

THE TECHNOLOGY MYTH

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"It is our strong conviction that knowledge cannot be managed, only enabled"
Von Krogh et al. (2000)

1. Information can be managed – knowledge only nurtured:

When the term “knowledge management” hit the business world, the assumption was that knowledge could and should be managed. The KM wagon attracted various people, from librarians to information technology professionals, to academics and ethnographers, management specialists, sociologists and psychologists. It created a new breed of “knowledge workers”: “information professionals”, “story-tellers”, “infomediaries” “information brokers” and many more. Workshops, conferences, and books abound on the subject. From the very beginning, it was obvious that all these people were onto something good (for various reasons into which we will not delve here), but did not know what to do with it. From the very beginning, as well, three trends emerged. One was a technical approach to knowledge, with its “killer applications” and billions spent on IT. The second was the “theoretical” approach, with its cognitive structures, organizational behaviour studies, ethnographic mapping and similar terms that made their owners “gurus” on the basis that if 90% of American CEOs could not understand what you were saying, then you must be in possession of some “higher” knowledge. The third trend saw knowledge as a formalized state of information, which, if correctly mapped, modeled and schemed was manageable. Somewhere in-between, a few smart people were shaking their heads and watching a management circus erupt. Only now are their voices heeded – knowledge, if it can be managed at all – can only be done by nurturing the people that have it. Information technology is there to make the most basic steps of it easier (by managing information NOT knowledge). Information technology by itself is a tool, it is not a solution.

It has been almost seven years now from when knowledge management started showing up in academic and business publications. 70% of knowledge ventures have so far failed. Billions were spent on “build it and they will come” applications: portals, intranets and knowledge repositories. Various named, these repositories either became data dumps, or dried up from under-use, while knowledge kept being shared (where it was allowed to) in the traditionally non-technical ways: around lunches, water-coolers, staff meetings, and across-the-desk conversations. This despite the assurances of such academics as Dr. [Brian Detlor \(2001\)](#) that the days when knowledge was exchanged happenstance are over as “organizations now realize the importance of such knowledge-sharing activity and are taking pro-active steps to ensure such exchanges do occur, and moreover, that they are captured, distributed and re-utilized by others in the company.” He then promptly tells us that these same “aware” organizations are still “challenged” by the task. In simple English, they don’t know how to do it.

It has also been evident over the past years that no one could come up with a simple definition of “knowledge”, let alone “knowledge management”. A recent CIO poll ([Rutherford, 2001](#)) showed that of the 360 polled KM professionals, an equivalent number of definitions have been solicited, as well as a multitude of approaches to the problem. I have discussed the various definitions of knowledge management in a previous report ([Berner, 2001](#)), stating that there are thousands of them, roughly divided along the IT-based/people-based lines. [Godbout \(1996\)](#) calls the first group “oil-snake paddlers”.

I have to add here, that apart from the problem of defining KM and standardising its procedures, there also arises the problem of differentiating – in the minds of most business people – between the meaning of “information” and “knowledge”. By 1996 there was a visibly growing entrenchment and polarization of opinions. On one side, we can see those who are proposing a

definition which assimilates knowledge to the process of knowing (the Polyanyists) and on the other side those who subscribe to the assimilation of knowledge as superior level of information in a value chain (the Davenportists). Seven years later, the Davenportists almost merged with the Japanese school of management, advertising the benefits of the water-cooler and trust-building over the great portal.

To add to the total confusion, "management" is a fuzzy, teleological and human-driven process. Sound management has to have clearly defined goals. Therefore, to be able to manage "knowledge" we have to have a clear definition of what it is. And so far, there isn't a definitive one, just a multitude of them. Since Information Management has been around for a much longer time than Knowledge Management, many in practice attempt at implementing information management systems to knowledge management. Some go as far as to assert that there is no difference between the two. This is especially evident among the IT-based proponents, who roughly define knowledge management as "information storage, categorising and retrieval."

