

The Role of Culture in Knowledge Management: A Case Study of Two Global Firms

Dorothy Leidner, Baylor University, USA

Maryam Alavi, Emory University, USA

Timothy Kayworth, Baylor University, USA

ABSTRACT

Knowledge management (KM) approaches have been broadly considered to entail either a focus on organizing communities or a focus on the process of knowledge creation, sharing, and distribution. While these two approaches are not mutually exclusive and organizations may adopt aspects of both, the two approaches entail different challenges. Some organizational cultures might be more receptive to the community approach, whereas others may be more receptive to the process approach. Although culture has been cited widely as a challenge in knowledge management initiatives, and although many studies have considered the implications of organizational culture on knowledge sharing, few empirical studies address the influence of culture on the approach taken to knowledge management. Using a case study approach to compare and contrast the cultures and knowledge management approaches of two organizations, the study suggests ways in which organizational culture influences knowledge management initiatives as well as the evolution of knowledge management in organizations. Whereas in one organization, the KM effort became little more than an information repository, in the second organization, the KM effort evolved into a highly collaborative system fostering the formation of electronic communities.

Keywords: knowledge exchange; knowledge management; knowledge sharing; organizational culture; organizational knowledge

INTRODUCTION

Knowledge management (KM) efforts often are seen to encounter difficulties from corporate culture and, as a re-

sult, to have limited impact (DeLong & Fahey, 2000; O'Dell & Grayson, 1998). An Ernst and Young study identified culture as the biggest impediment to knowl-

edge transfer, citing the inability to change people's behaviors as the biggest hindrance to managing knowledge (Watson, 1998). In another study of 453 firms, over half indicated that organizational culture was a major barrier to success in their knowledge management initiatives (Ruggles, 1998). The importance of culture is also evident from consulting firms such as KPMG who report that a major aspect of knowledge management initiatives involves working to shape organizational cultures that hinder their knowledge management programs (KPMG, 1998). These findings and others (Hasan & Gould, 2001; Schultze & Boland, 2000) help to demonstrate the profound impact that culture may have on knowledge management practice and of the crucial role of senior management in fostering cultures conducive to these practices (Brown & Duguid, 2000; Davenport, DeLong, & Beers, 1998; DeLong & Fahey, 2000; Gupta & Govindarajan, 2000; Hargadon, 1998; KPMG, 1998; von Krogh, 1998).

Studies on the role of culture in knowledge management have focused on such issues as the effect of organizational culture on knowledge sharing behaviors (DeLong & Fahey, 2000; Jarvenpaa & Staples, 2001) and the influence of culture on the capabilities provided by KM (Gold, Malhotra & Segars, 2001) as well as on the success of the KM initiative (Baltazard & Cooke, 2003). More specifically, Baltazard and Cooke (2003) ascertained that constructive cultures (emphasizing values related to encouragement, affiliation, achievement, and self-actualization) tended to achieve greater KM success. Similarly, Gold, et al. (2001) found

that more supportive, encouraging organizational cultures positively influence KM infrastructure capability and resulting KM practice. Finally, Jarvenpaa and Staples (2001) determined that organizational cultures rating high in solidarity (tendency to pursue shared objectives) will result in a perception of knowledge as being owned by the organization, which, in turn, leads to greater levels of knowledge sharing.

While studies have shown that culture influences knowledge management and, in particular, knowledge sharing, there is little research on the broader aspects of the nature and means through which organizational culture influences the overall approach taken to knowledge management in a firm. The purpose of this research is to examine how organizational culture influences knowledge management initiatives. We use a case study methodology to help ascertain the relationship of the organizational culture to the knowledge management approaches within two companies. The following section discusses knowledge management approaches and organizational culture. The third presents the methodology. The fourth section presents the two cases and the fifth, and discusses the case findings, implications, and conclusion.

LITERATURE REVIEW: KNOWLEDGE MANAGEMENT APPROACHES AND ORGANIZATIONAL CULTURE

Knowledge Management Approaches

Knowledge can be defined as a form of high value information (either explicit

or tacit) combined with experience, context, interpretation, and reflection that is ready to apply to decisions and actions (Davenport et al., 1998). While all firms may have a given pool of knowledge resources distributed throughout their respective organization, they may be unaware of the existence of these resources as well as how to effectively leverage them for competitive advantage. Therefore, firms must engage in activities that seek to build, sustain, and leverage these intellectual resources. These types of activities, generally characterized as knowledge management, can be defined as the conscious practice or process of systematically identifying, capturing, and leveraging knowledge resources to help firms to compete more effectively (Hansen, Nohria, & Tierney, 1999; O'Dell & Grayson, 1998).

There are two fundamental approaches to knowledge management: the process approach and the practice approach. The process approach attempts to codify organizational knowledge through formalized controls, processes, and technologies (Hansen et al., 1999). Organizations adopting the process approach may implement explicit policies governing how knowledge is to be collected, stored, and disseminated throughout the organization. The process approach frequently involves the use of information technologies, such as intranets, data warehousing, knowledge repositories, decision support tools, and groupware (Ruggles, 1998), to enhance the quality and speed of knowledge creation and distribution in the organizations. The main criticisms of this process ap-

proach are that it fails to capture much of the tacit knowledge embedded in firms and that it forces individuals into fixed patterns of thinking (Brown & Duguid, 2000; DeLong & Fahey, 2000; Hargadon, 1998; von Grogh, 2000).

In contrast, the practice approach to knowledge management assumes that a great deal of organizational knowledge is tacit in nature and that formal controls, processes, and technologies are not suitable for transmitting this type of understanding. Rather than building formal systems to manage knowledge, the focus of this approach is to build social environments or communities of practice necessary to facilitate the sharing of tacit understanding (Brown & Duguid, 2000; DeLong & Fahey, 2000; Gupta & Govindarajan, 2000; Hansen et al., 1999; Wenger & Snyder, 2000). These communities are informal social groups that meet regularly to share ideas, insights, and best practices.

Drawing from this discussion, some key questions emerge. First, how does culture affect organizations' approaches (e.g., process or practice) to knowledge management? Second, as organizations pursue these initiatives, how do cultural influences affect the KM activities of knowledge generation, codification, and transfer? To address these questions, it is necessary to explore the concept of organizational culture.

