Social Media as the Missing Link: Connecting Communities of Practice to Business Strategy

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Abstract

Communities of Practice (CoP) have long been considered powerful Knowledge Management (KM) mechanisms. CoP, however, are often viewed independently from organizational goals and structures, as they are primarily seen as a means of individual knowledge sharing and learning. In this paper, we argue that CoP supported by social media have great potential to contribute to organizational goals, such as business strategy. We seek to support this statement through an embedded case study that includes 54 CoP within a prominent multinational engineering firm. This investigation explores the extent to which CoP contribute to business strategy. The paper’s contribution is in providing five guidelines for practice that outline how CoP can be best designed to contribute to business strategy and how social media can serve as the “missing link” to execute those guidelines.

Keywords: Communities of Practice, Social Media, Business Strategy, Knowledge Management, Virtual Organizations
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1. Introduction

In the current business environment, geographically-distributed organizations face Knowledge Management (KM) challenges arising from difficulties in identifying the sources of knowledge (what people know or who knows what) (Malone and Laubacher 1998), connecting disparate sources of knowledge necessary for adapting and innovating for any particular organizational goal (Malone and Laubacher 1998; Nohria and Berkely 1994); protecting against knowledge loss from turnover (Robey, Khoo and Powers 2000); and creating an environment to develop shared understanding by sharing knowledge. Such challenges have a direct negative effect on organizational learning and KM (Robey et al. 2000). Communities of Practice (CoP) are increasingly becoming a powerful KM mechanism for geographically distributed organizations (Dubé, Bourhis and Jacob 2006; Millen, Fontaine and Muller 2002; Wenger, McDermott and Snyder 2002). Wenger (2004, pg. 1) argues that, “CoP are the cornerstone of KM”. Practitioners and scholars have identified CoP within organizations as a mechanism to facilitate knowledge exchange between individuals by connecting isolated and distributed pockets of expertise (Wenger 1998). CoP minimize the possibility of knowledge loss due to employee attrition by integrating individual knowledge into a community’s shared practices (Wenger 1998; Wenger et al. 2002; Lesser and Prusack 1999).

There is little debate as to whether CoP are beneficial to organizations, but there is no agreement on how to best support CoP (Dubé et al. 2006; Agrawal and Joshi 2011; Probst and Borzillo 2008) and leverage them for business strategy (Millen et al. 2002). The scholarly community’s initial focus on CoP was largely from the perspective that CoP facilitate knowledge
exchange between individuals and integrate individual knowledge into shared practices (Wenger et al. 2002). Wenger (2004) emphasized the difficulty organizations face in attempting to create an environment conducive to enabling CoP to align learning and KM with business strategy. More recently, scholars began to investigate the alignment between business strategy and CoP (e.g. Apostolou and Mentzas 2003) and the ROI of CoP (e.g. Millen et al. 2002). Studies like Vestal (2006) and Lemons (2005) emphasize the importance for organizations to align their learning strategies and practices within CoP with strategic goals. Despite this emergent focus, a comprehensive view of how organizations can better align CoP with organizational objectives is still needed. This is one significant contribution we seek to make with this paper.

Social media (SM) has certainly taken root in organizations as an effective means for communication and collaboration amongst individuals and groups. Recent research has shown that employees at all levels of organizational hierarchies have embraced the use of SM, such as enterprise wikis, blogs and micro-blogs due to their pervasive nature, usability and expedience in sharing information (McAfee 2006; Ali-Hassa, Nevo, Kim and Perelgut 2011). Given the high level diffusion of SM, we argue that it is a viable tool for knowledge sharing across organizations (Fitzgerald 2008), as exhibited by companies such as Talus with its use of SM for internal relationship building and project collaboration (O’Neill 2010) and Cort Business Services using SM for workflow applications. We view SM as especially viable for knowledge sharing in CoP where, like most social networks, passion and interest are the primary drivers for participation (Lave and Wenger 1991). Further, we see SM taking shape as an important channel for connecting individuals in CoP with executive leadership, thus providing “the missing link” between CoP and business strategy. We also argue for the need for an explicit strategy that promotes the use of SM to facilitate continued alignment of CoP and business strategy on an
ongoing basis. This strategy must be designed to leverage the unique nature of CoP. Our other significant contribution comes from analysis and examples of SM as the link between CoP and business strategy.

To this end, we first develop a framework that organizes contributions from existing research on how CoP contribute to business strategies that leverage the unique nature of CoP. We then present an in-depth investigation of how 54 CoP in a multi-national engineering firm can best be aligned with the strategic goals of this large distributed organization to further develop our framework for guidelines. We focus on CoP around specific organizational expertise or practice areas (e.g. Business Analysts or Project Management). We also focus on intra-organizational CoP. Furthermore, we present analysis and illustrative examples of how SM can serve as the toolset to facilitate the alignment between CoP and strategy.

Through this research, we seek answers to the following research questions related to the ties between business strategy, CoP and SM:

1. **To what extent do CoP contribute to business strategy?**
2. **What are the factors that impede or enhance CoP contribution to business strategy?**
3. **How can social media be used to promote CoP link to business strategy?**

We address these research questions using empirical data from our embedded case study. We provide detailed analysis of the questions and illustrative examples to support our answers in the findings and discussion sections. In the remaining sections we explore the theoretical background literature for CoP and the properties of SM. In order to maintain appropriate focus, we limit our literature review to studies that considered CoP in relation to business strategy. In section 3, we present our methodology and a description of the case study. In section 4, we highlight the main findings of the study. The paper concludes with a discussion of guidelines for
practice derived from our findings. These guidelines detail how organizations can best align CoP with business strategy using SM.

2. Literature Review

In this section, we review relevant CoP literature, examining both traditional/initial perspectives and more recent research, which puts them in more of a strategic light. We also analyze the tension between these perspectives. Finally, we review literature, which establishes connections between SM, KM and business strategy.

2.1. Traditional/Initial Views of CoP – Purpose: Enhance Individual and Community Capabilities

CoP were first introduced by Lave and Wenger (1991), who defined them as groups of people who interact on an ongoing basis to further develop their expertise around a shared concern, problems, interests and passions. CoP define themselves along three dimensions: community - defined as mutual engagement of interested members; domain - defined as shared enterprise of the members; and practice - defined as a shared repertoire of ways of doing things (Wenger 1998). CoP are very common today and take a variety of forms such as: small or large, long-lived or short-lived, co-located or distributed, homogeneous or heterogeneous, within or across organizational boundaries, spontaneous or intentional, unrecognized or institutionalized (Wenger et al. 2002). CoP differ from other more formal organizational units (for example, project teams or operational departments). According to Wenger et al. (2002, pp. 42), the purpose of CoP are, “to create, expand, and exchange knowledge, and to develop individual capabilities.” Interest is usually the primary driver for individuals who choose to participate,
leading to a variety of participation styles and formats for any given community (Wenger et al. 2002). Consequently, there are often few formally-defined objectives and goals, which yields relatively undefined boundaries for the community (Wenger et al. 2002). Learning in CoP is a practice-based process Lave and Wenger (1991) referred to as Legitimate Peripheral Participation (LPP). New and non-expert members of a community learn through interaction with and observation of expert members in the community, and eventually become contributing members and full participants (Brown and Duguid 1991).