The proponents of people-based solutions, although disagreeing with the opinions of Nonaka and his school that categorically state knowledge cannot be managed at all and can only be enabled (a school to which I belong, with the difference that I use the term "nurtured" to stress the emphasis on caring for the human assets), still say the same in different terms. [Prusak \(2001\)](#) in Financial Times says that "Knowledge is undeniably a difficult thing to manage because it is invisible and intangible and thus unmeasurable. We do not know what knowledge exists within a person's brain, and whether he or she chooses to share knowledge is entirely a matter of volition. This presents problems for those undertaking knowledge management (KM) programs within organizations, since by their nature such programs imply a certain tangibility -- that something of demonstrable benefit will get done that will improve the organization's performance. Identifying that something leads managers into a difficult set of choices. They can admit that knowledge is indeed invisible and go forward on faith alone. Or they can focus management programs on helping people acquire knowledge, share it with others in conversation and direct interactions, and use it effectively in decisions and actions." No mention is made of software.

2. "I presume you mean homo sapiens" - a case study in artificial dumbness

Tacit knowledge, by definition, resides in people's heads. Some thought otherwise. Cycorp (www.cyc.com) spent 17 years and 50 million US dollars trying to prove that we're intelligent because we have an internal database of commonsense facts. With this great misunderstanding of how human thought functions, Cycorp created a system that encompasses more than 1.4 million assertions—hundreds of thousands of root words, names, descriptions, abstract concepts, and a method of making inferences that allows the system to understand that, for example, a piece of wood can be smashed into smaller pieces of wood, but a table can't be smashed into a pile of smaller tables ([Hiltzik, 2001](#)). What was the result of this project, which spent an equivalent of 500 human years? In one recent demonstration for a Defense Department project, a Cycorp engineer informed the system they would be discussing anthrax. Cyc responded: "Do you mean Anthrax (the heavy metal band), anthrax (the bacterium), or anthrax (the disease)?" Asked to comment on the bacterium's toxicity to people, it replied: "I assume you mean people (homo sapiens). The following would not make sense: People Magazine." This may be artificial, but it definitely isn't intelligence.

The epistemological confusion and misunderstanding also play a part in this. In one of papers on the issue I located this: "*Knowledge is both ephemeral and amorphous. If there is no process to capture it, an organization loses one of its most valuable resources (...) Knowledge is very often, if at all thought of as a viable resource to harness. Unfortunately it is most often taken for granted and filed away in personnel training files or databases. With the information age in full motion, (...) leaders (managers) can no longer mismanage this natural and abundant resource. Both leaders and employees must learn how to manage knowledge. (...) This resource is abundant and virtually untapped. When extracted, made available to the*

work-force, and tactically and strategically applied, the organization will have unlimited potential to realize its vision" (Richmond, 1998). It is such muddled thinking process that contributes to Knowledge Mis-management. How can one file ephemeral and amorphous stuff into a filing cabinet?

Knowledge management has traditionally suffered from the hubris of modernism: the belief that we can discover ultimate truths and organize the world according to rational principles using clever code. The idea was that we should capture and organize bits of "knowledge" in central databases. The people involved were relevant only as donors to the common ontology or as empty vessels into which knowledge could be poured. Life – and business – doesn't work that way. It's messy, complex and subjective. Real workers have the disturbing habit of being human, so they refuse to change their behavior or to contribute metadata into a shared pool. And universal taxonomies are worthless if divorced from the subjective experience of those who use or generate that information.

The one constant in today's business world is change. As businesses go digital, or even virtual, it gets harder to see where one industry stops and another starts. The boundaries that separate one type of organisation from another are crumbling. So how can companies keep pace? Is it simply a question of coming to rely more on smarter and smarter technologies? Technology provides part of the answer, certainly. But not all of it. A successful knowledge management strategy combines the power of IT with the creative and innovative capacity of the people. Smart technologies can work wonders when used by smart people who know how to use them. The most critical challenges of KM are cultural, social and behavioural. You must nourish creative and innovative capacity in your staff - your resource for constant, rapid response to changing customer and market trends. Our ever-changing environment demands a major attitude overhaul: the focus must be on leveraging the entrepreneurial spirit of your people and keeping your structure agile to thrive on the edge of chaos.

3. Can we code trust?

In a survey performed by the Cutter Consortium ([Pickering, 2001](#)), five of the top six obstacles managers state as being in the way of getting more out of IT are people issues to do with communication and cooperation. These are necessarily knowledge management related issues, but the result is telling.