Organizational Culture

Schein (1985) defines organizational culture as a set of implicit assumptions held by members of a group that determines how the group behaves and responds to

Table 1. The process vs. practice approaches to knowledge management

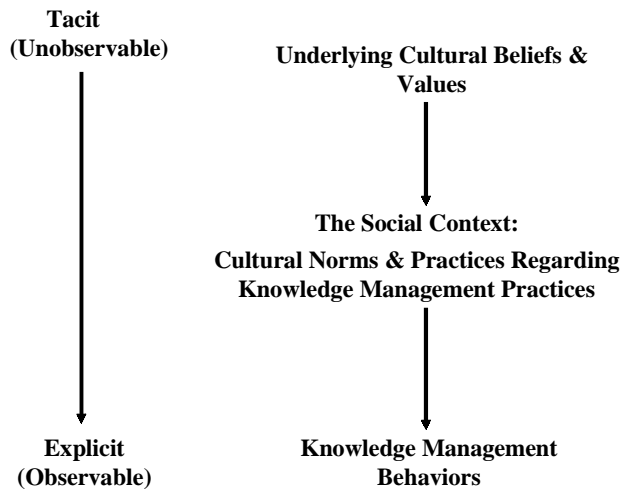
	Process Approach	Practice Approach
Type of Knowledge Supported	Explicit knowledge — codified in rules, tools, and processes.	Mostly tacit knowledge — unarticulated knowledge not easily captured or codified.
Means of Transmission	Formal controls, procedures, and standard operating procedures with heavy emphasis on information technologies to support knowledge creation, codification, and transfer of knowledge.	Informal social groups that engage in storytelling and improvisation.
Benefits	Provides structure to harness generated ideas and knowledge. Achieves scale in knowledge reuse.	Provides an environment to generate and transfer high value tacit knowledge. Provides spark for fresh ideas and responsiveness to changing environment.
Disadvantages	Fails to tap into tacit knowledge. May limit innovation and forces participants into fixed patterns of thinking.	Can result in inefficiency. Abundance of ideas with no structure to implement them.
Role of Information Technology	Heavy investment in IT to connect people with reusable codified knowledge.	Moderate investment in IT to facilitate conversations and transfer of tacit knowledge.

its environment. At its deepest level, culture consists of core values and beliefs that are embedded tacit preferences about what the organization should strive to attain and how it should do it (DeLong & Fahey, 2000). These tacit values and beliefs determine the more observable organizational norms and practices that consist of rules, expectations, rituals and routines, stories and myths, symbols, power structures, organizational structures, and control systems (Bloor & Dawson, 1994; Johnson, 1992). In turn, these norms and practices drive subsequent behaviors by providing the social context through which

people communicate and act (DeLong & Fahey, 2000). Putting this into the context of knowledge management, organizational culture determines the social context (consisting of norms and practices) that determines “who is expected to control what knowledge, as well as who must share it, and who can hoard it” (DeLong & Fahey, 2000, p. 118). Figure 1 illustrates this conceptual linkage between culture and knowledge management behavior.

As Figure 1 depicts, the social context (consisting of norms and practices) is the medium for transmission of underlying values and beliefs into specific

Figure 1. The impact of organizational culture on knowledge management behaviors

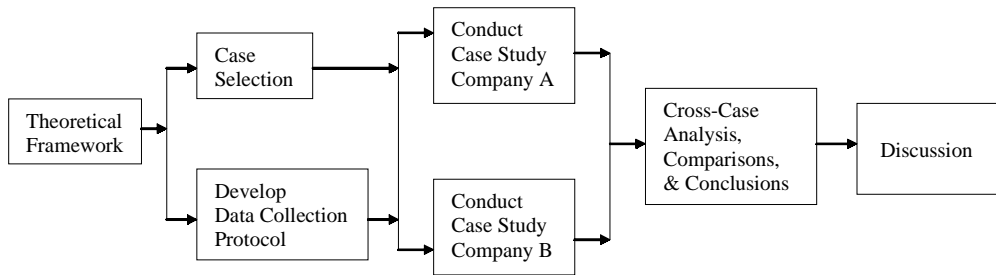


knowledge management behaviors. While Figure 1 is useful to explain the conceptual linkage between culture and knowledge management behavior, further explanation is needed to inform our understanding of the types of cultures that exist within organizations.

A number of theories have attempted to define culture at the organizational level. Wallach (1983) conceptualizes organizational culture as a composite of three distinctive cultural types: bureaucratic, innovative, and supportive. In bureaucratic cultures, there are clear lines of authority, and work is highly regulated and systematized. Innovative cultures are characterized as being creative, risk-taking environments where burnout, stress, and pressure are commonplace. In contrast, supportive cultures are those that provide a friendly, warm environment where workers tend to be fair, open, and honest. From Wallach's (1983) standpoint, any given firm will have all three types of culture,

each to varying levels of degree. Wallach's (1983) cultural dimensions were developed based upon a synthesis of other major organizational culture indices. Wallach's (1983) cultural dimensions were applied by Kanungo, Sadavarti, and Srinivas (2001) to study the relationship between IT strategy and organizational culture. Part of the attractiveness of Wallach's (1983) dimensions, in comparison with other commonly used cultural indices such as the Organizational Culture Profile scale (O'Reilly, Chatman, & Caldwell, 1991); the Competing Values Framework (Quinn & Rohrbaugh, 1983); and the Organizational Value Congruence Scale (Enz, 1986), is that it is highly intuitive. Managers readily can identify with the descriptions of the three general culture types. Consistent with Kanungo, et al. (2001), we will employ Wallach's (1983) approach to describe organizational cultures. Specifically, we are interested in the following question: How does

Figure 2. Case study methodology adapted from Yin (1994)



organizational culture influence knowledge management initiatives?

Methodology

A case study method involving multiple (two) cases was used. The approach of the study is depicted in Figure 2. The figure, based on the work of Yin (1994), displays the replication approach to multiple-case studies. As illustrated in Figure 2, the initial step in the study involved the development of a theoretical framework on the relationship between organizational culture and organizational knowledge management (KM) strategies. This step was then followed by the selection of the two specific cases (the data collection sites) and the design of the data collection protocol. Following the case selection and data collection steps, the individual case reports were developed. A cross-case analysis of the findings was then undertaken. This analysis provided the basis for the theoretical and normative discussions and implications presented in the final section of the article.

The two case studies involve two very large global corporations: Company A and Company B. Company A is a global consumer goods company with

369,000 employees worldwide. The company is headquartered in the U.S. and operates in four other regions: Europe, the Middle East and Africa, Central and South America, and Asia. Company revenues consistently exceed \$20 billion. In Company A, large-scale knowledge management projects were initiated at the North American region in 1996. Company B is a high-tech global company with multiple product lines and services. Similar to Company A, Company B is headquartered in the U.S. and operates globally in other regions of the world. With approximately 316,000 employees, its revenues exceed \$80 billion. Large-scale knowledge management projects were initiated in Company B in 1995.

