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Strategic knowledge management and enterprise social media

Chris Archer-Brown and Jan Kietzmann

Abstract

Purpose – *This paper aims to examine if (and how), enterprise social media (ESM) can be understood as a strategic knowledge management phenomenon to improve organizational performance.*

Design/methodology/approach – *This paper uses intellectual capital theory and its functional building blocks to organize different types of the ESM platforms, based on secondary data. It then connects these findings to the underling intellectual capital tenets to introduce a conceptual model that explicates how ESM impacts strategic knowledge management, and vice versa.*

Findings – *This paper concludes that ESM provides a unique complement to traditional strategic knowledge management. The authors argue that ESM differs substantially from other contexts in which intellectual capital has been applied, and extend intellectual capital with three appropriate dimensions (human, social and structural capital). Given the potentially disruptive nature of ESM, this framework helps firms understand the nature of the changes that are needed.*

Originality/value – *The paper provides the first review of the business needs that are served by the software functions and management processes under the ESM banner. This original contribution takes the intellectual capital and strategic knowledge management discussions from their usual high levels of abstraction and relates them to the real world of ESM, focusing on outcomes. Its unique "Intellectual Capital Framework for the Socially Oriented Enterprise" includes distinct, testable propositions that provide a practical approach to strategically planning, implementing and optimizing ESM.*

Keywords *Social Capital, Intellectual Capital, Social networks, Knowledge management, Human Capital, Social media*

Paper type *Research paper*

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1. Introduction

Scholars from disciplines as disparate as sociology, management science, economics and knowledge management (KM) agree that information technology (IT) has transformed all phases of economic and business activity (Davenport *et al.*, 1997; Soto-Acosta *et al.*, 2016; Evetts, 2009; Corso *et al.*, 2003). Knowledge, yielded from advanced information quality and availability, has replaced matter and energy as the primary resource and sidelined traditional physical and financial assets in terms of organizational importance (Drucker, 1999). In response, in the *Journal of Knowledge Management*, terms such as post-industrial societies (Pyöriä, 2005), information revolutions (Bollinger and Smith, 2001) and knowledge-based economies (Uit Beijerse, 1999) have been used to discuss IT-mediated knowledge (Hussi, 2004; Bollinger and Smith, 2001) as a key strategic resource for decision-makers. More specifically, when such IT-mediated knowledge is used to improve strategic processes, core competencies, business performance and value creation, it is commonly referred to as strategic knowledge management (Ratten *et al.*, 2016; Silva *et al.*, 2017; Carlucci *et al.*, 2004)[1].

As internet technologies progress, approaches to KM need to keep pace to stay strategically relevant. Central knowledge repositories have increasingly been replaced by social software choices that allow relatively inexpensive, mobile, cloud-based and more

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personalized content exchanges that are more effective in meeting individual needs. In fact, today, increasing number of vendors are trying to build on the successes of social networks for private consumers by offering enterprise social media (ESM) platform choices for the use within a firm. Examples are Microsoft's Yammer, Salesforce Chatter, VMWare Socialcast, IBM Connections and Facebook's Workplace. They include functions that are familiar to users from personal social media, e.g. the use of newsfeeds, messenger, photo and video sharing functions, as well as search, groups and events at work. These are said to promote openness and sharing across geographical and organizational boundaries (Sweigers, 2011). In turn, they can lead to advantages such as enhanced processes for idea capture and management and a more rapid innovation throughput (Brandel, 2008; Chui *et al.*, 2012; Breslin, 2014). We refer to companies that have adopted these types of technology to enable communications and collaboration between staff as "socially oriented enterprises".

IT and strategic KM continue to move forward with a changing focus from internal IT resource management to "leveraging human, social, relational and intellectual capital dynamically and across boundaries" (Merali *et al.*, 2012, p. 130). Faced with increasingly social choices, managers find themselves at crossroads, wondering if and how social media platforms, which, in their personal form are often viewed as "productivity-killers" can become viable enterprise collaboration tools and "productivity-enhancers" (Frei, 2015). This is particularly relevant for knowledge-intensive professional service firms because of the nature of their work (Von Nordenflycht, 2010).

Motivated by this dilemma and calls for theoretically rigorous research in the use of "social" software in strategic KM, we employ an intellectual capital lens to develop insights into the potential gains firms can expect from ESM (von Krogh, 2012; Galliers *et al.*, 2012). In common with previous literature, we consider the extent to which ESM has the potential to transform inter-firm communications. However, we build upon previous theorization by complementing this with an outcome-perspective, assessing the benefits that a firm could reasonably expect as a result of such transformation. We synthesize a number of well-established perspectives on intellectual capital into a single conceptual "intellectual capital framework for the socially oriented enterprise".

With these goals in mind, this article is organized into the following sections. In Section 2, we provide a short summary of the intellectual capital management and the KM literature, considering their relationship. Subsequently, in Section 3, a brief overview is given of the types of the ESM platforms available under the umbrella term, using intellectual capital and its functional building blocks as ways of organizing them. In Section 4, we present our secondary data analysis, before we, in Section 5, introduce a conceptual model that explicates how ESM impacts and contributes to the strategic KM, and vice versa. We conclude with considerations for theory and practice.

2. "Social" knowledge management

Knowledge is "information combined with experience, context, interpretation, and reflection" (Davenport *et al.*, 1998, p. 43), and few doubt its value (Lehrer, 2000). It is a source of competitive advantage and the sustaining characteristic in modern economies (Adler, 2001; Drucker, 1993). In this context, five characteristics of knowledge generate critical strategic implications for management:

1. the extent to which it can be transferred to create competitive advantage;

2. the social perspective of its capacity for combination;

3. the extent to which it can be appropriated to generate value;

4. its level of specialization, thereby generating barriers to replication; and

5. the necessity for knowledge as part of the critical processes of the firm (Grant, 1996).

Firms where these implications are high are referred to as knowledge-intensive, meaning that knowledge is a more strategically important input to the firm's core competences than any other (Starbuck, 1992).

Strategic KM (SKM) attempts to "do something useful" with knowledge (Davenport *et al.*, 1998, p. 44), making KM itself a source of sustainable competitive advantage. Wiig (1997) considers KM to be a way to allow firms to generate value from embedded knowledge assets, both explicit and tacit. KM is particularly successful in capturing explicit knowledge in the forms of observable processes, specifications, contracts etc., whereas the management of tacit knowledge is seen as more problematic (von Krogh *et al.*, 2000).

Tacit knowledge underpins our intuition, is automatic and needs to be socialized to become explicit and, therefore, useful to others (Eraut, 2000). The inability to effectively deal with tacit knowledge is seen as a potential source of failure to KM projects (Fahey and Prusak, 1998). According to Nonaka (1990), the critical element that is required to be present to convert tacit knowledge to explicit is codification (Hansen *et al.*, 1999).

