0.35	0.35	0.45	**0.89**	0.31	0.15
REL2	0.41	0.31	0.37	**0.87**	0.38	0.09
COG1	0.24	0.25	0.22	0.31	**0.79**	0.10
COG2	0.31	0.32	0.31	0.35	**0.88**	0.27
OSMA1	0.18	0.23	0.23	0.11	0.19	**0.85**
OSMA2	0.11	0.18	0.16	0.09	0.18	**0.69**
OSMA3	0.14	0.21	0.16	0.11	0.18	**0.74**

Notes: KQ = Knowledge Quality; OEKM = Organizational Emphasis on Knowledge Management; STR = Structural Capital; REL = Relational Capital; COG = Cognitive Capital; OSMA = Organizational Social Media Assimilation. N=283.

Table 5: Summary of results of Structural Model Testing

Hypothesis	Hypothesis Details	Result
	Effects of knowledge management on knowledge quality:	
H1	A higher level of organizational emphasis on knowledge management is associated with a higher level of organizational knowledge quality.	Supported (p<0.001)
	Interrelationships between organizational social capital:	
H2.1	A higher level of structural capital of an organization is associated with a higher level of cognitive capital of the organization.	Supported (p<0.001)
H2.2	A higher level of structural capital of an organization is associated with a higher level of relational capital of the organization.	Supported (p<0.001)
H2.3	A higher level of cognitive capital of an organization is associated with a higher level of relational capital of the organization.	Supported (p<0.001)
	Effects of social capital on knowledge management:	
H3.1	A higher level of structural capital of an organization is associated with a higher level of organizational emphasis on knowledge management.	Supported (p<0.01)
H3.2	A higher level of cognitive capital of an organization is associated with a higher level of organizational emphasis on knowledge management.	supported (p<0.05)
H3.3	A higher level of relational capital of an organization is associated with a higher level of organizational emphasis on knowledge management.	Supported (p<0.05)
	Effects of social media on knowledge management:	
H4	A higher level of organizational social media assimilation is associated with a higher level of organizational emphasis on knowledge management.	Supported (p<0.01)
	Effects of social media on social capital:	
H5.1	A higher level of organizational social media assimilation is associated with a higher level of structural capital of an organization.	Supported (p<0.01)
H5.2	A higher level of organizational social media assimilation is associated with a higher level of relational capital of an organization.	*Not Supported*
H5.3	A higher level of organizational social media assimilation is associated with a higher level of cognitive capital of an organization.	Supported (p<0.001)