These two companies were selected for the purpose of this study for the following reasons. First, significant opportunities and challenges are associated with knowledge management activities in large and geographically dispersed companies. Thus, identification of factors such as organizational culture that may influence KM outcomes in this type of organizations potentially can lead to high payoffs. Second, considering the high levels of organizational resources required for implementation of

large-scale knowledge management initiatives, these initiatives most likely are encountered in very large firms. Thus, the phenomenon of interest to these researchers could be best investigated in the context of very large firms with an established track record in KM projects. Finally, past contacts that one of the researchers had with these two firms facilitated their recruitment as case study sites.

Data Collection

Data for this study were collected through semi-structured interviews with a small group of managers and professional employees at the two company locations in the U.S. Identical approaches to data collection were used at Company A and Company B. Six individuals at each of the two companies were interviewed. In each of the two companies, three of the interviewees were the current or potential users of the KM systems. The remaining three interviewees in each company were the KMS sponsors or supporters. The interviews took between 45 and 85 minutes and were conducted between October 2001 and January 2002. All the interviews were tape recorded and then transcribed for data analysis. The interviews all followed the same protocol. The informants first were asked to characterize their organization's culture in their own words. The three cultures described by Wallach (1983) were then portrayed, and the informants were requested to identify which one best described their organization. The interviewees next were asked to describe and characterize the KM practices in their company. A set of specific questions guided the dis-

cussions of these practices. For example, informants were asked to describe the specific KM activities that they engaged in and to discuss the effects of these activities on themselves and/or their peers. Informants were also asked to describe any resistance and impediments to KM that they might have noticed in the organization. The same interviewer, using identical data collection protocols, conducted all the interviews in Company A and Company B. The interviewer carefully read the transcripts to ensure accuracy.

Data Analysis

An author not involved in the interviews and, hence, having no predisposed interpretation of the transcripts, conducted the data analysis. Based upon the transcribed interviews, 12 profiles were written, each one based upon the perspective of a single informant. These profiles described the informants' perspective of culture and their perspective of KM. The profiles of informants for Company A were compared and contrasted with each other, as were those of Company B. Cases for each company, reported in the next section, then were written, based upon the within-case analysis. The cases for each company then were interpreted from the perspective of how the culture appeared to be influencing the organizational KM initiative. This is also reported in the next section. After the two cases and their within-case analysis were complete, a cross-case comparison and contrast was undertaken, leading to the formulation of the discussion section.

CASE DESCRIPTIONS AND ANALYSES

Knowledge Management at Company

Knowledge management at Alpha began as a top-down idea, courted by senior management “as a way of helping the company become more leading edge” according to one informant. A small group of eight or nine individuals at headquarters was charged with driving knowledge management and facilitating knowledge sharing. As a result of larger issues surfacing, most notably the economic downturn that rocked U.S.-based businesses in early 2000, the top-level initiative fell into the background, and the small, dedicated group was disbanded. Thus, at the organizational level, KM was an idea that received neither funding nor action. However, at the business unit level, successful KM initiatives have been built around an intranet or around Lotus Notes team rooms.

Intranet-Based KM Projects

One initiative in the marketing area of corporate headquarters is called MIC — marketing information center. MIC serves the global marketing community of several thousand individuals around the world. It is an intranet-based library containing links to agencies, compensations, human resource information, and contracts, among other things. MIC is opportunity-oriented rather than problem-oriented. The members do not use the community to post a problem inquiry and await responses but rather to look for ideas

performed in other parts of the company and think about adopting the ideas to their local group.

MIC is intended to be a catalyst for collaboration and to propel a universal worldwide marketing community. Because the chief marketing officer no longer allows the budgeting of glossy manuals or brochures, MIC is widely accepted as the primary means of obtaining such static information. In fact, as attempts were made to include best practices in MIC, the initiative encountered resistance. Explains one informant, “We could never nudge the culture enough to have people understand and be motivated to enter their information.” Another informant felt that there were challenges in overcoming “people’s fear of being judged for their ideas and their indifference to yet another information site.”

CM connection (CMC) is another KM initiative within the North American marketing unit. This is a Web-based marketing repository used to disseminate information so that wholesalers that are responsible for store-level execution can have access to the most recent information on how to merchandise the latest promotions. As with MIC, the major impact of CMC has been the reduction of the number of printed catalogs; in this case, by 80%. Among the challenges experienced with CM connection has been convincing content providers to own the information in the sense of both providing it and keeping it up-to-date. Another issue has been that CM connection is seen by some as distracting from their relationships with clients. Even while MCC may reduce the amount

of time spent traveling, this is not necessarily welcome in “a sales and marketing oriented relationship company because you are taking away relationship points.”

The Human Resources unit with the Corporate Functions unit also has an intranet-based KM, referred to as My Career. My Career is designed for managers and employees to help provide information about what tools, classes, and coaching are available for development. One of the goals of My Career has been to merge all of the training information into one place.

Many such intranet-based KM have been developed throughout Alpha, so many that the portal project was initiated to alleviate the problem of “too much information in too many places, different IDs and passwords for each database, having to remember what is in the database to even go to get the information.” However, despite some initial receptiveness to the idea from the head of the New Business Ventures unit, IT budgets were frozen and the project never got underway.

The common thread running through the intranet-based KM projects at Alpha is that they all are geared to housing static information with the most major impacts being the reduction in printed catalogs. Among the greatest resistance, according to informants, is that these KM projects appear to try to standardize work practices in a company comprised of “creative assertive people who want to do it their way and make their own individual mark.”

Lotus Notes-Based KM

Lotus Notes forms the basis of other KM initiatives within Company A. What

distinguishes the Lotus Notes-based KM projects from the intranet-based KM projects is the added focus on facilitating teamwork. The Lotus Notes-based initiatives developed independently from the intranet-based initiatives. The North-American marketing group developed a Lotus Notes-based community of interest. The system contains examples of briefs, shared research, shared examples of different sites, and information on internal research. This micro KM has 50 to 60 regular users. An important feature of the system is that whenever new information is added, community members receive an e-mail. In this way, members visit the community when new information that is relevant to them has been posted. This KM project has served as a means of sharing best practices. For example, a marketing manager from the UK posted information concerning a successful auction initiative, which was then emulated by five other countries. On an individual level, KM has helped to increase the frequency of communication among members of the community. Similarly, HR developed HR Source, a Lotus Notes-based general bulletin board, where meeting notes, follow-up action items, strategy documents, and work plans are placed. It is shared by the HR community on a global basis.