Many scholars objectify knowledge, treating it as an entity that can be captured, communicated and accumulated (Fahey and Prusak, 1998). However, knowledge ought to be viewed as both a "stock" and a "flow", in recognition of its dynamic nature and the manner in which it is generated, transmitted and enhanced (Deeds and Decarolis, 1999; Dierickx and Cool, 1989). Knowledge is an asset that is in a constant state of flux and requires new systems and understanding of the way in which it can flow between diverse individuals, teams and organizations (Nissen, 2006).

Consideration has been given by earlier scholars to the role of ESM in SKM (Brzozowski *et al.*, 2009; Haefliger *et al.*, 2011; von Krogh, 2012). While the above issues have not been considered explicity, ESM shows promise in being able to faciliate the "flows" of knowledge while allowing firms to capture knowledge sharing behavior that could allow the codification of tacit knowledge. This forms the motivation for our paper.

3. Intellectual capital: a measure of value

Intellectual capital, according to Feiwel (1975), was first proposed more than 50 years ago by economist John Kenneth Galbraith, who introduced it as a source of competitive advantage, defining it as the difference between an organization's market value and book value. Intellectual capital is of particular importance in industries that are heavily reliant on knowledge-intensive activities (Snell and Dean, 1992; Swart and Kinnie, 2003). The foundation of this argument was that in comparison to tangible forms of capital, those that are physical and financial, knowledge-based intellectual assets are harder to replicate (Teece, 2000). Intellectual capital is made up of knowledge, expertise and experience, which is codified in the form of information and intellectual property where it can create value and be protected (Stewart, 1998). The central premise of intellectual capital theory is that a firm's core competences and competitive advantages are embedded in the knowledge of the organization's members, forming a core resource that materially affects the capacity of the organization to perform and to obtain results (Drucker, 1967).

Today, communication and knowledge exchange can be facilitated, supported, improved and managed in innovative, new ways (Haefliger *et al.*, 2011). We apply intellectual capital to the challenge of advancing methods of developing and measuring the value ESM brings to an organization. To understand this in a knowledge-intensive ESM context, intellectual capital needs to be unpacked into three further, related dimensions: human capital, social capital and structural capital and their respective underlying types of knowledge (De Long and Fahey, 2000). These dimensions are described and discussed in the following sub-sections.

3.1 Human capital defined

Human capital is the stock of "economically productive human capabilities" (Behrman and Taubman, 1982, p. 474) for solving business problems. It is made up of human competencies, including knowledge, social and personality attributes, which are embodied in the ability to perform labor so as to produce economic value (Simkovic, 2012). This combination of knowledge and skills has long been recognized as a core component of intangible residual capital of an organization (Nelson and Winter, 1982). It is inherent in people and cannot be owned by an organization: essentially human capital is what people take home when they leave work. Examples of human capital are knowledge, skills and experience, and these may be enhanced by training and education (Becker, 1994).

While human capital, by definition, describes individual traits (e.g. cognitive processes such as learning and reflection), its creation is often the result of interaction with others (Lepak and Snell, 2002). This is particularly the case where the relationship between the actors is strong (McFadyen and Cannella, 2004). Human capital theory has been evolved to include a multilevel model, which takes into account the organizational complexity and value of the flows of knowledge not only from person to person but also work groups or functional departments (Ployhart and Moliterno, 2011).

A range of SKM tools, particularly searchable knowledge repositories, have been developed to capture and codify human capital so that it can be shared with colleagues (Edvinsson and Malone, 1997). Through what Hansen et al.(1999) refer to as a personalization strategy, ESM offers firms a complementary layer of tools, such as wikis, discussion forums and blogs where individuals share their human capital and contribute to the collective knowledge of the organization (Greiner et al., 2007). ESM has significant promise in capturing knowledge direct from employees and disseminating widely (von Krogh, 2012).

3.2 Social capital defined

Social capital recognizes the relational aspects between human participants, the extent to which the value of knowledge and expertise flows between individuals and groups to generate value (Tsai and Ghoshal, 1998). It is separate from human and structural capital and is of central importance to an organization's intangible capital (Nahapiet and Ghoshal, 1998). However, social capital exists only in the relationship between the individuals or groups between whom it is formed (Burt, 1992). Specifically, it exists as the result of an interaction between two actors, where an "unequal transaction" is recognized by both parties to have occurred, relying on the possibility that the imbalance may be resolved at a later date (Lin, 2002). In other words, where one colleague reaches out to another and receives information that is of benefit, social capital exists between them and the "favor" can be expected to be reciprocated.

Depending on the context, it can exist between firms, institutions and people (Capello and Faggian, 2005). For the context of enterprise social media, however, this is not warranted. Here, social capital is the conduit and catalyst for the combination of knowledge within social networks (Nahapiet and Ghoshal, 1998). This encapsulates the presence of reliable reciprocity that leads to a basis of trust between individuals (Fukuyama, 1995; Putnam, 2001; Inkpen and Tsang, 2005) and includes relationships and conversations that are unknown and unpredictable for firms.

ESM has the potential to act as a catalyst for the development of social capital, particularly within distributed (Gupta et al., 2009), virtual (Dubé et al., 2005) or mobile organizations (Kietzmann et al., 2013). Given its roots in Web 2.0, ESM shows promise, where users can connect and communicate across space and time to collaborate and develop productive working relationships.

3.3 Structural capital defined

Structural capital includes the supportive infrastructure and processes of the organization that enable human capital (Maddocks and Beaney, 2002) and – through ESM – social capital to function. It is operationalized knowledge that allows the collective know-how of the employees to remain in the firm at the end of the working day and, thus, contributes to the creation of intellectual capital (Cabrita and Bontis, 2008). Through training systems, work processes, software and IT, methodologies and procedures (Brooking, 1996), structural capital provides the mechanism to capture, codify and make human capital (Edvinsson and Malone, 1997) and social capital (Nahapiet and Ghoshal, 1998) ready for reuse. For clarity, structural capital is distinct from Nahapiet and Ghoshal's (1998) conception of the structural dimension of social capital, which focuses on an actor's position within an appropriable network.

Traditional KM tools have been long recognized as forms of structural capital (Stewart, 1998) and, more recently, ESM complements these tools in ways that were previously not possible. ESM allows the facilitation and capture of the social collaborations that develop knowledge between employees, making the process visible to others for wider benefit that is reusable beyond the relationship between the originating dyad.

Together, these three capitals create a combinatory effect and form the intellectual capital of the firm (Figure 1). Human capital refers to the knowledge and skills of individuals, social capital is the glue that binds them and structural capital is the way in which both are supported and captured. A mutually interdependent relationship connects these entities, where the activities of people, individual and collectively, shape and are shaped by the choices of the tools they adopt.

