SHARING BEST PRACTICES: AN EMPIRICAL STUDY OF IT-SUPPORT FOR KNOWLEDGE SHARING

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ABSTRACT

This study focuses on knowledge sharing in large, complex organizations. The study examines the introduction and use of a Web-based system designed to facilitate the circulating of best practices among middle managers in a multi-national pharmaceutical company. Despite strong commitment from senior management and several attempts to redesign and reinvent the system over a three-year period, implementation of the system eventually failed. We found that managers generally gave four reasons for not using the system: (1) time pressure; (2) lack of incentives; (3) the problem of "bragging"; and (4) the importance of personal networks. A more important finding is that the group of managers in this company did not constitute a single, uniform entity, a coherent "community of practice", and that the divisions within the group hampered meaningful communication and knowledge sharing. We suggest that these difficulties reflect the more general problem of communicating across the boundaries of different practices and communities of knowing.

1.   INTRODUCTION

This paper reports from a study of a Better Practice Sharing system within a large bio-industrial firm Beta Corporation (a pseudonym). The system, SHARE, was developed as part of a major organizational reform to support the sharing of experiences and ideas among middle managers, who were given new responsibilities by the reform. SHARE was a Web-based document base developed to accrue the managers' experiences and results and make them available to other managers and to the whole organization.

Several studies report on similar systems. Lotus Notes as an example developed in the early 90'ies a database to support problem solving and cooperation among members of a technical support department within the company (Orlikowski 1996). The system was designed to capture a description of a problem and its resolution, as well as the steps taken in the process of resolving the incident, and make this description

available for use in similar situations in the future. A very recent example is Eureka, a Web-based knowledge sharing system used by the photocopier technicians in Xerox. Orr (Orr 1996) reported in detail on the social mechanism of knowledge sharing among these technicians, and concludes that their shared practice leads to forms of shared sensemaking that does not reduce to the knowledge and experience of the individual. Eureka is used to share the notes that the repairmen make when solving a problem with a machine. The "reps" publish their notes as "tips" in the document base, (Brown and Duguid 2000b), (Brown and Duguid 2000a) (Orr 2000)

The two document bases are used to share experiences and know-how among people who worked with similar problems within the same or similar contexts, and who were forming either a "community of practice", e.g. a community of people who continually negotiate with, communicate with, and coordinate with each other directly in the course of the work (Wenger 1999) or a "network of practice", e.g. a group of people who have knowledge and practice in common, but not necessarily know each other. (Brown and Duguid 2000b). Both systems are based on documents or notes created during normal work.

Sharing knowledge with people who work on similar practices is helpful for the immediate problem solving, even among people who may never get to know each other. These systems are in a sense "owned" by the users (Brown and Duguid 2000b), and incorporated in daily work. Corporate-wide, cross-border knowledge sharing systems are different. Producing input to these systems is to prepare documents for an unknown circle of readers with a different work environment, and possibly even with a different background. It is a piece of work to produce well-written documents that will be appreciated by a broader audience, and it is a task that does not contribute directly to the completion of the author's own work. Creating knowledge sharing systems in this context requires incentives and dedicated management initiatives of the kind described by Davenport and Prusak (Davenport and Prusak 1998).

SHARE was considered by the designers as a system to support knowledge sharing inside a community of practice, or a network of practice. Our study indicates, however, that middle managers within this large, heterogeneous bio-industrial company do not regard themselves as a network of practice, not at least in the same strong sense as Xerox's technicians, who did find Eureka useful (Orr 2000). In the attempt to implement the SHARE system, however, Beta experimented with the fussy definition of a network of practice. The managers in Beta do have knowledge and practice in common and they do a lot of similar work. The context, however, is different, the managers work in departments doing very different things. The most vital implication of different contexts is that the exchange of knowledge requires more explicit account of this context so as to ensure that in future use situations, the rationale for the original information is apparent. Recent studies on organizational learning have focused on these issues. Boland and Tenkasi (Boland Jr and Tenkasi 1995) use terms "perspective making" and "perspective taking" to indicate that communication across boundaries requires a precise explication process of making knowledge available for others, and a not less demanding task of integrating others knowledge in your own thought world. Wenger (Wenger 1999) uses the words "style" and "discourses" to describe the elements of practice. A discourse is based on a practice, but is not itself part of this practice. It is generalized and adapted material that can be imported and exported across boundaries, reinterpreted and adapted in a process of being adopted within various practices, but is not integrated in these various practices in the same ways, once they are put in the service of different local communities.Defining the "shared practice" too broadly runs the risk of creating the paradox that the more knowledge is encoded and abstracted to facilitate its transfer, the more difficult the task of acting on it becomes within a particular context. A too narrow definition, on the other hand, runs the risk of not realizing and utilizing the potential of the technology. By establishing the SHARE web based knowledge sharing system Beta has in practice tested whether or not the middle managers within the company did share practice to such an extent that they were sufficiently interested in each others perspectives, to be able to communicate in a sufficiently informed way so as to keep the system thriving and useful.