The basic principles of knowledge management are as follows:

- ✚ Knowledge originates and resides in people's minds.
- ✚ Knowledge sharing requires trust.
- ✚ Technology enables new knowledge behaviours.
- ✚ Knowledge sharing must be encouraged and rewarded.
- ✚ Management support and resources are essential.
- ✚ Knowledge initiatives should begin with a pilot program.
- ✚ Quantitative and qualitative measurements are needed to evaluate the initiative.
- ✚ Knowledge is creative and should be encouraged to develop in unexpected ways.

Trust among participants in any knowledge venture, is a basic factor. According to [Davenport and Prusak \(1998\)](#), trust is very important in KM initiatives. Without trust, knowledge initiatives fail, no matter how well supported by IT and rhetoric. For knowledge markets to operate effectively in an organization, trust must be established in these ways:

- ✚ It must be **visible**. People must visibly get credit for sharing. Reciprocity must be directly experienced.
- ✚ It must be **ubiquitous**. If part of the internal knowledge market is untrustworthy, the market becomes asymmetrical and less efficient

- ✚ It must start at **the top**. If top managers are trustworthy, trust will seep through and characterise the whole firm, and vice versa.

The role of trust in knowledge transactions helps explain why knowledge initiatives based solely on the belief that infrastructure creates communication seldom succeeds. The impersonality of groupware allows anyone to post information and invites anonymous access to that information, but it does not create the same confidence in the quality of knowledge. The promise of reciprocity is also weak.

In their research on virtual organisations, [Kraut et al \(1998\)](#) found that contrary to much recent speculation, the research did not find that use of electronic networks for transactions was associated with increased outsourcing, but rather with greater dependence on internal production. Moreover, the use of interpersonal relationships for coordination, which many think of as an alternative to electronic network use, was associated with greater network use. *Surprisingly, use of electronic networks was negatively associated with such outcomes as order quality and efficiency, and satisfaction with suppliers, while more reliance on personal linkages was associated with better outcomes and mitigated the negative consequence of using electronic networks* [emphasis mine].

[Whitlock \(1997\)](#) stresses the need for trust and open communication channels. She says that although technologies such as the Internet, intranets, extranets, telecommunications and videoconferencing can help facilitate simple knowledge sharing through continuous communication, flex-meetings and face-to-face personal and group interactions, even across the physical barriers of time and location, a company can't compile a common pool of knowledge unless everyone involved agrees to and learns how to document what they know. Successful collaborations are crucial to a fully-developed and effective knowledge infrastructure. The key issue is not about the latest information technologies, but whether those technologies are used within, and for facilitating, a culture of information sharing, relationship building and trust. Only with communication and trust, can an organisation harness that elusive ability to get the right information to the right people at the right time for the right business purposes.

Now, IT is not very good at building trust. In a research performed by the University of Texas, it was found that virtual teams whose only means of viable communication was computer-assisted, experience a form of "swift" trust that is both fragile and temporal ([Jarvenpaa and Leidner, 1998](#)). Uncertainty, lack of commitment and lack of feeling of ownership were major issues, often leading to failure.

How IT has failed in building trust can be seen from the following example. KMIP is a mailing list initiated by the University of Technology in Sydney. It initially aimed at creating a community of practice among the Australian knowledge management professionals. It worked very well, for a variety of reasons. KM in Australia is miniscule, most academics know each other, the market is still big enough to accommodate all available consultants, and there were not many of them on the list. That is, until the Americans discovered KMIP. Some time late last year, a Mr. MM, who has his own consulting firm in the USA joined the list.

In October 2001, I posted to KMIP inquiring if anyone knew of resources on inter-cultural KM. MM responded immediately, telling me in detail what it was that he was doing (consulting). I was more interested in papers, but out of sheer politeness told him that if he had any academic publications in the field and would care to share them with us, I would be grateful. I also told him I was a student, and was thinking of doing my thesis on the subject. The response was astonishing: he wanted to know whether I was a competitor. I repeated that I was a student, and provided him with my details at RAND. He wrote back saying, *"Wouldn't it be nice if we didn't need to worry about universities being competition? The reality is that higher education is one of the largest and smartest industries and competes very effectively in the technology, especially with start-ups. Most raw technology comes out of U R&D labs and is owned by students and professors. One example why sharing information*

must be tempered with security or it quickly becomes subsidizing your competitors.” When I send a second email allaying his fears and explaining that since he was in KM software and I was interested in people not software, he should fear no competition from me (after all he was in USA and I was in Australia, and I do not have a surname like Dell, or Packard), he wrote back:

“...I'm afraid I don't have much time for collaboration unless it's a relationship that helps pay our bills...”

