



# Getting value from knowledge management

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## Abstract

**Purpose** – Getting value from knowledge management (KM) means managing the way new knowledge is brought to bear on the business's practices, for value is added only through practice – not through talk. Though there are relationships between knowledge and practice, and the purpose of KM is to get more value from the firm's knowledge, knowledge is too loose and slippery a term to afford us a good handle on these matters. The paper proposes a novel typology that distinguishes data, meaning, and skilled practice. Each must be managed differently, though management must integrate all into the business model.

**Design/methodology/approach** – A non-empirical theoretical paper clarifying the interaction of different epistemologies or ways of knowing within the business. Different epistemologies are illustrated and discussed at a managerial level, the formal and academic philosophizing is left out.

**Findings** – The paper shows that KM are not all alike.

**Originality/value** – Highly original, given very few KM writers address multiple epistemologies and then propose a practice-based approach to their integration. Despite its theoretical language the paper actually proposes a severely practical approach to real-world KM.

**Keywords** Knowledge management, Business environment, Learning organizations

**Paper type** Conceptual paper

## Introduction

The majority of today's organizations have some kind of "knowledge management (KM) project" under way, and their total costs are often substantial. They are also a significant burden on senior management's time and attention so some organizations have appointed chief knowledge officers to help them cope. But do these people really do KM? Are they running the company's IT operations or something quite different, like accounting for the firm's human capital? Ruggles's (1998) survey shows firms are creating intranets, data warehouses, decision-support systems, and collaborative work systems. Other surveys show that the principal reasons behind KM activities are to gain competitive advantage, increase marketing effectiveness, develop a customer focus, and to improve product development (Cabrera and Cabrera, 2002). There is considerable variety of objective here. While IT dominates, the human relations and operations departments also get a significant share of the KM action.

At the same time, there is continuing concern that KM has created much managerial interest but little real value (Davenport *et al.*, 1998; Kalling, 2003; McCann and Buckner, 2004). An increasing number of commentators stress KM is less about technology than about bringing people together with the new technology in new ways (Armistead and Meakins, 2002; Lee and Choi, 2003; Moffett *et al.*, 2003; Ruggles, 1998). Some are ready to dismiss KM as the latest in a long line of managerial "fads" (Marren, 2003). These nay-sayers make a good point, for much of the KM literature is techno-driven hype, but they risk "throwing the baby out with the bathwater". In this paper, we argue that in



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spite of confusion about what KM is actually about, we see already it provides important new insights into problems that managers struggle with much of the time. So the good news is that this baby is worth saving, but it may not be all that easy (Foote *et al.*, 2001).

It is not helpful to start out by trumpeting that knowledge has suddenly become the new key to sustainable competitive advantage or that we have been plunged in a new kind of knowledge-intensive economy and that we must now pay new attention to the company's intellectual or intangible assets (McKinsey Inc., 1998; Zack, 1999). Tiwana (Alavi and Tiwana, 2003; Tiwana, 2002) argues the ability of companies to exploit their intangible assets may well be more decisive than their ability to exploit their physical assets. Such assertions simply confuse. What do they really mean? Can they be turned into something practical? Whenever was knowledge not power and important? Whenever was special production knowledge and goodwill not crucial to a firm's well-being? Whatever the truth of the matter, for knowledge may well have become relatively more important in our highly professionalized economy, these assertions mask the fact that knowledge is a deeply puzzling concept. It appears in many guises and attempts to manage it gives rise to many special difficulties. We do not escape these just by adopting some of the arbitrary definitions of data, information, skill, knowledge, and wisdom that get stirred into the KM literature. Nor are we likely to find universal solutions, independent of the specific kinds of knowledge being considered.

To get closer to KM's current nature and value, we need first to understand how it relates to established practices, things managers and firms do already. Then we can see where its special style of analysis adds value and, perhaps, get better insight into the modes of KM project failure. The KM trade journals note "cultural resistance" employees' evident unwillingness to share their knowledge, and entrenched silo mentalities (KM Review, 2001). There are also indications that many projects are begun without clear objectives or managerial support, and are managed by people without experience or appropriate measures (KM Review, 2003). We know that failure is seldom due to the technological difficulties alone, great as these sometimes are. Most failures seem to reflect the "human factors" and the common consulting advice is for KM project managers to pay more attention to them. The problem, of course, is to know what this means in practice.