Figure 1 recognizes the interweaving nature of the relationship between the three dimensions of intellectual capital. Using the example of a traditional IT knowledge repository as a primary example of structural capital, it is a source of human capital, in which sense it acts as an *influencer* in employees' likelihood to voluntarily share their knowledge and experiences (e.g. a post-project "key learnings" summary). Conversely, when knowledge is shared through the repository, it is formalized and made available to others, where the structural capital acts as a *mediator* converting the personal human capital asset to one that is "owned" by the firm and as a *multiplier* by making the knowledge available to others for use.

Similarly, ESM plays the role of an *influencer* by encouraging employees to make connections and collaborate with colleagues and partners. It also plays the role of a *mediator* by capturing the co-created knowledge that results from such interactions in the form of discussion threads. In this manner, it converts the social capital that otherwise would

Figure 1 Intellectual capital dimensions, stocks and flows
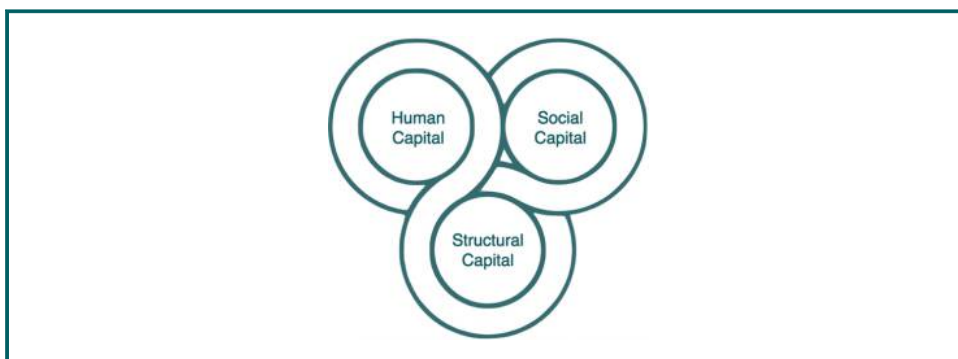
only exist in the relationship between the parties to become a corporate asset that may be reused on many occasions, and as such, can be considered a *multiplier*.

The elaboration above related to the knowledge repository has been argued previously (Edvinsson and Malone, 1997). Likewise that social capital is converted to intellectual capital through the implementation of systems and process to encourage exchange and combination (Nahapiet and Ghoshal, 1998). Further, the argument for the multiplicative effect of structural capital has been emphasized previously (Stewart, 1998).

When structural capital provides systems and processes to capture, codify and share combined knowledge, it may be reused many times. It becomes tradable and replicable, and has multiple, parallel applications and is inexhaustible (Dean and Kretschmer, 2007). In fact, its value appreciates rather than depreciates on each occasion it is reused, meaning its flows and those of its component parts can occur without its stocks being depleted (Roos and Roos, 1997). Collective stocks and flows may be enhanced as individuals add to the knowledge exchanged (e.g. through their own comments and suggestions).

In other words, one employee may choose to share her knowledge with the firm to be codified and transferred into intellectual capital without reducing her own stores of human capital. Equally, another employee may access that store of intellectual capital (perhaps in a KM system) without reducing its availability or value to either the firm or other employees. In fact, arguably, repeated use of the first employee's shared expertise may increase its value via a compound effect, particularly if it is enhanced through discussion, comments and tweaks.

We acknowledge that these contentions are well-established in the literature, but the reason for reiterating them here is that ESM is the first set of technologies and systems that fully facilitates these theoretical relationships for all three dimensions of intellectual capital.

4. Secondary data analysis

Having established the role of intellectual capital in considering the value of ESM, we investigated secondary data sources to generate a practical grounding to our theorizing in the final section. While the creation of an exhaustive, formal typology of "social" firms is outside the scope of this article, we adopted the procedures recommended for a high level categorization of organizations (Doty and Glick, 1994; Rich, 1992). These have been previously used for the creation of a typology of information systems (Cram and Brohman, 2012). We looked at the typology from two standpoints:

1. *the demand side* – the firm's perspective through the business needs to be addressed by ESM; and

2. *supply side* – evaluating the software functionality offered by the vendors in response to these needs of the firms.

Given the exploratory nature of this study, a blended methodology that included these different perspectives was both required and warranted (Wood-Harper and Wood, 2005). To this end, we adapted the approach used by Gallivan (2001) to evaluate existing case studies to understand and conceptualize real-world phenomena.

To achieve our first objective, we identified 24 published practitioner reports by independent consultancies or journals. Of these, 16 were general market reports which focused on generic business issues related to ESM and eight were case studies that reported the implementations of ESM in specific firms. We were previously familiar with some of the reports as part of our background reading for this project (e.g. the MGI report cited in the introduction), but others were identified through internet searches using Google and combinations of key terms, such as: "enterprise", "firm", "corporate" and "organization(al)" with "social media', "social networking" and "case studies". Published case studies were

chosen over other "social" sources such as blogs or wikis owing to them having been subjected to approval processes by managers in the named institutions (please refer to Appendices 1 and 2 for a list of the case studies).

We were interested in learning about the specific benefits delivered to particular firms and decided to supplement these with those published by software vendors in the field. To do this, we consulted Forrester Group's report on social software and identified the three most prominent, large-scale vendors from their Wave evaluation: Jive Software Inc., Microsoft Yammer and IBM Connections. We downloaded the first five case studies from each vendor focusing on the ESM functions. We recognize the potential for bias in the assessment of the outcomes of ESM functions as a result of the promotional nature of the secondary data. However, we defend their use in two respects:

1. the vendors' websites were the only available sources of data at this level of granularity; and

2. assessment of outcomes was drawn primarily from case study evidence which would have been independently verified by the client before publication.

In analyzing the reports and case studies, we used a directed content management methodology where an existing phenomenon is under scrutiny owing to a new or underexplored element (Hsieh and Shannon, 2005). Our initial theoretical perspective was led by the dimensions of intellectual capital, which have been elaborated in Tables I to III. For example:

Table I	Human capital, business needs and ESM functions	
Business needs/firm perspective	ESM functions	Example evidence of outcome
Human capital Knowledge sharing and creation Focuses on the "transfer, and application" of knowledge (Alavi and Leidner, 2001, p. 113) Ideas are improved and made available for reuse by others (Culnan *et al.*, 2010, Haefliger *et al.*, 2011, Stewart, 1998)	Management communication and dialogue Flexible workspace configuration Formal and informal spaces	Potential for automatic capture of formal knowledge sources. Prompts voluntary sharing of knowledge, which encourages externalization of tacit knowledge Knowledge is reused and can be repurposed to add value
Corporate knowledge management Knowledge management transitioning from "technology-centric to people-centric" (Kirchner *et al.*, 2009, p. 23). Information consumers shift from information retrieval to community-based knowledge acquisition and contribution (Zettsu and Kiyoki, 2006) KM practice has also refocused from storage and measurement (Edvinsson and Malone, 1997, Stewart, 1998) to its collaborative development (von Krogh, 2012) and collective reuse for organizational improvement (Majchrzak *et al.*, 2012)	File sharing, document management, decision support systems Wikis, blogs, video/image sharing and micro-blogs Content rating and comments Discovery functionality (e.g. tags)	Access to specialists to consult and with whom to collaborate Source of trust within the organization Contributes to workflow efficiencies Visibility of others' work and priorities leads to reduced duplication of effort
Personal Knowledge Management The sophisticated, methods adopted to manage vast quantities of information from within and outside the organization's firewall (Razmerita *et al.*, 2009) Formal and informal communication, collaboration and networking tools, which may span the corporate firewall. User may not perceive a difference between knowledge collated from internal and external sources (von Krogh, 2012)	Personal Web space (feeds, links and widgets) Virtual notebooks and social bookmarks Search across workspaces and content	Improved speed to access knowledge leading to improved innovation quality and speed to market Crowdsourcing and open innovation facilitated by social functions (e.g. listening or engaging)

Table II	Social capital, business needs and ESM functions	
Business needs/ firm perspective	*ESM functions*	*Example evidence of outcome*
Social capital Networking and Communities Network profiles may serve a useful purpose as a corporate directory that is searchable by expertise, specialty knowledge or interests (Turban *et al.*, 2011) and may be considered an important dimension of the employees' online self-presentation (Jensen and Gilly, 2003) We refer to the consequent process of tailoring as personal reputation management and it is inherently linked with the personal perspective of information	Profile (photo, role, bio, interests, expertise) Ability to connect and/or follow Reputation Management People search (keywords) Intelligent search (content, expertise and/or reputation)	'Social' tools replicate interpersonal interaction thereby reducing travel (cost and time savings) Mobile applications increase employees' flexibility and productivity Increased employee engagement with "social" organization ESM flattens the organization improving communication and speeding decision-making – collapses 'silos' and hierarchies
Collaboration and project-based Employees and partners can attend an event physically or virtually where they can combine ideas to solve specific challenges or to engage in informal discussions that may result in serendipitous discovery (Bjelland and Wood, 2008). Collaborative knowledge development has been shown to be empowering for staff (Denegri-Knott *et al.*, 2006) The use of online communities outside the organization is beneficial to an organization, and the use of social software has the opportunity to bring these benefits closer to home, but also has the potential to introduce new tensions to manage with both positive and negative potential consequences (Faraj *et al.*, 2011)	Collaboration workspace Group based blogs, wikis, micro blogs Resource planning/centralized plan and calendar Time-tracking, requirements Discussion forum	Improved communication leads to cross-cultural and interdisciplinary understanding in global firms Reciprocal sharing of information at a personal level increases sense of community Serendipitous discovery results from interaction Lateral communication reduces "silos" and crosses geographical and organizational boundaries

- evidence of human capital is noted where the case study or report refers to users gaining faster access to knowledge and expertise when needed to solve a problem; and

- enhanced team working across geographical or organizational boundaries was treated as socially generated knowledge and coded as social capital.

Drawing upon the traditions of exploratory qualitative analysis of this nature we focused on the identification of themes that allowed us to contribute to theory rather than a quantitative approach where the frequencies are reported and our analysis identified eight independent but connected business needs (Table I). Consistent with the principles of grounded theory building (Charmaz, 2006), we cycled through multiple readings and coding of the transcripts, with a focus on the occasions in which examples were given, which related to the intellectual capital theoretical lens. This was carried out by two researchers, and where discrepancies were apparent or where a difference in interpretation was noted, these were discussed and an agreement reached upon.

In line with our second objective in relation to our secondary data analysis, we then evaluated publicly available data of software vendors who compete in the ESM market space. Seventy-seven vendors were identified as ESM vendors in the six leading practitioner publications in social technology for the enterprise (e.g. Social Enterprise Times, Social Media Today) or by consulting analysts' reports (e.g. Forrester). Our initial analysis indicated that a number of mergers or acquisitions had recently occurred and that upon a more detailed review of the vendors' propositions, they did not directly compete in the ESM market. This reduced our list to 48 vendors, and we accessed the functionality lists, system overview and, in some cases, video materials available from their websites (please see Appendices 2 and 3 for more detail).

Where the software vendor highlighted particular functions, these were noted, coded and categorized according to whether the function contributed to human, social or structural

Table III Structural capital, business needs and ESM functions		
Business needs/ firm perspective	*ESM functions*	*Example evidence of outcome*
Structural capital 'Mindful' Adoption Five elements: platform adoption; governance; measurement of value; accessibility and risk management (Culnan *et al.*, 2010) Implementation of disruptive enterprise technologies highlights executive leadership as a key element (Bull, 2003; Fui-Hoon Nah *et al.*, 2003) Adoption is improved if tacit approval is through visible executive presence and engagement with the network (Panteli and Fineman, 2005)	Executive leadership and 'presence' Device independence and integration (desktop, laptop, mobile) Integration with other enterprise systems (ERP or CRM) Roll out strategy	Reduced reliance on email decreases: (a) Network costs; (b) Management of inboxes Improved document sharing and collaboration reduces costs and risk Adoption by customer facing staff leads to better understanding and empathy of customer needs, which increases satisfaction
Community Building ESM needs to be different from conventional organizational designs, structures and systems (Kietzmann *et al.*, 2013), where organic growth and 'aliveness' are typically not primary design goals (Wenger *et al.*, 2002) Avoid the 'provide and prey' approach – communities rarely grow without the support of specific strategies to encourage use (Bradley and McDonald, 2011) Absorptive capacity A "dynamic capability [...] to gain and sustain a competitive advantage" (Zahra and George, 2002, p. 185) Exploration and exploitation of the wealth of knowledge collected within ESM platforms, including: monitoring the content and discussion; creating coherent policies and procedures for use; reporting mechanisms to create a meaningful overview that can be embedded in the corporate databank (Culnan *et al.*, 2010)	Processes and guidelines for appropriate use Access and amend restrictions with flexibility of options Content moderation and policing of norms Information QA (policy- and community-based) Internal social listening and trend analysis Network visualization (centrality, hierarchy and presence)	Developed and engaged customer communities lead to communication improvements and costs savings Observations of improved loyalty and other beneficial behavior by "community" vs "non-community" members Improved efficacy and speed of onboarding new staff leads to earlier productivity Distributed decision-making leads to process improvements and employee longevity

capital. Details of this coding are noted in Tables I to III. Initial perspectives were drawn from extant literature that had been directly connected with ESM (e.g. intra-organizational community building or collaborative knowledge building) or from wider technology literature (e.g. mindful adoption). Through an iterative approach between the researchers, and consistent with our methodology, we connected these perspectives with specific functions that were evidenced in the vendors' promotional materials and, through a number of iterations. In some cases, the functions were directly mentioned (e.g. users can access the collective knowledge of colleagues through wikis) or indirectly (e.g. people can identify colleagues' expertise through "intelligent search" of their profiles rather than tags or keywords). The aim of this exploratory work was simply to focus on the overall supply-side perspective rather than evaluate particular vendors' propositions. Accordingly, the output of this analysis is presented in aggregated and anonymized form.

