The Emperor's Challenge: Getting People To Share What They Know

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ABSTRACT

The story of "The Emperor's New Clothes" illustrates the clear distinction between what we know and what we share. The story has prompted this paper in which we review significant literature and present a model of a culture that enables and encourages information sharing. Using examples from current business practice, the model illustrates three structural levels – providing motivational incentives, allocating and allowing time, and staffing appropriately for information sharing. Additionally, the model's three key behavioral norms that encourage information sharing include using fair process to build trust, being open to disclosing and capitalizing on mistakes, and fostering a sense of joint ownership of work products. The paper provides the practicing manager with specific examples and suggestions for implementing information sharing.

Introduction

While one of the authors was reading to her five-year-old daughter Hans Christian Andersen's "The Emperor's New Clothes," she saw that the story was in many ways about information sharing. It describes, in an exaggerated way, some common reasons why people in organizations don't share what they know.

You may remember that the tale is about an emperor with a very singular interest – clothes. He takes no interest in his soldiers, the theater, nor driving about in his state coach, unless it is to show off his new clothes. One day two swindlers arrive in town who know how to weave the most magnificent fabric that can be imagined. And more amazingly, clothes made of the material are invisible to everyone who is either unfit for his post or inexcusably stupid. The Emperor thinks this useful because now he will discover who is wise and who is foolish. So, he gives the swindlers large sums of money, fine silk and gold thread and they pretend to weave a beautiful fabric.

The Emperor wants to find out how the work is proceeding. Uneasy about going himself in case he is unable to see the cloth, the Emperor sends his Chamberlain who he is certain is wise and well suited for his position. Hiding his panic when he is unable to see the material, the Chamberlain feigns admiration and listens carefully to the description provided by the swindlers. The Chamberlain then returns to the Emperor and repeats the swindlers' description. And so the tale goes on, with other people pretending to see the cloth and sharing what they pretend to see with the Emperor and one another.

When the clothes are complete, the Emperor parades through town to show them off. All the townspeople pretend to admire his new clothes until a young child exclaims, "But he hasn't got any clothes on!" And then the whole town shouts, "But he hasn't got any clothes on!"

> The Emperor had a creepy feeling down his spine, because it began to dawn on him that the people were right. "All the same," he thought to himself, "I've got to go through with it as long as the procession lasts." So he drew himself up and held his head higher than before and the courtiers held on to the train that wasn't there at all (Andersen, 1938).

You might remember, as a child, thinking everyone in the story was very silly. As an adult, the characters feel less silly and uncomfortably familiar. Many people identify with the anxiety and fear of the Chamberlain and others as they wonder if they are stupid or unfit. Many also identify with the overwhelming need to hide this fact so as not to be exposed. The most uncomfortable part of the story for some is the concluding

description of the Emperor. Everyone knows that he's only wearing his underwear and deep down he does too. But he believes that the only way to preserve dignity and avoid embarrassment is to pretend that he doesn't know what he knows.

This story illustrates the very clear distinction between what we know and what we share. The story also illustrates two forces that encourage us to separate what we know and what we share: self-interest and the fear of exposure. These forces parallel two findings in literature on information sharing which are discussed in this paper: the importance of appropriate motivational structures and of developing an organizational culture where relationships are built on trust rather than fear.

This paper addresses those cultural factors, both structural and behavioral, which enable practitioners to foster information sharing in an organization. We review literature on the cultural issues in information sharing, identify structural levers for improving information sharing, and highlight behavioral norms that support a sharing culture.

Overview

The topic "knowledge management" has received a great deal of attention in contemporary management literature. O'Dell and Grayson (1998, p. 6) define knowledge management as "conscious strategy of getting the right knowledge to the right people at the right time and helping people share and put information into action in ways that strive to improve organizational performance."

In a study conducted by The Conference Board, it was found that a majority of today's companies are using knowledge management programs, and plan to increase efforts over the next five years. Out of the 150 respondents, who were top executives of 96 leading companies around the world, 82% noted their companies' involvement in

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knowledge management activities (Alonzo, 1999). Interest in knowledge management is rooted in the view that we are living in what Peter Drucker (1994, 1998) has called a "knowledge economy" where the ability to acquire and apply knowledge is the key competitive advantage. Managers everywhere are seeking to leverage individual and group knowledge by sharing it throughout an organization. A critical component of knowledge management initiatives is getting employees to share information.

One way of describing the opportunity provided by information sharing is that it is an answer to the lament *If We Only Knew What We Know* – the title of a book by the president and chairman of The American Productivity & Quality Center (APQC) on sharing best practices (O'Dell & Grayson, 1998).   Ultimately investments in information sharing provide organizations with the opportunity to 1) "know what we know," so we can 2) apply what we know organizationally, so we can 3) do things better, faster and cheaper, so we can 4) improve the bottom line.

This strong interest in knowledge management is based on new opportunities provided by technology to share information across complex and global organizations   (Buckley & Carter, 1999).   Sindell (2001) points out that technology plays a fundamental role in knowledge management and that the sociological aspects need to be integrated with the technological. This combination creates a cohesive philosophy and strategy for developing an organization's capabilities to generate and share knowledge. Technology is very effective for information sharing. However, the socio/technical approach is vital to information sharing. Texaco's knowledge management guru John Old says:

> *Any technology solution will fail if it doesn't recognize the importance of human connections. Here at Texaco, our strategy is to connect people and help them leverage their know-how. Knowledge is contextual, so technology that simply enables people to 'write down what they know' doesn't work very well. And you can't force people to share knowledge (Warner, 2001).*

A review of the definition of "knowledge," however, makes it clear that the term "knowledge sharing" is an oxymoron. The Merriam Webster Dictionary defines knowledge as "understanding gained by actual experience" (1995). This suggests that knowledge cannot be transmitted, but can only be gained through

reflection on action. The fact that by definition only information, not knowledge, can be shared among individuals who do not share a common context and experience has significant implications for knowledge management.

Practically, as well as conceptually, information sharing presents challenges. Information sharing is one of the most difficult aspects of a knowledge management program. As the tale "The Emperor's New Clothes" describes, what people know and what people share are often quite different. In many organizations the tendency for people is not to share. C. Douglass Izard, director of tax knowledge management for KPMG Peat Marwick, explains, "It is a big cultural change for a professional-services firm to share, because people in the past were rewarded for *not* sharing knowledge.

You built an expertise in a certain area, and that's how you made a lot of money: by performing that for clients, not by sharing it across the firm." (Master, 1999, p.21).

An example of good intentions, but little information sharing– comes from a technically-oriented plant.