Lotus Notes is also the platform used to develop team rooms. The individual responsible for managing team rooms for North America has what he calls the six-month rule: if a team room is not getting regular utilization for more than six months, it is deleted so that they can save money on the server expense. He says that he

deletes about 70 to 80% of team rooms. He thinks the lack of reward is the biggest barrier toward KM system usage: "People who don't have technology in their title don't take it upon themselves and are not generally rewarded for exploiting technology." Also, content management is a barrier: "This is the responsibility of the end user but it is perceived as the responsibility of the technology group." However, a marketing manager had another opinion, attributing lack of use of the team rooms to self-preservation: "Even if someone took the time to put something out there, even if I knew it was there, went and got it, had the time to review it, and understand it, I am going to create this other thing by myself. I might look at that as input, but then it is the new XYZ program and I created it."

ANALYSIS OF ALPHA'S KNOWLEDGE MANAGEMENT: THE IMPACT OF CULTURE ON KM BEHAVIORS AND OUTCOMES

The Perceptions of Culture

While each individual interviewed gave their own perception of the culture at Alpha, and while the perceptions naturally contain some variance, there is a marked theme running throughout the individuals' views. Informants describe Alpha as risk averse and bureaucratic. They speak of an environment where people don't want to be noticed, where direction is unclear, and where individual survival trumps teamwork. Moreover, informants state that people work in silos, feel iso-

lated, and are afraid of being criticized for their ideas. The slow, bureaucratic, hierarchical culture at Alpha has resulted in silos of information. As a consequence, managers indicate that even though they have great consumer and customer information, they end up reinventing the wheel 1,000 times. However, our informants also maintained that although they characterize the culture as bureaucratic, they also sense that Alpha is striving to become more innovative and supportive.

The Possible Impacts of Culture on KM

The statements and observations of our informants point to two largely shared perspectives: (1) the culture emphasizes the individual, and (2) the culture is in a state of transition. In understanding the impacts of KM, one can see the influence of the individuality within Company A. Table 2 lists the characteristics of culture, characteristics of the KM initiatives, and characteristics of KM behaviors as expressed by the informants.

At work within Alpha seems to be a tension between a culture that demands individuality and the communal aspects of KM. The informants talk about a culture that is one of "individual survival" where individuals "fear being judged for their ideas," where there is individual "isolation," and where individuals try to go unnoticed. The overall feeling is that of individuals trying to avoid being noticed. Such a culture does little to foster the sense of community that may be necessary to enable KM to move beyond static repositories of information into the kind of dynamic system

Table 2. Characteristics of culture, KM initiatives, and KM behaviors

Culture Characteristics	KM Characteristics	KM Behaviors
Dominant culture is bureaucratic	Intranet-based static repositories of information	Individuals access information on an as-needed basis
Emphasis on individual: *individuals are "risk averse" *individuals fear being criticized for ideas *individuals are uneasy and prefer to go unnoticed *individual relationships externally, particularly within the marketing unit, are perceived as critical to their success	Failed top-down effort Bottom-up initiatives largely targeted creation of repositories Some use of Lotus Notes to create team rooms Team rooms have high failure rate	Individuals reluctant to contribute information Individuals reluctant to own and maintain content Individuals uncomfortable using ideas from the systems, since they do not own the idea Individuals use repository when rules prohibit printing brochures Individuals reluctant to use tools that would result in a loss of touch points with customers

envisioned by developers, where ideas flow freely and where KM provides a catalyst for collaborative engagement. Not only are individuals reluctant to share their information for fear of being criticized for their ideas, they also are reluctant to use information posted in a KM for lack of credit for the idea. Such behaviors can spring from a culture that emphasizes individual ideas and contribution.

The individual aspects of the culture go well beyond individuals behaving in a certain way because of a rewards system but reflects an underpinning notion that to succeed in a marketing-oriented organization, one must be creative and that creativity is performative, of an individual nature, so that to survive as an individual, one must

capture ideas and only share them if they are going to be favorably judged. One must not look to others for learning or for problem solving but might look to reuse creative ideas in some circumstances (like the auction site example from the UK) where one may tailor the idea to one's environment. It is telling that the informants speak of using outsiders (e.g., consultants) to assist with problem solving and learning instead of attempting to use any of the existing KM to post queries, and this in spite of the fact that it is recognized that the company reinvents the wheel 1,000 times.

Another tension within Alpha seems to stem from the expectations of what should occur in a bureaucratic culture and

what was occurring. The top-down approach to KM, an approach that would be consistent with a bureaucratic organization, had failed at Alpha. Yet, despite the failure of the top-down approach to KM and the seeming success of several bottom-up approaches, such as MIC and the marketing team room for the community of 50, one informant still proffered the need for top management leadership to be the key to success with KM. He considered the bottom-up approaches as “band-aid-approaches.” In his opinion, power within Alpha comes “from knowledge hoarding, not knowledge sharing.” In order for KM to be assimilated in this environment, “behavior really has to come from the top. Leadership needs to walk the walk.” In a bureaucratic culture, individuals become accustomed to clear guidance from senior management. The absence of clearly stated support from senior management may be sufficient to deter many from experimenting with the KM tools available to help them.

Summary

Alpha has many KM initiatives that were developed largely as bottom-up initiatives. The KM tools seem well designed and housed with valuable information. The informants are able to use the tools to facilitate the retrieval of information that they need in the performance of their jobs. However, the tools have not progressed yet to the level of fostering collaboration. While there are some successful communities from the standpoint of providing a place to share meeting notes and plans, the majority of team rooms remain unused

and, if used, become as much a library of information as a communication tool. In some ways, the culture of Alpha appears to foster the types of KM behaviors observed, in that the individual is seen as the primary source of innovation and ideas as opposed to the community being the ultimate source of success. Thus, individuals will use the systems as needed but are occupied mostly with their individual roles and work and do not attribute value to the collaborative features of technology.

The Case of Beta

Beta is organized into seven major units. Our interviews were concentrated within the Innovations Services group of the consulting wing (referred to as Worldwide Services Group, or WSG) of Beta.