Scholarly work on CoP in the 1990’s had a more traditional view of CoP, emphasizing learning within the community and exploring topics such as: CoP characteristics (e.g. Wenger 1998), nature of situated learning (e.g. Lave and Wenger 1991), evolution of CoP (e.g. Gongla and Rizzuto 2001), nature social interaction and work (e.g. Orr 1996), the nature of socialization of members (e.g. Borzillo, Aznar and Schmitt 2011), and learning in organizations (e.g. Brown and Duguid, 1991). Work in this era viewed CoP as organic, autonomous from organizational structures, and fluid in their membership and focus (Borzillo, Probst and Raisch 2008). This work attributed the benefit of CoP within organizations to their ability to facilitate the exchange of knowledge between individuals. By connecting isolated and distributed pockets of expertise, organizations both minimize the possibility of knowledge loss due to employee attrition and foster some level of beneficial behavior change at the individual level (Wenger et al. 2002).

2.2. Recent Views of CoP – Purpose: Enable/Enact/Implement Business Strategy

With the increasing complexity of business and rapid growth of distributed organizations in early years of the 2000’s, there was increased interest in CoP from management (Lesser and Storck 2001; Bishop, Bouchlaghem, Glass and Matsumoto 2008). Scholarly work began to
recognize the impact of CoP on organizational performance (Wenger and Snyder 2000; Wenger et al. 2002; Dubé et al. 2006; Lesser and Everest 2001). The dominant stated interest from organizations sponsoring CoP focus on them as a core component of their KM strategy, which included mentoring (Owen 2006), staff development (Lemons 2005), knowledge capture, and knowledge sharing (Lemons 2005; Albert and Picq 2004). In their study of several communities of practice within several organizations, Lesser and Storck (2001) identified a number of indirect benefits learning and knowledge sharing within CoP have on organizational performance (beyond KM related issues). Knowledge sharing and learning within CoP improved organizational performance through faster project delivery, increased reuse of knowledge sources, increased innovation, and create a faster response time to customer requests among other benefits (Fontaine and Millen 2004; Lesser and Storck 2001). Wenger and Snyder (2000) highlight CoP benefits specifically relating to business strategy, naming “driving strategy” and “starting new lines of business” among the benefits. The literature further highlights other strategic benefits derived from the learning and knowledge sharing in CoP, which we summarize in Table 1 below.¹

<<Insert Table 1 Here>>

Recognition of the potential strategic benefits of CoP highlighted the question of how organizations can best support and manage them (Wenger 2004; Bishop et al. 2008). A recent review of the CoP literature, by Agrawal and Joshi (2011), identified various empirical studies of how to sponsor and sustain CoP. The primary themes of interest in our research context were: 1) goal congruency between CoP, community members and the sponsoring organization, and 2) involvement of the sponsoring organization. In the empirical literature, papers identified in the

¹ The table is presented to illustrate the diversity and significance of CoP benefits and their potential and is not intended to be an exhaustive list.
goal congruency theme suggest that goal congruence between CoP and sponsoring organization (e.g. Dubé et al. 2005; Gibson and Meacheam 2009), and valuing CoP contributions to organizational goals (e.g. Fontaine and Millen 2004; Verburg and Andriessen 2006) contribute to significant organizational returns and CoP success. The papers identified in the organizational sponsorship theme suggest that funding and support by organizational sponsorship enhances CoP success (e.g. Probst and Borzillo 2008; Anand, Gardner and Morris 2007). Also in their review, Agrawal and Joshi (2011), echoed scholars like, Wenger and Snyder (2000), that there should be a balance between organizational sponsorship, goal directing and autonomy of CoP. Earlier research on links between CoP and strategy focused on cultivating CoP through a set of best practices (e.g. Wenger et al. 2002, Wenger2004). CoP literature (Probst and Borzillo 2008; Bishop et al. 2008; Millen et al. 2002) attempting to answer the question of “how to best support and manage CoP?” have developed a number of: “guidelines, models, or best practices” to guide management. These guidelines, best practices and models are consistent in their call for congruence with organizational strategy, leadership in the CoP, management sponsorship, and measurement and illustration of CoP contributions. Furthermore, there are a few studies that have specifically focused on aligning CoP with business strategy. Kumba Resources (McElroy 2005), for example, aligned CoP with strategic objectives focusing on developing core business competencies. Others have focused on innovation strategy (Millen et al. 2002). Millen et al. (2002) focused on identifying ROI for organizations investing in CoP.

In recognition of the strategic importance of CoP to organizations, significant literature aimed at practitioners has been published in the last 10 years. Practitioner literature has emphasized the importance of CoP, the challenges organizations face balancing the autonomous nature of CoP and the need of organizations to manage them (e.g. Wenger 2004). This literature
(e.g. Wenger et al. 2002, Wenger 2000, Wenger and Snyder 2004, McDermott and Archibald 2010) also produced guidelines and principles managers can utilize to integrate CoP with business strategy. These guidelines echoed the themes identified in the empirical studies discussed in the previous paragraph. Practitioner literature stressed the importance of goal congruency (Wenger 2000, Wenger and Snyder 2004, McDermott and Archibald 2010), governance and reward structures (Wenger 2000, Wenger and Snyder 2004, McDermott and Archibald 2010), and measuring CoP value (Wenger 2000, McDermott and Archibald 2010). Most of the practitioner literature, however, focused on CoP as a KM strategy (e.g. Wenger 2000, Wenger and Snyder 2004) with only a few (e.g. McDermott and Archibald 2010) focusing on more general business strategy.

2.3. Limitations of and Tension between Recent and Traditional Views of CoP

In summary, initially, CoP were viewed as focusing on learning and development of individuals within the community. This focus presents one significant limitation: CoP rarely have the executive authority to influence organizational-level issues or strategy (Dubé et al. 2006). Traditionally, the literature also characterizes CoP as “resistant to supervision, interference, and cooption by an organization” (Agrawal and Joshi 2011, Kerno 2008, Wenger et al. 2002, Probst and Borzillo 2008), which further isolates them from influencing strategy. These limitations are due to the independent, grassroots approach, and voluntary nature of CoP. This traditional disconnect between CoP and formal business structures makes it difficult for CoP to contribute directly, and purposefully to business strategy (with the possible exception of KM initiatives), and can lead to missed opportunities.
Our literature review identified a number of empirical and practitioner papers presenting guidelines on how to best support and manage CoP for business strategy in order to minimize missed opportunities (Millen et al. 2002). This literature also stressed the importance of the right technology tools in implementing the guidelines (McDermott and Archibald 2010). However, the literature has not sufficiently provided a comprehensive approach grounded in a CoP framework, including the right tools to achieve alignment with CoP without impeding their social and organic nature. The literature also largely focused on initiating CoP more so than leveraging existing CoP that grew organically. Our research addresses these limitations by focusing first, on integrating the literature reviewed above and grounding it in CoP framework; second, on further understanding the nature of how CoP may contribute to business strategy; and third, on further developing guidelines for how organizations can best cultivate CoP’s utilization of SM grounded in the organic spirit of CoP. In the following sections, we first integrate the guidelines presented in the literature in a CoP framework and later review SM literature and identify how these tools can be used to align CoP with strategy.