Matt & Zack's Meeting

We have a team meeting every morning at 8:00. Initially, these meetings were very quiet. Zack and I did most of the talking. Frank would add a comment or two as appropriate, but the rest of the group only spoke when they were spoken to. Zack worked at drawing input from the silent majority. Sometimes he was successful, sometimes not. I got the impression the new members of the group were afraid to say something stupid. They were very ill at ease, often fidgeting while Zack and I discussed more technical issues. I knew, and I'm sure Zack did too, that they generally had no idea what we were talking about. In this period of time, Zack took the communicator role, and I generally played the contributor. Sometimes I would switch to the challenger role. This role was especially important as Zack was inexperienced both as a supervisor and at the plant. I felt it was important to establish our goals and standards from the start. We would only have one beginning. I wanted to do things right. (personal communication from "Matt," 1995)


Matt shows that he and Zack are well intentioned but little interaction occurs among other team members. The adjective "quiet" is not a good sign. Any information sharing initiative must overcome this preference for not sharing.

In this paper, we cite numerous successful examples of organizational levers that encourage information sharing. We have chosen to integrate examples of practical applications throughout the paper. While we have compiled summary tables (Tables 3 and 5), we realize that practitioner readers must select the most appropriate techniques for their specific organization.

After an introduction to information sharing, this paper examines what some organizations are currently doing in the area of information sharing and discusses how organizational culture and motivational structures can impact the success of these initiatives. The paper develops and expands a model of cultural enablers of information sharing (Figure 1).

Figure 1
Model of Organizational Culture in Which Structural Levers and Behavioral Norms
Foster Information Sharing
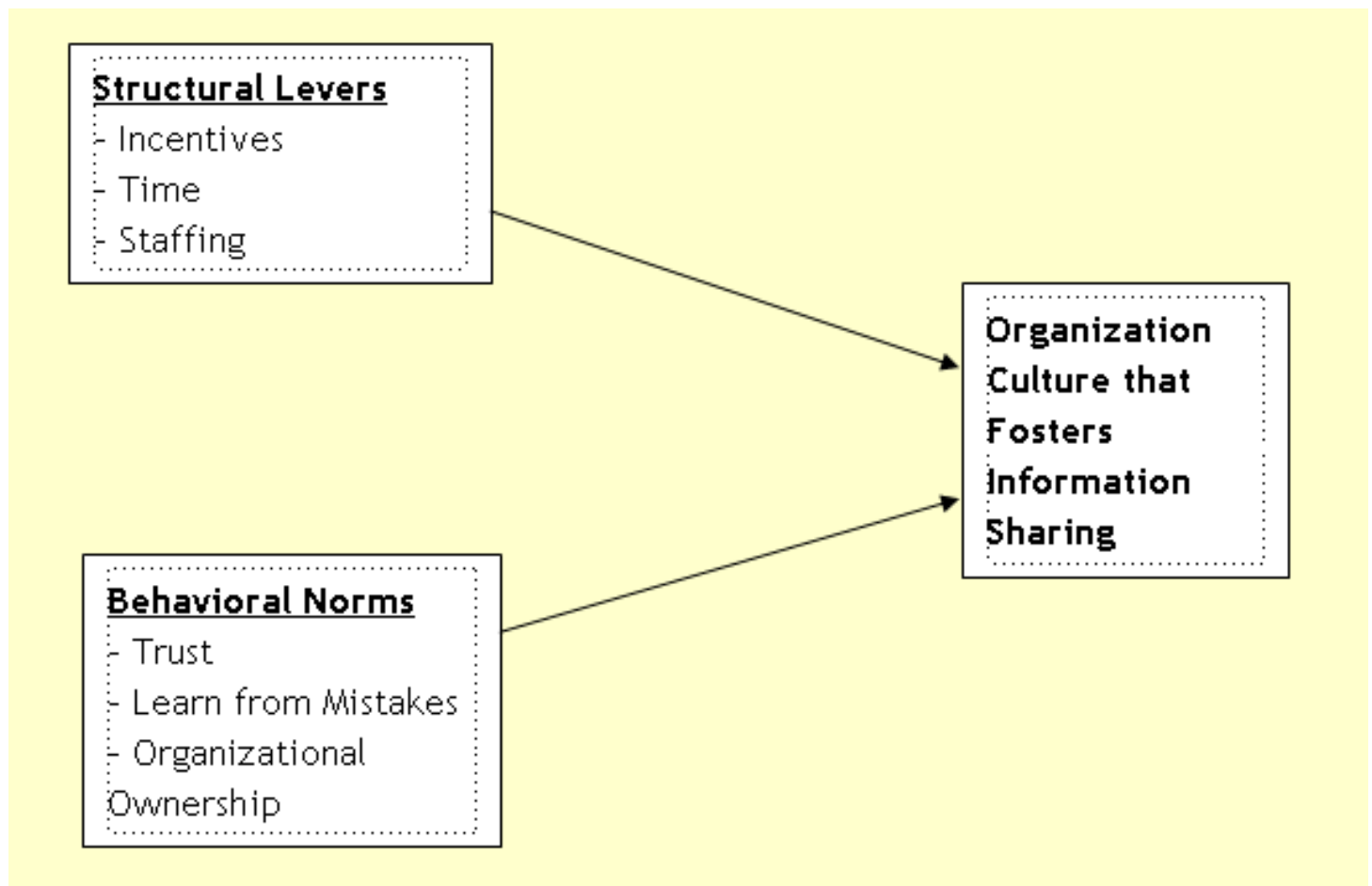
Knowledge Sharing: A Conceptual Approach

What Is Knowledge?

There are two key elements to The Merriam Webster's Dictionary's simple definition of knowledge as "understanding gained by actual experience" (1995).   The first is that knowledge is more than facts and figures. The facts and figures must be further processed so that knowledge has meaning which allows for understanding. The second element is that knowledge cannot be gained without active engagement.

This dictionary definition is closely aligned with those provided in articles on knowledge management. Prusak defines "organizational knowledge" as the "pool of employee experiences, framed in corporate and individual values that provide a basis for understanding" (Bassi & Hackett, 1997, p.4). Again, the emphasis is on understanding and experience.   Nonaka and Takeuchi also focus on action and meaning but provide a broader conceptual framework. They define knowledge as "justified true belief" and highlight three aspects: 1) knowledge is about beliefs and commitment, 2) knowledge is about action, it is always to some end, and 3) knowledge is context specific and is created in social interaction (1995, p. 58). This expands Webster's definition to have the experience and understanding occur in a social context, as in Wenger's (1996) and Verespej's (1999) "communities of practice."

Having defined knowledge, it is useful to review the distinction commonly made in current literature between tacit and explicit knowledge (Polanyi in Nonaka & Takeuchi, 1995, p. 59). Table 1 highlights some of the key differences.

Table 1
Two Types of Knowledge[a]

Tacit Knowledge (Subjective)	Explicit Knowledge (Objective)
Knowledge of experience (body)	Knowledge of rationality (mind)

| Simultaneous knowledge (here and now) | Sequential knowledge (there and then) |
| Analog knowledge (practice) | Digital knowledge (theory) |

[a]Nonaka & Takeuchi, 1995, p.61

Brown and Duguid (2000) illustrate the tacit knowledge (i.e., "embodied") of a typesetter in the following example.