Knowledge management at Beta began in 1996 with the view that KM was about codifying and sharing information, leading to the creation of huge repositories of procedures and process approaches. It was assumed that people would go to a central site, called Intellectual Capital Management System (ICM), pull information down, and all would be more knowledgeable. ICM is under the protection of the Beta Corporation. There is a process one must undertake to have information submitted and approved. The process is complicated by legalities and formalities. As a result, ICM is not used as widely as it could be. What was discovered from the initial foray into knowledge management was that the information was not being refreshed and that the approach was not complementing the way people really learned, which was through com-

munities. Consequently, the KM initiative began to shift to providing tools to communities that would help foster collaboration both within teams and within locations and around the globe. Among the tools are team rooms and communities.

Team Rooms

Lotus Notes-based team rooms are widely used at Beta to coordinate virtual teams and to share important documents. Access to team databases are limited to the members because of the confidential nature of a lot of the issues. The project manager or someone delegated by the project manager takes the responsibility of sanitizing the material and posting the most relevant parts to a community system such as OC-zone (to be discussed later) and/or to the ICM after the team's project has been completed.

The team rooms are valuable tools to help members keep track of occurrences as well as to help newly assigned members get quickly up to speed. Because of the itinerant nature of the Beta consultant's life, it is invaluable to have the documents they need stored in an easily accessible manner that does not require sending and receiving files over a network. Team room databases also are used for managing the consulting practices. It is important in helping new people with administrative tasks (e.g., how to order a piece of computer equipment, how to order business cards). The team rooms keep track of such metrics as utilization so that members of the team know "who's on the bench and who's not." One informant gave the example of a recent project she was put on at the last minute

that involved selling a project to a government department in another country. She was able to access all the documentation from the team room and become a productive member of a new team very quickly: "I can go in and start getting information about a particular topic and work with colleagues almost immediately. It allows me to work more easily with colleagues across disciplines."

Although team rooms are invaluable in organizing and coordinating project teams, there are also some potential drawbacks. Some view the team rooms as engendering "a false sense of intimacy and connectedness." This sense of intimacy can be productive for the team as long as things are going well. However, "if things go south," says an informant, "you don't have the history or skill set to really deal with difficult situations." As a result, instead of dealing with the conflict, the team is more likely to just take someone off the team and replace the person with another. In this sense, problems are not solved so much as they are avoided, and team members take on an expendable quality.

Communities

Communities serve members based not upon project or organizational position but upon interest. By 2000, a group referred to as the organizational change (OC) group had established a successful community of 1,500 members cutting across all lines of business and was beginning to act as consultants to other groups trying to set up communities. The OC community has gone so far as to quantify the business return of such a commu-

nity in terms of cycle time reductions and sophistication of responses to clients. The OC community is comprised of tools, events, and organization.

1. **Tools.** The technology tools at the disposal of the OC community are databases of information submitted by team rooms, including such things as white papers, projects, and deliverables, as well as client information. The databases also contain pictures of community members with personal information about the members.
2. **Events.** An important aspect of the OC community is the events that are organized for community members. These include monthly conference call meetings, which generally are attended by 40 to 90 members, and replay meetings, which draw another 40 to 70 members. In the past, the community has sponsored a face-to-face conference for members. Members often meet others for the first time, yet they already feel they know each other.
3. **Organization.** The organization of the community is managed by two community leaders. When people request information or have queries to post to members, they send their messages to one of the community leaders. The leader first tries to forward the message directly to a subject-matter expert (SME). If the leader does not know offhand of an appropriate SME, the leader will post the question to the entire group. In this event, the group members respond to the leader rather than to the community in order to avoid an

inundation of messages. The leader normally receives responses within an hour. The leader then forwards the responses to the individual with the query. Later, the leader sends an e-mail to the person who made the inquiry, asking how the response was, how much time it saved, and so forth. The leader normally gets back as many as 28 responses to a particular inquiry. The leader has manually loaded a portion of what he or she has developed in the past seven months. There are 114 pieces of intellectual capital that the leader has loaded, and it is just a portion of what the leader has received.

The community has a structure that consists of a senior global board of 30 members representative of different parts of the business. There is a subject matter council that constantly scans the intellectual capital, as well as an expert council and the health check team.

The health check team examines such things as how well members communicate with each other. They conducted an organizational network analysis to help better understand the communication networks. The team has a series of questions to help assess how they are doing in terms of high performance teaming. They use a survey that measures perceptions from the community members about what they see is happening and do a gap analysis on what is actually happening. Finally, the team does a self-assessment of where it is compared to the community maturity model developed by the OC community leaders. There is a community mission,

vision, and goals, and they are working on capturing data to support the metrics to demonstrate value to the company and community members.

The goal is to attain level-5 maturity, which is considered an “adaptive organization.” There are 13 areas of focus at which the community leaders look in building a sustained community. While communities are felt to be organic, there is also a community developers kit with an assessment tool to determine at what level of maturity a community is and what steps need to be taken to move the community forward. One community leader says that the purpose of the development kit “is not to confine, but to provide a road map in which to navigate and build.” For this leader, the essence of community is continuous learning. Of the initial KM efforts focused on information repositories, the leader says, “I could see the technology coming that was going to enslave people, like an intellectual sweat shop.” By contrast, the primary tools for a community are “passion and environment.”

Impact of OC

Among the major impacts of the OC zone is that having a community helps people not feel isolated. “People feel they are affiliated, that they are part of the company.” Thirty percent of Beta employees do not have offices and work from home or the client sites. Such a work environment easily can be associated with isolation. However, the community is claimed by some to provide clarity of purpose. “I see it as a conduit for both developing thought leadership and enabling thought

leadership to get into the hearts and minds of the workers so that they all have a common vision, goals, and objectives.”

Community members view the purpose of the community as a knowledge-sharing forum and as a means to create a sense of belonging. One member went so far as to suggest that she would “not be at Beta any longer if it wasn’t for this community.” The reason is that most of her connections at Beta have been made through the community. Also, being in the community helps her to get assigned to projects. For example, the leader of a new project will call someone in the community and say that they are looking for a person with a certain profile. She finds that she gets asked to work on projects this way.

Other members refer to the community as a supportive family and state that within the community is someone who has already encountered any issue they will encounter on a project, so the community keeps them from reinventing the wheel. The norms of operation exist to help the OC zone be as effective as possible. No one is under obligation to contribute, but individuals contribute in order to help other people. One member credits the success of the community to the two leaders, whom she feels “in their hearts, care about the members of the community.” She feels that the community is more than a community of people who like the topic of organizational change, but it is a community of people who support one another.

The primary resistance to the OC community has been the practice managers. Most of the community members re-

port to practice managers. The practice managers are used to thinking in terms of billable hours. Indeed, the performance evaluation system requires that an individual's goals support those of his or her boss, which support those of his or her boss, and so forth. The community leaders hope that one day, participating in a community will be included as a standard part of this evaluation system.

