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# Making IT Happen and Making IT Stick - A Successful Case of Implementing a Knowledge Management System in a Healthcare Organization

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# MAKING IT HAPPEN AND MAKING IT STICK – A SUCCESSFUL CASE OF IMPLEMENTING A KNOWLEDGE MANAGEMENT SYSTEM IN A HEALTHCARE ORGANIZATION

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## Abstract

*Undertaking to implement a Knowledge Management approach is inherently difficult and risky for organizations. This paper describes and discusses an implementation of a Knowledge Management system that took place in a Swedish healthcare organization. The paper takes as its starting point a set of suggested best practices for implementing a Knowledge Management approach. For each of the best practices the successful case is discussed and contrasted with some less successful cases.*

*Keywords: Knowledge Management implementation.*

## 1 INTRODUCTION

Knowledge Management (KM) has established itself as good management practice for modern organizations that strive to be efficient and competitive. Most large and middle size organizations have either some knowledge management activities in place or are planning some. On the other hand, many KM initiatives and projects fail to make the desired impact. KM approaches, methods and tools are tried out but the results are often unimpressive or, at least, they do not meet the expectations. One of the reasons for these problems is that the implementation process of the KM system is too ad hoc and unplanned. The organizations attempt to follow a set of generic advice such as “start small and build-up gradually” without enough internal expertise or they rely on external consultants whose attitude is “we tell you what you want and then we will build it for you” (Persson and Stirna 2006).

Therefore, the objective of this paper is *to report on a case of successful implementation of a KM system and to generalise a set of guidelines of introducing KM approaches in organizations.*

The research approach is conceptual and argumentative based on empirical findings within a KM implementation project in a Swedish hospital. The project, “Efficient Knowledge Management and Learning in Knowledge Intensive Organisations” (EKLär) is supported by VINNOVA, Sweden (c.f. Stirna et al., 2006). The findings of this case are analysed with respect to a number of other case studies that were carried out in public and private organizations (Rolland et al., 2000; Persson & Stirna, 2002; Mikelsons et al., 2002; Persson et. al. 2003).

The remainder of the paper is organized as follows. In section 2 we provide a background to knowledge management. Section 3 contains a description of the KM implementation project at the Swedish hospital. In section 4 we provide a set of recommendations related to the main success factors of the EKLär case. Some conclusions and future work are, finally, discussed in section 5.

## 2 BACKGROUND TO KNOWLEDGE MANAGEMENT

Modern organizations need to maintain a high level of innovation in their business and products, which requires them to flexibly adapt to rapid change in their environments. Among the main driving forces in this change process are people and their knowledge. Organizations need to utilize this knowledge in the most efficient way because, in essence, it is part of their competitive advantage. It is therefore that managing experience, competence, knowledge about business processes and best business practices are so important. This knowledge is part of the organizational memory.

The Knowledge Management (KM) process as described in (Fig. 1.) covers the whole lifecycle of knowledge in an organization. The cycle is adopted from O’Dell et al. (1998) and is similar to the spiral of organizational knowledge creation as presented by Nonaka and Takeuchi (1998).

Creating knowledge can be done in many different ways – running day-to-day business operations, improving existing work routines, restructuring the organization, planning organizational strategies for the future, etc. Often the creators of knowledge are not aware of this and valuable knowledge may therefore be lost. To prevent this, the knowledge needs to be captured in one way or another. This might require thinking in abstract terms, building models and/or mind maps, or simply writing down the experiences. Most often this should be done in a participative and collaborative way, which enhances one’s individual view.

Once knowledge is captured, the organization and its employees are aware of its existence. If the captured knowledge is relevant the next step is to package and store the knowledge so that it is available and can be used by those who need it in the organization. The key element here is to make the specific knowledge useful. This usually requires some degree of generalization of knowledge.