2.   RESEARCH SITE AND METHODS

We studied the introduction and use of a best practice database in Beta, a large bio-industrial firm that develops and manufactures a range of medicinal drugs and industrial chemicals. With production facilities, research centres, and sales offices in more than 60 countries, Beta employs over 14,000 employees. Beta is a knowledge-intensive company with strong ties to universities and research hospitals. More than 3,000 of its employees work in R&D. Beta describes its own organization as a "global network of autonomous power centres." Divisions, business areas and subsidiaries are loosely coupled and individual business units and departments have much autonomy.

A few years ago, in 1996, corporate management at Beta decided to implement a corporate-wide best practice database, SHARE (a pseudonym), as part of a strategy to accelerate and broaden the sharing of managerial knowledge across functions and organizational units. The objective was to create an electronic repository that would enable Beta's managers to exchange "best practices" over the company's newly established intranet. The idea was that managers, who had identified an effective way to perform a process, would submit a description of the practice to the common on-line repository so that other managers could quickly learn about it. The goal was not to specify everything about a best practice but rather to provide enough information to allow other interested managers to evaluate the practice and contact the author for more details. The database was designed and implemented by the company's staff in collaboration with external technology consultants.

The development of SHARE was an integral part of a large-scale change project aiming at a profound reform of management practice in Beta. Corporate management had introduced a new philosophy of management called "The New Way of Management". The main objective of this reform was to decentralize management to encourage creativity and flexibility within the organization. The corporate chief executives wanted more responsibility and power delegated to managers a various levels, and middle managers were given more latitude, and therefore new responsibilities.

Data Collection and Analysis

The research described here focused on the implementation and use of the best practice database over a three-year period, from its introduction in 1997 until the end of 1999. The objective was to gain an in-depth understanding of the implementation and use of the SHARE system, from its introduction in early 1997 until it was abandoned in the beginning of 2000. We have focused on the way the system was introduced in the organization, and how the intended group of users received (and eventually rejected) the system.

A qualitative case study approach was used to collect and analyse the data (Stake 2000). Detailed data collection was conducted through unstructured and semi-structured interviews, participation in an evaluation session with key actors in June 1999, review of documents, and examination of the SHARE system and the content of the database. Most of the interview data are from a series of in-depth and unstructured discussions with the manager responsible for the design and implementation of the SHARE system during the period 1997-1999. These interviews were supplemented by ten more structured interviews with system designers, facilitators and managers (as users of the system). Each interview lasted between one and two hours and all interviews were tape-recorded and transcribed. In addition, we participated in an official meeting with facilitators and moderators (see below) at Beta in June 1999. The purpose of the meeting was to evaluate the use and impact of the SHARE system as well as discuss alternative strategies. The interview data revealed important contextual information about the firm and the "New Way of Management" as well as details about the design, implementation and use of the SHARE system.

The materials reviewed included firm documents such as annual reports and promotional material; internal newsletters and documents explaining the principles of the "New Way of Management", and materials about the SHARE database such as user manuals and internal evaluation and strategy documents. In addition we had access to the SHARE system itself through the company's intranet as well as a snapshot of the database as of spring 1999 on CD-ROM. Together, the documents and our hands-on experience with the system

allowed us to grasp the underlying design rationale and develop a clear picture of the system's functionality and user interface.

We analysed all of these sources of data together and iteratively to get as complete a picture as possible of the design, introduction and use of the SHARE system. We shared our preliminary findings with key informants in the company, and they provided helpful comments, which confirmed and elaborated the identified issues and conclusions drawn (Yin 1989).

3.   CASE STUDY

Organizational Background

The "New Way of Management" is a comprehensive description of visions, policies, quality guidelines and management principles. It was developed and decided by corporate management, and was considered not as a revolution, but rather as a codification and a further development of some essential feature of the existing practice, yet as something that definitely would have a major impact on communication and management within the organization.

