

Implicitly managing the implicit The practice of knowledge management

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Abstract

Introducing knowledge management in an organization often interferes with existing practices of knowledge sharing. Especially in R&D environments knowledge management initiatives seem to encounter normal practice. This paper will report about an empirical study that focuses on actual experiences with knowledge management initiatives. In this study thirteen large companies that engage in knowledge management participated. In analyzing the data, we pose five basic research questions: who's knowledge is managed, what knowledge is managed, when is knowledge managed, and why is knowledge managed and where is knowledge managed? This explorative research results in the identification of four possible traps in which organizations might fall when introducing knowledge management. The paper concludes with the general observation that problems with knowledge management are not so much related to workers resentments to share knowledge but more with the way knowledge sharing tends to be managed. Tentatively we urge for the implicit management of implicit knowledge.

Introduction

Although the concept of knowledge management is very popular among academics as well as among organizational practitioners, it still lacks any mutually agreed upon description or conception. We believe that one of the causes for this ambiguity resides in the mismatch between conceptual orientations on the one hand and actual experiences on the other. Although the amount of books, articles and conferences on knowledge management grow exponentially, most accounts on practical experiences with knowledge management are based on conceptual ideas or on accounts given by enthusiastic (knowledge) managers¹. What is still lacking is a more thorough analysis of the practice of knowledge management. Progress in understanding - as far as this is possible - cannot be based on a conceptual orientation only and should take into account what is happening in practice and how and why the topic is received by organizations of today.

In this paper, we report on a study we are performing on knowledge management initiatives in Dutch companies. The purpose of the research is to gain a better understanding how organizations make use of knowledge management practices and with what kinds of problems they were confronted with. Such research is needed as most reports on knowledge management are centered on conceptual orientations or on best practices. Besides that conceptual orientations lack empirical support, the problem with accounts on best practices is that most often, they only inform us about positive (managerial) experiences, hiding more negative ones. We believe that

organizations learn better from other experiences on knowledge management when the reports surface the traps and obstacles organization might face when engaging in knowledge management initiatives.

Another reason why research directed towards the actual problems organizations face with knowledge management is needed, is that we are not satisfied with the way workers resentment to knowledge management tend to be explained. Workers rejections for example are perceived as being related to reduction of power or a reduction of degrees of freedom (Weggeman 1997). We observed that rejections to knowledge management are more a result of the way knowledge management is managed than as a result of an aversion to knowledge exchanges per se. In fact, rejections of the concept did not necessarily imply that the organization was not engaged in some kind of knowledge management.

Introduction to research

The need to concentrate the research on actual experiences and possible problems, resulted in a different selection of cases than is most often the case with writings on knowledge management. First, we only included knowledge management initiatives that had already been running a substantial period. By using this selection criteria, we excluded organizations who did not yet gain enough practical experiences in order to report about its pitfalls. This meant a serious shortcut of potentially interesting case studies. In fact, most organizations who are engaging in structural knowledge management activities, are still in a conceptual stage. Secondly, we decided to include organizations in the study which engage in forms of knowledge management but do not label their activities as such. During the course of the study, it experienced that a lot of experience with managing knowledge resides within companies but are not (or not yet) called 'knowledge management' activities. It is worthwhile reporting about these experiences as interesting case studies for other organizations to learn and to draw lessons from. Consequently, we obtained a pragmatic orientation to knowledge management. We perceive knowledge management as organizational practices that facilitates knowledge exchange among knowledge workers. With knowledge workers we refer to employees within organizations in which knowledge forms an important aspect of their daily work processes. With successful knowledge management we refer to these knowledge exchange practices that have become organically embedded in the ongoing work processes of an organization.

The multiple case study research we have been using is mainly explorative. Although we had prior knowledge on what has been written about knowledge management, we have tried as far as possible to start interviewing with a blank notion of the concept. As argued, this was facilitated by the fact that the practice of knowledge sharing within organization often differs from what the theory claims it to be. We selected thirteen companies in the research, all engaging in knowledge management initiatives. The research is based on forty-five open interviews within thirteen companies who engage in knowledge management initiatives. The initiatives differ from each other in many respects, such as the stage in which they are in and if they explicitly make use of the words "knowledge management" or not. Table 1 provides an overview of the organizations that have been interviewed and the stage of knowledge management within the organization.