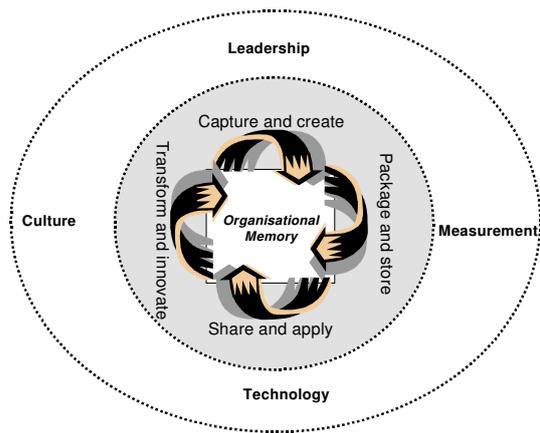


Figure 1. The knowledge cycle in organizations

Furthermore, it also requires envisioning how and in which context each knowledge chunk will be used. The knowledge that is written down in some form usually resides in repositories, manuals, the intranet, etc. However, not everything can be written down. Most often the tacit knowledge is the most important knowledge. In this case we can only write down who knows what, where the knowledge sources are, and how to access it. This also becomes an important part of the organizational/memory/knowledge repository/base. After knowledge is properly documented and stored, it needs to be shared and applied. This probably is the most important task in KM. Knowledge sharing cannot be done mechanistically – it is not enough to install and fill a knowledge base and expect the organization to suddenly start sharing knowledge. Therefore, particular attention should be paid to building a knowledge sharing culture in the organization supported by organization’s leadership. For more about these issues see e.g (Busch and Richards, 2004; Davenport and Prusak, 1998; Sandelands, 1999; Sun Yih-Tong, P. and Scot, 2005).

Technology can only play a supporting role in knowledge sharing and application – its role is to make knowledge sharing easier and more effective. There are various types of KM support systems (c.f. for instance Maier and Hädrich, 2006). E.g. employee KM portals have proven to be successful and efficient in supporting organisation’s knowledge sharing activities (see e.g. Iske, 2002). Successful as well as effective knowledge sharing and application also stimulates innovation - improvement of existing knowledge and creation of new knowledge. This essentially closes the knowledge cycle.

### 3 THE KM IMPLEMENTATION PROJECT (EKLÄR) AT SKARABORGS SJUKHUS

Skaraborgs Sjukhus is a cluster of hospitals in Western Sweden working together with primary care centres and municipal home care to provide high-quality healthcare to the citizens in the region within which they act. Some medical specialities have a higher degree of collaboration between the hospital, primary care centres and municipalities than others. An example of this is the treatment and prevention of leg ulcers. In order to decrease the healing time for various types of leg ulcers e.g. with diabetic patients large efforts are made by all actors involved to e.g. develop new and more efficient treatment methods and care routines (Figure 2).

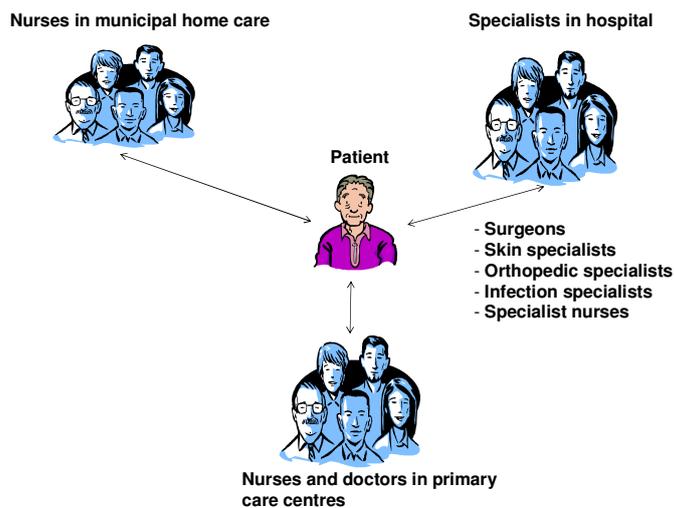


Figure 2. Organising the treatment of patients with leg ulcers

Traditionally the knowledge about treatment and prevention methods has been documented by the hospital in a textual handbook that is updated and distributed very seldom. Training for nurses in primary care and municipal home care is also arranged. The problem with this approach is the difficulty to achieve penetration of new knowledge. The use of outdated knowledge prolongs healing times and causes patients to suffer. Hence, the new knowledge needs to reach its users more quickly. It is also important to reach a larger group of users at the same time and to provide some tool for sharing current knowledge between the actors involved. Training of new employees also needs to be more efficient and effective.