2.3.1. Framework for aligning CoP with business strategy

Wenger (1998) presented three dimensions or characteristics by which CoP define themselves: community defined as mutual engagement or members, domain defined as the community’s shared enterprise, and practice defined as the shared repertoire of ways of doing things. We use these dimensions to organize the guidelines presented in the literature because they provide a framework grounded in the spirit of CoP; we do so in order to maintain a balanced perspective between organizational needs, community autonomy and fluidity. The summary is provided in Table 2.
Table 2 summarizes the guidelines and the challenges identified in the literature, that face organizations in implementing these guidelines while maintaining the autonomous nature of CoP. Most significantly, our review revealed that most CoP guidelines have a top down approach. This presents a significant challenge since CoP’s are often resistant to this paradigm (Wenger 2004). The above framework presents these guidelines in a comprehensive fashion to emphasize the importance of taking a holistic approach in applying the guidelines to CoP (Wenger 2004). We utilized the framework above to investigate how one organization might implement such guidelines in 54 pre-existing CoP. We also explore how these guidelines might affect CoP, and utilize the empirical data to analyze how SM might facilitate effective implementation.

2.4. Links Between Social Media, Knowledge Management and Business Strategy

The organizational importance of SM platforms to the KM process (i.e. creation, storage/retrieval, transfer, application of knowledge) has been highlighted by Alavi and Denford (2011). They contend that SM platforms facilitate collaboration, aggregation, sharing and absorption of new knowledge, as well as navigation of “networks of practice” by shared interest. Further, McAfee (2006) coined the term Enterprise 2.0, *which is the use of Web 2.0 technologies to enable or streamline business processes, while enhancing collaboration – connecting actors through SM*. From a KM perspective, Enterprise 2.0’s stated goal is aligning practices surrounding SM tools with organizational KM strategies. The literature suggests that SM tools have three key characteristics that make them prime candidates for contribution to KM strategy: 1) they enable virtual sharing of information by informal interaction and communication (Yates and Paquette 2011, Laat 2011); 2) they provide intrinsically flexible and widespread information
flows (Sutton, Palen and Shklovski 2008); and 3) they exploit organizational network effects, thus involving actors at all levels in the collaborative process. Therefore, Enterprise 2.0’s goals can be accomplished by directly connecting employees through SM tools, thus avoiding traditional routes that can be cumbersome and sluggish (Yates and Paquette 2011). Further, SM tools create a repository for historical collaboration threads, which can be used to document participation and contribution. The above points support our contention that SM tools have clear potential to help organizations improve how employees share knowledge, and provide clear linkage between SM and business strategy.

As organizations are beginning to explore the benefits that Enterprise 2.0 and related SM tools offer, answering the question of where and when to utilize various social networking tools is critical. Current efforts to integrate SM into the enterprise are often the result of “convenient implementation” as leaders of organizations seek quick wins or respond to urgent situations, such as public relations and internal communications crises (Norman and Huerta 2006). However, the merge of SM and business strategy can reach its full potential if pursued purposefully, through careful planning and execution (Zhao and Bishop 2011). Companies such as Ford, IBM and Salesforce.com have shown this repeatedly and are important illustrators of the strategic importance of SM (Taber 2011).

Currently, the emergence of SM as a facilitator of KM and business strategy can be observed in various IT forms and organizational contexts. We offer Table 3 below as a set of examples of SM tools that are used in various KM initiatives and their link to strategic objectives. Table 3 details the various SM in light of functionality appropriate for KM and strategy development. This listing shows how various SM tools can contribute to KM efforts and most importantly, can further business strategy.
2.5. Literature Review Summary

In the above review, we have shown that the strategic value of KM practices has increased as executives at large companies invest in related initiatives. More specifically, we have argued that KM in CoP are evolving from the traditional practice of harboring individual knowledge, and taking on more of a strategic role. Business leadership clearly sees the value of CoP in promoting strategic goals, such as: 1) more effective knowledge collection, retention and dissemination, 2) increased levels of innovation, 3) higher levels of collaboration, 4) better cross-functional training, and 5) more accurate decision making. From a SM perspective, the literature supports our contention that SM use in CoP has tremendous strategic potential, as they inherently emphasize strong relationships, encourage social interactions and promote streamlined, widespread communication between community members and executive leadership. In taking advantage of the highly social nature of CoP, SM tools offer immediate improvements to CoP and an increased level of real-time collaboration across organizations.

Summarized in Table 2, guidelines to better align CoP with strategy take on a top-down approach. The top-down approach presents a threat to the autonomous and fluid nature of CoP. SM, as a Web 2.0 technology, provides important functionality that can facilitate a fluid top-down and bottom-up approach for the community to contribute to strategy, and for strategy to gently guide community activities. As SM tools and CoP become more pervasive at the executive level and are leveraged to promote the strategies highlighted in Table 3, we foresee increased use of SM tools to provide the link to align CoP and business strategy. This “missing link,” illustrated below in Figure 1, is what we will seek to illustrate in the following sections.
3. Methodology

To determine the extent to which CoP contribute to business strategy, and to identify the factors that impede or facilitate this contribution, we investigate the phenomenon in a natural setting. A case study is “an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used” (Yin 1984, pg. 23). More specifically, we employed a single embedded case study design. The case for this study was Parsons Brinckerhoff Quade and Douglas, Inc. (PB) and the embedded units of analysis are the 54 CoP called Practice Area Networks (PANs) within PB. We utilized the 54 embedded cases to investigate the nature of CoP contributions to business strategy and the factors that impede or enhance CoP contributions to business strategy, utilizing the framework identified in Table 2. In this section, we describe the nature of our embedded case study, and the details of our data collection and analysis techniques.

3.1. Practice Area Networks (PANs): Communities of Practice at Parsons Brinkerhoff

Parsons Brinkerhoff (PB) is a leading multi-national planning, engineering, program and construction management firm. The firm was founded in 1885 and has been involved in some of the largest public works projects throughout the world including: the initial New York subway, Britain's rail system, and Cairo's Metro. PB is an interesting case of a large multi-national distributed knowledge-based organization. The firm has grown in its geographic dispersion and diversity of technical expertise over time. Since the late 1980’s, PB has grown from less than 1,000 employees, based in the US, to about 12,000 employees in over 72 countries around the globe (at the time the data was collected). In order for PB to capitalize on their diversity of expertise, they needed to identify and utilize that knowledge throughout the organization. This is
especially important because the average age of the PB engineer was 55 and nearing retirement. To address the challenges facing PB in terms of knowledge integration and an aging workforce, a grassroots effort launched a larger CoP initiative in 1994, Practice Area Networks (PANs). The mission of the PAN program was to promote knowledge sharing, mentoring, career development and serve as a company resource for knowledge. Each PAN consisted of employees who have voluntarily enrolled in CoP of their choosing, and is led by a PAN Coordinator and a small Coordinating Committee. Each PAN had a small budget to conduct activities. The committee was responsible for organizing activities such as communication among PAN members, communication with other PANs in related areas, mentoring of members, review of research and development needs, and dissemination of lessons learned. PAN activities took place primarily through computer-mediated communication (mostly mailing lists), although SM tools such as wikis and blogs were available. Each PAN was given space on the firm’s intranet, which all employees could access. Each intranet PAN site contained file sharing, forum, wiki, and blog capabilities.