> A Typesetter's Embodied Knowledge
> There's a story told of a typesetter working on a Greek text at the Oxford University Press who announced he'd found a mistake in the text. As the typesetter couldn't read Greek, his colleagues and then his superiors dismissed his claim. But the man insisted. So finally an editor came down to the compositing room. At first, she, too, dismissed the idea, but checking more closely, she found there was an error. Asked how he knew, the typesetter said he had been hand-picking letters for Greek texts for most of his professional life and was sure that he'd never made the physical move to pick the two letters in that order before. (p.80)

The story may well be apocryphal, but it does illustrate the diverse sorts of knowledge, including the "embodied" knowledge, which people in different roles possess.

Knowledge Sharing As An Oxymoron

The distinction between tacit and explicit knowledge is frequently used when looking at how knowledge is shared within organizations. It is assumed that tacit and explicit knowledge are shared in different ways. Tacit knowledge requires personal contact to be shared whereas explicit knowledge in the form of policies, procedures and manuals can be transmitted organizationally without personal contact (Raghurum, 1996, p. 860). Table 2 provides an excellent framework for thinking about the transmission of tacit and explicit knowledge in an organization.

Table 2
Four Modes of Knowledge Conversion[a]

To

	Tacit knowledge	Explicit knowledge
Tacit knowledge	Socialization	Externalization
Explicit knowledge	Internalization	Combination

[a]Nonaka and Takeuchi, 1995, p.62

Knowledge management initiatives can involve any of these four modes of knowledge conversion.   For example, in the shared enterprise of a community of practice, workers share tacit knowledge by means of "socialization."   Other knowledge management programs try to make tacit knowledge explicit through "externalization" for broader organizational use by, for example, documenting best practices or embedding expert know-how in operational procedures. Most frequently, knowledge management focuses on sharing explicit knowledge through combination and internalization by using intranets and specialized databases.

The allure of knowledge sharing assumes the ability of explicit knowledge to transcend the context of specific individual(s) and a common experience in order to be shared across an organization. However, in reviewing our definition of knowledge as grounded in experience, it can be seen that the assumption that tacit knowledge can be transmitted is incorrect.

Knowledge vs. Information

Both Prusak (1996) and Nonaka and Takeuchi (1995) distinguish between knowledge and information. One of the myths of knowledge management, according to Prusak, is that knowledge is external to an individual. Prusak asserts that knowledge exists only in the mind of the knower which makes it difficult to manage (or, by implication, to share).   Information, on the other hand, is bounded with a sender, receiver and intent to inform (p.6-7). Nonaka and Takeuchi describe knowledge as growing out of information. Information is "a flow of messages, while knowledge is created by that very flow of information anchored in the beliefs and commitment of its holder." In contrast to information, knowledge is both subjective and active (pp. 58-59).

Another description of the distinction is:

> *Information is data organized into meaningful patterns. Information is transformed into knowledge when a person reads (or hears), understands, interprets and applies the information to a specific work function. Knowledge becomes visible when experienced persons put into practice lessons learned over time (Marshall, 1997, p.94).*

If you accept the subjective and active nature of knowledge, you must accept the implication that only information, not knowledge, can be shared. The key point is that information made available from information sharing can provide the impetus or foundation for the creation of new knowledge for the receiver but that knowledge cannot be received complete and fully grown. Lang's perspective (2001) is that knowledge differs markedly from information and data. Basically, knowledge is socially constructed in discourse communities.

Having established that "knowledge sharing" is an oxymoron, we will therefore use the term "information sharing" in the remainder of the paper, even though most of the literature speaks of "knowledge sharing" rather than "information sharing." It is unfortunate that the literature blurs these two concepts because it can be confusing. For example, on p. 7 John Old of Texaco and C. Douglass Izard of KPMG Peat Marwick refer to sharing knowledge when sharing information is probably the more appropriate term.

This paper seeks to provide insight into ways to support *information sharing* and *learning* so that individual *knowledge* can be leveraged organizationally via motivational structures within the culture.   Thus, knowledge is created when strategies are developed that enhance information sharing so that learning can take place.

Finding and Leveraging Information

To leverage organizational knowledge, one of the first issues that needs to be addressed is – where is the underlying information found with which employees can create organizational knowledge? Typically organizational information lies in three locations (1) structure or architecture – explicit manifestations and embodiments of information including documents, systems, processes and standard operating procedures; (2) culture – intangible norms, beliefs and values; and (3) individuals – the primary (and original) source of

organizational information.

<u>Leveraging Organizational Information Locations</u>

Investments in information sharing try to leverage one or more of these locations. Some of the most common initiatives are:

1.   Establish *corporate intranets and expert networks*. This is the core of Buckman Laboratories, Xerox and many organizations' information sharing strategy (Buckman, 1998; Davenport, On-line, Teltech; Galagan, 1997, p.23-24; Hickins, 1999; Lee & Yang, 2000; Mouritsen, *et al*, 2002).

As CEO Robert Buckman says:

> *The popular term used today to describe what we do is "knowledge management." However, we feel that this is not the correct term for us, because the knowledge is in our associate's heads. Instead, we have designed a system and built a culture that facilitates the communication of whatever is needed across all of the organization's boundaries, so that the entire company works together to help everyone to be the best that they can be. (Buckman, 1998, p.11*)

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Weyerhauser has on its company intranet yellow pages of on-call expert resources, another site that contains the best practices within the company, a site for a network of experts who look to create standards and best practices within a given business area, and center-of-excellence sites that serve as almost a virtual university for the rest of the organization (Verespej, 1999).

2.   Establish *information repositories* which typically capture external information (competitive and customer intelligence), structured internal information such as research reports and product marketing materials, and informal internal information on know-how and lessons learned (Bollinger & Smith, 2001; Gore & Gore, 1999; Gray, 2001; Davenport, DeLong, & DeBeers, 1998, p.45; Odem & O'Dell, 1998; Puddy, Price & Smith, 2001; Schneider, 2001; Zack, 1999, Summer).

Some large consulting companies, such as Andersen Consulting (now Accenture) and Ernst & Young, have pursued a *codification* strategy. Information is carefully codified and stored in databases, where it can be accessed and used easily by anyone in the company (Hansen, Nohria, *et al.*, 1999).

CEO Fasheed Ferdowski of PayMaxx calls knowledge management simply common sense. But he clearly underplays the intranet-based initiative which uses common knowledge-management techniques for capturing, organizing and disseminating information at the $8 million payroll-processing and tax-filing service (Fryer, 1999).

One of the pioneers in the area of knowledge management, Larry Prusak from IBM's Institute for Knowledge-Based Organizations, recognizes the value and limits of information repositories and IT as illustrated in the following boxed text.