Our paper focuses on the relationship between the corporation's knowledge and its practices. We see that KM projects are sometimes inappropriately employed as the means of changing these practices, like using legislation to create social change it puts the cart before the horse. On the other hand, KM projects that enhance established practices and help solve employees' information problems are generally warmly welcomed and supported by those affected. This means that KM projects are not all alike and we need some appreciation of their different types. The paper's overall objective is to help managers recognize these differences, which are based in the project's impact on practice, and so better anticipate the difficulties they face when designing and implementing KM.

### **The different types of KM project**

The vast majority of KM projects are focused on data and on applying the new technologies now available to handle it more quickly and efficiently. But corporate data are not simply figures on spreadsheets or bits on a hard drive. It is more complicated and slippery than many assume (Levitin and Redman, 1998). For example, managers

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may lack important data, or may lose sight of the fact that the data that interests them must match or model their particular organization's processes. Or they may have an excess of data, in that they cannot make sense of all the data available. Or the data may be hung in incomplete or ambiguous categorization systems, and so be inherently contradictory or meaningless. Or there may be differences of opinion about what the data really means in terms of the managerial options open. Our attempts to build data intensive KM systems often run aground on these complications. They present problems quite different from the normal human and management challenges of implementing corporate projects. Insights from KM thinking arise from a sensitivity and awareness to the many and sometimes subtle differences between corporate knowledge in its various forms and the kinds of tangible assets with which managers normally deal. These spin around the fact that knowledge is inherently intangible, sometimes incomplete or mis-located, sometimes unidentified or inconsistent, and often contested.

There are many varieties of data-intensive KM project. They can be sorted initially by whether the data to be handled is:

- (1) incomplete;
- (2) complete but in the wrong part of the corporation; or
- (3) an under-managed corporate asset (Hansen and Nohria, 1999).

The first (1) type of project is one of discovery and innovation. There is a separate and well-developed genre of innovation management theorizing, e.g. (Leonard-Barton, 1995; Tushman and Moore, 1988) which is focused on the special challenges of managing creative professionals whose performance is difficult to measure. KM thinking does not immediately add much to this. Innovation theory is also about moving the newly created information to production, and KM has more to say about the difficulties here.

In a dynamic economy organizations need huge amounts of fresh information all the time, about their processes, factors of production, competition, and so forth. It is clearly difficult to manage innovation, and difficult to budget a project when the value of the outcome cannot be established ahead of time. A focus on solving a specific problem may provide a more effective framework than an unstructured hope to come up with something new. More often firms, such as those in the pharmaceuticals industry, report the money or effort expended rather than the value produced. Given a large enough portfolio of products and services, it may be possible to set population level innovation targets, as does 3M, saying 25 percent of the current products must have been introduced within the last 5 years. The most recognized innovation problem lies in moving the resulting knowledge from those making the innovations to those who must translate them into revenue-earning products and services. These problems arise as a result of the division of labor within the firm, which no longer matches the necessary division of knowledge. Many KM projects are actually designed to solve problems created in the evolving gap.

The second (2) type of KM project is by far the most common and suggests a communication project. Firms often complain of "bad communications" generally without any attempt to differentiate cause from effect. Is the poor communication a cause of inefficiency and distress or a consequence of something else, such as conflict between the poor-communicating departments? We shall see a great deal turns on the

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difference. Nonetheless the vast majority of KM projects are communications oriented, seeking to move data from one part of the firm to another part. The impact can be excellent. Problems thought insoluble by one department turn out to be everyday matters to another. Oil companies go to great lengths to share the techniques being developed in the tougher fields to other locations. Such communications improvements mean fewer “wheels need reinventing”. Reaching beyond the company’s boundaries, customer complaints can lead to better and speedier product and service fixes. The silo mentality can be overcome. But management’s expectations of this kind of KM project are often wildly optimistic, and our cultural disposition to try and fix all problems with new technology often goes awry. A significant proportion of KM projects which seek no more than improved communications just fail.

### **Knowledge sharing and expert systems**

Before we deal with why these communications projects fail, and so get to the main body of the paper, it is worth considering the (3) projects briefly. Here the data being considered is more than a simple fact; it is a valuable corporate resource. Indeed many strategy theorists now argue that such privately held knowledge is the key to sustained competitive advantage. The innovation project that produces a new product or process is an investment that has produced a significant return. For instance, Burroughs-Wellcome’s investment in Tagamet was huge and they wanted to be certain they owned the entire income stream that it could generate. Their process and product patents effectively identified and “nailed down” this innovation and established their legal rights to the resulting rent stream. It is not always easy to identify and inventory the knowledge developed in the corporation. Many KM projects attempt to do just this.

