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Implementing Intranet for Social and Cognitive Knowledge Processes

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ABSTRACT

This paper discusses a social and cognitive approach to the planning and implementation of knowledge support systems in a health care organization. A case study is presented and then discussed using a broad theoretical frame of reference gathered from the knowledge management field. The discussion is an illustration of the delicate trade-off between social and cognitive perspectives of a development project. The assumption is that these two aspects must be handled in an interconnected and balanced way. The aim of the paper is to illustrate the use of multiple perspectives as a tool for understanding how this problem can be dealt with.

Keywords

Knowledge management, Intranet, Health care, Framework.

INTRODUCTION

Knowledge has been hailed as the basis for economic growth (Teece, 1981) and knowledge management is a way of leveraging this asset (Teece, 2000). But knowledge in organizations is a complex matter (Blacker, 1995) and knowledge management might become the next fad where people are forgotten (Swan et al., 1999). This paper examines the fine balance an organization must have in order to gain the advantages while avoiding the problems. An analysis of a case study is presented, describing the implementation of an intranet system for the support of effective internal control and communication together with an organizational environment of learning and development. The study took place in a public hospital, which can be understood as a knowledge organization. This is not a dedicated knowledge management project, but many aspects of it do concern the practicalities of creating, coding, and disseminating organizational knowledge. It also tackles the problems of a coherent organizational culture, something that is well-established as a key component for successful knowledge support.

The problem of the case could be summarized in a citation from the interviews “here we have the technology, now we must fill it up with content”. The problem area is to get the technology used by focusing on human and organizational development. Here we find a theoretical problem of the knowledge management area - the subjective/objective dimension of knowledge. Opinion within knowledge management is divided into different camps on this issue. One example is “cognitive versus community perspectives” of knowledge support (Newell et al., 2002; Carter and Scarbrough, 2001). Hansen et al. (1999) connect these two knowledge processes to different organizational strategies, arguing that an organization must choose one over the other. Unique products developed for individual customers are associated with social knowledge processes and a personalization strategy towards knowledge management. Standard products could be supported by cognitive processes and a codification knowledge management strategy. Hansen et al. (1999) give examples of different organizations in the health care sector, arguing that both strategies could be used successfully. Bates and Robert (2002) explore how knowledge management concepts might contribute to the development of public sector quality improvement initiatives. They argue that a more social or community approach must be used to achieve sustainable effects from knowledge management projects.

The concluding discussion on the present study is an illustration of the delicate trade-off between the cognitive and the social aspects of a development project. The aim of the paper is to illustrate how the use of the multiple perspectives as a framework for understanding this problem of knowledge management can be handled.

METHOD

The case study concerns the planning and implementation phase of an intranet in a Swedish public hospital. The choice of this organization is mainly due to the fact that it is a knowledge organization, something that the hospital itself maintains in

the discussions. The choice of interviewees was limited to people within the project team. The case is built on a series of deep interviews with people involved in the processes who represented different perspectives and interests. Five persons were interviewed comprising areas such as information, IT, a medical department, and competence development. There is one limitation to the study. The medical staff were not interviewed. This lies ahead in a follow-up study. The interviews, conducted in offices, took the form of discussions and were recorded and transcribed. The respondents seemed quite interested in talking about the issues and were encouraged by the attention paid to their problems. The focus was on getting the respondents to give their views on the process and central theoretical issues of special interest were brought up if they did not appear by themselves. In this sense the theory and the empirical material were interconnected from the beginning. A lot of time was given for the respondent to speak freely. The interviewer tried to provide personal examples (experiences of using intranets or memories from hospital visits) to make the structured questions more accessible to the respondent. Direct observations of the system in use and documents associated with it as well as the development process were also important sources for the research.

THEORY

Theoretical background

The basic problem of the subjective/objective division of knowledge management should be understood from a number of perspectives. Within the knowledge management field there is a set of research directions that could be used as a starting point. Here we present five issues or perspectives that the knowledge management system must be related to.