5 Conceptual frameworks

At the outset of this paper, we discussed two related observations:

1. to derive the benefits of ESM, firms must embrace significant changes to business practices and behavior; and

2. justify the costs of changes and the ESM systems themselves they should deliver incremental benefit that supplements those of traditional KM implementations.
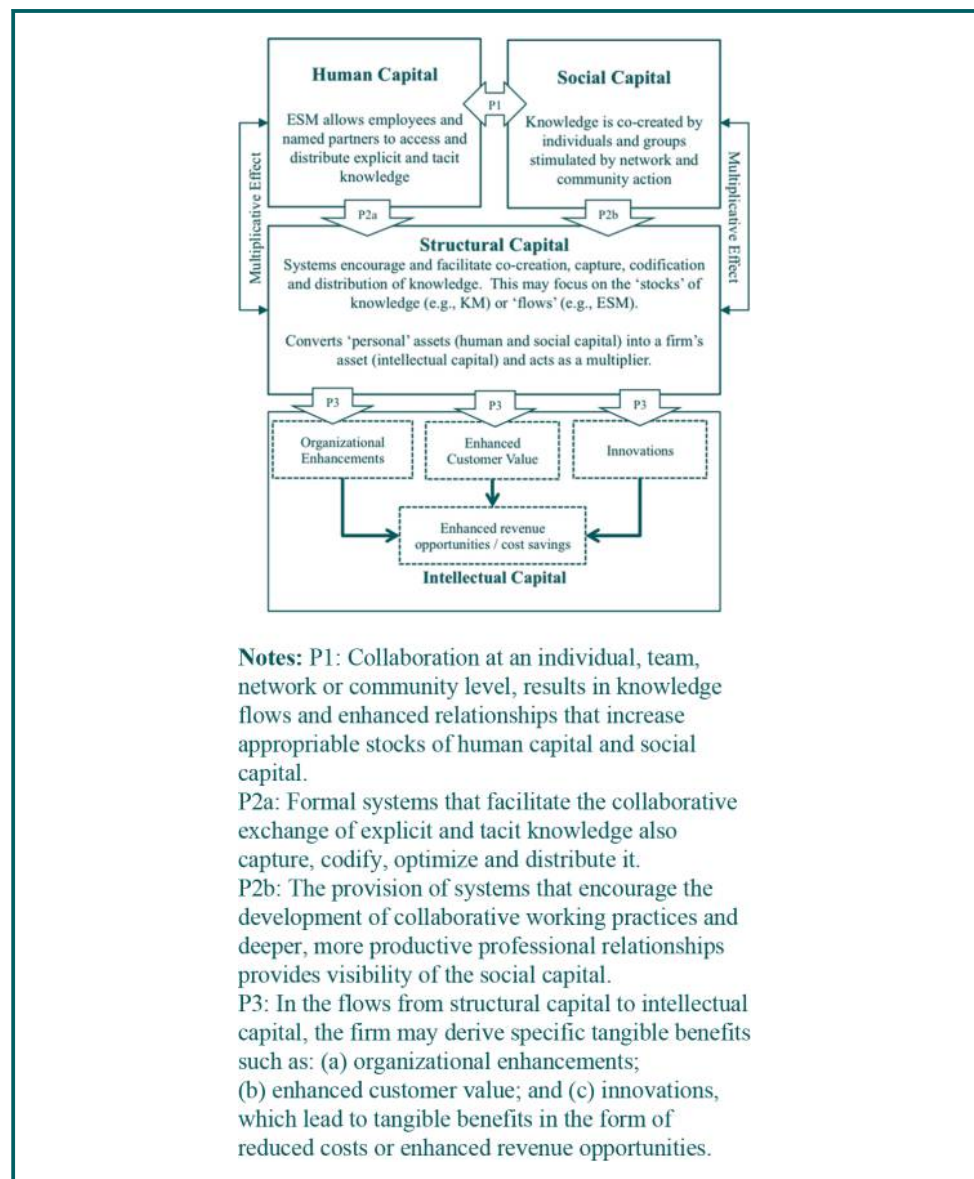
In Table I, we examined the evidence of the functions of ESM systems to connect the "effectivities" of ESM (referred to as the business needs/firm perspective) to the expected benefit attributed. There are some overlapping features between ESM and traditional KM tools;

for example, the file sharing and document management features that are claimed by the ESM vendors are mainstays of KM repositories. However, other features (for example the networking and communities) are unique to ESM vendors' propositions and complement KM systems. As such, they offer the potential for incremental benefit that is not available from other tools.

Three key themes of the type of outcomes emerged from analysis of the case studies: first, firms were able to develop organizational enhancements, for example cost savings, process efficiencies and improved communications. Enhanced customer value was reported, made explicit in one particular case where the firm identified different behaviors among customers who were members of the extended ESM community compared to those who were not. Finally, firms were able to take advantage of increased abilities to collaborate, leading to serendipitous discoveries and faster innovation pipeline.

In Figure 2, we draw together the different strands of the argument on the strategic value derived from ESM with two aims in mind:

Figure 2 Intellectual capital frameworks for the socially oriented enterprise

Notes: P1: Collaboration at an individual, team, network or community level, results in knowledge flows and enhanced relationships that increase appropriable stocks of human capital and social capital.
P2a: Formal systems that facilitate the collaborative exchange of explicit and tacit knowledge also capture, codify, optimize and distribute it.
P2b: The provision of systems that encourage the development of collaborative working practices and deeper, more productive professional relationships provides visibility of the social capital.
P3: In the flows from structural capital to intellectual capital, the firm may derive specific tangible benefits such as: (a) organizational enhancements; (b) enhanced customer value; and (c) innovations, which lead to tangible benefits in the form of reduced costs or enhanced revenue opportunities.

1. to conclude the argument that ESM provides a unique complement to traditional strategic KM systems; and

2. elaborate on the extensions of intellectual capital theory to support decision-makers in developing strategies for its use.

In the following subsections, we discuss the key points of this model and explore connections between them.

