



Barriers to Knowledge Management in a Multinational Telecommunications Company

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ABSTRACT

While organizations continue to grapple with the implementation of knowledge management there is still a need for empirical research into the practical difficulties they encounter. In this paper we investigate the challenges faced by one multinational telecommunications company in a post-merger environment. We develop an instrument to evaluate the knowledge sharing culture and information infrastructure, and using qualitative and quantitative data from a survey of five European sites, we illustrate how managers can measure gaps between perceptions of current practice and their importance, and decide whether to direct resources toward changing attitudes, practices or knowledge management infrastructure.

INTRODUCTION

In today's knowledge economy, it is often asserted that for organizations to compete effectively they need to focus on creating and using intellectual assets. Ask most business leaders if knowledge is important to their company's future and they will say yes without hesitation. Ask them why it is so important, or how they plan to harness their organization's knowledge for competitive advantage and the answers will be less convincing (Pollard, 2000). The key transition is from acknowledging the importance of knowledge to being capable of managing it, or perhaps more accurately, being able to create the organizational conditions that facilitate the generation, sharing and application of knowledge (Collison & Parcell, 2001). Defining these appropriate organizational conditions is still a focus of research.

In this paper we examine the challenges of managing knowledge in an international telecommunications company that had recently merged with a competitor. In particular our results illustrate the practical difficulties in creating a conducive knowledge sharing culture in such a merged organization, especially when it is organized around a business unit structure. We also show how the information infrastructure assumes critical significance in underpinning knowledge sharing efforts, particularly to move beyond localized knowledge sharing and maximize the benefits of global organizational knowledge.

In the next section we review the pertinent issues for improvement of knowledge management practice in multinational organizations. We then outline our research methods for investigating the focal firm, before presenting results of a survey (n=90) of the organization's knowledge workers in five European countries. We conclude by discussing the significance of the findings for research and management practice.

ENABLERS OF KNOWLEDGE MANAGEMENT

Knowledge Management requires a parallel focus on people, processes and technology (Tiwana, 2002), but technology should only be seen as a fundamental support element. At best IT only makes connection possible but does not make it happen (O'Dell & Grayson,

1998). While Knowledge Management cannot be implemented without technology (Malhotra, 2000) the bottlenecks are usually psychological and organizational. The inherent danger is to place information technology at the center of KM implementation, endeavoring to *push* information and knowledge toward employees rather than creating the *demand-pull* for knowledge, by enthusing employees with a desire for knowledge (Kluge, Stein, & Licht, 2001).

In a recent survey of Knowledge Management implementations, one of the most recurring weaknesses was that companies lacked the right cultural context that would nurture reciprocal trust, openness and co-operation (Kluge et al., 2001). To create such cultures, companies need to build social capital (Ghoshal & Naphiet, 1998) such that employees feel inter-connected through their personal networks. In essence, connecting employees is more about building personal relationships and the development of a knowledge-friendly culture (Davenport, DeLong, & Beers, 1998), rather than the physical connections afforded by IT systems.

However, in a global organization, face-to-face relationships are not always possible, giving rise to difficulties in accepting knowledge from unknown outsiders - the "not-invented-here" syndrome (Kluge et al., 2001). Instinctively, employees tend to rely more heavily on "nearest" knowledge from physically proximate colleagues, perceiving such knowledge to be more dependable (Thomas, Kellog, & Erickson, 2001). In multinational companies, organizational structure is also important for leveraging knowledge assets (Gold, Malhotra, & Segars, 2001). When structured into business units, inter-unit rivalry and competition can impede collaboration and knowledge sharing, reflecting the "tyranny" of the business unit structure (Pralhad & Hamel, 1990).

In this paper we assess the current status of knowledge management capability in the focal organization and the importance that employees assigned to knowledge management for the future success of the organization. Our method is outlined below.

RESEARCH METHOD

Sample selection

The sample was drawn from the Marketing and Sales departments in five European countries of the focal firm, namely Switzerland, United Kingdom, Germany, The Netherlands, and Belgium. The sample frame comprised of 389 knowledge workers, excluding clerical and administrative staff, and a random sample of 102 participants was selected. Each person was telephoned to establish willingness to participate in the survey.

Instrument development

The survey instrument used items derived from previous knowledge management surveys (Davis, McAdams, Dixon, Orlikowski, & Leonard,

1998; KPMG, 1999). Items were modified to suit the context of the focal firm, and the questionnaire was pilot tested prior to distribution. The questionnaire was structured in four sections, dealing with respondents' perceptions of:

- The knowledge sharing culture
- The information infrastructure
- Current sources of information and knowledge
- Usefulness of knowledge sharing methods

Items were ranked on a 5-point Likert scale in terms of (a) importance for the future success of the organization, and (b) effectiveness of current practices, and anchored by 1=strongly disagree and 5 = strongly agree. Each section included open questions to permit further comment and opinion. We also gathered categorical data on respondents, including their country, department and position in the organization. The survey was distributed by e-mail, with 90 completed questionnaires returned, representing a response rate of 88%.