Information Technology and Knowledge Creation

It has been argued "technology's most valuable role in knowledge management is extending the reach and enhancing the speed of knowledge transfer." Information technology is indeed very useful in capturing, storing, and distributing structured and codified knowledge, therefore enabling other individuals in the organization to have access to it. However, IT plays a much more limited role in knowledge creation, which is very much a social process involving the exchange of hard-to-codify knowledge and personal experiences. Also, IT, by itself, cannot create a knowledge-based environment that promotes knowledge use and sharing. For any technology to be optimized, it must be augmented by strategy, process, culture, and behavior that support knowledge sharing and knowledge-based work (Prusak & Parise, 2002).

John Browne, CEO of British Petroleum, articulates the value of information repositories.

> *The wonderful thing about knowledge is that it is relatively inexpensive to replicate if you can capture it. Most activities or tasks are not one time events. Whether it's drilling a well or conducting a transaction at a service station, we do the same things repeatedly. Our philosophy is fairly simple: every time we do something again, we should do it better than last time. (Prokesch, 1997, p.148)*

3. Make information sharing a legitimate part of *everyone's job or a legitimate job*. Newly appointed 3M CEO W. James McNerney has decreed that the company's R&D fiefdoms will now share information routinely and systematically rather than through formal monthly meetings of laboratory heads or committee meetings of technicians. To support this effort, Mullin (2001) notes that a knowledge management database is going into place at 3M. KPMG initiated and legitimated its Tax Knowledge Sharing system with an announcement from the chairman that the company's new policy would be for employees to submit valuable information that they learned in the course of work. Despite the cultural roadblocks in the consulting industry, this announcement had a significant impact. Because tax professionals often receive new policies – from the IRS, for example – in this format, it was appropriate to the culture to initiate information sharing in the same way. (Master, 1999, p.23)

Other strategies that have been developed include: create new positions such as Chief Knowledge Officers (Ear & Scott, 1999; Williams & Bukowitz, 1997), identify benchmarking and best practice teams (O'Dell & Grayson, 1998), and provide hands-on administrators to support systems and people in information sharing (Davenport, On-line, Teltech; Stamps, 1997, August).

4. Increase information sharing in how work gets done and who does work by *structuring* meetings that bring together people who don't often have a chance to interact and increasing the frequency and number of job *rotations and transfers* (Stamps, 1997, February; Stamps, 1997, August; Bender & Fish, 2000). Chevron has found that the transfer of people to another location is the most effective way of transferring practices because it transfers implicit as well as explicit knowledge (O'Dell & Grayson, 1998).

Consulting firms such as Bain, Boston Consulting Group, and McKinsey emphasize their *personalization* strategy. To provide highly customized solutions to unique problems, information is shared mainly through person-to-person contacts; the chief purpose of the computer is to help people communicate (Hansen, Nohria, *et al.,* 1999).

5. Encourage the growth of *communities of practice* and other informal, unofficial networks (Wenger & Snyder, 2000, McDermott, 2000). Sun Microsystems has created what it calls a community of distinguished engineers. The group is limited in size, and engineers must get elected into the group. These distinguished engineers have the

freedom to work on any project they want from wherever they want. But they're also expected to mentor other engineers at Sun (Verespej, 1999). Company research at National Semiconductor shows that 80% of the knowledge that needs to be transferred is in tacit, noncodifiable form (O'Dell & Grayson, 1998). For this reason, National Semiconductor is one of the leaders in supporting communities of practice within the organization (Brown & Gray, 1995).

Because the most essential ingredient in the formation and perpetuation of communities of practice is their informality, Davenport explains in the book *Unleashing Intellectual Capital* (Ehin, 2000), that senior managers must above all refrain from making them official. By all means, "avoid the temptation to declare them an organizational unit and give them a box on the chart. Communities of practice are too evanescent to be engineered." (Stauffer, 1999, p.20)

In this section **Leveraging information locations** we have identified the common initiatives and the information locations they primarily seek to leverage in order to create organizational knowledge. Table 3 summarizes these relationships.

Table 3
Common Initiatives for Finding and Leveraging Information Locations

Initiative	Structure	Culture	Individual
Expert network	x		x
Information repository	x		x
Information jobs; legitimize time spent sharing	x		x
Job rotations and transfers, structured meetings	x		x
Communities of practice		x	x

As you will note in Table 3, all initiatives involve the individual location of information. This makes sense since individuals ultimately serve not only as the sources of information but also as the creators and users of organizational information.   You can also see that most of these initiatives involve structure which is easier to impact than organizational culture. (French & Bell, 1999).

Enabling Information Sharing: Culture Is Key

A Variety Of Enabling Activities

Having examined why information sharing is important, where knowledge is located and what companies are currently doing to share information, we are ready to consider the question, "How can we do it better?" Information sharing is of great interest and

importance to organizations today, but many organizations feel they are falling short of their desired goals. "We can have two plants right across the street from one another, and it's the damnedest thing to get them to transfer best practices" (O'Dell & Grayson, 1998). This complaint, made by a winner of the Malcolm Baldridge quality award, is all too common. Intranets, databases, Chief Information Officers and communities of practice are all tangible efforts to build an information sharing infrastructure. One of the biggest concerns when investing in this infrastructure is "if you build it, will they come"?   Certain enabling activities support information sharing initiatives and contribute to their success.

Different practitioners emphasize different enablers. Some emphasize the primacy of aligning initiatives with business strategy (Zack, 1999, Spring; Graham & Pizzo, 1996; see also Nonaka & Takeuchi, 1995 on intention, p. 74, and vision, p. 227).   Strategy helps to identify which information matters to whom and why as well as where are the most critical leveraging points for information initiatives. Others have developed frameworks which include several enablers. McKinsey highlights leadership, incentives and rewards, information infrastructure and organizational structure (McKinsey & Company, p.33), whereas the American Productivity and Quality Council (APQC) suggests technology, leadership, measurement, and culture (O'Dell & Grayson, 1998).

Culture As The Key Enabler

Kenneth Stern, a partner in the chemicals practice at KPMG, says that knowledge management requires the kind of culture change that McNerney says he wants to bring to 3M. Chemical companies will need to get entrepreneurial business units to actively share information. "You can declare you have a culture of collaboration, but in the chemical industry you usually have a silo mentality," he says. "That's a reality anywhere that knowledge is equated with power." (Mullin, 2001)

APQC and Arthur Andersen look at both the importance and effectiveness of each enabler – technology, leadership, measurement, and culture – in their knowledge management benchmark studies (Hiebeler,

1996). Of the four enablers, culture is considered the most important by benchmarked organizations (Hiebeler, 1996, p.27). Culture is also cited in articles on information sharing as the biggest obstacle to success (Meso & Smith, 2000; Mullin, 1996, 2001; Davenport, DeLong & Beers, 1998, p.52; Rifkin, 1996, online p.4; Thomas, Kellogg & Erickson, 2001). While a variety of elements are required to create an organization of information sharing, this paper focuses on culture as the key enabler.