3.2. Data Collection

To gain comprehensive understanding and to achieve triangulation using the case study method (Yin 1984, Miles and Huberman, 1994), we collected data from multiple sources including PAN intranet sites, (which included PAN membership, resources available at each PAN site, levels of activity, relations with other PANs, relations with corporate level entities, and PAN interactions in discussion boards and archives), organizational and PAN documentation, (regarding PAN and organization history, procedures, rules, membership and norms), and 42 semi-structured interviews conducted by the primary researcher. Interviewees included 32 PAN coordinators, 9 active members, and 1 PAN initiative leader and varied in their level of
experience and tenure with PB. Interviewees were selected based on their knowledge of the PANs and their contributions to the organization. Interviewees came from different engineering and non-engineering disciplines to incorporate the diversity of the PANs and enrich our understanding of the effect of the PAN domain as well as enhance the generalizability of our research. The semi-structured interviews contained questions regarding the perceived function of the PANs, PAN activities, organizational support, and instances of PAN activities contributing to business strategy. Lastly, we referred to secondary data from an organizational survey of PAN coordinators maintained since 2003. Coordinators responded to questions about the relative activity within their individual PAN membership compared and about the other PANs with which their PAN membership interacted most.

3.3. Data Analysis

We content analyzed the data using a mix of deductive and inductive methods as suggested by Miles and Huberman (1994). The process followed Miles and Huberman’s (1994) interactive model using an iterative process of data collection, data reduction (coding), data display, and drawing and verifying conclusions. We used two content analytic schemes to analyze the data. The first scheme was developed inductively and used to describe the nature of the 54 PANs. This scheme was used to analyze the PAN intranet sites and interview data, to identify PAN activity level (assessed by quantity of documents in knowledge repository, archives, and posts to forum), quantity of membership, collaborative relations with other PANs (listed on the site), and relations with corporate entities (listed on the site). The second content analysis scheme was developed deductively based on the literature summarized in Table 1 and 2, to analyze interview data and identify the role PANs played in the organization, their level and type of contribution to business strategy, factors that enhance or impede their performance, and contribution to strategic
objectives. Content analysis was conducted by four researchers using Atlas-ti (a content analysis software). Documentation data were reviewed to confirm, disconfirm and enrich findings in the analysis of the interviews and the intranet sites.

We used the secondary organizational data to conduct a simple Social Network Analysis (SNA), produced using UCINET Software Version 6.126, to identify the structure of the relationships between the 54 PANs as a descriptive tool to illustrate the relationships between PANs. We used this data to further explore a theme that emerged from the interview data regarding the significance of relationships between the PANs. The SNA was conducted and utilized merely as an illustration and not as an analytical tool.

4. Findings

The data revealed how PANs are perceived at PB and how they operate. Towards addressing research questions 1 and 2 (extent CoP contribute to strategy and influencing factors), analysis of the interviews revealed that the dominant perception amongst interviewees was that the PANs were focused on individual learning and technical problem-solving as the traditional literature in our review suggested. Some interviews also revealed that PANs do facilitate business strategy. Although the individual contributions to strategy were significant, the instances were sporadic and did not appear to be a core function of the PANs. The interviews and analysis of PAN sites revealed the characteristics and behaviors that enabled some PANs to contribute to business strategy. In the remainder of this section we detail the findings under each research question providing context from the interview data.
4.1. Research Question 1 - To what extent do CoP contribute to business strategy?

Central to our research questions of whether CoP contribute to business strategy or not, is how members of the CoP and management view the CoP function. Table 4 provides a list of perceived functions identified in the interviews, along with the numbers of interviews in which the function was identified.

<<Insert Table 4 Here>>

Interviews with PAN coordinators and members revealed that most interviewees viewed PANs at PB as a mechanism to connect individuals across the organization for knowledge sharing. Most interviewees emphasized that the value from the PANs was derived from the support each PAN provides for individual members working to solve technical problems, or compile new project proposals as illustrated in the following quote.

“Well, it is a way for knowledge sharing. What it has involved into is if somebody has a very particular problem and is trying to seek knowledge from the rest of our corporate knowledge base to see if anybody’s faced that problem or has a specific idea to solve a problem. All too often, I’m afraid, sometimes that things are sometimes a little bit general and I’m sure they get way too many responses, but the way they share the corporate knowledge, which I think is a good idea.”

Knowledge sharing in the PANS produced a great deal of knowledge exchange. Some PANS captured knowledge sharing activities and related documents in their Intranet sites creating what they perceived as an informal knowledge repository for both individual learning and business development. The quotes below illustrate this perception.

“And the thing that’s nice is that these, the posts, the original posts plus the responses are all archived, so, and I’m not too sure how often people use this feature, but you can actually go to the discussion board and look up potbarings, or something, some topic, and do a search on it, and it’ll go through and pop up all the previous posts and responses that have that item.”
Community networking is the third major perceived function played by PANS, emphasized by 28 interviewees. The interviews suggest that both PAN members and management view the PANs as an informal mechanism for knowledge exchange and networking illustrated in the quotes below.

“I think, I believe that the function of the PAN has been only loosely defined within PB, and that is primarily to serve as a networking community for people who are interested in a particular subject area. The PANs are used by the members of the PANs to obtain information, to ask questions, and in a few cases, perhaps to have more extensive collaboration, but from a corporate point of view, it isn’t clear to me that the PAN has a real function other than being an enabler for the individuals who join it.”

The analysis of the PAN intranet site revealed that the PANs vary in their intensity and types of activities. The type of activities in any single PAN varied based on the disciplinary nature of the PAN. The information technology tools available also varied (e.g. file sharing, forums, wiki capabilities etc.). As indicated above, the most common function of the PANs was to connect individuals across the organization and provide a mechanism for knowledge exchange. We found the most common type of activity to meet that function was a query based interaction. These interactions consisted of a member sending out requests for information, usually technical or procedural in nature. The query was distributed to all members through SM by the PAN coordinator (mailing lists and forums). Responses went to the individual seeking those answers. Active PANs archived responses on the intranet site in a discussion board or in file folders. Most PANs did not archive these exchanges, thus missing an opportunity to capture valuable knowledge and lessons learned.

Interviews and PAN site analysis revealed that active PANs at PB went beyond knowledge exchange. They performed other functions including dissemination of cutting-edge knowledge, creating knowledge repositories of queries and current practices in the field, and becoming a
change agent for corporate initiatives. Active PANs did so by using their intranet sites (including blogs and forums) and newsletters to share updated information about articles and best practices in their field and about conferences and development opportunities. These efforts initiated and carried out by PAN coordinators and PAN coordinating committees made the leadership of the individual PANs the main factor in their success and contribution to the business strategy of the organization.

“They try to kind of keep up on their particular area on what’s going in the field and the industry and identify it. Conferences or places or papers or any news that’s coming out related to that particular field, they might distribute that to the PAN membership, so in that sense, they’re trying to keep the PAN membership of the latest and greatest in this particular area and some do that just via e-mail broadcasts whenever there’s something that seems like it would be of interest and some do it with regular PAN newsletters, so that’s, that I guess to sum it up would be: People requesting information from the broader PB community and then the PAN coordinator and coordinating committee are also trying to keep their PAN members attuned to what’s going on in their industry.”

Most interviewees indicated a perception that PANs were not directly connected to business strategy best illustrated in the quote below.

“from a corporate point of view, it isn’t clear to me that the PAN has a real function other than being an enabler for the individuals who join it.”

Nonetheless, when interviewees were asked about the outcomes of the exchanges and activities within the PANs, many interviewees provided a number of specific examples of strategic contributions that led to business development, increased efficiency, innovation, global integration, staff development, and knowledge integration. We compared these outcomes to the then newly formulated strategic goals of the firm and identified significant overlap between the two lists. Table 5 lists the areas to which PANs have contributed to business strategy. These are also consistent with the literature in Table 1.