ANALYSIS OF BETA KNOWLEDGE MANAGEMENT: THE IMPACT OF CULTURE ON KM BEHAVIORS AND OUTCOMES

The Perceptions of Culture

All of the respondents from Beta work within the same business unit. The respondents describe the culture of Beta as a blend of hierarchical and innovative. The hierarchical aspects are evident in that little innovation is undertaken until senior management has officially supported the innovation, but once senior management does give the green light to an idea, "everybody jumps on it."

One aspect of culture that is highlighted by the informants is the importance of collaboration. Informants characterize the street values within Beta as win, team, and execute. Beta informants recognize a duality of culture that, on the one hand, gives individuals control over their work and, at the same time, is highly supportive of the individual. The culture is autonomous in the sense of not having someone looking over your shoulder and telling you what to do. While there is certainly com-

petition (i.e., everyone has objectives that they are trying to meet), things "are always done in a collaborative helpful spirit."

The other dominant aspect of culture, as related by the informants, is hierarchy. The hierarchy is as much a hierarchy of experience as of structure. Community members, for example, proffered that becoming a subject matter expert is more about length of service to the company than to one's inherent knowledge. Another aspect of the bureaucratic culture is that "there is very much a correct way to do things."

Table 3 lists the characteristics of culture, KM initiatives, and KM behaviors expressed by the Beta informants.

Beta's emphasis on collaboration seems to have enabled the progression of KM from a static information repository system into active, vital communities of interest, wherein individuals feel a sense of belonging to the extent that they identify themselves first with the community and second, if at all, with their actual formal business units. One informant claimed to not identify herself at all with the Innovation Services unit. Of course, one could ponder whether such identity transfer from the business unit to the community serves the best interest of the unit.

At the same time, the bureaucratic and innovative aspects of the culture also have helped. Having senior management show interest in KM was a catalyst to individual groups undertaking KM initiatives with great enthusiasm. In addition, rather than ad hoc communities that are entirely organic, the community model emerging at Beta is a relatively structured one.

Table 3. Characteristics of Company B culture, KM initiatives, and KM behaviors

Culture Characteristics	KM Characteristics	KM Behaviors
Hierarchical, yet collaborative and innovative	Company-wide information repository consisting of hundreds of information databases	Team members actively coordinate via the team rooms
Individuals largely responsible for their own careers, yet competition is undertaken in a cooperative manner	Team rooms used by project teams	Community members obtain a sense of belonging to the community
The team is the unit of success, more so than the individual	Communities of practice emerging. These communities include tools, events, and structures	Community members post information from completed team projects to the community out of a sense of commitment, not coercion
Absence of extreme supervision of individuals' work — individuals have a sense of control	The OC community is used as an example of a successful community and as a consultant to other emerging communities	Community members are more loyal to the company (less likely to depart) because of their belonging to the community
		Assignments to projects made through community references

While one can make the argument that Beta's culture influences KM development and use, one also can argue that KM at Beta is influencing Beta's culture. OC members claim that without a sense of connection provided by the OC community, Beta would be nothing but a "big and scary" company in which individuals "get lost." The community, though, allows and enables a culture of connection. In effect, one informant believes that the OC community attempts to shift a very technical, phone-oriented, work-product-oriented way of communicating with each other into a more personal work-in-process movement toward what Beta refers to as "thought leadership." When asked why members take the time to participate in the community when there is no

formal reward for doing so, one informant said simply, "It's just how we do business." Thus, the community has infused the culture of the members.

Yet, this does not suggest that an organizational utopia has been or will be achieved. While the culture is becoming more connected, there is another angle. One informant believes that when you have widespread access to knowledge management, you also can have a culture where people that know very little about something have access to enough information to be dangerous. People get too comfortable with having access to knowledge and then feel free to share it. This informant remained unconvinced that the knowledge one acquires through the network is as solid a foundation as the knowl-

edge one has acquired through experience and traditional learning. Moreover, she feels that the notion of dialogue can get redefined in a way that you lose the quality of participation that one might be looking for.

Summary

Beta has many KM databases, collectively referred to as Intellectual Capital Management. While these databases serve an important role of housing and organizing information in a huge organization, they do not go so far as to foster collaboration. Instead, team rooms and communities of interest, largely left to the discretion of team members and community members, have proven to be vital tools to achieving collaboration, community, and belonging. As the culture of Beta has been receptive to individual groups setting and pursuing their community agendas, the culture also is being subtly altered by the communities as members feel that they belong more to the community than to their business units.

DISCUSSION

The two cases offer insights into the role that organizational culture plays in the inception and maturation of KM. This section summarizes the key findings that help us to answer the following question: How does organizational culture influence KM approaches? We suggest four responses to this question.

1. Organizational culture influences KM through its influence on the values organizational members at-

tribute to individual vs. cooperative behavior. The two companies we examined share several similarities. Both huge multinational organizations are regarded widely by organizational members as being predominantly bureaucratic in culture. Both organizations had initial KM approaches that were strongly supported by senior management. And both had initial KM approaches focused on the creation of a large centralized repository of organizational knowledge to be shared throughout the organization. These two large bureaucratic organizations began their KM quests with the process approach. The most striking difference between the organizational cultures of these two companies was the emphasis at Alpha on the individual and the emphasis at Beta on collectivity — the team or community. This evinces itself even in the interpretation of innovation. While individuals at both companies spoke of the need for innovation in their organizations and of the striving of their organizations to develop an innovative culture, in the case of Alpha, innovation was perceived as an individual attribute, whereas at Beta, innovation was perceived as a team-level attribute.

The individualistic view of innovation at Alpha seemed to militate against the requisite sharing and cooperation that makes the evolution of KM from process approach to a community of practice approach possible. In both companies, micro-level experimentation of the various possibilities of KM was undertaken within teams or business units. The value placed on individualism vs. cooperativism seems

to have played a significant role in the nature and form of the KM approach. The micro-level experimentations by teams or business units were carried out with their own assumptions about the usefulness of repositories of knowledge and the usefulness of communities or practice. We suggest that it is not organizational culture at the organizational level or even the subunit level that has the most significant influence on KM approach, but it is organizational culture as embodied in the individualistic vs. cooperative tendencies of organizational members. Thus, organizational culture influences KM approaches through its influence on individualism vs. cooperativism. From a theoretical view, it seems that Wallach's (1983) cultural dimensions and those of Earley (1994) were both valuable at explaining organizational level culture. However, Earley's (1994) cultural dimensions at the organizational level seem best able to explain why a KM approach tended to become more process or more practice-based.