Hence, all three healthcare organisations have been involved in a research project where an approach to knowledge management has been implemented and tested. More specifically, the objective is to build a knowledge repository for learning and sharing of best practices concerning treatment and prevention methods for leg ulcers. The main knowledge bearer and hence the keeper of the knowledge repository and the users of the KM approach is the specialist unit at the hospital. The main knowledge users are primary care centres and municipal home care units. Around the repository a KM approach has been built for capturing new knowledge and for packaging this knowledge to be stored in the knowledge repository.

The approach to knowledge capturing, documenting, packaging, storing and sharing that was used in the EKLär project is available in Rolland et. al. (2000), Persson & Stirna (2002), and Stirna et.al., 2006. The knowledge repository of the EKLär project was implemented on the basis of EPiServer – a web content management system (see <http://www.episerver.se/en/>). The choice of this system was motivated by the requirement that the KM technology support should be an integral part of the existing IT and web-publishing environment of the hospital. This made the EPiServer the only reasonable choice because the hospital was already using this system for other purposes. The resulting knowledge repository consisted of reusable knowledge chunks documented in the form of organisational patterns. The pattern structure consisted of the following fields: (1) problem – describing the issue that the patterns aims to solve, (2) criteria – circumstances under which the problem occurs and the solution is applicable, (3), goal – for the patient and healthcare professional, (4) solution – describing how to solve the problem. Patterns consisted of text and multimedia (see figure 3) as well as hyperlinks to external sources. Apart from patterns, the repository also contains components such as e.g. a picture gallery and a lexicon in order to provide explanations and clarifications of the terms used.