<<Insert Table 5 Here>>
Below we summarize one example of PAN activities that led to achieving business strategy.

**Example 1: Improved Efficiency and Innovation**

In this example, the Environmental Planning PAN coordinator identified inefficiencies in how PAN members like herself dealt with public comments in projects that had an environmental planning component (which included most projects at PB). After identifying the inefficient and diverse ways employees used to deal with the public comments in projects, the PAN coordinator assembled a task force to investigate the issue and secured funding to create an IT tool to improve this important business activity for PAN members and the organization. The quote below illustrates this event:

“I had a project myself, and on it we were getting literally hundreds of public comments. And this happens a lot in the work that I do... [omit due to space] and the question is how do you organize them. So I went out to people in the company who do the same work that I do, and I asked them how to deal with all these comments. And they were doing the same thing I was where they were ending up using an Excel spreadsheet. And I was like, ok wait a minute, there’s got to be something better. [omit due to space] And so through the PAN I put together a task force that identified with the kind of a tool we would need in a tool. And PB supported the development of a database, we used the PB, [omit due to space] so we had a group that, to develop the database for us based on the work that the task force did, and we ended up with a product we call PB CommentSense. And the purpose of this database is to organize and manage all of these comments that come in from the public or from agencies on projects, and it’s now in use on about maybe close to 20 projects within PB. So that was a technical need that has been identified that has been developed out of, a tool was developed, and through the PAN.”

This effort, in collaboration with an IT group in the firm, led to the creation of an innovative tool to improve efficiency. This tool was then marketed through the PAN and its members throughout PB. The tool has also been used to distinguish the company in related project proposals. This is a clear example of CoP contributing to business strategy to increase efficiency.

The two examples above illustrate the role the PANs can play to directly contribute to business strategy. Unfortunately, due to the perceived disconnect between the PANs and
corporate strategy, these events happened inconsistently. The following section describes the factors that enable and inhibit the ability of PANs to contribute to strategy.

4.2. Research Question 2 - What are the factors that impede or enhance CoP contribution to business strategy?

In section 4.1, our findings suggest that CoP contributions to strategy were reliant on the initiative of the PAN coordinator, coordinating committee and individual members. All instances of PAN activities leading to business strategy were found primarily in the more active PANs. These two facts indicated the importance of **PAN coordinators’ efforts and initiative**. It was surprising to see that 15 PAN coordinators interviewed indicated that PAN **coordinator training** was limited. Thirteen PAN coordinators indicated that they did not have a clear idea of what their role was. Additionally, most coordinators indicated that they would like more training on technology/SM tools available to them and the possibilities for contributing to business strategy through their PANs. This finding is best summarized by the following quote in response to questions about what the organization could improve upon in regards to the PAN coordinators.

“in terms of PAN coordinator, maybe some training... That’d be kind of nice. I think we’re kind of left to our own devices, and so it depends on a lot, a lot on the person who’s heading up the PAN and what kind of ideas they have and then what kind of energy they have to go after that. And then what kind of help they have too.[omitted for space]... I mean I understand they don’t want to outline everything so that you don’t have any leeway, I think they wanna leave it so the creativity of the PAN coordinators...”

In addition to PAN coordinators training, 28 interviewees indicated that limited support of PAN coordinators leads to limited PAN effectiveness, as indicated in the quote below. **Support for PAN coordinators** could be in the form of larger budget, technical support, supportive culture and reward systems to appreciate coordinator and member involvement.
“Other than funding to allow us the time to put this stuff together, I think that it’s important for upper management to reiterate the importance of our PANs and knowledge management so that if our supervisor finds someone working on this sharing of information that they are supported. Mostly I am thinking of people being encouraged to do so and respected for doing it. I don’t think that everyone can hope to be keeping a charge number to write articles because there are so many of us and there are so many articles to be written, but I think there should be some emotional or professional recognition and support when people do take the lead and want to share what they have done.”

These findings indicate three important factors that enhance or inhibit PAN contributions to strategy. These factors largely fall under the **community dimension of our framework (Table 2)**: leadership roles, leadership training, leadership and community support structures in the form of infrastructure and rewards. These factors are consistent with the literature identified in Table 2.

An interesting finding from the interviews in support of the literature suggested that PANs **aligned with corporate entities** are more likely to facilitate business strategy than those that are not aligned. PANs that had the support of corporate level initiatives or personnel had a deeper understanding of business strategy and had access to resources and capabilities to better contribute to business strategy as indicated in the quote below:

“I am very fortunate that the PAN that I have is such a large envelope of disciplines and interests, not only as it applies to the design of construction of projects, but also to managing projects and the office infrastructure within our company. So, it’s such a huge umbrella that it is easily melded in with other corporate initiatives. Whereas with the HazMat pan coordinator, it’s such a small, specific area, although it is very important, that is doesn’t merge as easily with corporate initiatives as mine happens to.”

Alignment with strategy was evident in more than formal **sponsorship** identified in the literature in the **community dimension** also. In line with the grassroots and autonomous nature of the PANs, organizational sponsorship was in the form of organization leaders’ participation on the PAN coordinating committee (e.g. IT related PANs) and involvement of PAN leadership in
strategic committees (e.g. Sustainable Development PAN). These two types of *soft alignment* allow for both top-down and bottom-up approached in line with the unique nature of CoP.

In addition to alignment with corporate level initiatives and personnel, our analysis revealed that in the **domain dimension**, **PANs aligned with other PANs** were more active and more likely to contribute to organizational learning and business strategy. Figure 2 illustrates the relationships between PANs and their level of activity and membership. PAN alignments vary in nature, as some alignments are based on disciplinary focus or operational focus. Figure 2 shows that connected PANs are more likely to be active and are thus more likely to contribute to business strategy. This Social Network Analysis (SNA) is based on secondary data from PAN coordinators maintained by the organization since 2003 and augmented by our analysis of PAN interviews and PAN sites. In Figure 2, each node represents a PAN and is labeled with the corresponding PAN number. The shape of the node indicates the membership activity within that PAN: a circle-in-a-box indicates no data available, a circle indicates low activity, a triangle indicates moderate activity, and a diamond indicates high activity. The size of the node indicates relative membership size. Arrow directions indicate which PAN coordinators or PAN site indicated interactions with other the other PAN. The strongest links between PANs are therefore indicated by bi-directional arrows between two PANs. Figure 2 indicates that the most active PANs, the diamonds, and those that did contribute to business strategy were all aligned with at least one other PAN. There were only four moderately active PANs that were not connected to other PANs.

<<Insert Figure 2 Here>>

Alignments between the PANs provided a vehicle to facilitate wider scale contributions to business strategy. This is best illustrated through the example of the alignments between
Information Technology (IT) related PANs. Five PANs including IT, CADD, Geospatial, Software Engineering, and Graphics PANs are formally aligned with one another and also aligned with the Chief Information Officer. Members of these PANs faced similar issues regarding staff development. IT related organizational units did not have a formalized way for the development and training for their staff. These organizational expertise areas were also challenged to retain staff due to a lack of career advancement paths that were available in the engineering units. To address the issue of professional development and career advancement, the IT PAN initiated an effort to create a certification program and promotion paths. The effort was adopted by the CADD PAN. Additionally, through informal collaboration with the CADD and IT PANs, the Project Administration PAN adopted a similar effort. The efforts of the PANs lead to a proposal to formalize the professional development process of IT personnel which was adopted by the organization. Staff development is a primary strategic objective. The PANs have contributed to the fulfillment of this strategic objective across various units in the organization (and this phenomenon was therefore not concentrated in one PAN or one cluster of PANs). We found that these alignments can be based on either disciplinary focus (as in the case of IT related PANs) or commonality of issues (non-engineering based disciplines lacking professional development track).