Corporate management took three initiatives to support a fast and efficient implementation of the "New Way of Management" in Beta:

The Fundamentals. A set of management rules were written, called the 10 Fundamentals. The purpose of these Fundamentals was to elucidate the norm of good management within Beta. These norms are described as general and fundamental in the sense that they are the same for everybody and relevant to all units in the organization despite differences in geography, culture, type of business, size etc.

The Facilitators. Corporate management appointed 14 internal consultants, called "facilitators" to help the managers to cope with the changes and the new responsibilities. The facilitators were also to monitor how each manager and business unit complied with the 10 Fundamentals. The facilitation concept was adopted from ISO 9000. Corporate Management emphasized that the facilitation process should be considered as a way to help realize the intentions in the "New Way of Management". However, the implementation of the 10 Fundamentals was a requirement and any failure to comply with them would have severe consequences for a manager. In order to evaluate the implementation of the "New Way of Management" and the 10 Fundamentals, facilitators visited each organizational unit periodically.

The SHARE system. The very first rule of the Fundamentals states that each unit must share and use Better Practices, not only within a unit but also cross-unit, cross-functional or cross-organizational. In order to ensure continuous improvement of the content and quality of the company's processes, managers and employees must describe and exchange better practices with colleagues, formally as well as informally. A better practice is defined as "a practice or process, which will improve your unit's performance, e.g. improving efficiency, productivity, job satisfaction or in other ways add value. The SHARE document base was established to support the exchange among the managers regardless of geographical location, their experience and knowledge in the form of best practices.

The corporate management attached great importance to the SHARE-base as help to maintain, disseminate and share the knowledge and the experiences that the managers acquire in their work. SHARE was developed to support the corporation-wide exchange of managerial experiences and knowledge, and to facilitate sharing of better practices across geographical distances and organizational boundaries.

The use of SHARE was guided by the following rules: A Better Practice submitted to the document base had to conform with certain minimal criteria: (1) It had to be in actual use in one or more units, (2) it had to be transferable to at least one other unit, (3) the proposer had to indicate why she found it to be better than other common practices and business routines, and finally (4) it had to comply with the content of the 10 Fundamentals. A submitted Better Practice should include the name of a contact person who would be able

to supply additional information and help implement the practice. Better Practices can be found by a directory structure or by using a free text search facility.

Although SHARE was intended for managers it is easy for everyone to access on the corporate intranet. Not only do all employees have access to the base, they may also read and comment on what they find, and even submit a Better Practice. The SHARE system and the document base is frequently copied on CD-ROM and sent to offices and subsidiaries with no intranet access.

Implementation and Use of the System

The implementation and use of the SHARE database can be divided into two distinct phases. In phase I, corporate headquarters concentrated on marketing the database within the organization and promoting system usage, while in phase II they focused on redesigning the software – in particular the user interface – and introducing a review process in an effort to improve the quality of the database and meet/satisfy some of the users' criticisms of the system.

Phase I: Introduction of the SHARE Database

SHARE was introduced in January 1997. Beta took great effort to inform people about the new facility at meetings, in newsletters and on the intranet. SHARE got a direct link to the Intranet portal and when visiting the different units the Facilitators encouraged people to use the system. A Facilitator said that they considered themselves as the SHARE ambassadors.

At the outset, Corporate Management attached great importance to the quality of the contributions to the document base. The Facilitators reviewed all Best Practice-suggestions before they were uploaded into the base. They rejected more than half of the contributions, and people soon gave up submitting new suggestions. The SHARE system 'owner' (manager in charge of the system) at the time of our study said that:

> *The first time this committee of Facilitators reviewed the suggestions submitted for SHARE, 8 out of 10 were rejected – and that was unquestionably killing any commitment.*

After only three months senior management decided to abandon the review system so that people were allowed to upload documents without prior endorsement and without any kind of limitations. At the same time the expression 'Best Practice' was replaced by the less ambitious term 'Better Practice.' It nevertheless took a long time before new contributions were submitted, and it was a very difficult process. The system owner remembered:

> *…on our knees we had to beseech people to contribute..*

Contributions came slowly, but eventually they came. From April 1997 to December 1998, 368 new Better Practices was registered in the document base.