1. Many knowledge management models and approaches are focused on the knowledge management process (Rubenstein-Montano et al., 2001), typically incorporating creation, codification and transfer/use of knowledge (Grover and Davenport, 2001).
2. Knowledge management is a support process for the organization core processes, it has no value in itself (McDermott, 1999), for example, to develop new products in effective ways (Nonaka and Takeuchi, 1995).
3. The knowledge management process depends on the organizational situation or culture (von Krogh et al., 2000).
4. Knowledge is seen as a strategic asset and as a way for organizations to compete (Grant, 1996). A company's knowledge management strategy should reflect the competitive strategy (Hansen et al., 1999).
5. The ways organizations structure themselves and interact with other organizations are changing, (Carlsson, 2003). Castells (1996) discusses the development towards a network society where the traditional hierarchical organisation is developed towards a network type of organization.

An organization that initiates a knowledge management project will probably be looking at developing a set of knowledge management systems (Alavi and Leidner, 2001). The set of systems should be investigated in relation to the five perspectives. In the next five sections these perspectives are explored and complemented with a multi-perspective model.

Perspectives on knowledge management processes

The knowledge management process can be approached from a cognitive or a community/social perspective (Carter and Scarbrough, 2001). The social approach (Pentland, 1995) focuses on knowledge as an interaction between people, while the cognitive approach sees knowledge as an information process of the human mind. Nonaka and Takeuchi (1995) focus on understanding fundamentally different views of the knowledge process and how they are interconnected in their theory of organizational knowledge creation. That is, how personal knowledge (Polanyi 1958) is created, socialized through the organization, finally ending up in a product. To understand the conditions that these processes operate under, a critical investigation of the reasons and goals should be conducted. The critical perspectives of the knowledge process have also been discussed (c.f. Styhre, 2003), here issues of politics and power become an outer frame or condition for the rational process.

1. A cognitive perspective that treats knowledge as a thing and can be obtained by the human sense (Piaget 2001) and could be supported by database type technologies.
2. A social perspective where knowledge is an agreement among people. Knowledge becomes the constituting process for a society or an organization (Berger and Luckmann, 1966).
3. A critical perspective where knowledge is seen as the nexus of organizational power. Here knowledge support has political dimensions (Hayes and Walsham, 2001) or in itself constitutes a management control technology (Alvesson and Kärreman, 2001).

These three perspectives are layers or parts of a knowledge management process. The cognitive view works on condition that social interactions have turned out as an institutionalized understanding of the documents that are being handled. The people involved see the documents as a part of their everyday knowledge. This social process of creating common knowledge has a political or power struggle between different views behind it. These aspects are investigated in the critical perspective. This power game must come to a balanced state before the institutionalization of common knowledge can be concluded.

A strategic knowledge perspective

Strategy is the driving force in the knowledge management area. Nonaka and Takeuchi (1995) argue that knowledge creation is the key to competition. Here we have chosen to use the balance score model (Kaplan and Norton, 1992) as a framework for understanding knowledge support from different strategic aspects, the argument being that a knowledge support environment must consider all the dimensions of scorecards. The scorecard is used in the process of implementing strategies. Four perspectives are discussed:

1. Financial; “to succeed financially, how should we appear to our shareholders?”
2. Customer; “to achieve our vision, how should we appear to our customers?”
3. Internal process; “to satisfy our shareholders and customers, what business processes must we excel at?”
4. Learning and growth; “to achieve our vision, how will we sustain our ability to change and improve?”

Perspectives on the work situation: a flexibility approach

A given work situation or process is the focal point of knowledge support, i.e. the knowledge processes and knowledge work pertain to the productive work of the organization. Knowledge management seems to have both a creative and an efficiency side to it, which corresponds to a stability and change dimension. Creating new knowledge enables change (Nonaka and Takeuchi, 1995) but transfer of established routines is also an important aspect (Sieloff, 1999). To enhance a processes analysis, a flexibility analysis is suggested as an initial view of the work situation. The aim is to get a multiple view of the process before the detailed analysis begins. As the background concept, the strategic flexibility concept (Evans 1991) is used. The outline of the argument is that knowledge support should deal with actions both before and after the event and have both a protective and an opportunity dimension. By combining these two dimensions, four general types of flexible actions can be formulated.