Organizational culture is the values, assumptions, and beliefs held in common which shape how members perceive, think, and act (*Webster's Collegiate Dictionary* in Bassi & Hackett, 1997, p.17). On some level, the idea of culture as an enabler for information sharing is a bit confusing because culture was previously identified as one of the three locations of information within an organization. Culture is in many ways the manifestation of organizational members' *tacit* knowledge, e.g., individual intuitions, perspectives, beliefs, and values (Saint Onge, 1996, p.10). The fact that culture both enables and embodies tacit knowledge may be why creating a sharing culture is so difficult. It therefore may be easiest to think about culture (a form of organizational *tacit* knowledge) as an enabler related to sharing of *explicit* knowledge.

But an enabling culture can be accomplished by adaptation. McDermott and O'Dell (2001) report on a study of companies where sharing information is built into the culture but claim that they did not change their culture to match their knowledge management initiatives. They adapted their approach to knowledge management to fit their culture. They did this by linking sharing information to solving practical business problem, tying sharing information to a pre-existing core value, introducing knowledge management in a way that matches the organization's style, building on existing networks people use in their daily work, and encouraging peers and supervisors to exert pressure to share.

Structural Levers That Support a Sharing Culture

Creating Incentives to Motivate Sharing

A concrete way organizations can show support of information sharing is through traditional motivation tools, e.g., rewards, compensation, performance appraisal and recognition (Sindell, 2001).   Experience in using rewards to encourage information sharing has made clear that, to be successful, incentives should be long term and tie in with an organization's evaluation and compensation structure.

In reviewing ten years of field and laboratory studies of co-located and remote work, Olson and Olson (2000) point to a variety of social factors that affect the social context of knowledge management, and explore how these interact with technologies intended to support remote collaboration. In an interesting discussion of the role of common ground among collaborators (Clark, 1996), for example, the Olsons describe how greater shared background and awareness of a coworker's activities and mental state contribute to establishing and maintaining common ground.

The Olsons also discuss the role of motivation in successful information sharing. Motivation has been established as one of the major sources of failure in adoption of groupware in general. In Orlikowski's (1992) study of the failure to adopt Lotus Notes in a consultancy, the failure was attributed to the fact that individuals were compensated according to their competitive talents. There was no incentive to share one's best ideas if they were then going to be seen as common, no longer unique. In other organizations, where incentives are aligned with how much others use the information you make available to them, Notes and other jointly authored groupware systems succeed. (Olson & Olson, 2000).

People are often loathe to spend time adding content to a information repository. And it is known that a database is only as good as the information it contains. In 1996 Xerox developed Eureka, an intranet communication system linked with a corporate database

that helps service reps share repair tips. Xerox discovered that the technicians were more than happy to add tips to the database because they received credit for their contributions, which enhanced their standing among colleagues. Indeed, when management suggested attaching financial incentives to the tips, technicians resisted the idea. They felt this would diminish the value of their contributions (Hickins, 1999).

   Incentives have also been successful at consulting and investment banking firms – McKinsey (Hansen, Nohria, et al, 1999), Merrill Lynch (Quinn, Anderson & Finkelstein, 1996, p. 78), Andersen Consulting (ibid, p.76), Ernst & Young (Davenport, DeLong & Beers, 1998, p.50) – where consultants are evaluated by peers on the quality and quantity of an individual's contribution to repositories and human networks. Recognition ceremonies are also useful.   Milliken rewards the associates who contribute the most in the company's quarterly "sharing rallies" – an Academy Awards-style reception, complete with TV cameras and cheering crowds. (Master, 1999, p.24)

Appraisal and compensation systems can foster competition rather than collaboration when, in order to get a desired share of the bonus pool or performance appraisal, an individual needs to take it away from someone else. Why would an individual share in this context (O'Dell & Grayson, 1998)?   At Lotus, customer service representatives used to carve out areas of expertise that other representatives would rely on. By hoarding information, representatives would become more valuable and promotable.   In order to stop information hoarding, Lotus changed its performance appraisal system so that 10% of the evaluation relates to sharing of expertise (Russell, 1996, p.32).

Steve Kerr, the Chief Knowledge Officer at General Electric, described the boundary breaking initiatives at GE in an address to the Eastern Academy of Management (1998). GE was faced with reducing resistance to information sharing, lowering the likelihood of hoarding, overcoming the potential for boasting, lowering the costs of studying or being studied, and addressing generalizability. Steve saw himself as a broker to overcome these barriers. He promoted change by aligning resources with situations which indicated a high potential for success. If a department believed it has the best sales training, Steve's office could check it out, deciding among three possible conclusions: (1) Sorry, it's not the best; (2) It's really good, but not portable; (3) Yes, and we'll help to export it across GE.

Even without the associated rewards and recognition, the fact that someone is paying enough attention to measure information sharing is a motivational tool which can shape organizational values. Oftentimes an organization need invest nothing more than the time and effort to measure activities to achieve improvement (see Skyrme & Amidon 1998, for a variety of measurement approaches that can be used in knowledge management). Defining what is to be measured and how it will be measured is therefore important. To get immediate feedback, managers often will measure means, e.g., how often people contribute to or use a database. Over the long term, however, managers should measure changes in desired outcomes, e.g., improved customer service, reduced repair times. This will be imperfect in most organizations because there are other factors that might contribute to improved outcomes. It is nevertheless the best way to avoid a misalignment between means and ends.

Allocating and Allowing Time For Information Sharing

One of the key obstacles to information sharing is finding time for sharing. One of McKinsey's four enablers, organizational structure, has as a fundamental component that "work flows include allocated time for knowledge exchange" (McKinsey & Company, p.35).   Using a new system, searching a database, formulating a contribution, responding to an inquiry – these all take time. Employees are often reluctant to make these investments of time because they are trying to meet short-term performance goals (O'Dell & Grayson, 1998). Job demands often seriously restrict implementation of best practices (Goodman & Darr, 1996, p.15). Part of the problem associated with time is structural.   Time needs to be built into work processes to allow for information sharing.   Mullin (2001) mentions that Lyondell Chemical is working on establishing "a system for real-time brainstorming. We want to facilitate joint projects without having to put people on planes," says Rick Fontenot, v.p./R&D. Central to the plan is an electronic lab notebook system that will incorporate and replace the current paper system, says Fontenot.

Research has shown the value of allocating and allowing time to build knowledge through reflection on experience. In an experimental study on guided reflection, individuals were evaluated on the amount of learning gained from a challenging work experience. Significant learning gains were associated with guided reflection when done either alone or with a coach (Daudelin, 1996). It is important that the additional time be structured and used wisely.