Table 1 Selected cases

Company	knowledge management stage
Software house	Introduced/institutionalized (3 years ago)
Oil company	Institutionalized (3 years ago)
ICT service	Introduced
Steal company	Conceptual
Department	Institutionalized (2 years ago)
Bank	Institutionalized (2 years ago)
Insurance company	Institutionalized (4 years ago)
Telecom company	Introduced
Transport company	Institutionalized (3 years ago)
Consumer products company	Institutionalized (2 year ago)
Int. Bank	Introduced
Airport	Introduced
Technology company	Institutionalized (25 years ago)

All initiatives have three aspects in common: the companies are all large companies with more than thousand people working, they all make use of information communication technology (ICT) to support the knowledge exchanges and all initiatives are supported by top-management.

Identifying traps and way to avoid them

We encountered five potential traps related to the practice of knowledge management as well as various ways to avoid them. These traps emerged from addressing the question how the concept of knowledge management is treated in organizations. To gain a better understanding how the concept is used in practice, we addressed five related research questions: who, what, when and why and where. In combination, these questions created a better understanding how knowledge management is used in practice and what problems might emerge. While addressing these basic research questions, we observed six related traps in which organizations engaged in knowledge management, might fall. These traps are respectively the individual knowledge trap, the embedded knowledge trap and the technology trap, the opportunity trap, the management trap, and the operational level trap (see table 2)

Table 2. Five potential traps present within the practice of knowledge management

Who (whoms knowledge is managed?)	The individual knowledge trap
What (knowledge is managed?)	The embedded knowledge trap
When is knowledge managed?	The technological opportunity trap
Why (is knowledge managed?)	The management trap

The traps relate to problems that organizations might be confronted with when initiating knowledge management. They should be seen as potential pitfalls and not as standard knowledge management-related problems. In other words, these traps can be avoided, as some organizations that we studied have done so. In fact, next to a discussion of the nature, causes and consequences

of these traps, we also discuss, again mostly based on ideas generated from practice, possible ways to avoid them. In other words, answers to five research questions in combination, provide us with insight how indeed organizations tend to use knowledge management. This means that organizations will face problems when they treat knowledge management:

- (1) more as related to individual learning than to collective learning.
- (2) more from a stock approach to knowledge than from a flow approach to knowledge.
- (3) more from an ICT/opportunity-driven approach than from a problem-driven approach
- (4) more from a managerial perspective than from the perspective of the knowledge workers.
- (5) more as an issue related to the operational level than a general organizational issue.

In the following sections, we will describe the five questions with the related traps separately. Each discussion will be supported with illustrations from practice.

Who's knowledge is managed? The individual knowledge trap

Knowledge management is generally seen as the management of learning processes within organizations. There is however a potential pitfall when this is interpreted as the management of individual learning instead of collective learning. During our research, we came across many initiatives that approach knowledge management as supporting knowledge development of individuals instead of organizations. Managing individual learning is less complicated than collective learning. For example, motivating individuals to learn is less difficult than motivating collectives to do so to contribute to a shared knowledge base. Furthermore, tools to improve the individual knowledge base are part of every organization, such as training, education, or more explicit tools such as libraries or databases. In contrast, tools to improve the collective knowledge base are much more difficult to imagine.

Also, managing individual learning is easier to control than is the case with collective learning. For example, managers may ask his/her employee to read an article, to take a course or to inspect a database. From this information processing activity, we can largely predict what the outcome of this learning process will be. Much of the collective knowledge is however gained during day to day interactions and is less easy to manage (Brown and Duguid 1991). Because of this bias towards individual learning, organizations might fall in the trap of focussing on the development of individual knowledge instead of sharing knowledge among individuals. Various organizations in our research have created knowledge centers that actually function as knowledge libraries. Individuals can acquire the necessary knowledge from these centers as to gain more insights on a particular subject. Also, many organizations use the intranet to store past experiences of knowledge workers so that others can learn from this. These networks function as tools to support individual knowledge development more than collaborative knowledge development. As one consultant at a software company remarked: 'the system is supposed to store experiences in a database, but that doesn't work, you cannot learn experiences from others as such, knowledge sharing happens to face to face communication'.