Every organization expends considerable resources on the development of knowledge, and the result is normally crucial to its survival and success. The knowledge economy is marked by an increasing likelihood that the fruits of this investment are intangible and difficult to identify and render subject to legal title. Much is highly mobile in that individuals carry it home in their heads, or is inexpensive to copy and transmit, the case for digitized information. AOL’s loss of 35 million or so of their “live” e-mail addresses to spam outfits is a case in point. Valuable corporate knowledge is often not easily protected; for instance, there is a vigorous dispute underway about the patenting of software. It makes sense for most organizations, especially those dependent on innovations to sustain their progress and market position, to get serious about identifying their intangible assets and taking steps to protect their ownership. Again, there is an established body of thought and research on this topic (Teece, 2000a, b).

The process of identifying intellectual assets raises fundamental questions. For many, aside from the lessening of human error, part of the attraction of expert systems (ES) was that they would be a means of surfacing and identifying processes key to the business’s function. Once captured their knowledge content could become the explicit property of the firm. “Knowledge engineering” became popular (Adeli, 1990) and ES was hugely hyped. Yet most firms quickly discovered the application area for ES was smaller than they had imagined, often limited to the development of “smart” systems. It became clear that success was more likely when the application was static, i.e. when the underlying model did not require frequent updating. Credit analysis algorithms, for instance, were relatively long-lived, while professional skills, such as medical

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diagnosis, power grid management, or air traffic controlling, tended to be highly dynamic. In the later case, keeping the expert system up-to-date required frequent re-engineering and updating, to the point where most systems quickly fell into disuse, ignored as not worth consulting.

ES were a clear forerunner to today's KM in that they raised crucial questions about the relationship between the system developed and the individual professional whose knowledge was captured. Why would competent professionals, especially the "best in class" yield up their knowledge so that the firm could then have more complete ownership of the "means of production"? This gives us a glimpse of the important relationship between knowledge and power which Francis Bacon remarked in 1597.

Without addressing this issue adequately, a number of well-known companies, especially in accounting and consulting, saw KM projects as a way of pooling professional data to the mutual benefit of all, and to the partners. First, employees were asked to contribute data about how they did their work to a central data repository, to which all others had access. When this did not seem to be overly successful, and destined to go the way of most "suggestion schemes" managers created incentives, and in some firms such as Samsung, issued mandatory instructions for employees to make submissions. Not surprisingly, submissions peaked when the "accounting period" was ending as employees raced to avoid being penalized for not having made their required inputs. Sometimes they made up for their lack of imagination by stealing others' ideas, something not unknown among Wall Street traders or to journalists as they race to file copy by their deadline. Clearly, this is a breakdown of the KM project and a pathological abuse, but it lets us see some reasons for the "cultural resistances" that need to be taken into account as firms try to inventory their intangible and intellectual assets.

### **Intellectual capital**

An associated part of KM focuses on the techniques for identifying and measuring intellectual capital (Bontis *et al.*, 1999; Marr and Chatzkel, 2004; Marr and Spender, 2004; Spender and Marr, 2005). As soon as we appreciate the importance of the firm's intangible assets it follows that we must find ways of managing them. Most of the KM projects run by the human resource departments try to do this. Owning the assets is one thing, identifying them is quite another. The work of Edvinsson at Skandia is well known (Edvinsson, 2000), but the complexities measuring intellectual capital remain unresolved (Turner and Jackson-Cox, 2002). Some suggest there are "external" and "internal" methods. The first presume measures that parallel conventional accounting and value the intellectual capital. These are associated with Tobin's *q*, referring to the gap between book and market values (Hand and Lev, 2003). The second focus more on identifying the intellectual capital as in a different class of organizational resources to those purchased by the firm. The first method assumes the possibility of a single metric, so that the firm might be able to adopt a "total accounting" approach in which both tangibles and intangibles figure on the balance sheet. The second presumes a fundamental multi-dimensionality of the firm's resources, so the human capital resources are treated as different from financial capital. The first is of interest to accountants and economists, both used to one-dimensional analyses, while most managers find the second adequately practical.