1. Corrective maneuvers. Defensive action taken after the situation.
2. Protective maneuvers. Defensive action taken before a situation.
3. Exploitive maneuvers. Pro-active action taken after the situation.
4. Pre-emptive maneuvers. Pro-active action taken before the situation.

Perspectives on the organizational context

Generally, the design of information systems should be adapted to the organizational environment where the information systems are supposed to function. Nonaka et al. (2000) discuss the shared context of a knowledge management process, using the concept of “Ba”. The basic argument in many such discussions is that the right culture must be present or developed if knowledge management is to be successful (Davenport, et al., 1999). In this research we use a multi-perspective framework to understand the situation of the knowledge management process. The focus is on the circumstances or logic where knowledge work is performed. This, in turn, provides meaning for the work. Building on analysis of decision environments (Huber 1981), the framework includes four contexts: “garbage can”, “political”, “rational” and “program”. Huber used the framework to understand the organizational conditions for use of decision support systems, a class of systems similar to or even included in the group of knowledge management systems.

Perspectives on organizational structure: networks or hierarchies

A transition towards a “network society” (Castells 1996) implicates a move from hierarchies as control technologies to a more dynamic and organic situation. It is assumed that there will be a change in the patterns of interactions between people and organizations. A key aspect is the process of integration and diversion that the network logic brings. This is a process of identity building along new lines of network connections that are not visible or controllable by hierarchical structures. This points towards the creation of subgroups both within and spanning over organizational borders. A new breeding ground for

organizational culture might arise. New possibilities for new viewpoints and experiences emerge and, in the best case, a base for broader and more flexible decision-making may be created.

PRESENTATION OF THE CASE STUDY

This case study is based on the implementation process of an intranet in a Swedish public hospital. The process began with a planning and implementation phase that took about two years, but had a background of several years of loose discussions. During the second year, the system was commissioned but it was in the third year that the usage really picked up speed. The study was conducted during the third year.

The board of the organization initially started the intranet project. The decision was part of a wider organization development process. A key feature of this change was greater autonomy for the board of the organization towards the political system of the region. A number of goals and policies were formulated more or less explicitly. Two goals were defined. First, to create an environment for learning and growth. Second, to provide the organization with an effective communication channel for information exchange. As a general guideline for these goals there was a policy decision that all documents were to be digitized in the coming two years. The aim was to make the intranet the main information channel of the organization. Together with this, an information pull policy was established, i.e. staff had to find information on their own. There were some hopes of gaining some productivity effects from the cost of internal communication, focusing on the costs of material and personnel.

In connection with these main goals some additional positive effects were expected. For example, that the use of the intranet would support the development of a coherent organizational identity. In light of the organizational change the project would mark the advent of a new type of information policy as a sign of the new organization. The intranet was also hoped to be a direct and useful tool in the change process, providing a more open and direct communication. Getting the correct facts out rapidly would facilitate the process. From the information technology or work support point of view the intranet system is anticipated to become the central point for computer aided work support for all personnel. The intranet is today the main channel and most types of documents are available in digital form. The usage of the system is widespread but not complete. Much information is only available on the intranet and for those who complain about it there is often a tough answer: "get used to it". Today this is complemented with e-mails and sometimes even paper reminders or word of mouth are needed to get all the messages out. But these messages direct everyone to look at the intranet. The general goal of creating a communication channel is complete, at least at a basic technical level. The learning environment is still under development.