5.1 Human and social capital layer

The connection between human capital and social capital has been established in the literature and is core to the idea of "habitus", where social groups create a set of cognitive norms that contribute to their understanding of their environment (Bourdieu, 1986). The sharing and co-creation of knowledge is also core to the concept of "brokerage", where certain individuals who span network structural holes contribute new ideas as a result of their widened perspectives (Burt, 2004, p. 349). Further, social interactions facilitate the creation, sharing, amplification, enlargement and justification of knowledge in organizational settings (Nonaka, 1994). Social interaction is also a necessary prerequisite to the conversion of tacit to explicit knowledge (Nonaka, 1990). This aspect has been recognized as a limitation of traditional KM systems (Alavi and Leidner, 2001). An understanding by the organization of the nature of the community and the motivations to co-create are required to optimize the collaborative creation and sharing of ideas (Huysman and Wulf, 2005).

It is acknowledged that while human capital can be individually developed it is enhanced by social interaction both in terms of conversion of tacit to explicit knowledge and the enhanced creation of new knowledge through collaboration. This is recognized to be facilitated by ESM: the co-creation of ideas, encouragement to share tacit knowledge and sense of community in collaborative works. These interactions focus on the flows of knowledge between individuals and teams, breaking down temporal, geographical and organizational barriers: factors that are facilitated and enhanced by ESM as a complement to traditional KM systems. This is important as the role played by ESM in capturing and codifying exchanges within ideas are reciprocally shared as part of a collaboration has not previously been considered in the literature.

5.2 Structural capital layer

The use of formal processes and systems to record explicit knowledge has been core to the development of KM (Edvinsson and Malone, 1997). This argument is well established in the literature: such processes facilitate sharing of knowledge and making it available for reuse (Stewart, 1998). This may happen on multiple occasions without causing a depreciation of the value of the knowledge asset (Dean and Kretschmer, 2007).

Conversely, the ability to collect tacit knowledge in traditional KM systems is recognized to be limited (Roos and Roos, 1997). Two factors contribute to this:

1. individuals are often not aware they possess tacit knowledge; and

2. it is difficult to identify from outside, meaning it often falls outside of formal mechanisms for capture (Marabelli and Newell, 2012, Stenmark, 2001).

Even in cases where the "owner" recognizes the existence of their tacit knowledge, there are challenges in its capture and codification (Teece, 2000). Consequently, tacit knowledge is often shared as part of a conversation, which has previously been inaccessible to the organization. The "social networking" part of ESM encourages these types of dialogue to occur more frequently and has the ability to capture many of them for subsequent review and codification, thereby making them available for reuse in the traditions of KM.

This is supported by evidence from the case studies: networks encourage communication across geographical and organizational boundaries; this leads to greater understanding and facilitates "conversations", which may involve many participants collaborating to solve problems. Importantly, many other members of the network may access these conversation threads, meaning that the incremental knowledge generated is multiplied. This extends the discussion presented earlier, which supports the notion that structural capital influences the development of human capital, acts as a mediator between human and structural capitals and multiplies human capital by capturing and distributing it to other members of the network. In summary, formal systems that facilitate the collaborative exchange of explicit and tacit knowledge also capture, codify, optimize and distribute it.

5.3 Capturing social capital exchanges

While KM systems have been recognized as the core repositories for capturing human capital (Davenport *et al.*, 1998), there is a recognized need to advance beyond systems for storage and retrieval of information by providing tools which support social relationships and communities (Huysman and Wulf, 2005).

As people collaborate to solve problems, their relationships develop where social capital is created and stored (Portes, 2000). This is an inherent part of organizational processes that are important in the development of intellectual capital (Nahapiet and Ghoshal, 1998). While the norms and responsibilities embedded in such networks may have always been a component in the collaborative development of knowledge, such stocks and flows of social capital remain largely beyond the organization's visibility or access and, therefore, "go home with the employees at the end of the day". However, ESM provides two important opportunities for an organization:

1. first, to encourage opportunities for socially oriented, collaborative encounters, even in a globally distributed, mobile or virtual workplace; and

2. second, to make visible and analyze the existence and importance of such relationships, and restructure their contents for reuse.

While the second may have its potential shadow-side in the form of uninvited workplace surveillance, there are many benefits this could bring.

Many of the software vendors provide the capabilities to visualize and report on network relationships with the ESM system. Further, the "social listening" capabilities that are embedded in a number of the vendors' systems allow a central level of reporting on conversations, facilitating the capture and distribution of new knowledge. The provision of systems that encourage the development of collaborative working practices and deeper, more productive professional relationships provides visibility of the social capital. This is particularly important as it is feasible that such exchanges will contain tactic knowledge made available to others within the organization. This is an important point from both theoretical and practical perspectives as tacit knowledge is recognized for its difficultly in capture, yet highly valuable in knowledge management.

5.4 Measuring the outcomes of intellectual capital

We have previously summarized the arguments in favor of intellectual capital, describing the difference between an organization's book value versus market value. The justification of this argument is based on the creation of indices, which establish, for instance, a value of enhancing employee qualifications as a measure of human capital. We perceive such methods to focus on the "stocks" of intellectual capital, which is primarily a financial focus (Edvinsson and Malone, 1997; Stewart, 1998).

Conversely, the focus of IS strategists and policymakers should be on facilitating the "flows", in other words, encouraging collaborative working processes and ensuring that, where possible, these create a direct link with measurable, externally focused outcomes.

This is the focus of proposition three: the collaborative, "social" creation of knowledge generates a range of internal benefits, such as improved team-working, opportunities for serendipitous discovery and enhanced working relationships. This can be supplemented with an ability within ESM to analyze the nature of internal networks along with the cascades of information through them. This offers managers a significantly enhanced ability to identify, for example, centers of excellence whose working practices can be extended to improve the overall organization. Such practices become embedded in the organizational culture and making them hard to replicate and therefore offering a sustainable source of competitive advantage.

Where an organization has access to this type form of competitive advantage, it may be considered the foundation of externally focused benefits, examples of which are shown below. Their existence and the organization's ability to measure them is a potential area of future empirical research, but all four of these examples are heavily featured in the case studies that have been in preparation of this paper.

The case studies provide repeated evidence in support of this notion. From improved customer interactions with more engaged, informed staff to cost reductions as a result of improved processes and internal communications, the firms indicate significant benefits that are delivered through the "social" functions of ESM rather than traditional communications tools or KM systems. In combination, the extant theory and case study evidence support our final proposition. In the flows from structural capital to intellectual capital, the firm may derive specific tangible benefits such as organizational developments; enhanced customer value; and innovations, which lead to tangible benefits in the form of reduced costs or enhanced revenue opportunities.