So much for trust on Web-based communication systems, and out of all places at a KM forum. So much, alas, for knowledge sharing in general. Six months later, Mr MM posted again to KMIP, this time offering a paper he wrote on “total KM solutions” (whatever that is) which, he said, he was willing to share with other KMIP members IF they provided him with ALL their professional details. Australians are so naïve, they did not see through the marketing ploy, and tens of people disclosed their affiliations. When a private KM consultant from Fiji asked in an email if the prerequisite to sharing knowledge was knowledge obstruction, MM openly named him in the forum as “a CI contractor working for a global predator”. Once again, no trust, no sharing.

4. Explicit and Tacit – where IT succeeded and failed

Let us here define once again the word “knowledge”. The basic building block of knowledge is data. **Data** is a fact represented as an item or event out of context and with no relation to other things. **Information**, on the other hand, adds context through relationships between data, and possibly other information. Data with meta data and context makes information. The relationships may represent information, yet the relations do not actually constitute information until they are understood. Also, the relationships that represent data have a tendency to be limited in context, mostly about the past or present, with little if any implication for the future. Finally, **knowledge** adds understanding and retention to information. It is the next natural progression after information. To have “knowledge” requires information in conjunction with patterns between data, information, and other knowledge, couples it with understanding and cognition. Applied knowledge is expertise or wisdom. Knowledge can be tacit or explicit. Explicit knowledge is that which most readily lends itself to being stored, processed and transmitted. Tacit knowledge is hard to express, transmit or represent: it includes intuition, rules of thumb, sense-making, common sense, and the proverbial “gut feeling” (Kirk, 1996)

[Von Krogh et al \(2000\)](#) in the excellent book “Enabling Knowledge Creation” quote a CEO as saying that knowledge written and stored in computers is effective only about 20 percent of the time. There is quite a number of examples of how even the best software could not facilitate knowledge sharing. 80% of knowledge in any organization is fundamentally created through human interaction. Such tacit knowledge is valuable because it is the key to innovation and nearly impossible to replicate.

Although It has brought a lot of improvement into managing information (read – codified explicit knowledge) in terms of networking, broadband, search engines, intranets and portals, Lotus Notes and other groupware, browsers, email software, push technologies and a multitude of other “miracles” that manage both documents and content, very little of this has had any impact on managing tacit knowledge.

Even on the front of explicit knowledge, IT is not delivering its promises. We are far from the perfect search engine, or the absolutely secure email software. Intranets and portals often become dumps either because they are disorganised, or because the corporate culture does not encourage knowledge sharing, or asking questions. Hardware and software can become great knowledge enablers only if the human infrastructure, culture and politics are right. Buying a typewriter will not make one into Ray Bradbury.

In a bit of calculated sarcasm, [Mullins \(1999\)](#) defines KM as “any product that any vendor wants to sell more copies of.” Although he mentions useful technologies, he stresses the human factor: “The business strategy of the organization must acknowledge the requirement to capture knowledge and actively foster the effort. Knowledge exists in people, not technology, and as such will require a massive human effort. Technology can help to capture information, but it can not create knowledge. Once the information is identified, collected, and managed, it must be transformed into knowledge. This requires classification, analysis, and synthesis. This step, too, requires human intervention. Knowledge can not be created by technology. Only a human being can render information into a format that causes it to be easily transformed into knowledge by another human being upon retrieval.” Although himself a programmer, Mullin maintains an almost religious separation between what technology can do and what it can't. Technology can manage information. People manage knowledge. He even says that knowledge can never be captured, only information can.

As Prof. Jonassen, of University of Missouri has stated in an interview, “the role of technology is the delivery of knowledge. Witness the apotheosis of knowledge management. Every amateur epistemologist knows that knowledge cannot be managed. [It was] always assumed that knowledge can be transferred and that we can carefully control the process through education. That is a grand illusion” ([elearningpost, 2001](#))

[Gordon et al \(1999\)](#) in their research of five corporate bodies and two research organizations have reached a startling conclusion: knowledge can be managed, but software is not the solution to it. It, in their opinion, can only manage knowledge.