Time is a structural issue which organizations can address by allocating portions of work processes and

specific job functions to aspects of information sharing. It is also a cultural issue which is more difficult to address. Organizations have norms and values about appropriate ways to spend time. Davenport and Prusak (1998) suggest that the best way to facilitate organizational knowledge transfer is to hire smart people and let them talk. Unfortunately talking is usually not considered "real work."   Companies that claim to value knowledge but discourage talking on company time send mixed messages (Davenport & Prusak in Stamps, 1998, p. 35). Wenger characterizes the degree to which conversation is recognized, respected, and encouraged as a key criterion of a learning organization (Wenger, 1996, p. 2).   Too often workers get so preoccupied with the technical aspects of their jobs that they neglect to treat their coworkers with respect, patience, and consideration.

Wah (1999) reports on activities that are valuable, enjoyable and represent a unique use of time. At the World Bank, storytelling plays a big role in helping people make sense of the information being exchanged. "We tell stories about [a successful information-sharing effort], and people can see it makes an awful lot of sense," says Stephen Denning, program director of knowledge management. Bipin Junnarkar, president and COO of Datafusion Inc., takes storytelling one step further. He has employees take pictures at the business conferences they attend and share them with colleagues, much as a family uses vacation photos to recount their memories. The photos are then posted on the Web so that employees can go back to them and recreate the context easily.

Staffing For Information Sharing

Peter Novins, partner at Ernst & Young's knowledge-based business solution practice, says knowledge management actually changes the way a company hires and trains. "If you have a wonderful technical environment and wonderful content, [but] people don't know how to work with each other, you're minimizing your benefits," he says (Wah, 1999).   With that in mind, it makes sense to recruit people who are willing and able to collaborate and work in teams. In this way an organization imports, or at least does not dilute, a information sharing culture.

Sri Sridharan, a chief proponent of knowledge management, says people increasingly realize that their work is inseparable from day-to-day information sharing. "Ninety-nine percent of what we do is knowledge-based; therefore, knowledge management has to be pervasive in the company," he says (Wah, 1999).

Behavioral Norms that Support a Sharing Culture

Sometimes workers have an irrepressible drive to share information. Xerox recognized this urge and let it win out in the following "phone cord" case.

Telephone Cords And Information Sharing

Here is Jack Whalen's story. Jack showed the power of practice in his study of learning in a service center taking the calls from customers and scheduling technicians (Brown & Duguid, 2000). Sending technicians to fix broken machines is an expensive undertaking. It is a waste if the problem does not really require a technician. So the people who take the calls can save the company money by diagnosing simple problems and telling the customer how to fix these for themselves. It makes customers happy, too. They don't have to sit with a dead machine, waiting for a technician to bring it back to life. The phone operators are not, of course, trained as technicians. In the past, however, they learned from the reps when the latter called in to pick up their next job. The reps would then explain how trivial the last one had been, and in the process the phone operators could learn a lot from these mentors. When they next took such a call, they could offer a solution. As a result of a change in communications technology, however, technicians no longer pick up their calls this way. Consequently, operators no longer pick up insights. Their opportunity for inherent learning has been lost.

The Company considered a technical training approach to this issue. But Whalen and his fellow researchers came upon a fortuitous situation. They studied one service center and the quality of diagnosis its staff provided. There they found two operators who gave especially reliable answers. One, unsurprisingly, was an eight-year veteran of the service center with some college experience and a survivor from the days when reps served as mentors. The other, however, was someone with only a high-school diploma. She had been on the job barely four months. The researchers noticed, however, that the newcomer had a desk opposite the veteran. There she could hear the veteran taking calls, asking questions, and giving advice. And she began to do the same. She had also noticed that he had acquired a variety of pamphlets and manuals, so she began to build up her own stock. Moreover, when she didn't understand the answers the veteran gave, she asked him to show her what he meant, using the service center's own copier.

So instead of training courses, the sociologists suggested restructuring the phone center. They sought to draw on its reservoir of knowledge by putting all its operators in positions to learn from each other.

Of course, this meant longer phone cords. (These allowed an operator taking a call to slide over to the desk and the screen of a resourceful colleague who could provide the necessary help.) By opening the place up to this collective knowledge, the redesign effectively created a small laboratory of what Whalen calls "indigenous sharing and collaborative learning." The new plan also asked technicians to come in and take calls intermittently. As a result, operators could learn from them once again. (pp. 131-133)

Sharing Is Voluntary

We have described some of the elements most commonly related to motivating information sharing: providing appropriate incentives and rewards, measuring desired outcomes, and allowing time to share and explore. At Xerox, anthropologists were hired to help understand how scientists at the labs generally worked, both individually and in groups (Hickins, 1999, p.44). We have also seen how longer telephone cords enhanced information sharing among operators in a phone center.

Thus, to enable sharing behavior, it is helpful to understand societal and organizational norms about sharing, specifically, when, how, and why people naturally share.   Knowledge of such norms is important because organizations usually run into three major cultural problems when adopting a knowledge management initiative. First, people don't like to share their best ideas. They believe doing so dilutes their standing in the organization, and can impede their ability to get ahead. Second, people don't like to use other people's ideas for fear it makes them look less knowledgeable, and that they're suddenly dependent on others to do their job. Third, people like to consider themselves experts and prefer not to collaborate with others (Greengard, 1999).

A typical "I'm-the-expert" division manager with UPS, Patti Hobbs, tended to follow the advice on the poster:

We Don't Share Information Around Here

- When I share: You win, I lose.
- If I use your idea, I look dumb.

She revised her stance after spending a month on New York's Lower East Side in 1998 as part of UPS's Community Internship Program (Lavelle, 2002). She remembers being impressed by the creative ideas of uneducated addicts for steering teens away from drugs. Realizing that the best solutions sometimes come from those closest to the problem, she immediately started brainstorming with the entire staff instead of just senior managers. Says Hobbs: "You start to think there's no person, regardless of position, who has all the answers. The answers come from us all."

While this paper began by analyzing the word "knowledge" and differentiating between information and knowledge, one must also understand the meaning of "sharing" to enable an information sharing culture. The Merriam Webster's Dictionary defines "share" as "to partake of, use, experience or enjoy with others" (1995). Table 4 distinguishes between information reporting which is required and information sharing which is voluntary.

Table 4
Forms of Information Access[a]

Information Sharing	Information Reporting
Informal	Formal
Ad hoc	Periodic
Unstructured	Structured
Voluntary	Mandatory
Nonsystematic	Systemic
Implicit exchange value	Explicit exchange value

[a]Russell, 1996, p. 31

It is easier for organizations to increase information sharing through initiatives that are more closely linked to reporting. Establishing information reporters and best practice committees are ways to structure the collection of information so that it is more formal, periodic, and systemic. Using Nonaka and Takeuchi's framework presented in Table 2, the use of information reporters and best practice committees is an approach that allows organizations to rely less on behavioral norms with knowledge transfer through socialization and more on knowledge transfer through externalization, internalization, and combination modes.