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The most common way of estimating an employee's intellectual capital is to look at her/his education, both formal and on-the-job, on the input side as it were. Attitudes, experience, and performance are also good indicators though it is even easier to look at their salary! This leaves one looking backwards. Past performance does not always indicate future potential, and is the weakness for managers deploying human resources. Nor does past experience prove a reliable guide to future creativity, the ability to respond successfully to radically new challenges. Yet this is probably the most important dimension of human intellectual capability – “dynamic capabilities” at the individual level. Can these be measured? One approach, initially developed by the military as part of their officer selection procedures, and adopted by companies like IBM and GE, is to use a special “assessment center” where candidates are presented with a variety of carefully constructed and complex tasks involving managing a group through challenging mental and physical situations. There are useful possibilities in an accounting approach focusing on the difference between the book value and market valuation. While the former is based on what the company has spent creating itself, the latter relates to the anticipated revenue stream. The difference may be called “goodwill” and sometimes balancing items are entered into the balance sheet. Some firms may find it useful to disaggregate the total goodwill and allocate it to different departments or lines of business. The relative extents and types of human capital inputs can be indicated in ways that could be useful to managers.

In this section, we have touched on some of the issues behind those KM projects designed to identify and perhaps “nail down” the firm's intangible assets. While it is easy to poke holes through all of the methods currently in use, the implications are not without interest to managers. It is important to remember that they, as well as the HR people, are constantly making judgments about the human capital at their disposal. The arbitrariness of these judgments may be more serious than whether there are objective measures. The proper objective is to make better judgments, not to discover the ultimate truths. It is probably valuable to establish some shared measures, even though these would have little meaning outside the firm. The process of doing this would be much like that of writing a mission statement. It would involve many people and would provide senior management with a way of translating their strategic ideas and objectives into the more practical contexts in which resource allocating managers are working.

### **Aggregation, dis-aggregation, and new business models**

One of the key debates within KM is about whether the corporation's knowledge is held by its individuals or is held collectively. Given we have individual thinking and remembering skills, there is no question that individuals hold a great deal of the firm's knowledge. The collective aspect is more puzzling. Are employee teams collective in the sense of working together in ways that none of the individual members can explain? Can teams be assembled by simply bring a number of individuals together, or is there a learning process that changes the group of individuals into a team? Can a team's members be replaced without it losing its capability? Is a firm's capability more tied up with its internal teams or “communities of practice” than with the specific individuals involved (Brown and Duguid, 2001)? Just as Academy Award recipients usually end up thanking a variety of people for their support, so most managers appreciate that successful organizations are more complex than mere listings of their assets and people.

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One question here is about the most useful level of aggregation at which to measure and manage the firm's parts. A good deal of KM theorizing is about the nature of the firm's integration, especially its factors of production (Grant, 2000). KM struggles to avoid the one-dimensional modes of thought typical of most theorizing about organizations when they are treated as structures, production functions, systems of authority or rules, etc. The positive managerial response to the four different kinds of measure in the balanced scorecard, for example, suggests managers are easily able to handle a multi-dimensional approach to valuing the firm's tangible and intangible assets (Kaplan and Norton, 1996). But these multi-dimensional approaches leave unconsidered and unmeasured the essential managerial activity of integrating these resources into a viable and manageable whole. Should the organization's assets be measured after or before this integration has occurred?

There are challenging academic issues here, but managers normally cut through the theorizing by determining the most practical levels of aggregation, the levels at which the burdens of collecting and digesting data seem best matched by relationship to the choices open to them. Once optimal batch sizes are established production decisions are made in terms of numbers of batches to be produced. If mergers and acquisitions are being considered the finest grain of useful debate will normally be the self-contained businesses or operating units. The point here is that while the technologies of production and distribution play a part, the human limits of managerial cognition are determining the levels of data aggregation. One of the more important features of the new IT techniques available today is that they are significantly less constrained. There is no particular reason why Coca-Cola's inventory could not be measured "one bottle at a time" just as banks work "one customer at a time". Coca-Cola may not want to do this because their product is delivered by the pallet load, or the truckload, which matches their distribution decision-making. Likewise, when the bank's customers are aggregated a whole range of managerial decisions, such as whether to grant a loan to a particular customer, are cut off. The options that remain, such as whether to raise the rates for all customers who have taken out loans of a particular type, are quite different.

These technological, classificatory, and cognitive issues are of considerable importance in the design and operation of the databases which many KM projects are intended to create. They reveal a whole range of decisions, which must be made about the database structures and categories. System designers seldom fully appreciate the extent to which these choices interact with the organization's practices and power distribution (Bowker and Star, 1999). We touch on these issues again, but we can immediately see some of the returns to taking human beings out of the decision loop and letting databases and communications be structured by other considerations. The most familiar illustration is the shift from batch processing to flexible machining. In the latter case, the production process is "one item at a time". Likewise, automated inspection and quality control can be applied to every part and the measures diagnosed and used as input the next time the production task is performed. Every item in a complex supply chain can be tagged and followed, much as FedEx tracks its packages individually and, via the web, shares that data with their customers.