Some organizations show possibilities how to avoid this individual knowledge trap. For example, at a consumer product company and an oil company enabling the existence of communities supported the sharing of knowledge among colleagues. During frequent meetings, these communities exchange valuable experiences and develop new ideas how to improve their

day to day activities. Our research supports the findings of other researchers that managing communities call for a different approach as managing individuals. In fact, management has little influence on these 'communities of practices' besides acknowledging their existence. Learning of and within communities is also often unnoticed by the learners themselves (Ciborra and Lanzara 1994) and is seldom planned. Also, many communities are continuously in a flux, changing from place, time, membership and content. Mapping the knowledge within the organization by mapping the various communities is therefore impossible; even if management is able to map all the existing communities, this would only be a random indication. Consequently managing collective learning processes such as those that take place in communities of practices are much harder to manage than individual learning processes (Orr 1990, Ciborra and Lanzara 1994, Cook and Yanow 1993, Weick and Roberts 1993, Jordan 1989).

What knowledge is managed?: The embedded knowledge trap

Many articles and books on the concept of knowledge management start their discussion with a definition of knowledge. Almost always, the relation is made between two related concepts: data and information. Whereas data are signals and information is signals that make a difference, knowledge is created out of information but is individual specific. In its most extreme definition, knowledge that belongs to individuals cannot be explicated. At the moment we exchange knowledge, the knowledge becomes signals to the potential receiver. Herein lies the externalization trap (which actually could be described as a paradox): knowledge management calls for the exchanges of knowledge, but when we externalize it, knowledge is reduced to data or signals. When the receiver interprets these signals, they will be changed into information related to past knowledge. The trap lies in the danger that organizations might treat this externalized knowledge as valuable substitutes for knowledge exchanges between individuals. If so, much valuable knowledge will be overlooked.

The argument goes that because knowledge is often perceived as power, people are selective in externalizing their knowledge. Interestingly, we did not come across this argument for rejecting knowledge management. In fact, what we observed was that those knowledge workers that have indeed gained much knowledge about particular topics are not afraid of sharing it. The problem however lies in those workers who cannot be proud about their built up experiences. Explicating their knowledge will mean opening up of individual kept secrets. A final problem with the embedded knowledge trap is that the organizations tend to be focussed more on embedded than on situated knowledge. Situated knowledge is knowledge that is not embedded somewhere, neither in manuals nor in the heads of individuals. Instead, individuals interacting with each other create situated knowledge in practice. Situated knowledge is therefore situation rather than individual dependent (Lave and Wenger).

We observed at various organizations the problem knowledge workers have in filling in the knowledge system with past experiences, while already gaining new experiences in a new project or work-environments. Especially in project oriented organizations the pressure to make hours accountable, is high. This phenomenon is not industry specific. Both in ICT as in steel manufacturing research people find little time to add experience. The obvious solution for management is to create slack in order to enable workers to make their experiences explicit. However, even when creating slack, people will find it hard to make explicit what is truly

valuable to the company. This is problem encountered by an ICT service organization where technologists are unable to express the valuable learning experiences. On the other hand they are reluctant in using the knowledge documented, because they preferred using their own solution rather than that offered by others. Many authors on knowledge management believe that one of the serious problems with externalizing knowledge resides in the unwillingness of knowledge workers to give away their power.

When is knowledge managed: the technological opportunity trap

The externalization trap is closely connected to the technological opportunity trap, because technology - ICT – often supports externalizing knowledge. Organizations often meet the technology trap because they rely on ICT to externalize the knowledge. There are several problems with focussing too much on externalized explicit knowledge. First, there is the problem of dependency as individuals become dependent on the externalized knowledge. Organizations may become dependent on their digitized archives, overlooking its lack of sustainability. Secondly, there is the problem of deterioration: knowledge embedded in documents or in expert systems may grow outdated quickly. When sharing embedded knowledge is not part of an explicit culture, knowledge databases fall prone to rapid deterioration. This is not a new phenomenon, yet it requires discipline of the ‘knowledge worker’, which in itself forms another problem of knowledge externalization. Discipline may be hampered by the pressing agenda.

The technology trap is embedded in the conviction that the introduction of technological facilities will improve knowledge sharing amongst people, and harness the organization against loss of knowledge. knowledge management is often seen as inherently connected to ICT. For example, the introduction of an Intranet is seen as creating the facility for knowledge exchange in combination with a reward structure that encourages people to share their knowledge via documents and reports. Yet, when the technology itself is not fancy enough, or when the use is not adapted to the people working with the technology, people will be driven away, despite rewards or punishments. This will curtail the knowledge management initiative. We came across several knowledge management initiatives that focused on creating a technological environment, but who where unable to reach the people actually using the system.