5. Discussion

The implications of our findings are introduced in the revised framework below (see Table 6), first presented as Table 2. The new framework presents a socio-technical approach to assist organizations in systematically initiating and maintaining CoP, grounded in the unique nature of CoP. This framework presents a balanced approach to align CoP with strategy without
stifling their autonomous nature, as suggested in the literature (e.g. Wenger 2004, Borzillio et al. 2008, McDermott and Archibald 2010). Our contribution includes how to introduce bottom-up approaches in each category, where it did not exist in the literature. Our revisions are indicated in a bold italic font in Table 6 and explained below in terms of five revised CoP design guidelines. Please note that the revised framework omits the approach column as we contend that all approaches must include top-down and bottom-up approaches to balance the tension between structure and autonomy for CoP.

<<Insert Table 6 Here>>

**Research Question 3 - How can social media be used to promote CoP link to business strategy?**

Another dimension to our contribution is the integration of SM as a tool to assist in the better alignment of CoP with strategy. We use data from our study as a basis for illustrative examples of how SM tools can be used to facilitate each guideline, thus positioning CoP to link more effectively to business strategy.²

1. **Domain: Align CoP with organizational strategy**

   Determining where each CoP resides within the organizational structure is necessary to determine the appropriate role the CoP can play in contributing to business strategy. Clear definition of the role of the PAN is necessary. This is more complex when CoP are already established. This can be implemented in a balanced way through the involvement of organizational leaders on CoP committees and CoP leaders on strategic committees.

   **PB PAN Guideline Example:** Once the role of the PAN is articulated (in collaboration with PAN coordinating committee) in relation to the structure of the organization and related business

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² These examples are provided to illustrate and support our central theme, but this is not intended to be an exhaustive list.
strategy, proper alignments between the PAN and appropriate personnel and initiatives should be formed. These soft alignments can take many forms including having organizational initiative leaders be part of the coordinating committee. An example of this is illustrated in the IT PAN and the relationship it formed with the CIO of the organization. The CIO is invited to PAN coordinating committees where he and the PAN exchange ideas and information and collaborate on achieving business strategy. Having the sponsorship through the coordinating committee rather than a mandate from the formal leadership minimizes the tension between the control of the organization and the autonomy necessary for CoP to thrive.

**Social Media-CoP Link:** This guideline can be achieved through each top manager maintaining a blog that clearly defines and regularly updates his or her strategic initiatives and priorities. These blogs should be included in the CoP shared space. The blog provides members and leaders of CoP with a solid reference point for enabling the alignment of activity within a CoP and its role in the organizational strategy. Regular blog posts will allow for the quick and interactive exchange of ideas and information as well as ensure that CoP are participating in value-added activities.

2. **Domain: Create proper alignments between the CoP**

Once the proper alignments have been established with organizational structure and strategy, align each CoP with other related CoP. This becomes more evident as related CoP have been aligned with organizational structure and strategy. Alignment across CoP is necessary as business problems are complex and cross functional in nature. CoP may collaborate on issues based on disciplinary interests, and on problems or key strategic objectives.

**PB PAN Guideline Example:** Collaborations between the IT, CADD, Geospatial, Graphics, and Software Engineering PANs seemed straight forward due to their disciplinary
commonalities. However, collaboration between CADD PAN and Project Administration PAN was not necessarily as clear. The CADD and Project Administration PAN faced similar concerns regarding the type of employees and related employee development challenges on which they were able to collaborate. This highlighted the importance of being strategic in the alignment of PANs.

**Social Media-CoP Link:** Formal leaders of CoP within an organization can establish effective alignment between CoP by generating three levels of update outlets using various SM. Each level should be comprised of a deeper level of detail on each leader’s CoP in order to encourage effective and efficient browsing by leaders of other CoP in the organization. At the topmost level, leaders should participate in tagging the discussions, documents, and exchanges that occur within their own CoP. The next level will consist of RSS feed updates, providing other leaders with a quick highlight of recent activity within each CoP. This can be done using an internal Facebook or Twitter-type application that allows users to “follow” certain profiles of interest. Finally, by maintaining a blog, leaders have access to a more in-depth look at the current progress and nature of other CoP across the organization. These tools provide CoP leaders with the opportunity to remain updated on other CoP while making connections and alignments when necessary.

3. **Community: Design each CoP to fit its specific objectives and discipline**

   Once the role of the CoP is defined and the disciplinary nature of the CoP is clarified, each CoP should be designed to contain both the social and technical elements embedded in the discipline and the IT tools they require for interaction.

   **PB PAN Guideline Example:** Like many complex knowledge-based organizations, PB includes a variety of expertise. Diverse expertise and activities within PB require different
activities and tools. For example, some engineering PANs require the use of complex software (e.g. CADD and other simulation software). To explore cutting edge practices and demonstrations for such software, they require conferencing tools and technology support that is more complex. Project management and administration related PANs on the other hand require tools such as wikis and blogs to engage in larger organizational issues.

**Social Media-CoP Link:** The uniqueness associated with each CoP is undeniable, each requiring tools that are as flexible as the nature of the CoP. For example, mashups allow users to arrange combinations of existing web apps and services in a way that makes sense to their purpose. This is an ideal way for CoP to customize their virtual space, giving members the power to choose the tools and layout that are appropriate for their purpose. Additionally, an intrapedia site can be implemented as a blank template to all CoP. Members are able to collaborate to define, produce, edit, and share the content that populates the site. The flexibility of these tools allows for high customization needs of the numerous CoP in an organization.

4. *Empower the CoP*

To ensure the effectiveness of the CoP, the organization must provide the appropriate support structures. These structures empower the CoP to contribute to organizational learning and business strategy by having high involvement from skilled employees. To do so, the organization must provide the resources for CoP coordinating committees to conduct the appropriate activities. Additionally, creating a supportive environment with the appropriate reward systems and appropriate tools is necessary. For this reason, participation in CoP is essential and must be embedded in organizational strategy and reward structures.

**PB PAN Guideline Example:** On a PAN level, the organization empowered the PAN to pursue initiatives by providing funding. As illustrated in the Environmental Planning PAN
example of innovation, the PAN was allotted the appropriate funding to develop the software application needed. Beyond monetary resources, PB empowered the CADD PAN for example, to explore human resource development policy and propose changes. The resource and authority support are essential in empowering PANs to influence strategy. At the member level, in some of the geographic locations of PB, involvement in PAN activities, e.g. knowledge sharing and mentoring, was considered favorably as part of a participant’s performance evaluation. An employee’s performance, on the other hand, may not be affected negatively. Employees are also made aware of the benefits of the PANs and the tools available through PAN conferences and communication from PAN leaders.

**Social-CoP Media Link:** It is also important to make participation an enjoyable and simplified process for members of CoP. Encouraging members to continuously tag questions, responses, events, documents, etc. will provide links to content both across CoP as well as within the CoP of the user. A recognition system in which the popularity of each tag can be displayed on the home page of the organization’s intranet site, giving all employees a quick feel for the pulse of the CoP atmosphere. Each individual CoP can implement this tag cloud as well, giving members quick and direct links to matters that are of interest to them. Additionally, each CoP would benefit from an individual RSS feed that allows members to post and remain connected with others in the CoP. This is especially helpful when the CoP grows larger or spreads out across different geographic regions.