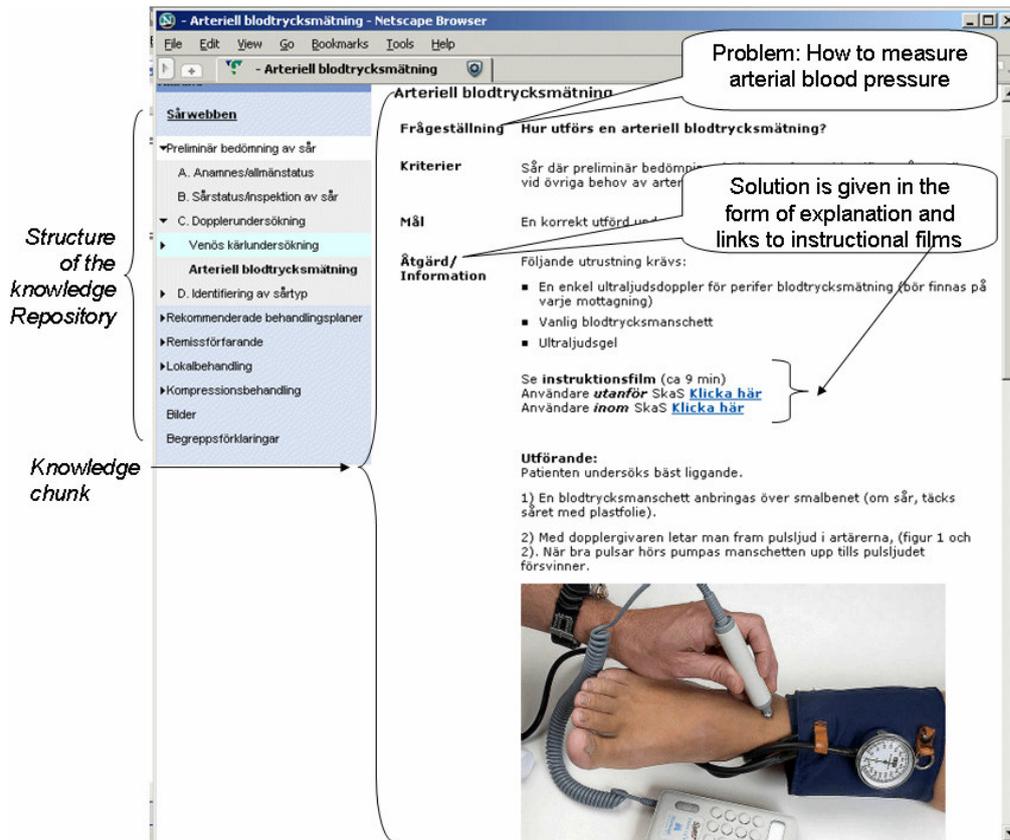


Figure 3. Example of a knowledge chunk in the EKLär knowledge repository.

## 4 DO'S AND DON'TS OF KM IMPLEMENTATION

In this section we present what we consider to have been the main success factors in the EKLär case when it comes to implementing KM. We also provide a set of generic and application domain independent recommendations related to these factors. We then discuss them with respect to the EKLär case and in contrast with other cases that the authors of this paper have been involved in. Case A is large project devoted to restructuring of competence planning and human resource management at a large electricity supply company. This project also had as one of its elements to develop a knowledge repository. Case B is a project aimed to introduce a KM approach and a tool within a large electricity supply company (not related to case A). Case B consists of three pilot applications – damage repair and maintenance of hydro power plants, project management, and risk management. Case C is a project aimed to introduce a knowledge management approach and a tool within a municipality in Europe. Case C consisted of three pilot applications – at a substance abuse centre, a public transportation licensing department, and city's school council.

The remainder of this section will present the recommendations of KM implementation.

### 4.1 Establish organizational support for the KM project

The fact that a few people in an organization think that KM is useful, does not normally create enough support for a KM implementation project to be carried out and for the project results to survive. As everything new, a KM project has to overcome the initial suspicion and reluctance of the majority of the people concerned. Hence, the project needs top management support and dedication, which in turn will stimulate the involvement of people in the organization.

The role of a champion coming from top management is to provide resources and authority as well as to demonstrate the importance of KM by being actively involved. This means that the KM champion should not only orally support KM but also be active in knowledge sharing, e.g. be visible in statistics about visits to the knowledge base, about knowledge objects read, commented, created; and participate in person in KM related events. This kind of support will make the implementation process smooth and effective and will also make sure that the project survives after the implementation phase. Having a top management champion is especially important if the organization has not previously used KM in a systematic manner.

In the EKLär project the application case had an explicit KM champion, a doctor, who was highly respected within the organisation. His participation in the project meetings and involvement in the quality assurance process of the knowledge repository encouraged others as well as ensured that the initial vision of the project is fulfilled. This KM champion headed the organisational unit that was the main beneficiary of the project's success. Case B also had a KM champion from the top management of the organisation which contributed to the overall success of the project. Cases A and C did not have KM champions from the top management which did not affect the success of the trial applications, but hindered the effort of implementing KM throughout the organisations.

Hence, in summary our recommendation is: *Get a KM champion from top management that is respected in the organization.*

Then a KM project also needs KM champions throughout the organisation who will start the actual knowledge work, e.g. capturing and sharing. This can be done in the form of a pilot project, which then creates the initial critical mass of activities and contents in the knowledge base.

The characteristics of such KM champions are that they:

- understand the business need for knowledge sharing,
- would personally benefit (e.g. in terms of greater work efficiency) from the adoption of the chosen KM approach,
- understand the basic concept of KM,
- are willing to share their knowledge as well as learn from other's,
- are highly respected among colleagues in the work group, and
- have time and energy to do the practical work (e.g. creating the initial repository structure and contents, facilitating discussions, arranging meetings).

In EKLär we had a team of such people. They were specialist nurses, who were supported by the top management and who were respected throughout the organization. These nurses have also involved the intended users groups. The dedication of these nurses contributed to a large extent to the project's success. In case A we had one such person, but it was not enough. In case B we had a group of people, but they were not the ones that would benefit from the results of the trial applications. The intended users of the knowledge content were not represented in the group. In case C we had several such people in each of the trial applications, but they did not have enough authority to have an impact on the organization as a whole.