6. Concluding thoughts

Undeniably, social media has changed how we communicate – as individuals, we talk to friends online, as consumers we share electronic word of mouth and connect with brands and as private collaborators we co-create value when we add content to forums, Wikipedia or the movie review site IMDb, to name a few. These new communication patterns, with their pros and cons, are only interrupted by work, where talking to colleagues, superiors, employees, suppliers, partners and other stakeholders often relies exclusively on "old fashioned" technologies (e.g. email and phone). Particularly, as a new generation enters the workforce, of those who never had to learn or adopt social media skills but who have "naturally" grown up with and alongside social media, increasing number of firms question whether their (anti-) social media policies at work still make sense.

Calls are amassing for theoretically robust frameworks to support decision-makers in devising strategies for the implementation of ESM (Galliers *et al.*, 2012; von Krogh, 2012) and strategic knowledge management (including Ferreira *et al.*'s call for papers for this special issue). In response, we offer a framework that synthesizes a range of extant literature on intellectual capital as a tool for understanding the value of ESM as a strategic knowledge management phenomenon. We argue that ESM, with its unpredictable conversation partners and communication flows, differs substantially from other contexts in which intellectual capital has been applied, and extend intellectual capital with three appropriate dimensions (human, social and structural capital). Given the potentially disruptive nature of ESM and the need to embrace significant cultural shifts to exploit its benefits, our framework helps firms understand the nature of the changes that are needed.

To provide more clarity on the phenomenon itself, we offer a detailed explication of ESM. We offer a definition of the term and, in Table I, provide the first review of the business

needs that are served by the software functions and management processes under the ESM banner. This, we believe, is a contribution that takes the intellectual capital and strategic knowledge management discussions from their usual high levels of abstraction and relates them to the real world of ESM.

In our third contribution, we integrate these two previous arguments and provide a detailed "intellectual capital framework for the socially oriented enterprise" (Figure 2), which provides a very practical approach to strategically planning, implementing and optimizing ESM. There are very clear practical implications from this framework: the evidence is clear that the return on investments in ESM can be significantly enhanced where both "stocks" and "flows" of knowledge are facilitated.

In this paper, we discuss how this can be achieved, while we recognize that ESM is still in its infancy and presents many highly exciting opportunities for firms, individuals, vendors and researchers. Considering the social media developments of the past decade alone, and the functional advancements that continue to emerge, it is highly unlikely that organizations can, or should, stay away from enterprise social media. With this prognosis, it will become even more important that knowledge management researchers provide frameworks that advance theory and that help practitioners with their ESM strategies.

The goal of this article is to spark conversations and further the conceptual and empirical research of the "socially oriented enterprise" and strategic knowledge management. We hope that our arguments will motivate decision-makers to consider the potential of ESM choices as viable enterprise collaboration and strategic knowledge management tools – "productivity-enhancers" that can impact, directly and indirectly, the effectiveness, efficiency and profitability of their organizations (López-Nicolás and Meroño-Cerdán, 2011).

Note

1. This study is specifically concerned with the intersection of enterprise social media and knowledge management as it pertains to the performance of organizations. The terms knowledge management (KM) or strategic knowledge management (SKM or strategic KM) are, thus, used interchangeably.

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Appendix 1

Table AI		Summaries of "third-party" case studies		
#	Type*	Authors	Title	Key themes
I1	R	Altimeter Group	"The state of social business 2013: the maturing of social mediainto social business"	Identifies the need for a strategic approach and strong leadership when implementing social media for communication with customers and internally
I2	R	Altimeter Group	"The collaborative economy"	Predicts disruptive effects of collaboration internally but with customers and partners. Identifies innovative companies as drivers of new collaboration trends
I3	R	Chess Media Group	"Common collaboration problems" (Vol 1 Issue 2)"	Strategic approach to enterprise collaboration is required to deliver the benefits and to solve the problems the system is intended for
I4	R	Chess Media Group	"Connecting people to knowledge, ideas and resources"	Case study of the implementation of collaboration tools in EA. Business drivers were enterprise knowledge portal and facilitation of employee collaboration across the organization
I5	C	Chess Media Group	"Implementation of Enterprise 2.0"	Case study of the Elizabeth Glaser Pediatric HIV Foundation. Focus was sharing individual knowledge through collaboration and disseminating the combined results
I6	C	Chess Media Group	"Implementing Enterprise 2.0 in IBM"	Focuses on the implementation of corporate directory and expertise as a method of disseminating knowledge across the global workforce
I7	C	Chess Media Group	"Intuit implementing Enterprise 2.0"	Initial implementation driven by efficiency gains in internal communications but was expanded to improve the organization's innovation processes
I8	C	Chess Media Group	"Enterprise collaboration platform case study – mid-size organization"	Transformation of collaboration processes and the integration of other business applications to improve the organization's innovations processes
I9	C	Chess Media Group	"Driving emergent collaboration in a non-profit consulting firm"	Change in knowledge management to ensure that knowledge sharing and collaboration continued as the organization grew and became distributed over multiple locations
I10	C	Chess Media Group	"Implementing Enterprise 2.0"	Case study of Penn State. Systems implemented to overcome organizational silos and individuals' lack of awareness of how their work interacted with colleagues
I11	C	Chess Media Group	"Implementing Enterprise 2.0 in Telus"	Collaborative engagement between employees and their customers is a core cultural tenet and systems were implemented to make this easier
I12	R	Chess Media Group	"The business value of collaboration"	Examines "hard" and "soft" categories of business value from the use of collaboration tools using a range of published analysts' reports
I13	R	CIO Business Technology Leadership	"Strategic guide to enterprise social networks"	Identifies the need for "Robust and widespread participation by all employees at every level; integration into daily workflow; an environment of openness, information sharing and trust"
I14	R	Frost & Sullivan Best Practices Research Paper	"Growth excellence leadership award enterprise social networking global 2013"	Takes an IT focus and identifies the need for social technologies to integrate with other technologies to benefit from a strategic approach and robust implementation

(*continued*)