Applying cutting edge IT in this way and re-engineering the firm's data flows can lead to much tighter control. But it also fundamentally changes the nature of the data. No longer is it aggregated in order to support managerial decisions and so feed MIS systems. It is now disaggregated and at the level of the firm's production and

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distribution processes. The data becomes a distinct factor of production, displacing the human operator and managerial control inputs with technology generated data from other parts of the process. This eventually melds the individual processes together into an autonomous data-driven system. Such matters are the stuff of operations-oriented KM projects, and vitally important in today's complex production and distribution systems (Awad and Ghaziri, 2003; Gourdin, 2001; O'Brien, 1996; Tiwana, 2002; Turban *et al.*, 1999). The point is that the shift from the aggregated data of MIS systems to the disaggregated data inputs of networked production and distribution systems (ERP) opens up a vast population of new business models in which data is a key factor of production.

### Behind data stands meaning

Even if the corporation's data and intellectual assets can be better identified, codified, inventoried, stored, transferred, and delivered in a timely manner, serious problems often arise. In the section above, we noted "cultural resistance" and power issues as possible reasons for the obviously frequent failures of data-oriented KM projects. What is the real issue here? Is it just that we have human actors in the loop?

The short answer is that data, on its own, matters little. What matters to managers and the other actors engaged in and connected with the enterprise is what it means to them. Meaning is related to practice. The data's meaning is its implications for managerial choice and action. This is often so obvious that it has become invisible. A stock level only matters because it means that stock should be re-ordered, or that orders cannot be filled. Customer satisfaction cannot be 100 percent, since some customers are unreasonable. So the level to be achieved reflects the firm's reasonable targets, and the state of the competition. All data is hung in a classification system that is meaningful only when it relates to the adopted model of the business. Managers often have excessive data available, in that they are unable to attach meaning to it; they ask "what does it mean for us?" They cannot attach it to their model of the business or to the action options they exploit in managing it.

The study of managerial cognition reinforces our intuition that managers are bound to look at the business and the rest of the world through their own "lenses". They have no lens-free option here. Nor are there lenses that provide "true" and objective representations of the world. Some find it helpful to distinguish data, as having no inherent meaning, from information, which has meaning and is thus located within a cognitive framework or lens. Where do managerial lenses come from? Are the managers' the same as those of the other employees? What can be done to shape or change people's lenses? Clearly the identification and management of these lenses is a key part of managing the organization's knowledge. KM projects towards this end are going to be quite different from those focused on identifying and managing the firm's intellectual assets. There are many academically grounded techniques for identifying managerial cognitions (Eden and Spender, 1996). Managers, especially consultants, develop their own workaday versions. Indeed they are constantly listening and observing both what people say and the thinking that lies behind it. They decode both content and meaning, recognizing that meaning is often far more important than content. Is this supplier trustworthy? Is this employee committed to this activity?

This is a large topic but our interest here is narrowly on the KM projects built to deal with meaning. It is generally believed that people are resistant to change, and much of

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the KM literature argues that this resistance is the principal reason for KM project failure, e.g. (KM Review, 2001). The recommendation is that by paying more attention to the people affected and enlisting them in the process of planning change one can reduce the resistance to change, e.g. (Dueck, 2001). That seems fine but is both too universal a solution and misses understanding the reasons for people's resistance. If we insist that people are inherently resistant to change, we box ourselves in and dismiss revolutions and riots as acts of lunacy. We have to be aware that under certain circumstances people, individually and collectively, can change with surprising rapidity. Politicians can lose credibility and support almost overnight, and the same can happen to managers. Firms can suffer in the same way; we can recall the poisoned Tylenol episode. In the same way new leadership can produce quite remarkably rapid change in organizations. Fear of the unknown and so forth may foster resistance to change, but even that can be overcome under the right circumstances (Huff and Huff, 2000).