A telecom operators Intranet is widely praised but little used by the ‘praisors’ themselves. A world wide software company had many problems with its Intranet in its first years. One of the awkward effects of the technology trap is that a firm belief exists in improving technology in such a way that earlier barriers are overcome. Push technology or intelligent agents counteract the information overload generated by using Internet. Earlier appraised expert systems fall within in this trap but they have a dimension of its own. People place too high a value upon the results of an expert system, while sound judgment may lead to other results (Dijkstra, 1998). There are no guarantees that expertise captured in an expert system covers the expertise needed because the expertise is limited to that what can be made explicit. A multinational consumer product company learned this lesson over the past years. They started out by putting their faith in technology and the opportunities to map experts knowledge in databases, but soon discovered that creating a network of experts, and facilitating physical encounters opens a large potential for knowledge sharing. The ICT is introduced after the network has become established.

Why is knowledge managed?: The management trap

One of the most common traps of knowledge management is that the concept is generally been perceived from a managerial perspective. Clearly, for managers there are several advantages to manage the knowledge within the organization. One is that knowledge is often scattered within the organization. With the emergence of the knowledge economy in which workers gain more and more knowledge specific to their own work process, organizations are in need to make these scattered knowledge domains more transparent. Next and related is the argument that transparency is needed as to reduce re-invention of wheels. The ideal is that when everyone knows what everyone knows, people will contact each other to exchange knowledge or to effectively refer customers and clients. Learning from each other has the additional advantage of filling up knowledge gaps that would otherwise exist when people leave the organization or change positions. Again, the ideal is that past experiences of seniors are stored within the organizational knowledge base or are exchanged between master and apprentice. The ongoing trend towards globalisation too, calls for the exchange of knowledge among the globally dispersed knowledge workers.

Another reason why organizations are interested in knowledge management is the growth of awareness that organizational knowledge might be the key to organizational success. Especially as a result of popular management books as well as articles in Business Magazines such as Fortune and Harvard Business Review, there is a growing awareness that the intellectual capital of the corporation is usually worth much more than its tangible book value (e.g. Handy 1994, Edvinsson, Malone, 1997). Shareholders have developed a need to gain more insight in the core competence of the organization, which in most cases resides in the (tacit) knowledge shared among the workers within the organization. Another reason for management to introduce knowledge management is to facilitate an organizational change process. For example, a large insurance company changed its operations from a product to a market based organization. In order to support this organizational change process, knowledge management techniques were used to overcome the problems of a loss of knowledge that might result from changing positions and rotating people.

These motivations to introduce knowledge management have at least one thing in common which make them at the same time vulnerable: they all perceive knowledge management from a management perspective. Herein lies the contributor of the managerial trap. Organizations face problems when knowledge management is seen as a possible solution to problems that are merely managerial problems. In either case, managers and organizations should make sure that km is perceived as a possible answer to problems that are both felt by knowledge workers as by management. Knowledge management calls for a fast support of knowledge workers and 'outsiders' such as managers cannot force upon exchange of knowledge. Organizations that use the concept of knowledge management to control and monitor the knowledge within the organization have more problems in implementing it than organizations that use the concept to address real problems. These problems do not have to match; a win win situation can also occur when the various actors engage in knowledge exchange out of different reasons.

Discussing two cases

In this section we like to discuss two cases that use knowledge sharing mechanisms as a mean to support innovation. We present these cases to illustrate some of the traps we introduce in this paper. Most of these traps involve a specific kind of learning or lack of learning. As we pointed out the cases we studied all had problems in collective learning: learning as an organization of the knowledge exchange processes between individuals. The cases present two opposites. Both cases are oriented to knowledge sharing for innovation and both cases communities to do so. However, in case 1 the community was an outcome of knowledge workshops, while case 2 took a structured approach.

Case 1

A well-known Dutch consumer goods industry gained a large experience in supporting communities of practice. The research department of this company developed this structure as an outcome of so-called knowledge workshops. These communities consist of geographically dispersed individuals that operate in a social network. These individuals meet both physically and by other means for a common interest in sharing knowledge, Interestingly enough these communities are based on the personal involvement of the participants although management intervened to create these communities. Although the company demonstrates knowledge management in practice the term is avoided because of its association with control and the negligence of the human factor.

The company started over five years ago to systematically collect, exchange, create and leverage knowledge because it saw her innovative ideas being copied by her competitors. To keep her competitive advantage it needed to shorten its innovation cycle. Using existing knowledge within the company and exchanging this knowledge became one of the strategies to stay abreast. When the company acquired several new plants in a certain division it found itself amazed by the number of different solutions to come up with the same type of products. Realising that history alone could not explain these differences, management decided to analyse the differences. Traditionally a knowledge engineer would travel around the world and start its knowledge mapping activities with different experts in the field. This was considered a too time-consuming method, so a new way of knowledge exchange was considered. Experts were brought together, and in workshops the exchange of knowledge was facilitated.