This number of contributions may not be impressive, but it does indicate some awareness and interest on the part of the contributors. It was, however, far more difficult to make people use the system to search for Better Practices. During 1997 and first half of 1998 hardly anyone used SHARE, and during the second half of 1998 the number of new contributions declined again.

When the developers of SHARE asked, the managers justified their lack of interest in the system with poor quality and irrelevance of the documents in the base. Moreover, they complained about the design of the user interface, which they found difficult to understand and slow to use. It was obvious that something had to be done to save the system.

Phase II: Redesign and Reintroduction of a Review Process

Corporate Management agreed to fund the development of a new version of the system with an improved user interface, and decided also to reintroduce a decentralized review process. The rationale behind this being that a satisfactory quality and relevance of the Better Practices in the document base could only be assured by having a review process. The previous mistake of a centralized reviewing process should be avoided as well. Instead of selecting a central review-committee, 30 moderators were appointed to review the suggestions. These moderators were specialists in different business domains, and, more important perhaps, "out there" in the organization, near to the users of the system. A moderator had to have good specialist knowledge to evaluate the quality and relevance of each contribution and a well-established social network. In addition, they also had to enjoy general esteem in the business unit. A moderator was expected to review Better Practices coming from her own business unit, or from within her field of expertise. Each moderator had the authority to define the criteria he or she wanted to use in the evaluation of the contributions, and also to establish the quality level she wanted to target. Corporate management hoped that this procedure would simultaneously ensure sufficient local anchoring to encourage people to contribute, and sufficient trustworthiness to make people interested in reading the Better Practices in the base.

The SHARE system owner said that:

> *We decided to delegate the ownership of the system, and I believe that people will appreciate that those who now take on the responsibility to clean up and reorganize the document base are not member of an exalted committee with black caps and tassels on the brow, but someone they know, their own colleagues. If people accept the procedure they'll very likely use the system.*

The IT department in Beta and a consultancy, software company developed the new version of SHARE. The interface was carefully overhauled and given a neat graphical design making it much easer to use. Users carefully tested the system, and it proved to work very well.

The new version of SHARE and the new review-process were introduced in November 1998, accompanied by a new campaign to promote using the system. The result was, despite all good intentions, extremely disappointing. It was generally agreed that SHARE had improved markedly, and that the new interface was very satisfactory. The moderators were well received, and the review-procedure was broadly accepted. It had been difficult to find the moderators, though, because many of the possible candidates were fully booked already. The real problem, however, was that too few people used the system, and that the flow of contributions steadily dried up during the spring 1999. Within the first 5 months of 1999, only 21 new Better Practices were submitted, as compared with 368 contributions from April 1997 to December 1998. A moderator meeting was held in June 1999 to evaluate SHARE, and the conclusion from the meeting was that "the SHARE document base does not contribute significantly to sharing of Knowledge in Beta". There was a discernible irresolution on how to improve the situation. Corporate management decided a few months later – in connection with a major reorganization of the company – to give up SHARE,.

4.   DISCUSSION

The Idea behind SHARE

In the presentation of The New Way of Management the word "General Management", is frequently used as a generic term for such divergent issues as "change management", "role of managers and management teams", "career in at flat organization", "control versus empowerment", "knowledge management", etc. The New Way of Management defined all of these issues as essential for managers in the Beta Corporation.

The organizational changes initiated by The New Way of Management assigned many new management tasks to the middle-level managers. This was in part a way to improve the competency of middle management. In general, these people were initially employed because they were highly skilled and experienced as chemists or biologists etc. Beta wanted to train these people, and expected that they with time

would acquire management proficiency through their work, the courses and the discussions, in which they participated. The idea was that the combination of managerial experience and technical expertise would give the company a dynamic management better suited for combining organizational innovations and product development.

The 10 Fundamentals, the Facilitators and the SHARE better practice document base were all important elements in this attempt to enhance middle management so that they would become better at handling issues pertaining to General Management. SHARE is different from the two other elements in the sense that it is a platform for exchange of Better Practices related to General Management among managers a various levels. While the Fundamentals and the Facilitators are supposed to adapt to the specific conditions within various departments, SHARE was designed to support sharing of managerial knowledge across departments and functions.

The consequence of implementing a system like SHARE, designed to support the improvement of qualifications by sharing of knowledge, is that the company must define a group of people who have the expertise, a common language and a common frame of reference so as to make it possible and feasible for them to share knowledge.