2. Organizational culture influences the evolution of KM initiatives.

Our findings suggest that firms do not decide in advance to adopt a process or practice approach to KM, but that it evolves. The most natural starting point is one of process, perhaps because the benefits seem more evident and because it can align more closely with the existing organizational structure. Moreover, the practice approach may not only fail to align with existing structure, but it may engender a virtual structure and identity. It is interesting that at Beta, a culture that is

viewed dominantly as bureaucratic, once the initial organizational change community was established, the evolution of the community then became a highly structured process of maturation. The community leaders developed a toolkit to help other communities develop and developed a maturation model to help them to determine how mature a community was and to develop a plan to move the community forward. What some might see as an organic process (i.e., establishing and developing a community or practice) became a structured process in a bureaucratic organization. Even if the idea for the community emerged from interested potential members, the evolution took on a structured form with tools, kits, assessments, and plans. The cooperative aspect of culture at the individual level made the community possible; the bureaucratic elements of culture at the organizational level enabled the community to mature. Hence, the evolution of the community was highly dependent on the individual willingness of organizational members to sustain and nurture their community. This appeared tied to the importance they placed on cooperation with their community members, most of whom they had never met.

3. Organizational culture influences the migration of knowledge.

In the case of Alpha, where the informants seemed to identify the individual as the ultimate unit of responsibility in the organization, the individuals also were viewed as the owners of knowledge and had the responsibility to share their knowledge. This, in fact, created a major challenge,

since the individuals rejected this new responsibility. At Beta, where the team seemed to be the focus of responsibility, knowledge migrated from the team to the community to the organizational level system and back down to the team. The leader of the team would take responsibility for cleaning the team's data and submitting it to the community and to the central information repository. Thus, knowledge migrated upward from the team to the central repository. Interestingly, the most useful knowledge was claimed to be that at the team and community level. Once the knowledge had completed its migration to the central repository, it was seen primarily as an item of insurance for use in case of need. Knowledge sharing and transfer occurred primarily at the team and community level, whereas knowledge storage was the function of the central repository.

The migration of knowledge also is influenced by the structural processes put in place to ensure that knowledge finds its way to the appropriate persons. Of key importance seems to be the way the queries are handled. The marketing group at Alpha adopted the approach of notifying individuals when new information had been added to the KMS. However, little interference was put in place to either guide people to the appropriate knowledge or to encourage people to contribute knowledge. Conversely, believing that the community should not become a bulletin board of problems and solutions, the leaders of the organizational change community at Beta worked arduously to learn the subject matter experts so that queries would be submitted to the community

leader who would serve as an intermediary between the individual with the query and the expert.

It has been reported widely that the use of knowledge directories is a primary application of KM in organizations. Our study suggests that the facilitated access to experts rather than direct access via the location of an individual through a directory or via a problem posted to a forum may lead to a more favorable community atmosphere.

4. Knowledge management can become embedded in the organizational culture. Over time, as KM evolves and begins to reflect the values of the organization, the KM can become a part of the organizational culture. At Beta, individuals spoke of their community involvement and their team rooms as simply the "way we work." In fact, the communities became so much part of the culture that even though they were not part of the organizational structure, they were part of an individual's implicit structure. The sense of belonging that the individuals reported feeling toward their community suggests that the community had become an essential aspect of their value system and, hence, had become part of organizational culture. That the organizational change community members at Beta identified themselves first and foremost with their community, in spite of receiving neither reward nor recognition within their formal reporting unit for participating in the community, indicates the extent to which community participation had become a value and an aspect of the individual culture.

Table 4. Summary of organizational culture's Influence on KM

Cultural Perspective	Influence of Culture on Knowledge Management
Bureaucratic (Wallach, 1983)	Favors an initial process approach to KM Creates expectation among members that senior management vision is essential to effective KM
Innovative (Wallach, 1983)	Enables subgroups in organizations to experiment with KM and develop KMs useful to their group
Individualistic (Earley, 1994)	Inhibits sharing, ownership, and reuse of knowledge
Cooperative (Earley, 1994)	Enables the evolution of process-oriented KM to practice-oriented KM Enables the creation of virtual communities

Implications and Conclusion

The findings of our study suggest that a dominantly bureaucratic culture seems to tend toward an initial process-based KM approach. Furthermore, a bureaucratic culture seems to create the expectation among organizational members that senior management needs to provide a vision of purpose for KM before the organizational members should embark on KM activities. As well, the members view senior management support as validating any KM activities that they undertake. Innovative cultures, even if not the dominant culture at the organizational level, seem to enable subgroups to experiment with KM or create micro-KMs. In essence, in organizations having dominant bureaucratic cultures with traces of innovativeness, senior management support legitimizes KM, but the innovativeness of the culture enables it to expand far beyond an organization-wide repository. Specific KM behaviors such as ownership and maintenance of knowledge, knowledge sharing, and knowledge reuse

seem to be influenced largely by the individualistic or cooperative nature of the culture. Individualistic cultures inhibit sharing, ownership, and reuse, while cooperative cultures enable the creation of virtual communities. Earley's (1994) work on organizational culture emphasized the individualistic and collectivistic aspects of culture. Organizations encouraging individuals to pursue and maximize individuals' goals and rewarding performance based on individual achievement would be considered to have an individualistic culture, whereas organizations placing priority on collective goals and joint contributions and rewards for organizational accomplishments would be considered collectivist (Chatman & Barsade, 1995; Earley, 1994). This dimension of organizational culture emerged as critical in our examination of the influence of culture on KM initiatives. These findings are summarized in Table 4.

This research set out to examine the influence of organizational culture on knowledge management approaches. Us-

ing a case study approach, we have gathered the perspectives of individuals in two firms that share some cultural similarities yet differ in other aspects. The findings suggest that organizational culture influences the KM approach initially chosen by an organization, the evolution of the KM approach, and the migration of knowledge. Moreover, the findings suggest that KM eventually can become an integral aspect of the organizational culture. Much remains to be discovered about how organizational cultures evolve and what role information technology takes in this evolution. This case study is an initial effort into a potentially vast array of research into the issue of the relationship of information technology and organizational culture.