5. **Prepare and empower CoP leadership**

In order to assure operation, evolution and longevity of the CoP, preparation and empowerment of the CoP leadership, including the CoP coordinator and CoP coordinating committee, is essential.
PB PAN Guideline Example: In the case of PB, coordinators and steering committees are formally assigned. In addition, there are other members within PANs that emerge as leaders based on their expertise and level of involvement. Critical to the success of PAN coordinators, as indicated in the findings, is their preparation. All interviewed PAN coordinators indicated that they are in need of more training and preparation. While some coordinators were very effective at their role in engaging their PAN members, all agree that more formal training and definition of their role would better equip them to strengthen the PAN activities and contributions. To this end, organizations must provide training and role definition that maintains a balance between autonomy, flexibility and the identified responsibilities and expectations.

Social Media-CoP Link: SM can help provide needed preparation and empowerment through training, as wikis can serve as a repository and learning environment for CoP leadership. One of the key advantages to using wiki technology is its ability to avoid the costly reinvention of the wheel by aggregating information contributed by experts into a centralized location. With wikis in place, CoP leadership will have access to training materials, organizational CoP standards, templates, and best practices in order to be truly prepared and empowered by the organization to lead his or her CoP. Providing this space for CoP leaders to post information on salient issues and building on each other’s experiences and knowledge, is an important step in the continuity of training and role definition for future leaders and members of CoP.

6. Limitations

Our study has obvious limitations. First, the results are subject to methodological limitations of a single-site case study. Although we feel our findings are a significant step in advancing CoP/Social Media research, we do not claim generalizability at this juncture. Similar studies at
additional sites could improve generalizability. Second, while studying CoP events, we were forced to rely on users’ accounts of their experiences. Limited recollections, difficult-to-understand terminology, and a tendency towards self-serving accounts could have caused inaccuracies in our data. Third, our findings are based on our interpretation of the collected data, though we shared our findings with the studied organizations. During the analysis, we were forced to make occasional judgments about CoP activities. The reliability of these findings could be increased through the use of more raters and a more structured framework during the analysis process.

7. Conclusion

Implementing the guidelines using SM has implications for resource allocation and change in organizational culture. Organizations must allocate the appropriate resources for training and support of these communities. Perhaps most noteworthy is the change in culture required at all levels of the organization. Upper management and its employees must change perceptions of the role of the CoP and their importance to the organization. Striking a balance between alignment with organization structure and strategy as well as the emergent and informal nature of the CoP is also essential. Our future research will study PB as they implement these guidelines and utilize SM tools to do so. In the process, we will examine factors that affect the viability of different types of SM as tools for aligning CoP with business strategy.

8. References


Tables and Figures in the order they appear in the text

**Table 1: Summary of Impact of CoP on Organizational Performance**

<table>
<thead>
<tr>
<th>Stated Benefits</th>
<th>Potential Strategic Importance</th>
<th>In the Literature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creation of knowledge repositories</td>
<td>KM Strategy - knowledge capture &amp; retrieval</td>
<td>– Albert and Picq 2004</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– Styhre, Josephson and Knauseder 2006</td>
</tr>
<tr>
<td>Attach metadata to interpersonal communication and learning objects for data-mining.</td>
<td>KM Strategy - knowledge sharing, categorization, search, reuse</td>
<td>– Albert and Picq 2004</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– Koohang, et al. 2006</td>
</tr>
<tr>
<td>Knowledge development</td>
<td>KM Strategy - development of specific knowledge needs</td>
<td>– Agresti 2003</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– Wenger 2004</td>
</tr>
<tr>
<td>Knowledge sharing across organizational units</td>
<td>KM strategy - Learning</td>
<td>– Albert and Picq 2004</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– Wenger 2004</td>
</tr>
<tr>
<td>Improve employee satisfaction, performance and retention</td>
<td>HR Strategy</td>
<td>– Smith 2005</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– Wenger 2004</td>
</tr>
<tr>
<td>Reduces project times</td>
<td>Operational Strategy</td>
<td>– Albert and Picq 2004</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– Koohang et al. 2006</td>
</tr>
<tr>
<td>Facilitate change and flexibility</td>
<td>Change Management</td>
<td>– Lemons 2005</td>
</tr>
<tr>
<td>Innovation and creativity</td>
<td>Innovation Strategy</td>
<td>– Koohang et al. 2006</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– Gittelman and Kogut 2003</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– Swan Scarborough and Robertson 2002</td>
</tr>
<tr>
<td>Business development</td>
<td>Develop new lines of business</td>
<td>– Wenger 2004</td>
</tr>
</tbody>
</table>

**Table 2: Initial Framework of CoP Guidelines and Challenges**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Guideline/Principle</th>
<th>Mechanism</th>
<th>Management Challenge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domain</td>
<td>Define clear CoP objectives in line with strategy</td>
<td>– Top-down approach</td>
<td>– How goals are established must take into consideration the community's autonomy which members value</td>
</tr>
<tr>
<td></td>
<td>(e.g. McElroy 2005; Millen et al. 2002; Gibson and Meacham 2009; Wenger 2004; McDermott and Archibald 2010)</td>
<td></td>
<td>– Easier to set goals at the outset of initiating new community</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>– Established grass root communities will be resistant to top-down approach of goal setting</td>
</tr>
<tr>
<td>Community</td>
<td>Define leadership roles within the community (e.g. Wenger 2004; McDermott and Archibald 2010)</td>
<td>– Top-down approach</td>
<td>– Tension as management selects leaders, while leaders are also identified by their community members</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– Bottom-up approach</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Train community leaders on cultivating community and strategic objectives (McDermott and Archibald 2010)</td>
<td>– Top-down approach</td>
<td>– Mandating training and focusing training on strategic objectives will meet resistance from grass root efforts.</td>
</tr>
<tr>
<td></td>
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</tr>
</tbody>
</table>
Provide support structures to recognize participation and provide the means for interaction (e.g. physical space and technology support) (Wenger 2004)

Management sponsorship (Anand et al. 2007; McDermott and Archibald 2010)

Practice

Establish deliverables and outcomes to expect (e.g. McDermott and Archibald 2010)

Measure value in nontraditional Ways (Wenger and Snyder 2000; Fontaine and Millen 2004)