SHARE was hinged on the idea that middle managers were or could become such a group if they were given the right facilities to support communication and knowledge sharing. SHARE was built upon two basic assumptions. First, that the company's middle managers have a shared knowledge and essentially perform the same kind of work, and therefore deal with the same kind of problems. Second, that this shared knowledge and experience will enable them to communicate relatively directly without necessarily knowing each other personally.

Reasons for SHARE's Lack of Success

In our study we tried through meetings and interviews to find explanations for SHARE's lack of clout. After the shortcomings of the first version were overcome, facilitators, moderators and managers generally believed that the real issue was the *content* in the document base – that people did not search the base for inspiration and knowledge, because they found the contributions to be without relevance to their particular situation, or because the quality was simply too low. Without readers, the contributors eventually gave up the system.

Almost all our respondents maintain that after having looked into the base a few times without finding anything of interest, they dropped the system by simply ignoring it as a source of information and knowledge. A research unit manager referred, for instance, to the low quality as the main reason that neither he nor his nearest colleagues would spend any time on SHARE:

> *…it [SHARE] has the gigantic weakness, that it is not any better than peoples' contributions.*

Our respondents gave a variety of different reasons for why people did not use the system, and for the low quality and irrelevance of the Better Practices. There are, however, four recurring explanations in almost all of our interviews and conversations.

Pressure of Time

The workload in Beta is high and it takes time to prepare a document for SHARE. New procedures and ways of handling issues are constantly evolving, but are often not put down in writing. It is most often an extensive piece of work to describe new procedures or methods, and if contributing to SHARE is the only purpose, it is often not done. A unit manager in basic research emphasized that:

> *…it is all something extra, something at the top of the normal run of things. It takes a lot of effort to write to be understood by others.*

He added that his department already had a heavy "burden of communication", because part of their job is to prepare large quantities of internal reports for different purposes.

A moderator confirmed that lack of time is a major problem, for the moderators as well. He stressed, however, that time pressure alone is not a sufficient explanation of the lack of contribution to SHARE. Priorities are equally as important. A heavy workload requires a rigorous order of priority, and if a job is considered to be less important, then it will not be done:

> *People are usually working hard in this company. We have a normal agenda of about 150% of what is possible to do in one day for most people. But tasks are done in this company if it is possible to create a feeling that it is something of value, and important for other people – and people do not see SHARE as important. SHARE is something you seldom find time for, because it is not perceived as a vital mode of problem solving.*

Incentives

Several respondents referred to the heavy workload in arguing that some kind of incentives was required if more people were to spend time contributing to the SHARE base, or to revise their documents so as to improve the quality and relevance. A director said:

> *I believe it is necessary to let people have some token of appreciation for good offerings. A contribution to SHARE does not give any immediate benefit to those who prepare it, and it often takes several hours to write a document that is good enough to be put in the system. A review statement and a small acknowledgment (e.g. £100) will give those people who have a Better Practice accepted a feather in their cap. Such an arrangement will lift the whole SHARE system to a far more conspicuous level, and I believe it will improve the quality of the contributions.*

In recent studies on Knowledge Management the idea of incentives is usually associated with "knowledge hoarding", and is often considered to be a significant problem in organizations (Davenport and Prusak 1998). There is, however, no indication in our study that hoarding is a problem in Beta. On the contrary, all respondents emphasize "there is a great willingness to help each other in Beta", and that most people like the idea of sharing better practices. The first Fundamental is widely accepted, and a department manager expressed this general attitude when saying:

> *…if you have a specific problem and ask: "you have worked on something similar, how would you handle this situation?" then all in this company, with a few exceptions, are willing to do a lot to help*

Corporate management rejected the idea of incentives from the very onset. They maintained that SHARE should be a self-contained platform for sharing of knowledge and experience, and that incentives should definitely not be used to keep the system afloat. The argument being that incentives may help to keep the system alive, but they do not necessarily contribute to knowledge sharing. (Scarbrough, Swan, and Preston 1999) summarize this viewpoint in emphasizing that the reward itself may lead to an overemphasis on the rewarded behaviour at the detriment of the task at hand. This is particularly important in rewarding knowledge, since what is rewarded almost invariably is a proxy rather than the real thing.