The underlying pattern of meaning in the firm is its "mission and vision thing". Firms go to great lengths to develop these and get them written down, even though outsiders often conclude they are completely generic – excellence, customer commitment, quality of work life, respect for the employees, and so forth. Yet anyone who has taken part in the process will probably report fierce and lengthy battles as these terms were chewed over and prioritized. The point is that within the firm these terms become heavily laden with meaning, often political in the sense of which group's or faction's opinions prevailed and whose did not. Writing the mission statement would not normally be considered a KM project yet it, and the other internal political processes which determine meaning, are often the firm's most strategic KM activities; the more explicit data-oriented and technology-intensive KM projects depend on them. When executives talk of knowledge sharing through KM projects they often conflate content and meaning even though sharing meaning is clearly a quite different endeavor. Sharing mission and vision seems vitally important to creating a sense of organizational coherence and identity. Sharing data, on the other hand, often seems an inadequate knee-jerk response to undiagnosed "communications problems".

The oft-repeated notion of sharing data is rather curious. There is a somewhat "motherhood" notion in that it is surely better if everyone knows everything that is going on; no silos, secrets, or surprises. But that seems to deny the fundamental nature of organization, the division of labor. Many KM projects are designed to cope with the negative consequences of the division of labor. As Adam Smith pointed out it is not so much the division itself that matters, it is the learning that results from the resulting specialization. The knowledge produced is the key to wealth generation. But two things happen. First, the division makes coordination and management necessary. Second, communications become a problem since different people know different things, and have differing information needs. There is a necessary division of knowledge within the organization. The managers' ongoing task is to balance the division of knowledge against the division of labor. To think this task can be made unnecessary by "knowledge sharing" is to miss the point entirely. Knowledge sharing works when it responds to the division of labor and is driven by its specific information needs. The result is often "informal" and facilitated by "knowledge activists" (Käser and Miles, 2002).

Communicating meaning is often thought to be an appropriate way of managing it and some corporate intranets are built to this end. When firms use the mandatory

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participation approach noted previously, or adopt a softer line, letting employees pick up whatever information or leads to experts they choose, the meaning issues are deliberately ignored, often at great cost. When an intranet is used as an enriched GUI corporate newsletter and propaganda device, it is more obviously focused on managing meaning. But one has to ask why or how managers would expect this approach to work. People are not able to make sense of data without attaching meaning to it. For that reason every corporate communication, whether word or action, is interpreted and decoded – employees read all kinds of intentions and significances into it because they already have lenses and meaning systems in place. Meaning management must be done with respect to these in-place meanings. The idea that the project designers are dealing with blank minds or *tabula rasa* is hopelessly naive. KM projects designed to manage corporate meaning will not succeed unless they are grounded in a more practical understanding of what is involved.

It is certainly possible that the employees' meanings are held in place by fear of change, but it may well be otherwise. First, peoples' meaning systems reflect their experiences. Those who have suffered famine or real hardship are often hoarders; they know that things can be bad. Those who have experienced civil war know things about neighbors that most of us would rather not know. Most corporate situations have micro-histories of famine and civil war and those experiences come together with labor differentiation to produce sharp differences in meaning systems. Second, these will be reinforced by professional knowledge and dispositional differences when individuals are also professionally trained for the work they do (Abbott, 1988). Accountants and engineers, for example, see the world very differently and bring entirely different interpretive schemes to bear on their work and on what they hear about the firm and its markets (Kunda, 1992). This operates at the departmental level too. When a representative from the marketing department is absent from the meeting, most present will know what she/he would have said to the proposals from the design department (Dearborn and Simon, 1958). If an employee's "lens" is held on place by the work they do, then appeals to change their meaning system are only likely to make a difference, whatever extrinsic or intrinsic motivations are present, when matched by a change in their work.

### Meaning and practice

The central purpose of this paper is to help KM project designers and managers better appreciate the implications of this vice-like relationship between practice and meaning. Practice is a much-used term in the KM literature. There are widespread discussions about "communities of practice" (Brown and Duguid, 2001; Wenger and Snyder, 2000) sometimes in "silver bullet" terms, as if they are the perfect means for managing the corporation's knowledge creation and management activities (Wenger *et al.*, 2002). But practice is just as complicated notion as data and meaning turn out to be. For most people "practice" mean the process of production. The organization's routines, a widely used notion for the tacit aspects of an organization's knowledge, become manifest in its practices (Nelson and Winter, 1982). Such routines complement the firm's explicit rules and tangible assets to comprise its overall "production function". For most organizational analysts, who ignore the intangibles, the organization's practices are the direct result of management's decisions, be they planning, training, capital spending, or marketing decisions. That is why they conclude the quality of the data available to

management is so important. KM theorists, on the other hand, pay more attention to the meaning attached to the data and consider the firm's meaning systems – set of lenses – as its principal possession. It is the core of the organization's identity.