### Table 3: Examples of SM, KM and Strategy Links

<table>
<thead>
<tr>
<th>Social Media Tool</th>
<th>Knowledge Management Use</th>
<th>Strategy Link</th>
<th>Illustrative Business Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSS Microblogging</td>
<td>Identify Skills</td>
<td>Expertise location</td>
<td><strong>Telus</strong> uses SharePoint 2010’s MySites for enabling connections to be made between employees and their skills (O’Neill 2010).</td>
</tr>
<tr>
<td></td>
<td>Effective Communication</td>
<td>Increase Productivity &amp; Innovation</td>
<td><strong>Telus</strong>, uses SharePoint’s feed to publicize current projects reducing reliance on e-mail correspondence to improve productivity (O’Neill 2010). <strong>Pfizer</strong> uses an internal Facebook “Phacebook” for R &amp; D employees (Havenstein 2008).</td>
</tr>
<tr>
<td></td>
<td>Collaboration and Problem Solving</td>
<td>Customer Relationship Management</td>
<td><strong>Salesforce.com</strong> uses their internal microblogging “Chatter” to reach out to their prospects quickly and easily (Taber 2011).</td>
</tr>
<tr>
<td>Wiki</td>
<td>Content Creation</td>
<td>Collaborative Content Creation</td>
<td><strong>CoActive Digital</strong> develop company’s wide intranet for sharing and creating content collaboratively (Lynch 2008).</td>
</tr>
<tr>
<td></td>
<td>Knowledge Sharing</td>
<td>Knowledge Collection</td>
<td><strong>Peacock Productions of NBC Universal</strong> use wikis as the central information repository to manage both explicit and tacit knowledge (Bibbo 2010).</td>
</tr>
<tr>
<td>Blog</td>
<td>Manage Workflow Activities</td>
<td>Cross-Functional Collaboration</td>
<td><strong>CORT Business Services</strong> uses wikis and blogs to help to manage the workflow for its e-commerce activities (Lynch 2007).</td>
</tr>
<tr>
<td></td>
<td>Knowledge Sharing and Creation</td>
<td>Knowledge Management</td>
<td><strong>Dresdner Kleinwort Wasserstein</strong> use blogs to record an interaction, its output, and the identities of all involved and make readable by anyone in the company (McAfee 2006).</td>
</tr>
<tr>
<td>Intrapedia</td>
<td>Content Creation</td>
<td>Knowledge Retention &amp;</td>
<td><strong>Jet Propulsion Laboratory (JPL)</strong> created JPL Wired as a company-wide “Wikipedia” to combat the</td>
</tr>
</tbody>
</table>
Training growing “brain drain” associated with retiring employees as well as training supplements for new hires (Robert and Cooper 2011)

Mashup Information Accessibility Improve Decision Making and Productivity Adobe provides “Genesis,” a mashup interface that allows users to pull in different “workspaces,” and social tools like instant messaging (Kanaracus 2008). Google’s iGoogle offers a user-focused layout that displays applications and information chosen which enables aggregation of components from different sources into a customized Web site (Bitzer, Ramroth and Schumann 2009)

Tagging Knowledge Organization Knowledge Codification IBM’s Enterprise Tagging Service incorporates social tagging to improve searching capabilities within an organization (Cannistra 2008). Flickr: Allows users to categorize information in ways that make sense to them, enabling the creation of a taxonomy of phrases associated with each image. The process is simple, straightforward, and offers tremendous value through search time and accuracy for the user (Bouije, Kolfschoten, de Vries and Veen 2009)

Figure 1 – Social Media as the Link Between CoP and Business Strategy

Table 4: Perceived Function of the PANs

<table>
<thead>
<tr>
<th>Perceived Functions</th>
<th>Numbers of Interviews in which the function was identified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge sharing</td>
<td>37</td>
</tr>
<tr>
<td>Creating knowledge repository</td>
<td>29</td>
</tr>
<tr>
<td>Community networking</td>
<td>28</td>
</tr>
<tr>
<td>Dissemination of cutting edge knowledge</td>
<td>12</td>
</tr>
<tr>
<td>Change agents in the company</td>
<td>7</td>
</tr>
</tbody>
</table>
Figure 2. Relationships between the PANs
Table 6: Revised Framework of Guidelines to Initiate/Sustain CoP in Line with Business Strategy

<table>
<thead>
<tr>
<th>Guideline/Principle</th>
<th>Management Challenge</th>
<th>How</th>
<th>SM Tool</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Domain</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Define clear CoP Objectives in line with strategy (e.g. McElroy 2005, Millen et al. 2002, Gibson and Meacheam 2009, Wenger 2004, McDermott and Archibald 2010) | - How goals are established must take into consideration the community’s autonomy which members value  
- Easier to set goals for when initiating new community  
- Established grass root communities will be resistant to top-down approach  
- **Identify goals best served in single communities and those served through cross-functional collaboration between CoP** | - Goals are negotiated with the community leaders  
- Organizational leadership is proactive in soliciting feedback from CoP  
- Identify the role of and benefit to the individual as well as the organization  
- Foster cross-functional relationships between CoP  
- Define goals for individual CoP and groups of CoP | - Blog maintained by Org Leader  
- Across-CoP  
- Tagging  
- RSS feed  
- Social Network  
- Blogs |
| Define leadership roles within the community (e.g. Wenger 2004 and McDermott and Archibald 2010) | - Management selects leaders or leaders are identified by their community members will be in tension  
- **Often, community leaders are technical experts/thought leaders with high visibility. These individuals often lack the time to develop or the expertise in developing and championing the community.** | - Guide the community to choose leaders who have the time and skills necessary. If they do not have the time, give them the time.  
- Assist the community is defining clear criteria selecting community leaders. | Social networks  
- Member Profile  
- Recognition criteria and functionality |
| Train community leaders on cultivating community and strategic objectives (McDermott and Archibald 2010) | - Mandating training and focusing training on strategic objectives will meet resistance from grass root efforts.  
- **Leaders are often challenged with understanding the tools that are available and how to best utilize them**  
- **Leaders are often challenged with fully understanding the potential for CoP**  
- **Leaders are often challenged on how to develop/sustain interest in the CoP** | - Training must balance leaders need as well as organizational needs  
- The agenda for training should focus on strategic issues as well as administrative, community development, and technical issues identified by the leaders | Social Network for Social Network  
- Training wikis  
- Social network |
| Provide support structures to recognize participation and provide the means for interaction (e.g. physical space and technology support) (Wenger 2004) | - Design and provide the tools appropriate for the community to share knowledge in the Domain  
- Recognize and reward time spent on community activities in the current competitive context  
- **The tension between whether CoP membership should be mandatory or voluntary. “if knowledge if our core competency, shouldn’t everyone be involved and active in a CoP”** | - Each community is unique and requires different technical tool. Provide a portfolio of tools, and assist the community on selecting and organizing the tools suitable for them in an efficient and effective way. (in line with McDermott)  
- Utilize a reward structure that rewards participation in recognition, promotion, and | Training wikis  
- Social network |
| Management sponsorship (Anand et al. 2007, McDermott and Archibald 2010) | – Organizational sponsorship must balance community goals and organizational strategy  
– *Organizational leaders must dedicate the time to communicating and engaging with appropriate CoP* | – Organizational sponsors could participate in CoP leadership in collaboration with other CoP leaders (as in PAN coordinating committee).  
– CoP leaders could serve on strategic steering committees and act as the link  
– Organizational leaders must be champions to issues that emerge from the community | – Blogs  
– RSS Feed |
|---|---|---|---|
| Establish deliverables and outcomes to expect (e.g. McDermott and Archibald 2010) | – Identifying specific deliverables might energize community members if they are not used in punitive ways | – Model positive outcomes and reward the community and their leaders in recognition and opportunity  
– Elicit desired deliverables from community members  
– Identify deliverables suitable for the individual nature of the CoP | – Blogs  
– Wikis  
– RSS feeds  
– Tagging |
| Practice | Measure value in nontraditional ways (Wenger and Snyder 2000, Fontaine and Millen 2004) | – Go beyond ROI and identify value in the “practice” of CoP and results of the | – Communicate positive outcomes within and across CoP  
– Identify creative ways to measure value in collaboration with community members | – RSS feeds  
– Blogs |