Sometimes it isn't the IT that fails people, but other way around. As the pace of technological change accelerates, workers are expected to learn more and more new IT applications. Unlike managers and IT specialists (who naturally support the systems they buy) their reactions to new technology vary greatly; although in some cases they are enthusiastic, in others, poor communication, organizational power shifts and a host of other factors can lead to hostility or apathy. Fortunately, negative reactions usually die down as people become accustomed to new systems and glitches are ironed out. But the bad news is that many people simply "get by" with IT applications and do not use them with maximum effectiveness. Worse still, many companies fail to push for continuous improvement and do not treat training as a priority. Another issue is the rise of standardized enterprise resource planning packages, which may entail more work for some employees in spite of overall benefits.

I have but to agree with [Malhotra's \(2001\)](#) advice to the British Telecom when he said that KM technology doesn't have to be complex. The hard part is not the technology, it is understanding where knowledge resides within your organisation. If new technology's purpose is misunderstood by its users, then it is money down the drain. Successful KM is about creating a culture in which the idea of becoming more productive by the exchange of information is accepted by everyone.

5. Back to Basics: People Power

I neither suffer from romantic naiveté, nor from disillusioned cynicism. I simply consult small law firms for whom the stuff that makes knowledge management in business publications and Microsoft Road Shows is beyond the limits in financial, time and personnel scale. The business world is made of multinationals, nationals and small to medium businesses. The fact is that if these SMBs do not/can not manage whatever intellectual assets they are in possession now, then they are doomed to remaining SMBs or maybe even exiting the business scene totally.

Neither is my opinion neo-Luddite. I am not against the use of information technology to promote/assist in the initial (information-related) stages of knowledge management. What I am against are “comprehensive” and “total solutions” to KM based solely on software and hardware.

A July 6, 2000 article in the Management Executive section of The London Times discusses the failure of organizations to make full use of knowledge management (KM). Companies are not yet making full use of internal knowledge sources (employees, customers, vendors, and intellectual capital such as licenses and patents owned by the company) to achieve a competitive advantage. The Times reports that despite thousands of pages of advice on the subjects and millions of pounds spent on promotion and implementation, the expected benefits of KM have not been realized.

According to experts, the problem (at least in part) is that companies have put knowledge management into the hands of their technical people (rather than their human resources practitioners) who develop tools for information collection and storage and build databases of information. These companies are managing information, not knowledge. Knowledge is more than information. Knowledge is more than the people who have information. Knowledge is also the network of relationships which those people have within and outside the organization.

To exploit this knowledge, companies must build trust from the top so that the proprietors of the knowledge (the employees) will feel comfortable sharing what they know. In a world of "volunteer employees," people invest their knowledge and expertise in companies that give the best return. If better returns are available elsewhere they will move on. The Times concludes that most companies have only scratched the surface of KM and need to address these human issues before they can reap the benefits.

[Von Krogh et al. \(2000\)](#) highlights the importance of knowledge activists, 360-degree visionaries, and cultivating a caring culture to support tacit knowledge creation and dissemination. They identify five knowledge enablers:

- (1) instilling a knowledge vision,
- (2) managing conversations,
- (3) mobilizing knowledge activists (also see [Berner, 2002](#))
- (4) creating the right context, and
- (5) globalizing local knowledge

Knowledge management is over-hyped and misunderstood. It is not a technology, but an amalgamation of strategy, technology, and people. There are no panaceas where you just plug in some new technology and "bang" you have knowledge management.

We have survived the re-engineering process, the restructuring, the mergers and the inflation. All throughout we have not learnt the lesson - by getting rid of employees, we are getting rid of knowledge. It will not help if an employee puts all their knowledge into some explicit form and stores it away on a portal. The people who will read may/may not benefit from it. They will definitely benefit from it less this way than if the employee was available for comment. Besides, if the employees know that they are being "milked" for their knowledge simply so that they are no longer indispensable, then who can guarantee that they will share what is really of value? If there is no trust in the management, and no security in the job, there will not be much sharing. This is, unfortunately, my personal experience. And no amount of "killer application" will bring sharing to life.

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