REFERENCES

- Alavi, M., Kayworth, T., & Leidner, D. (2005). *Organizational and sub-unit values in the process of knowledge management* (Working Paper). Baylor University.
- Baltahazard, P. A., & Cooke, R. A. (2003). *Organizational culture and knowledge management success: Assessing the behavior-performance continuum* (Working Paper). Arizona State University West.
- Bloor, G., & Dawson, P. (1994). Understanding professional culture in organizational context. *Organization Studies*, 15(2), 275-295.
- Brown, S. J., & Duguid, P. (2000). Balancing act: How to capture knowledge without killing it. *Harvard Business Review*, 78(3), 73-80.
- Chatman, J. A., & Barsade, S. G. (1995). Personality, organizational culture, and cooperation: Evidence from a business simulation. *Administrative Science Quarterly*, 40(3), 423-443.
- Davenport, T. H., De Long, D. W., & Beers, M. C. (1998). Successful knowledge management. *Sloan Management Review*, 39(2), 43-57.
- DeLong, D. W., & Fahey, L. (2000). Diagnosing cultural barriers to knowledge management. *Academy of Management Executive*, 14(4), 113-127.
- Earley. (1994). Self or group? Cultural effects of training on self-efficacy and performance. *Administrative Science Quarterly*, 39(1), 89-117.
- Enz, C. (1986). *Power and shared values in the corporate culture*. Ann Arbor, MI: University of Michigan Press.
- Gold, A. H., Malhotra, A., & Segars, A. H. (2001). Knowledge management: An organizational capabilities perspective. *Journal of Management Information Systems*, 18(1), 185-214.
- Gupta, A. K., & Govindarajan, V. (2000). Knowledge management's social dimension: Lessons from Nucor Steel. *Sloan Management Review*, 42(1), 71-80.
- Hansen, M. T., Nohria, N., & Tierney, T. (1999). What's your strategy for managing knowledge? *Harvard Business Review*, 77(2), 106-115.
- Hargadon, A. B. (1998). Firms as knowledge brokers: Lessons in pursuing continuous innovation. *California Management Review*, 40(3), 209-227.
- Hasan, H., & Gould, E. (2001). Support for the sense-making activity of managers. *Decision Support Systems*,

- 31(1), 71-86.
- Jarvenpaa, S. L., & Staples, S. D. (2001). Exploring perceptions of organizational ownership of information and expertise. *Journal of Management Information Systems*, 18(1), 151-183.
- Johnson, G. (1992) Managing strategic change — Strategy, culture and action. *Long Range Planning*, 25(1), 28-36.
- Kanungo, S., Sadavarti, S., & Srinivas, Y. (2001). Relating IT strategy and organizational culture: An empirical study of public sector units in India. *Journal of Strategic Information Systems*, 10(1), 29-57.
- KPMG Management Consulting. (1998). *Knowledge management: Research report*.
- O'Dell, C., & Grayson, C. J. (1998). If only we knew what we know: Identification and transfer of best practices. *California Management Review*, 40(3), 154-174.
- O'Reilly, C. A., Chatman, J., & Caldwell, D. F. (1996). Culture as social control: Corporations, cults, and commitment. *Research in Organizational Behavior*, 18, 157-200.
- Quinn, R. E., & Rohrbaugh, I. (1983). A spatial model of effectiveness criteria: Towards a competing values approach to organizational analysis. *Management Science*, 29(3), 363-377.
- Ruggles, R. (1998). The state of the notion: Knowledge management in practice. *California Management Review*, 40(3), 80-89.
- Schein, E. H. (1985). *Organizational culture and leadership*. San Francisco, CA: Jossey-Bass.
- Schultze, U., & Boland, R. (2000). Knowledge management technology and the reproduction of knowledge work practices. *Journal of Strategic Information Systems*, 9(2-3), 193-213.
- von Krogh, G. (1998). Care in knowledge creation. *California Management Review*, 40(3), 133-153.
- Wallach, E. J. (1983, February). Individuals and organizations: The cultural match. *Training and Development Journal*, .
- Watson, S. (1998). Getting to “aha!” companies use intranets to turn information and experience into knowledge — And gain a competitive edge. *Computer World*, 32(4), 1.
- Wenger, E. C., & Snyder, W. M. (2000). Communities of practice: The organizational frontier. *Harvard Business Review*, 78(1), 139-145.

ENDNOTE

- ¹ After this initial data collection, we returned to Company B a year later and conducted more widespread interviews across different business units. This data collection and analysis is discussed in Alavi, Kayworth, and Leidner (2005).

Dorothy E. Leidner, PhD, is the Randall W. and Sandra Ferguson Professor of Information Systems at Baylor University. Prior to rejoining the Baylor faculty,

she was associate professor at INSEAD and an associate professor at Texas Christian University. She has also been a visiting professor at the Instituto Tecnológico y de Estudios Superiores de Monterrey, Mexico, at the Institut d'Administration des Entreprises at the Université de Caen, France, and at Southern Methodist University. Dr. Leidner has received best paper awards in 1993 from the Hawaii International Conference on System Sciences, in 1995 from MIS Quarterly, and in 1999 from the Academy of Management. She is currently serving as co-editor-in-chief of the journal Data Base for Advances in Information Systems. She also is serving as an associate editor for MIS Quarterly, Decision Sciences, and Decision Support Systems, and as a senior editor for the Journal of Strategic Information Systems.

Maryam Alavi, PhD, is the John and Lucy Cook Chair of Information Strategy and the former senior associate dean of Faculty and Research at the Goizueta Business School of Emory University. She also serves as the director of Knowledge@Emory, a Web-based publication of the Goizueta Business School. Dr. Alavi has authored numerous scholarly papers. Her research has been supported by funds and hardware grants from the AT&T Foundation, AT&T Corporation, IBM, and Lucent Technologies. She has served on the editorial boards of several scholarly journals, including MIS Quarterly, Information Systems Research, Journal of MIS, and Journal of Strategic Information Systems. Dr. Alavi was awarded the distinguished Marvin Bower Faculty Fellowship at the Harvard Business School. She also was a recipient of the University of Maryland Distinguished Scholar-Teacher Award, and was elected as the recipient of the prestigious AIS (Association of Information Systems) Fellows Award.

Tim Kayworth, PhD, is an associate professor of management information systems in the Hankamer School of Business at Baylor University. He has prior industry experience in information systems consulting and has also held positions as MIS director and operations manager for private sector firms. Dr. Kayworth's research interests center on the management of IT in organizations. Recent research projects have included such topics as leadership in global virtual teams, the impact of organizational culture on knowledge management practice, and the role of culture in information systems research. His work has been published in the European Management Journal, the Journal of Management Information Systems, The DATABASE for Advances in Information Systems, and the Information Resources Management Journal, as well as in such international conferences as AMCIS, ICIS, and the Strategic Management Society.