ANALYSIS OF THE CASE

Perspectives on knowledge processes

The project has tackled all three aspects of knowledge laid out in theory. Support for cognitive perspective is in place; electronic documents and search systems have made work more efficient in the organization. Work on templates, indexing and information structures that support knowledge codification and transfer is under way. The intranet was established as the main information channel of the organization.

The project worked hard on the social aspects of the intranet system. A lot of effort was made to support a strengthening of organizational identity and generally bring the organization closer together. Department pages were open for anyone in the organization to visit. This helped to build connections between personnel who generally did not meet. There was an active focus on social events, getting photos of people, personal accounts and so on. A project of cultural networking was in progress, promoting common interests in movies, the arts, music and theatre. This implied a fundamental change; as a rule, departments and sections had kept their documents and meetings to themselves. However it was difficult to make real changes. For example, electronic forums were launched for ethical discussions but were very little used. The tight boundaries between departments and work groups proved difficult to bridge.

The intranet played a role from a critical perspective. It was used as a fast and reliable information channel during the process. Pride was taken in delivering facts that could be trusted by the whole of the organization. This became a way of cutting through the organizational hierarchy and thereby creating a new form of organizational openness. Mid-level managers were cut short from their information control positions. The intranet project also led to a clearer expression of organizational structures. Open forums were used as places to air concerns, though not anonymously. Questionnaires were sent out to get quick replies about organizational issues. From this perspective, the intranet system worked as a management system, as a tool for top management to take control over knowledge workers.

Perspectives on knowledge strategies

Knowledge management systems must align with the general strategies of the organization. The hospital used a locally developed balanced scorecard to define and implement their strategies. The scorecard was not systematically used, but some of the goals were clearly used to justify the intranet.

The financial aspect was an issue for the intranet. One goal was increased productivity by reducing administration, i.e. moving papers around. But hopes for rapid effects were not that high as investment and maintenance costs were considerable. In the long run, the system was expected to contribute to greater productivity.

The main objective of the project was to develop internal processes. Product quality and process development were particular targets of the scorecard. The intranet also contributed to the quality of internal processes through better internal communication and accessibility to documents. Internal communication contributed to a deeper understanding of organizational goals among large groups of personnel. Changes in work are facilitated if there is an understanding of overall goals. A sense of belonging to the organization among marginalized groups was hoped to contribute to greater efficiency. Learning and growth were important aspects of the scorecard, especially with the connection to organizational change. The existing resources (mainly library functions and education programs) were not developed actively in the project. There was also a focus on personnel competences and how to develop them, but there was no support for these goals. The customer perspective was not actively dealt with. A lot of ideas were discussed, but not much was actually done. A series of hot spots were discussed such as information services for clients, for example, journals and booking systems. A formulation for effective organizational intelligence was present in the scorecard but nothing was really done about it.

Perspectives on the work situation

The framework for strategic flexibility can be used to examine the contribution of knowledge management systems to creating a balance between stability and change in the core work process.

The basic support function is the knowledge database, a repository for memos about treatments. These are descriptions about how to perform a work task. From a flexibility perspective this is a pro-active instruction for how to get the job done correctly. It is also a stabilizing force, and the support system builds on a cognitive view of knowledge. The knowledge database could be developed further by discussions on features based on the other aspects. From a pre-emptive perspective, the memos could be complemented with descriptions of how things could go wrong and how to avoid such problems. This information could be derived from reports from an incident reporting system. Currently, these systems are not connected and access to the incident reporting system is limited. From an exploitive aspect, descriptions of how to behave after the treatment could be suggested. This should include learning support that helps gather lessons for the future, providing input for the development of the memos. From a corrective point of view, there is a digital telephone system for calling in extra competences in the case of an unexpected emergency. This represents a competence catalogue type of system.

The examples given are of a cognitive type. This is mainly due to the fact that treatments are performed within a specialty where social interaction works around the written material. Within these groups, the main communication is person-to-person interaction, leaving little room for the intranet to support social interactions.