Analysis procedures

First we used the chi-square test of significance to test for differences based on country, department or position. No significant differences were detected. We then used t-tests to evaluate differences in item means for importance and effectiveness, where the presence of significant negative scores represents employees' "thirst" for a better knowledge culture and infrastructure, and a *demand-pull* for improvement. Conversely, a significantly positive score represents an activity where the organization was doing more than employees' believed to be necessary.

RESULTS

We firstly present data that indicates the current effectiveness of the knowledge sharing culture and the support provided by the information infrastructure, together with employee perceptions of the importance of these dimensions. In each table we also include the gap between the mean values for importance and effectiveness.

Knowledge sharing culture

There were ten statements in this section, covering issues concerned with learning, knowledge sharing and the openness and helpfulness of employees (Table 1). Clearly, the results in Table 1 suggest that there is a significant gap between the importance (I) assigned to each of these behaviors and the effectiveness (E) of current levels of practice. The largest gaps relate to:

- The time available for creative thinking, which is eroded by spending too much time on "firefighting" problems;
- Have a process to avoid re-inventing the wheel by being able to re-use the work of others.

Table 1: Gaps in knowledge sharing culture

Item	I	E	Gap
Time is allowed for creative thinking (versus always firefighting)	4.38	2.47	-1.91
Looking for best practices or work that can be re-used is a natural standard process	4.54	2.70	-1.84
Considerable time and attention is given to learn from failures and errors	4.70	3.06	-1.64
A climate of openness and trust permeates the organization	4.52	3.19	-1.33
People are responsive (e.g. emails and voice mail get answered in a timely manner)	4.28	3.08	-1.20
Recording and sharing knowledge is routine and second nature	4.16	2.98	-1.18
All employees are ready and willing to give advice or help on request to anyone else on the organization	4.38	3.48	-0.90
Employees take responsibility for their own learning	4.05	3.23	-0.82
Informal networks across different parts of the organization are encouraged	4.03	3.26	-0.77
We have un-restricted access to non-confidential or personal information	3.74	3.35	-0.39
Overall	4.05	3.23	-0.82
(n = 90) 1 = strongly disagree 5 = strongly agree			

Table 2: Gaps in Information infrastructure

Item	I	E	Gap
We can rapidly find necessary information on our IT systems	4.59	2.72	-1.87
Our IT system provides excellent ease of access to information	4.56	2.86	-1.70
We have up to date information from our IT systems	4.58	3.01	-1.57
Our IT infrastructure is an excellent source of information and knowledge	4.47	3.10	-1.37
We can trust the information in our IT systems	4.59	3.24	-1.35
IT is a key enabler of efficient knowledge sharing	4.22	3.11	-1.11
Overall	4.50	3.01	-1.49
(n = 90) 1 = strongly disagree 5 = strongly agree			

- Giving more time and attention to learning from mistakes and failures;
- Developing a more trusting and open climate in the organization.
- Being more responsive to requests from others

Information infrastructure

A similar pattern emerged from the assessment of the importance and effectiveness of the information infrastructure, Table 2.

All items in Table 2 display large gaps between what users expect and the current reality of information provision.

We also explored employee's views about their preferred ways of accessing knowledge and information and their perceived usefulness of a range of access methods available in the organization.

Importance of knowledge and information sources

Currently the most important sources of knowledge are from the services development division and from local sources within the respondents' own departments (Figure 1). There is also a considerable amount of learning by doing and learning through contact with other local departments in each country. Noticeably, inter-country learning is of significantly lower importance.

This finding about inter-country learning is underscored by the findings relating to the usefulness of knowledge sharing methods in the next section.