Hence, our recommendation is: *Get some KM champions in the organization who are prepared to contribute with effort.*

In order for a person to be considered a true champion, promises about support and statements about the importance of KM must be followed by concrete actions. We want to believe what people say is actually true, but we should also look at what people really do to support the KM effort. If it turns out that the positive statements were only word of mouth and were not followed by action, e.g. in terms of putting in resources like time and effort, this person cannot fulfil the role of champion at all. If the supposed champion is at the management level, the project will probably not impact in the organization and will not have the necessary resources. If the supposed champion is at a lower level, e.g. in the work-group where the knowledge sharing system will be maintained, the group will not put in the needed effort and the project will probably not survive the implementation phase.

## 4.2 Establish the IT department's support for the KM system

Modern KM processes are normally supported by software applications which need to operate within a corporate IT environment usually controlled by an IT department. When introducing a new KM tool, it is usually the IT department's responsibility for managing the technical aspects of this process. In some cases the IT department's managers may feel that they should have been consulted about purchasing this software, or that this software is not needed because similar tools have been used in the past with little or no success. Or that the same effect could be achieved with other tools as well (e.g. HTML editors). Collaboration with the IT department is therefore needed and should be established as early as possible. The IT department needs to understand that using a particular tool or system is a business decision supported by top management. Involvement of the KM champion from the top management level might be necessary to acquire the needed IT services.

In EKLär we did not have IT department's support from the start, but it would have made things a lot smoother and eliminated several delays if we had. At the time in the project where we needed support from the IT department, the resistance from them forced us to involve top management. After that the KM project had full support and collaboration. In case A the application did not reach roll-out, and no support was needed in the pilot application. Case B had support from the IT department and the prototype KM tool was integrated with the company's intranet portal. In case C no real co-operation with the IT department took place. The project needs were continuously postponed by the IT department until the project ended. The three pilot applications within case C dealt with their IT needs on their own.

In summary our recommendation is: *Involve the IT department at an early stage.*

## 4.3 Tailor the chosen KM approach

In order for the KM effort to have a long-term impact on the organization, the KM approach should organically fit the way of working and the overall IT environment. This means that each organization has its specific requirements to which the KM approach should adhere.

Hence, the KM approach should be tailored. External consultants and vendors should be consulted because they can often share experiences and best KM practices from similar organizations. However, the organization should have realistic expectations from this process. Demands such as "make this very simple and cheap" will most likely not be met. The stakeholders in the organization should be actively involved in the tailoring process because this allows them to learn about the approach and its various components.

In EKLär the tailoring process of the approach was carried out in co-operation between the providers of the approach and its main users, the specialist nurses. Focusing on the characteristics of the knowledge bearers as well as the knowledge users, the knowledge representation template was tailored to fit their common terminology and way of thinking. However, the providers of the approach also had an influence in the sense that they, based on their experience and knowledge, guided the effort away from common fallacies such as over-simplifying the usage perspective of the knowledge content. The joint tailoring has facilitated the take-up and proper usage of the KM approach and the knowledge representation template. The knowledge capture process has also been tailored so that it can be smoothly integrated in the daily processes at the hospital.

In case A we did not tailor the approach, which led to relatively low acceptance of the knowledge representation template. In case B there was some tailoring of the knowledge representation template. This was done by the main users of the approach in the organization. The providers of the approach did not influence the tailoring process. The tailoring later turned to be partially inadequate. In case C minor tailoring was done, that did not really impact on the implementation.

In summary our recommendation is: *Tailor the KM approach together with the knowledge bearers and knowledge users to fit the application context.*

#### **4.4 Plan for survival of the project results**

In order for the project results to survive beyond the pilot project, the organization needs to feel that they are the true owners of the KM approach and system, and that they have the competency and skills to do the KM work without involving “outsiders”.