But even when reporting activities are mandatory, there must always be some degree of willingness for them to get done. As an activity becomes increasingly voluntary, trust is an essential component of the process. Thomas, Kellogg & Erickson (2001) point out that this voluntary sharing often occurs in informal settings including hallway conversations, informal meetings, stories, notes scrawled on congratulatory cards or napkins, and e-mail about nonbusiness issues. Here the individuals or teams are primarily motivated by personal or social aims such as sharing experiences indicating agreement, being humorous, etc. They go on to propose that their notion of a knowledge management environment as a "trusted place" is an interesting and challenging one for system designers and for organizations. They ask how -- technically, socially, and organizationally -- can we balance the need for a safe and trusting place, within which so much knowledge creation and social capital building takes place, with the organizational imperative to share information more broadly?

This is indeed a challenge for a staff engineer at a nuclear power plant.

My work group is the Quality Assurance Department. Knowing how my group interacts with the rest of the plant is important. The group has been placed in an adversarial relationship. The plant has for years seen us as a "necessary evil" and cooperation between groups is somewhat strained. The reason for this relationship is that in addition to giving feedback, my group issues nonconformance reports which identify things that went wrong. Most other groups look at these nonconformance reports as black marks against them and at one time their performance appraisals included goals of the maximum number of reports they could receive. There are a few groups who actually look at these nonconformance reports as an opportunity for

improvement. Their philosophy is that it is better that Quality Assurance identifies the problem before the Nuclear Regulatory Commission does. There has been some effort on the part of management to dispel this adversarial atmosphere, but old habits are hard to die. (personal communication, 1995)

Using Fair Process To Build Trust

In a study of nineteen multinational companies, Kim & Mauborgne (1997) found that "fair process" in an organization was key to building trust. According to their research, managers who believe their company's processes are fair display a high level of trust, commitment, and active cooperation. In contrast, when managers feel that fair process is absent, they hoard ideas. The article distinguishes between distributive justice which relies on fair use of motivational tools such as compensation and promotion, and procedural justice or fair process which relies on participation and communication.

Typically, organizations focus on distributive justice. This study suggests that both distributive and procedural justice are key to fostering information sharing.

The following case about Will demonstrates trust building for work colleagues and academic teams.

Will Asks for Help

It is extremely difficult for me to ask for help of any sort. I have been fairly successful in getting by on my own strength, based on my own devices. What I sensed very quickly was that I was on a team that consisted of perceptive, professional people who knew how to accomplish a task in the most efficient manner possible. They might be tolerant of my shortcomings, might even poke good-natured fun at them, but they were not going to stand by and carry me either. For the first time in my life, I had to admit that I was deficient in certain areas and I needed assistance. Guess what happened? I finally shared with the group my limited computer skills and computer resources and Pete then informed me, "not to worry". He knew of a laptop which he could pre-load with the necessary software to get me through the rest of the MS program. All I had to do was learn how to use it and Jack, Pete and Roy would be more then happy to bring me up to speed. I was floored by this support and then, for the first time, I realized that teams in the workplace or in education aren't much different from the sport teams that I had so loved earlier. (personal communication, 1995)

Using Mistakes As An Opportunity For Learning

Best practice sharing usually focuses on learning from and duplicating what has been done right. A more difficult goal of information sharing initiatives is to learn from mistakes because a common behavioral norm is that people prefer to share information associated with positive outcomes (Russell, 1996). This norm is perhaps another way to think about the behavior in "The Emperor's New Clothes." No one wants to be the bearer of bad news to the Emperor that he is a victim of fraud and that finally he is wearing no clothes.

Looking at our original interpretation of the tale, it is particularly difficult to share negative information which you perceive as reflecting on your own shortcomings. A widely held view that errors are indicative of incompetence leads people in organizational hierarchies to suppress mistakes and deny responsibility (Michaels in Edmondson, 1996, p. 9) Organizational norms and systems, however, can affect attitudes and behaviors toward errors. In a study of errors in hospital administration of medication, a non-punitive environment was essential to uncovering and dealing with errors productively (p. 20). Because the behavioral norm is to hide mistakes, organizations need to encourage the sharing of mistakes as well as successes.

In the following example, Edna contrasts the negative atmosphere of "make no mistakes" to the positive climate of recognizing that "mistakes will happen" as we learn new skills.

> ### All Right To Make A Mistake
>
> The concept of empowerment to improve staff motivation and confidence is validated by my own personal experience. Several years ago our plant began a process of significant organizational changes. These changes came about abruptly and with little notification. In addition, upper level management became extremely authoritarian. The result was that the entire site, myself included, were in a state of powerlessness. Productivity came to a standstill as people were afraid to make a mistake. I felt I had no participation in my future or control of my situation. With productivity at an all time low, a new resident manager was brought in to take over. He took immediate steps to correct the situation, including personally expressing his confidence in the plant staff. He made it known that it was all right to make a mistake. The results were immediate; people were determined to get the station back on line. This is not to say that this solved all of our problems at our plant. But with renewed motivation and confidence, other problems became solvable. (personal communication, 1996)

Because the easiest kind of mistakes to detect are ones of commission, punitive organizations can create an environment where the sensible choice is not to do anything. Organizations most often decline not due to errors in what they did, but in what they failed to do, or lost opportunities. For example, it can be argued that IBM's decline in the 1980's was because they missed the mini-computer revolution.

Al 's story at a power generation plant provides a contrast to Edna's experience.

> ### Neither Right Nor Wrong
>
> The management policy has been verbatim compliance with procedures. Because procedures cannot be written with every contingency, they are often incomplete, contradictory and inaccurate. The management attitude regarding procedure adherence had in the past been shortsighted. Workers who mindlessly followed incorrect procedures which caused negative results received disciplinary action. Workers who did not follow incorrect procedures but performed the correct action without a procedural change were always subject to disciplinary action if caught. (personal communication, 1995)

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Fostering Organizational Ownership

Another behavioral norm is that individuals are most likely to share with interdependent others in order to coordinate their activities to achieve goals. The Xerox telephone operators cited on earlier dramatically demonstrate this. The natural sharing that occurs from interdependent work is the glue within communities of practice. When acting alone, simple self-interest can predict behavior: I help you if you help me; I don't help you if you don't help me. Creating interdependence is more of a structural than cultural issue. But the social and organizational context can influence the dynamics of interdependent relationships. Politis (2001) demonstrates these interdependent relationships when he reports on the outcomes of a knowledge management survey. Results indicate that the leadership styles that involve human interaction and encourage participative decision-making processes are positively related to the skills and traits that are essential for knowledge management.

Cindy describes her comfort with information sharing.