Figure 1: How important are the following knowledge/information sources

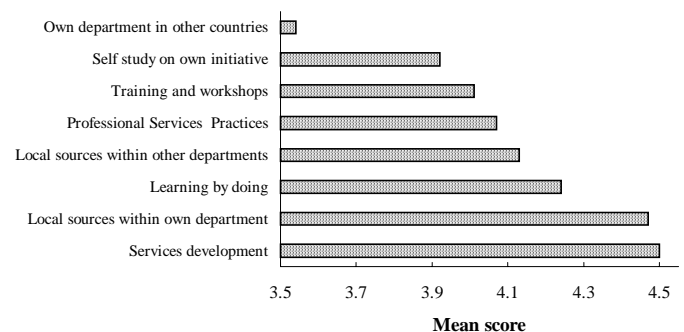


Figure 2: How useful are the following knowledge/information sharing methods

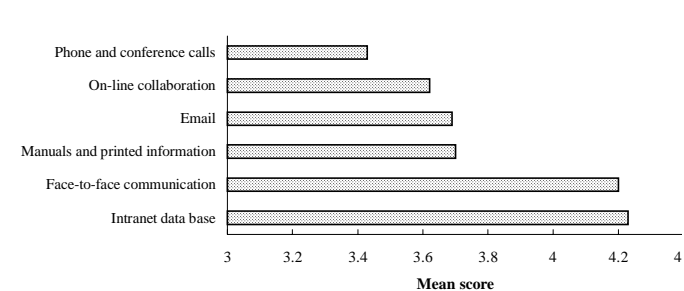
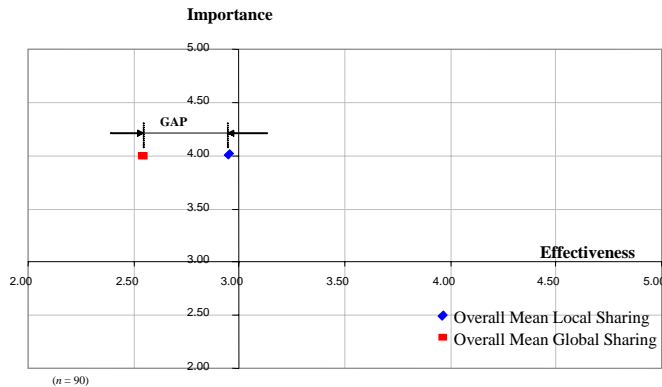


Table 3: Gaps in sharing local and global knowledge

Item	I	E	Gap
We appraise individuals on how they share knowledge and information <i>globally</i>	3.66	2.14	-1.52
We are improving the <i>global</i> sharing of knowledge	4.08	2.64	-1.44
We proactively encourage <i>global</i> sharing of knowledge and information	4.24	2.86	-1.38
We are improving the <i>local</i> sharing of knowledge	4.01	2.89	-1.12
We appraise individuals on how they share knowledge and information <i>locally</i>	3.69	2.62	-1.07
We proactively encourage <i>local</i> sharing of knowledge and information	4.32	3.36	-0.96

(n = 90) 1 = strongly disagree 5 = strongly agree

Figure 3: Overall gap between local and global knowledge sharing



Knowledge sharing methods

In Figure 2 we can see that the most useful methods for sharing knowledge and information are face-to-face and via the company intranet. Respondents' comments made it clear that product information and knowledge was shared through the intranet, while face-to-face communication facilitated local sharing within respondents' own departments and geographically adjacent departments.

We explored this further by asking about the importance and effectiveness of local, within-country knowledge sharing compared with global, inter-country and inter-business unit sharing (Table 3).

These results suggest that the largest gaps between importance and effectiveness of current practices exist at the global level of knowledge sharing. In general, these respondents attach more importance to knowledge sharing than is currently reflected in company practices, but the gap is more pronounced at the global level. Moreover, by plotting the mean values for the answers to the local and global items respectively, we can see that although the firm is viewed as being better at managing local knowledge, the overall gap between global and local knowledge sharing is not as significant as the overall improvement needed in effectiveness (Figure 3).

DISCUSSION

We set out to investigate the current status of knowledge management capability in the focal organization. In both the knowledge sharing culture and the information infrastructure there are significant gaps between current levels of practice and the importance assigned to these practices. These gaps represent the latent employee expectations for improvement in these key areas, and are guidelines as to where management needs to focus its efforts. If the importance scores had been lower, then there would also have been a need for managers to stimulate more awareness of the need for knowledge management by stressing its business value. In the following sections we review our findings and use illustrative quotations from the qualitative data in the survey.

Knowledge sharing culture

The results in Table 1 indicate several areas where the organization needs to close the gap between current practices and employee expectations.

One of the most important areas for improvement is the climate of openness and trust throughout the organization. Several respondents commented on this lack of openness and attributed it primarily to the competition and rivalry between the organization's business units.

"Business units have been trained to be protective of their knowledge. Competitive behavior is built into the organization mainly because of the current sales incentive plan."

"Again and again business units fight over who will get a particular customer. I have lived through cases where this fight took up to 80% of the time available to answer a proposal, and then we have to finally rush an answer."

Another reason given for low levels of openness and trust was the recent merger.