Perspectives on organizational contexts

Organizations can be understood from different points of view. Here we try to understand the organizational context for the intranet project from four perspectives. The intranet system was developed mainly with a program context in mind. The focus was on supporting the distribution of facts and how-to knowledge in a more centrally controlled and streamlined way. However, there was a political logic involved as the intranet was used in a larger organizational change process. There was also a symbolic meaning attached to the system, it signaled a new attitude among top management. More important for the analysis are the consequences of not tackling the rational and the creative (garbage can style) contexts. Rational processes, (to create new knowledge, develop solutions, make decisions, etc.) were in the background of the project and had yet to show through. Concentrated efforts concerning process analysis and the focus on the needs of knowledge workers was to be the next step. There were also clear ambitions to support a more creative organization. The creation of arenas for unexpected meetings and problem solving in a "garbage can" style were hoped for. The strong organizational culture of departments and knowledge areas is not easily loosened up.

Perspectives on organizational structure: networks or hierarchies

A central part of the project was to achieve more interaction and understanding between different parts of the organization. There was surprise over how few connections and understandings there were between seemingly related areas. At the same

time there appeared to be strong indications of invisible networks both within the organization and with external connections. The efforts made towards network building included an open information policy, creation of forum systems, transparency of the organizational structure, provision of contact information, and displaying interesting people, thus making them easier to approach. However,, not much network building was seen; an example of this was the non-use of electronic forums. Strong existing networks and cultures of cooperation might be part of the answer to this. A piece of this puzzle was the lack of interest of medical doctors and the active interest of other staff. But this was not a homogenous picture, for example, younger medical doctors seemed more interested in using the intranet.

CONCLUSIONS

The study displays the complex and contradictory nature of organizational knowledge processes. If these knowledge management systems are going to work they must be accompanied by social processes where people can come to terms with new ways of working. These processes reside in local groups and specialist communities, which take little interest in what top management might do or think. The management knew very well that these processes took place in local groups of experts who generally preferred to do things as they always had. This created a political dimension to the use of the intranet as a challenge to the traditional way of social organizational interaction. This was successful among some groups in the organization but the strategy also created even greater resistance among other groups.

A hospital works in two modes, an administration that manages the activities and an expert organization that performs the work with the patient care. Top management has a weak grip on the knowledge organization and the professional organization dominates activities (Ouchi, 1979). In our hospital top management used the intranet system for intervention in the knowledge management processes and as a general tool to create better distribution of, and access to, knowledge documents. The aim was to make the production of standard treatments more efficient. But this strategy assumed that these knowledge processes (typically the development of new treatments) was uniform, and this was not the case. There are great differences between specialties in terms of how knowledge is developed, codified and transferred. From a cognitive point of view some progress was made, but when it came to the social interactions around the local specialties there was resistance. The system provided a possibility to circumvent traditional structures of information communication providing the management with a tool that could facilitate organizational changes. But the project has sown the seeds of change; projects to create more uniform ways of handling knowledge documents or developing organizational roles have emerged.

The hospital relies on knowledge for producing its results, but this incorporates both standard treatments in a mode of mass production and the treatment of special unique cases. In the latter, a full-scale knowledge project combining experts from several disciplines is needed. In the former, work processes are supported by codified knowledge documents as well as the social environments where knowledge is created, shared and used. Following the ideas of Hansen et al. (1999) this would create expensive standard products (treatments). This study shows that the hospital did not rely on only one strategy for knowledge management as suggested by Hansen et al. (1999). This situation makes it possible to produce high quality products, but on the downside there have been mounting queues in the hospital waiting rooms.

The hospital is good at creating and applying knowledge in local communities. But it is in need of both better ways of spreading knowledge for wider use (just as in an industrial company) and better management and control over knowledge workers (just as in a professional company). The demands for having things both ways - high quality treatments and personal understanding of each individual person's needs on the one hand and shorter queues and lower costs of production on the other - are hard to reconcile. This demands a model that incorporates and balances both aspects and the knowledge management processes are vital for achieving it.

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