Information Sharing is Standard Operating Procedure

The shift starts out with a watch briefing with all thirteen members of the operating shift present and other key inter-departmental shift personnel. They meet and discuss the plan and goals for the next twelve hours. This allows people to have forethought and properly integrate themselves within the shift's activities. The midshift boardwalk reinforces vigilance as supervisors and union operators walk down the control room panels and review all "off normal" alarms and indications. During this time a wealth of information is exchanged, as everybody has a worthwhile contribution. Everybody plays the devil's advocate to the point of being ridiculous and somewhat comical by discussing the "what ifs". In fact, before every operator turns a valve or switch he is to perform a self check.   The acronym STAR was created for this process, meaning <u>S</u>top <u>T</u>hink <u>A</u>ct <u>R</u>eview. (personal communication, 1995)

Building on the notion that the most critical interdependency is the manager/employee relationship, Bailey and Clarke (2000) go on to offer specific suggestions for the harried manager. They turn existing information about knowledge management into "usable ideas." In their article, the importance of helping managers to relate knowledge management to what is organizationally important (currency), to what furthers an individual's goals and interests (personal relevance), and to what is practical within an individual's current capacity (actionable) is explained. Currency is explored using a managerial knowledge portfolio that identifies the knowledge to be managed in the critical areas of managerial focus, strategy, operational processes, and change management. Actionability is explored using an organizational knowledge management activity matrix that describes knowledge management activities in terms which are meaningful and provides a basis for a knowledge management audit.

Kelly and Thibaut's interdependence theory (Constant, Kiesler & Sproull, 1994, p. 401) compares the exchange between two individuals when acting alone and when acting in a social and organizational context. Social context (or, for the purposes of this paper, culture) can change this simple reciprocity so that I may help you even if you can't or won't help me. Social context makes people think about how others will see them and how their behavior will impact desired goals.

Constant, Kiesler & Sproull (1994) build on this examination of interdependence in an organizational context to explore the notion of information sharing as a social good and the question, "What leads people to weigh the social good, more than the personal cost, of sharing information?" As aptly illustrated in "The Emperor's New Clothes," it is only a child who does not at some time go through this internal calculation. They found in experimental studies that employees who believe in organizational ownership of the outcomes from employee work (e.g. ideas, inventions, documents, computer programs) will be more likely to share such outcomes, than those who view such outcomes as personal property.

The authors suggest that a practical implication of this study is that organizations can encourage information sharing by having a clear policy about organizational rights to employee work. Such a policy would also blur our earlier distinction between information sharing and reporting in Table 4. The ad hoc, unstructured nature of sharing would make compliance with policy difficult to enforce. Nevertheless, establishing a clear policy should help to shape behavioral norms and values.

The other interesting finding of this study is that subjects did not view all information as the same; they were more willing to share information that represented personal expertise than information in "product" form (e.g. documents, files).   This distinction is fuzzy, but nevertheless important. An idea in someone's head is more readily shared than the same idea when recorded in a document.   This finding is likely related to the success of electronic bulletin boards where people ask "Does anyone know…?" and are helped by strangers. A practical implication of this finding is that the more often an organization can rely on knowledge management processes where individuals contribute "expertise" rather than "information," the more successful the processes are likely to be. Whalen called this "indigenous sharing and collaborative learning" at the Xerox phone center.

Table 5 summarizes the discussion on key aspects of creating a culture which enables information sharing. These enablers can serve as guidelines for organizations designing information sharing initiatives.

Table 5
Enablers of a Information Sharing Culture

Structural Levers
Creating incentives to motivate information sharing
Allocating and allowing time for information sharing
Staffing for information sharing
Sharing and Behavioral Norms
Using fair process (participation and communication) to build trust
Recognizing mistakes as opportunities for learning rather than punishment
Fostering a sense of organizational (not individual) ownership of work products

We close with Walt's experience in a recent management course in which he demonstrates his ability to share information.

Sharing Information: From the Classroom to the Workplace

During this course we not only took note of each other's particular talents and weaknesses but started to realize that we could capitalize on them. Our interface as a team is mainly in this academic course and there was a certain dynamic in our group which has helped us in previous projects and group assignments although at that time we were not aware of them. The key was awareness of the team dynamics which was missing before. I have noticed how our preferences have divided up our projects and led to results in previous efforts. For example, in previous projects, Paul, the extrovert has been the "point man" in going to outside organizations and making contacts and gathering data necessary to the project. I have more often been the "number cruncher" or theoretician using data gathered by Paul and supplying a finished design or plant to Don and Fred. Don and Fred usually take the input and produce the finished product for the project taking data and analysis and turning it into a more meaningful presentation. Our "introvert" weighting is usually demonstrated by the fact that we often work alone on various aspects of the project and bring it together at the end. Although it may not be an ideal mix of preferences, we had been able to combine our attributes successfully in spite of a previous lack of awareness of these attributes.

The conclusion from my work with this team thus far is that one of the biggest factors contributing to successful teamwork is awareness of the team's dynamic properties which do not exist in the individual alone. In order to reach maximum performance, the **team** has to capitalize on its core competence. But what is the core competence? Just as we worked through self-awareness exercises to become more aware of our individual strengths and weaknesses, the team needs to work through some "exercises" to become self-aware of its core strengths and weaknesses.

As I have mentioned above, we each had our preferences and talents which allowed us to bring projects together at the last minute with a fair amount of success. This semester, after working through many of the exercises, we became aware of the "team" competency. The result: the ideas came more readily and once we were aware of our team workings, we were freed of the mechanics of trying to make the

> team "work." The value added from this was that we were able to add more creativity to our work and get away from the more mundane workings of our project efforts. The innovation expected of many of the exercises we participated in this semester would have been lacking in previous semesters when we were still working through the mechanics of our team: dividing up work, scheduling meetings, etc. Now that is secondary to the creative input from each of our team members. The lesson that needs to be carried from this team affiliation is that in future team situations when I might be working with different people on different projects, I need to actively seek out the core competency and team dynamic before just waiting for it to occur naturally. (personal communication, 1995)

Walt documents that shared information among the team members led to learning and, in turn, new knowledge.

Conclusion

The Emperor and the townspeople did not share what they knew. And although organizations today likely have their own tales of comparable absurdity, they have access to a wide variety of tools and strategies to enable information sharing. For the Emperor, it is unlikely that such structural elements as an intranet, expert network, or the position of a Chief Knowledge Officer would have helped him to gain the critical information that he needed. Even the structural levers summarized in Table 5 may not have been powerful enough to offset the risks inherent in the situation. But greater attention to the behavioral norms summarized in Table 5 would likely have saved the Emperor from such enormous embarrassment. Organizations will want to consider, in their efforts to increase information sharing, insights from the research in this paper on the use of fair process, profiting from mistakes, and fostering a sense of organizational ownership.   Hopefully, practitioners will be prompted to develop their own strategies that enhance information sharing so that learning can take place and knowledge created. It is fortunate for us today that, while the challenges of information sharing still remain, significant progress in our understanding has been made.

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