There are several paradoxes at the heart of the KM literature. On the one hand, there is the belief in the increasing strategic importance of the intangibles, on the other there is management's diminished ability to identify, measure, and manage these. If the principal intangible resources are the employees' knowledge and skills, how can they be managed except by making them explicit, as Nonaka and Takeuchi (1995) advise, and making them the legal property of the company? This means making the intangibles tangible. First, this raises questions about whether the explication program is really possible. Perhaps Nonaka and Takeuchi have missed the whole point of thinking about the firm's intangibles. Second, even if it were possible to do this explication, why would the employees allow it? Why would people give up what they see as the basis of their power, especially to resist management (French and Raven, 2001)? As industrial sociologists have known for decades, this would mean a strategic reduction in their power (Roy, 1952).

The core of the KM insight is that the conventional bureaucratic model in which the senior managers determine the organization's goals and articulate those into a system of resource dispositions, rules, and authority relations is less and less useful as the significance of the intangibles rises. Management's control diminishes as what they control becomes unknown to them. Much of the appeal of KM is that it offers ways of restoring managerial power – as was explicit with ES. It is somewhat less explicit in KM projects to share data and expertise around the company, but it is their driver nonetheless. An additional possibility is that managers can employ KM techniques to “deskill” and thus better control the rapidly expanding white-collar professional labor force (Braverman, 1974; Howard, 1985). The modern salesman is no longer free to run his own accounts. Equipped with mobile phone, Blackberry, and WiFi laptop she/he is reachable, and can be monitored at all times. Similarly the truck drivers' location, speed, braking, and rest-times are routinely monitored through satellites. There is huge managerial pressure to control the rising costs of white-collar work, and off-shoring is one response. De-skilling is another, especially as labor productivity continues to rise and most companies have reduced their direct labor.

The question arises, why try and control the meanings employees attach to the corporate data? When meanings are anchored in practice, and those practices are determined and controlled by management, then surely the most appropriate way to control meanings is by direct control of practice. In others words, focus more on producing desired behaviors and worry less about what is going on in the employees' heads. But KM points out managers are seldom in full control of practice, especially when competent practice depends on the employees' tacit skills. The struggle for control is over the employees' discretion to supply or withhold their tacit contributions. It follows there must be KM projects designed to share and shape the managerially determined meanings that underpin the data-oriented KM projects. This may sound abstract, but it helps operationalize the “human factors” which so many consultants advise managers to attend to. We see these are an amalgam of the meanings employees attach to the directions they are given, and their motivations to contribute their skills to those aspects of their work that cannot be adequately controlled by management's decisions over corporate structure, rules, production equipment, and so forth.

**What is practice anyway?**

From a KM viewpoint, the complex and sometimes subtle relationships between organizational data, meaning, and practice lie at the core of management’s task. In the section above, we have argued that all three are involved because of management’s limited control over skilled practice, and that meaning management is necessary to align the employees with the corporation and so motivate them to make up for, rather than exploit, management’s limitations. But this is not all there is to practice. Activity theorists argue that practice does more than merely produce the articles or services that managers intend, it also shapes and so produces the personalities of those doing the production (Engeström *et al.*, 1999; Scribner, 1986; Tobach *et al.*, 1997). We become what we do.

KM projects to identify best practices, so that they can be transferred elsewhere in the organization tend to overlook this aspect. To ask a person to change their practice may well be to ask them to change their sense of identity. We see this clearly when people are laid off and denied the work that gave them their sense of identity. Likewise the work employees do causes them to interact with others and so develop a powerful and emotionally-burdened sense of community. This suggests a rough typology of organizational practices (Figure 1). The upper right box refers to the normal usage of the term “practice” while the lower right refers to things that go on in the workplace, but which do not seem to be explainable in terms of the organization’s declared goals. Managers often consider such “habits” as wasteful without knowing whether they contribute to the formation of group or individual identity. Off-sites and beer-busts are deliberate attempts to construct the sense of community. Corporate recognition is likewise a deliberate effort to create self-identity. But both of these are also being constructed all the time in the regular work process. Thus, practice is itself a complex of different events located in the organizational complex of different systems (Bales, 1950).

Resistances to changes in practice are more than mere conservatism or deliberate obstructionism, they are grounded in the way those practices shape identity and community. At one extreme, we see employees who maintain considerable distance between themselves and their work and resist its psycho-structuring effects. At the other, there are those who become obsessively involved and so become what they do at the expense of the identities which connect them to the other aspects of their lives, leaving their family lives in tatters. KM project managers intending to change others’ practices need to bear these diverse impacts in mind.