Table AI

#	Type*	Authors	Title	Key themes
I15	R	Frost & Sullivan White Paper	"Meetings around the world: the impact of collaboration on business performance"	Reduced costs of face-to-face meetings; improved communications across organizational or geographical boundaries; enhanced team working and time management
I16	R	Frost & Sullivan White Paper	"Meetings around the World II: charting the course of advanced collaboration"	Argues for incremental benefit for 'advanced collaborators' across a range of business functions. Benefits measured across cost saving, efficiency and revenue gain dimensions
I17	R	Information Week Report	"Is there an ROI for enterprise collaboration tools?"	"Faster access to knowledge; reducing communication costs; faster access to internal experts; cutting travel costs; increased employee satisfaction"
I18	R	Intel Corporation White Paper	"Developing an enterprise social computing strategy"	Identifies employees' needs for: access to knowledge, a sense of corporate community; improved speed to productivity as key drivers for social technologies
I19	R	McKinsey Global Institute	"The social economy: unlocking value and productivity through social technologies"	Identifies key benefits of ESM and some risks, but predicts that on balance benefits outweigh costs, subject to organizations embracing changes in management practices
I20	R	McKinsey Quarterly Spring 2011	"The rise of the networked enterprise: Web 2.0 finds its payday"	Identifies key internal benefits: "Increasing speed of access to knowledge and experts; reducing communication and travel costs; increasing employee satisfaction"
I21	C	Oscar Alonso, Panteo Group	"Case study: the adoption of enterprise social networks"	Identify, maintain and create knowledge; encourage communication and conversation beyond organizational and hierarchical boundaries; identify emergent opportunities
I22	R	Xeequa Corporation White Paper	"Business social networks vs personal social networks"	Use of internal networks led to internal and external benefits: increased reputation; greater perceived trust; strengthened partnerships and income generation
I23	R	ZD Net Case Study	"Zappos cracks the screen (and code), builds a social business"	Primary drivers are development of collaborative culture and quality customer services. Social software implemented in order to drive these initiatives
I24	R	ZD Net Case Study	"Enterprise 2.0 success: BASF"	"Faster and easier access to experts, increases in the value of existing knowledge, higher worker efficiency, better collaboration, reduction in e-mail overhead, and better alignment with younger workers"

Notes: Type*; R = market report or white paper; C = case study focusing on a particular implementation or firm

Appendix 2

Table AII Summary of software vendor case studies

#	Authors	Title	Sample benefit statements cited in case studies
V1	IBM Connections	"Asian Paints uses social software to share knowledge and expertise"	"Engaged – Improves sales processes and problem resolution by surfacing expertise and enhancing information sharing among the sales team; Transparent ● Lowered barriers dividing the company's diverse, geographically dispersed workforce by enabling freer interactive communications; Nimble ● Accelerated business processes and encouraged innovation through increased collaboration and productivity; Entry point ● Workforce optimization"
V2	IBM Connections	"Blue Water Shipping removes the barriers to effective collaboration"	"Helps boost employee productivity and encourages innovation. Reduces email backlog, saving time and contributing to better version control. Capitalizes on the growing importance of social networking"
V3	IBM Connections	"Berlitz taps intelligence of global workforce for best product quality"	"The portal to an enterprise-wide intranet with social networking and collaboration transformed a regionalized operation into an agile, global company able to deploy higher quality educational offerings"
V4	IBM Connections	"IBM connections case study – a European Government agency"	"Reduces risk and waste by centralizing documents associated with a project in communities, making it easier for team members to access information; helps team members find subject-matter experts easily using profiles; enables users to create wikis for group editing of and collective input to documents associated with a project"
V5	IBM Connections	"IBM business partner TemboSocial Inc. drives social platform adoption"	"Drives TD Bank's platform adoption and employee engagement, with 50,000 employees sharing 320,000 success stories to date; creates meaningful, searchable content and keeps people involved; ties into core business processes and promotes corporate value"
V6	Jive Software Inc	"Alcatel-Lucent enters a new era of enterprise collaboration with Jive Social Intranet"	System implemented as part of the process of driving a post-merger single culture based on "social" sharing of knowledge and developing collaborative working processes
V7	Jive Software Inc	"Changing the face of healthcare with social business software"	Collaborative systems introduced to reduce costs of face-to-face knowledge sharing where information was siloed between formal meetings
V8	Jive Software Inc	"It takes a virtual village: EMC maximizes marketing impact with Jive customer community"	Reduction of costs and increase of reach among customers by creating a community for knowledge sharing and collaboration with external members of a special-interest community
V9	Jive Software Inc	"Building a connected brand with social business software"	Internal networking and knowledge sharing systems to integrate communications across multiple brands within the Pearson Group of companies
V10	Jive Software Inc	"Award-winning Social Intranet helps LivePerson's worldwide staff come together to work and connect"	Internal networking and knowledge sharing systems to connect members of staff across five primary and other secondary locations where staff collaborates to develop solutions
V11	Microsoft	"Empowering a lean and responsive global workforce"	"Higher productivity, due to faster communication and better information sharing; less internal email and fewer meetings; Improved support: employees find answers to IT questions in an hour or less; better recognition of top performers which boosts morale"
V12	Microsoft	"Pivoting to a 21st-century business model"	"Capgemini's global network includes external partners and more than 40,000 employees around the world; The network flattens hierarchies, improves coordination, and builds synergies among staff—including the many working onsite; Tighter connections mean better collaboration, knowledge sharing, and client responsiveness"
V13	Microsoft	"Networking to save the planet"	"The global network lets a core team of staff connect with hundreds of organizers and hundreds of millions of participants; Yammer is a one-stop source for sharing files and information – as well as the most effective initiatives, so successes can be celebrated and replicated; Since the network is available from a range of mobile devices, members can access it and share resources wherever and whenever they want"
V14	Microsoft	"Initiative creating spontaneous value"	"Employees are better connected when on the road; Experts chime in to conversations, creating spontaneous value; Employees demonstrate thought leadership through the Yammer–Twitter Integration; More employees can access Initiative's collaboration resources"
V15	Microsoft	"Social networking trumps a static intranet"	"More than three-quarters of Kluwer employees are engaged with the network, which includes a large number of communities devoted to shared projects and interests; Yammer is now the central resource for colleagues to connect, share information, and work together on projects; The network acts as a hub for innovation, providing employees with a platform to develop ideas on improving workflow, products, and ultimately, customer satisfaction"

Appendix 3

Table AIII	Software functionality frequencies table		
Function		*Count*	*(%)*
Sample frame		48	
Management dialogue (videos, blogs and Q&A)		42	88
Flexible workspace configuration		15	31
Formal and informal spaces		35	73
Content rating and comments		47	98
Wikis, blogs, video/image sharing and micro-blogs		47	98
File sharing, document management and decision support systems		46	96
Discovery functionality (e.g. tags)		39	81
Personal Web space (feeds, links and widgets)		47	98
Virtual notebooks and social bookmarks		27	56
Search across workspaces and content		45	94
Profile (photo, role, bio, interests and expertise)		48	100
Ability to connect and/or follow		33	69
Reputation management		34	71
People search (keywords)		35	73
Intelligent search (content, expertise and/or reputation)		33	69
Collaboration workspace		47	98
Group-based blogs, wikis and micro-blogs		46	96
Resource planning/centralized plan and calendar		32	67
Time tracking and requirements		30	63
Discussion forum		45	94
Device independence (desktop, laptop and mobile)		44	92
Office and desktop integration		26	54
Integration with other enterprise systems (ERP or CRM)		28	58
Access and amend restrictions with flexibility of options		39	81
Processes and guidelines for appropriate use		10	21
Roll out or adoption		33	69
Content moderation and policing of norms		27	56
Information QA (Policy- and community-based)		1	2
Internal social listening and trend analysis		32	67
Network visualization (relationships, centrality, hierarchy and presence)		31	65

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