"Bragging"

Many respondents stressed that "bragging" and letting other people know what a gifted person you are, are not considered as good etiquette. This is one of the reasons why managers refrained from contributing to SHARE. It appears that submitting something for SHARE was considered to be a form of boasting and an inappropriate self-endorsement, first and foremost because SHARE was open to everybody in the company. As one department head explained:

> *There is a feeling that if you add a Better Practice to SHARE, you do so because you think you can do something better that any other person. Very few people like to give that impression.*

A moderator and unit manager thought that many managers actually used SHARE to improve their own profile, and that the whole system therefore got the reputation of being a system for "eager beavers". This status as being a platform for exposing oneself to a larger audience has presumably caused many to have misgivings about adding anything to the system. A manager from marketing stated:

> *I did once consider preparing a new "agenda-form" for SHARE, but I didn't put it in, because I was doubtful of whether or not it was interesting and new enough to be published for the whole company. Actually I thought it was a pretty good agenda-form I had made – well, but I guess other people could have done the same thing.*

Personal Networks

All respondents emphasized that better practice sharing happens in personal networks – documents and databases are of minor importance. As a moderator explained:

> *People like to talk about things they have done. But if they for some reason have to sit down to write about what they have done, it all turns into something strained and confined, and very likely not useful for others.*

Personal networks are very prevalent in Beta, and of inestimable importance to the organization. People use a lot of time to establish and maintain these networks, and it is generally considered that corporate management should do as much as it possibly can to encourage and support the development of personal network, in particular those networks that transcend business areas and departments. As one moderator strongly emphasized, knowledge sharing primarily happens in these networks:

> *The crucial issue is the personal contacts, and the better practice sharing and support, which emerge from the contacts you make during meetings, conferences and over the telephone. If you want to help and support someone, you need to know something about his position to be able to adapt some initiatives to the local circumstances that exists in this specific situation. The Web is probably useful, but only to support what goes on in the personal contacts.*

Knowledge sharing based on personal contacts does, however, have its limits in a large organization like Beta. Building and maintaining relationships is very time-consuming, and increasingly difficult to establish as the organization become geographically dispersed. Some of the respondents pointed out that some kind of "yellow page" service was needed to help finding people with a specific knowledge and experience.

5. THE DIFFICULTIES OF CROSS-BOARDER COMMUNICATION

The four explanations above are all distilled from our interviews and the meetings, in which we participated. They touch on issues also identified in other studies (Davenport and Prusak 1998; Leonard-Barton 1998), and our study indicates that they do highlight some very important issues.

These four explanations do not, however, provide the complete picture of why SHARE was put to so little use. This is mainly because these explanations focus almost entirely on the input-side, and forget about the user-side. Our study indicates that the non-reading and non-use are at least as important for the history of SHARE as the non-input.

Readers and writers described the contributions very differently. The respondents expressed that it was very difficult to write intelligibly for a broad audience, and that they knew this was required. They also found, however, that the contributions in SHARE were "local" and of only modest relevance to their jobs. A moderator criticized the contributors very distinctly for taking the local situation as given and for writing about their work with sympathetic understanding. They should, he argued, reflect more consciously on their target group and try to write in a way that other people would find it meaningful and relevant. He tried once to encourage this new style:

> *...and then we tried to get the work started by writing to people, in particular the people who had written something we thought could be better. We encouraged them to think about what they had written in a more general and process-oriented way, and to consider, if other people should use the stuff, what was then the core message. We got zero response. People properly felt they had contributed enough already...by spending time preparing something at all, I mean.*

The study indicates, however, that people who prepared something for SHARE were well aware of the fact that they were writing for the managers in the whole organization. They found this to be very difficult, a "pedagogic task" as a unit manager said. Although the contributors presumably did their best, they were not successful in this regard, which appears to be very important for the outcome of SHARE.

The interesting question, however, is why do these documents had to be so "general" and "pedagogic"? Why could they not just be succinctly written insider-remarks, well understood by other managers? This question calls for an analysis of management and the different forms of activities that jointly define what management means. We will briefly discuss three aspects of management.

Administrative tasks. Measured by the number of working hours dedicated to the tasks, the most important management activities are probably the routine functions related to well-established procedures. Such activities are often time-consuming and demanding. A unit manager talked at length about

> *...a huge amount of communication with many internal reports and crisscrossing of news and information*

These routine activities require high productivity, accuracy and some understanding of the purpose of the tasks.