The idea of community goes beyond the dimensions examined in the community of practice literature. There is certainly the sense of trust and network of interpersonal relationships once communities have formed. But there are shared resource aspects, which are often overlooked. When we note data’s dependence on classificatory schemes

construction of self-identity	goal-oriented production
goal-less production (habit)	construction of community

**Figure 1.**  
A typology of organizational practices

which modeled the organization's practices, we are pointing to a key shared resource. Likewise, language is a shared resource that is not merely supporting the sense of community; it is a crucial dimension of the community. Corporations develop highly loaded and context-specific language. They also develop highly contextualized category systems. As the struggles to develop IT standards illustrate, whether in Unix coding or WiFi technologies, it is not easy to develop the infrastructures, which underpin practice either within or between organizations. The same is true of accounting standards. When managers speak of knowledge sharing they are often pointing to these infrastructural aspects, for they are the things that need to be shared, not the specifics of each specialist's work. Changes in practice cannot happen without the appropriate shared resources being available, and these can seldom be provided by management. They are grown through practice in context. Thus, the challenge of "best practices" is that they can seldom be transferred in the literal sense; rather they must be re-created in the new context because the relevant infrastructure must be created ahead of the practice.

**Conclusions**

KM seems to start with a simple enough proposition: use IT's new capabilities to improve the efficiency of organizational systems that increasingly depend on information. This is a slight variation on IT's normal objective, maybe a more managerial and MIS view, looking for the bottom-line value rather than narrowly at the technological performance. But KM moves into quite different territory when it shifts its attention to the firm's intangibles or intellectual assets and declares that it is about improving their management. Then it confronts the paradox noted above, that management has less and less control as the strategic significance of these intangibles rises.

So long as KM projects are data-oriented, and so long as the meaning of the data is non-controversial, then the projects have a reasonable chance of succeeding. But when this is not the case, a quite different set of challenges arise (Figure 2).

In the top left box, when the purpose of the KM project is to enhance current systems, to link them more efficiently, to pool data and skills and make them available in ways that help people get their work done, they have a good possibility of being successful. This is because the project can be driven by those whose work is to be aided, or by the "knowledge activists" who work on their behalf (Käser and Miles, 2002). In the upper right box, when the emphasis is on improving the infrastructure, so long as people can see their work will be better supported, they are likely to help. Thus, e-mail and corporate intranets designed in collaboration with those affected are likely to be used rather than being ignored. Existing meanings and classificatory

	system elements	infrastructure
enhancement	LOW	MEDIUM
reconstruction	MEDIUM	HIGH

**Figure 2.**  
Relative risks of KM  
projects

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schema are identified, respected, and reinforced. But the project risks are higher because significant aspects of the new infrastructure and shared resources must be produced by the users themselves.

In the lower left box, when the project is reconstructing the elements in the system of production – as BPR is intended to do – then practices are going to be changed and the KM project becomes hostage to employee resistances. The meanings attached to the project and the data being handled become disputed. In some KM projects the management's real intention is to change practices and, as we have seen above, this is often to ask people to change their work-derived sense of identity. The risks rise. They are highest when the management's re-engineering seeks to reconstruct both the production processes and the tangible and intangible infrastructures on which these processes depend. In many respects, they are attempting to create an entirely new organization. The drags on such radical change are many and powerful. Sometimes the process can be accelerated by removing the equipment and technology used previously and replacing it with new equipment and processes. Sometimes the labor force cannot make the transition and must be replaced. Re-training may work, but it needs to be more than merely functional, in the sense of training workers to use the new equipment. It needs to be supported by bridging processes that help employees to evolve their new identities.

The purpose of our paper has been to show that KM projects are not all alike. They vary widely in their objectives and degree of risk. Some focus on technological upgrades that lead to better data-handling and seem simple enough. But behind data always lies the complex of meanings people attach to the data, and when these are unclear or contested, data projects need supporting by meaning management projects. These must be designed with an appreciation that prior meanings are always in place, seldom changed without attention to and changes in the practices that hold them in place.

Our hope is that with this broader set of KM notions in mind, managers will be able to improve their success rate and put an end to the canard that KM is a mere fad. Quite the contrary, it is the beginning of a remarkable and important effort to pay more attention to the intangible aspects of the organization.

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