These knowledge workshops became a large success for different reasons. The people participating in these workshops were given a special status. Although they didn't know what to expect, they experienced that the workshops gave them opportunities for individual learning. Furthermore the knowledge workshops found a large support of senior management because it demonstrated both individual and organisational learning. The communities that arose from these workshops started working on factual problems and presented solutions in a quicker way. Interestingly enough the knowledge workshops originated in a section dedicated to knowledge technology. They quickly realised the importance of individuals participating in the exchange process and started emphasising the human factor. The chairman and the facilitators spend a lot of energy on creating trust between the members of the different companies in the knowledge workshops, even though the company also has internal competition.

The most important practical result of the knowledge workshop is the identification of knowledge on products, ingredients or processes. In identifying knowledge gaps people experience individual learning. The first workshops produced large results because people realised that other working in within the same division had solved their problems in different ways. Not the new product was the desired outcome but knowledge in itself became a more valued result of the workshop. Although not foreseen several workshops were transformed into communities of practice, thereby creating a body of knowledge that facilitated organisational learning. Although results were hard to put in financial terms it became clear that workshops and communities became of strategic value.

Case 2

The company discussed operates in a high tech environment. It produces capital goods for the agrofood, the aeronautic and the textile industry. It furthermore offers technical services in the field of engineering. Over thirty years ago its three central divisions were divided into a large number of companies. Today over 80 companies work as a independent business units. When the company was further decentralised, it became clear that the central research department was hard to maintain. At the same time the company struggled to attract new talent. It experienced a gradual diminishing of their knowledge base. Within the company an initiative arose to bring people together from different companies to discuss elementary problems. This workgroup, and several others that started at the same time were transformed into an organisational structure that now exist for 25 years. Although the term knowledge management is well known to this company it prefers to avoid the term for similar reasons as in the other case. The professionals working within this company don't like the idea of their knowledge being managed.

The organisational body has become a necessity to create synergy in knowledge within the decentralised company. Most of the companies have their expertise knowledge and knowledge of consumers which is specific to each of the business units. Yet, knowledge that involves processes is largely general to many of the companies. The organisational body consists of eleven semi-permanent working groups that operate like communities. They secure the exchange of knowledge with external environment and the exchange of knowledge within the company. The mission of this organisational body became the innovation or primary processes across the companies' activities. Its focus became to create personal networks within the company to secure an exchange of knowledge. In terms of learning most of the individuals experience learning but it seems very hard for the independent business units to learn from these groups. Only companies that operate as pilots for the different projects experience organisational learning.

Although the organisational body operates as a community and senior management gives support, the decentralised nature of the company hampers commitment. Most of the project results are considered to be of an ivory tower nature. There is little opportunity to actually disperse knowledge. At the same time participants realise that is only one of the few possibilities they to learn from each other.

Conclusion

The title of this paper refers to difficulty of managing knowledge. Analysing different cases we identified different traps. When discussing the cases we saw one company that is successful in initiating knowledge management in creating conditions for exchange. They avoided in this way embedded knowledge trap and the management trap, yet they have problems in overcoming the individual knowledge trap. Case 2 is included because they mere existence of 25 years of knowledge sharing suggests successful knowledge management. At the same time the management trap and individual knowledge traps looms large. Although this company hardly makes use of ICT they mainly present their results in reports. In a way they are prone to the embedded knowledge trap in overvaluing the meaning of written document.

Common to most of these cases is that they are mostly successful in individual learning but that different conditions as we identified in the traps hamper organisational of collective learning. Knowledge management faces in that respect a dilemma that seems hard to solve, especially in R&D environments. In order to be successful as a company and to keep abreast of competition, to remain innovative in products and processes, knowledge sharing seems a fundamental issue to management. As soon as management is visibly present in this process of knowledge sharing one the management trap seems difficult to avoid. In order to be successful communities of practice, which are difficult to manage seem to generate good results. In a way we argue for management to create conditions and in such a way being implicitly present for managing knowledge that largely is implicit both within knowledge workers as within their interactions.

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ⁱ And although knowledge managers, knowledge champions, (chief) knowledge officers have become new organizational roles, much of what they do is only partially related to knowledge management.