"Trust has partially broken down since the merger, and has since then not been fixed. What we need to achieve is to make employees feel they belong to something more than their business unit. We need to create communication channels across business units that break down the silo structure that prevents knowledge flowing efficiently across the organization. The thirst for knowledge should become more powerful than the influence of the silo guardians."

It appears that there is a significant thirst for knowledge, as evidenced by the scores for the importance of the ten cultural items, and that management needs to develop a cross cutting communications infrastructure that enables interconnection across temporal and geographical boundaries.

A second area for improvement is the ability to re-use and build upon the work of others, to avoid re-inventing the wheel. One Executive Director commented that

"I know that there's not a day or a week that passes where we are not working on a new proposal that might be relevant somewhere else in the organization. Often what enables us to win a new proposal is not just the features and functionalities of our services which we have in boilerplates, but mainly the knowledge of where we have done it before and the type of people we can direct to that sort of project. If we look at ourselves globally on a scale of 1 to 10, we are probably around 2."

Central to improving knowledge re-usability is the connectivity and accessibility of information in the company's intranet, which is currently fragmented. These results underscore the interdependence between culture and infrastructure, and we consider the latter more fully in the next section.

Information infrastructure

The information infrastructure was also shown in Table 2 to be deficient in terms of the reliability and timeliness of information and ease of system use. The following comments give additional insights into the nature of the disparities.

"We have too many information sources and a huge amount of data resulting in difficulties finding the right information. On Lotus Notes we have 12589 databases and who knows how many on the Intranet. Probably 90% of the databases are dead."

Access to codified information was not the only problem. Respondents also commented on the difficulty of connecting with a key contact in another country. This can be a particular hindrance for sales and marketing staff who are often at customer sites.

"Finding information produced in another country can be very difficult. I was recently looking for a proposal made in the UK and it took me approximately an hour before I found the person that was able to help me. Unfortunately he was in his car and could not mail me the proposal, and there was no other way to get it."

Even fundamental mechanisms for contacting colleagues, such as a complete and up-to-date telephone directory seem to have been neglected in the post-merger scenario.

"Today, more than one year after the merger, we still haven't managed to have a completed and updated phone book. It is left to individuals to register either in Lotus Notes and/or the Intranet, but some people are neither in one or the other system (and we are just talking about contact information)."

Sources of information and knowledge

We then investigated the respondents' most valued sources of information and knowledge, highlighting the relative lack of importance given to sources in other geographical units of the organization. These findings were complemented by the results for the perceived usefulness of knowledge sharing methods, where the intranet and face-to-face interaction were the preferred methods. There was comparatively little perceived value in knowledge sources in respondents' own departments in other countries. It may be that employees have not yet recognized, or do not believe in the benefit of working with colleagues in other countries.

From the qualitative comments, many respondents cited reasons that were again concerned with inter-business unit rivalry, erosion of trust after the merger, and the difficulties of knowing who to contact and how to contact them. This lack of regard for organizational information and knowledge beyond respondents' own geographical unit was underlined by the results relating to local versus global knowledge sharing, where the largest gaps existed at the global level. Development of an effective communications infrastructure would provide a baseline for addressing these barriers, including a comprehensive telephone directory, a Yellow Pages catalog of experts, and possibly, communities of practice that link experts in common fields across the business units, potentially circumventing what one respondent referred to as the "silo guardians".

CONCLUSIONS

As a contribution to research, the paper adds to the small number of empirical case studies of knowledge management implementation. The approach used in this research provides managers with a tool to evaluate their organizations' current knowledge management capability both in terms of the culture and supporting infrastructure. By measuring gaps between perceptions of importance and the effectiveness of current practices, managers can identify areas for improvement and decide whether to direct resources toward changing attitudes, practices or infrastructure.

Taken together, these results illustrate the challenges facing a telecommunications company operating in a highly competitive environment. In such markets there are inevitable pressures on time, such that unless an organization recognizes the need to set aside time for creative thinking and learning from failures and errors, this will not happen. Moreover, while mergers are common occurrences, senior

managers need to address their potential impact on knowledge sharing capability, and ensure that, at least in the short-term, the disruption of a merger does not erode personal networks of contacts, or the openness of the merged organization to share with new colleagues.

Our data suggest that the knowledge sharing support-platform inadequately satisfies the "knowledge appetite" of respondents. Harmonizing the information infrastructure of a merged organization can be a critical challenge, not only to reconcile a plethora of databases, but also to provide a comprehensive yellow pages facility to facilitate contact with key people. Our results also underscore the longer-term challenge to enhance the effectiveness of a business unit structure, by ensuring that inter-unit rivalry does not inhibit global knowledge sharing.

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