Leadership. The other aspect deals with the goal of a department or unit, and its development. This is the focal point of the New Way of Management, and The 10 Fundamentals underscore the need for an ongoing dialog between management and employees, and make clear that the local management is responsible for developing and maintaining an action plan to ensure improvement of the units business performance and working climate. This is the activity, that is sometimes called "leadership" in the literature, defined as "a manager of meaning" or as "giving a sharable linguistic formulation to already shared feelings, arising out of shared circumstances" (Shotter 1993), citation from (Weick 1995). The term "meaning" actually implies that a wider constituency of organizational members is implicated in leadership, because meaning will be the product of how others have interpreted the messages intended by the leader.

The essential point is that manager becomes intimately involved with the unit and the expertise this unit possesses. To be a manager of meaning requires a very active relationship to "the thought world that evolves in a community of knowing" (Boland Jr and Tenkasi 1995), p.351. A unit manager stated it very precisely:

> *...you always end up realizing that there is a very gradual transition between management issues and technical issues.*

Brokering. The third aspect has to do with the cross-unit communication. Managers are responsible for not only their own unit, but also for the progress within a wide area of activities. The New Way of Management requires that managers actively support cross-unit working relationships and projects of relevance to the business. This requires knowledge of the organization, personal networks as well as proficiency in communicating insights to people who have different backgrounds, and who may not be familiar with the expertise of the manager's unit.

This dimension has a very formal part, the production of reports and updatings, and it has a personal part, the building of social networks. Both parts contribute to the communication among the communities. Wenger calls this brokering across boundaries between practices (Wenger 1999) i.e. the transfer of some element of one practice into another. As brokers, managers make new connections, enable coordination, and open new possibilities of meaning.

Managers in Beta are well aware of this brokering role. A director put it this way:

…but if you want to do something in this company you use your network, and call people you know and arrange a meeting, and find out who should participate…it may not be the right persons you find that way, but only because you haven't been able to explain what you wanted carefully enough.

These three dimensions of management are closely-knit and combined define management in Beta. They define managers as deeply involved with their departments, but also as a group of people with shared responsibilities and practices. Our study indicates, that corporate-wide communication among this large group of managers was regarded by the managers as a cross-border communication, which require qualities that a respondent described as "pedagogic", and which Wenger terms "the creation of a discourse" – i.e. the creation of "meaningful statements about the world that can travel across boundaries and combine to form broader discourses" (Wenger 1999). The managers newer felt they owned SHARE, as a system to support their work. Those managers who used SHARE did so as writers rather than readers.

SHARE was based on at top-down approach in the sense that it premised on Beta's strongly shared identity and culture, and was assumed to be a viable vehicle for the interchange of ideas and opinions among managers, regardless of their rank and specialties. Despite the difficulties in implementing the system, senior management stuck to the principle that SHARE was an *open* communication system, designed to facilitate knowledge sharing among *all* managers in Beta. As a result, alternative uses of the system – for instance to support knowledge sharing within a well-defined *subgroup* of managers with common background and interests – were never seriously considered.

Thus, it seems that senior management in Beta overestimated the degree to which managers in Beta constitute a single, uniform entity – a coherent "community" engaged in a shared practice. As a result, they overlooked the significant variations and divisions within the group of managers created by different local practices – discontinuities that hamper meaningful communication and the flow of knowledge.

6.   CONCLUSION

Previous studies by Orlikowski (Orlikowski 1993), Orr (Orr 1996), and Wenger (Wenger 1999) examined communication and knowledge sharing within well-defined groups of people doing basically the same kind of work. Our study discusses knowledge sharing within a far more heterogeneous group of middle managers in a large company.

The study concludes that middle managers are deeply involved with the community of practice within their departments or units, and that communication and knowledge sharing between managers from different departments, therefore, resemble cross-border communication rather than communication within a community of managers with a shared practice. Cross-border communication requires more explicit and elaborate accounts of the context to ensure that in future use situations, the rationale for the original practice is apparent.

The Knowledge Management literature discusses knowledge sharing from a managerial point of view. Among others Davenport and Prusak (Davenport and Prusak 1998) discuss reasons people may have for not wanting to submit knowledge to an open knowledge system. We found similar reactions in our study

Corporate Management maintained SHARE as a corporate-wide system for Better Practice sharing, and platforms for knowledge sharing within network of managers with shared interests or within certain functions were never established. Our study indicates that this is a major reason for the eventual failure of SHARE.

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