In many cases external consultants are used when an organization decides to implement KM. Typically organizations need to acquire adequate competency fast and hiring external consultants is the most efficient way to do it. However, this should not lead to the consultants developing the knowledge contents by themselves with limited active involvement of the organization’s own people. A variant of this is to hire students or junior employees to perform the task. The assumption that the creation of reusable knowledge content of high quality and value is a trivial task that can be outsourced by the actual knowledge bearer is wrong. One of the hazards with this way of working is that the business value of the content in the KM system is low because it does not address the real needs of the organization. Hence, the KM system will not be used.

In EKLär this was one of the main success factors. Only the knowledge bearers themselves created the knowledge content in the system, using the KM approach themselves. Some initial discussions and guidance was given by the approach providers, but not about the content, only about the form and structuring of the knowledge.

In case A, it was the approach providers and junior employees of the organization that created the knowledge content. This led to the users deeming the knowledge content as being too generic and not contributing to their business needs. More about the evaluation results of the knowledge repository is available in Rolland et al. (2000). In case B it was mostly the knowledge bearers that created the knowledge content, which generally held reasonably high quality and business value. This alone, however, was not enough for the KM approach to be taken-up by the organisation. In case C it was the knowledge bearers, junior employees, external experts, and approach providers who created the knowledge content. This resulted in the knowledge content being of various quality and usability for the three pilot applications within the organization. We observed that only the pilot application where the knowledge bearers created knowledge contents achieved positive results of knowledge sharing and learning. After the end of the project the KM approach was taken up by this organisational unit only.

In summary our recommendation is: *Support the people in the organization so that they will be able and confident in using the KM approach after the implementation project ends.*

#### **4.5 Set up a pilot application**

One way of assessing the suitability of a KM approach is to carry out a pilot application. After the pilot, the decision for institutionalization can be made. During a pilot application the KM approach can be tailored and some content in the KM system can be developed and tested. One of the critical risks in selecting a pilot application is to select a simple case concerning a few people who have “spare” time in a remote department because their “testing” of the new technology will not disrupt the “normal” way of doing business. In such cases, the team does its best and develops a case, an example, or a prototype within the given time and resource constraints. The problem addressed is usually peripheral and tackles issues that only a few others care about.

Organizations naturally do not want to experiment with things that turn out to be useless for them. In addition, in their ambition to achieve efficiency they try to do everything as quickly and cost-efficiently as deemed possible. Inexperienced organizations, as a result, fail to understand that KM technologies are to be tested in real life situations on a sufficiently large scale, involving a serious number of employees.

In the EKLär project we selected a pilot case that was of high value not only to the organizational unit where it was carried out but also to other health-care organizations that act in the same value-chain. The knowledge content developed during the pilot will be the core of the whole future KM system.

In case A the knowledge content for the pilot was developed based on results from other sub-projects that did not explicitly address KM. The scope of the content and its value was fairly limited. In case B trial applications of high business value were selected. They were reasonably successful per se, but the drawback was that the results were not analysed in the context of introducing KM throughout the organization. In case C, two of the three pilot applications were regarded as “interesting” by the users, but neither made any real impact. The third one, however, was relevant to the organizational unit involved and knowledge sharing was needed. Many of its employees appreciated KM activities and participated enthusiastically.

Hence, our recommendation is: *Set up a pilot application that has real business value and that will be part of the future KM system.*

#### **4.6 Develop initial knowledge content in a participative manner**

When developing the initial knowledge content in the KM system it is important to create a feeling of responsibility and ownership among as many people in the organization as possible, hence improving the chances of the KM system to survive the implementation project and spreading the knowledge about KM and about KM system.

One way of ensuring this is to develop the knowledge base in a participative manner, involving different actors that may be able to contribute. The following tasks usually benefit from working in this manner:

- Performing a knowledge audit
- Developing a commonly shared knowledge map
- Identifying crucial knowledge related problems to be addressed by the joint efforts,
- Developing the structure of the knowledge sharing tool or repository
- Developing organizational processes and activities related to knowledge work
- Reviewing the repository contents including the user feedback

The content should be needed and valuable for solving real work problems that attract the users' attention and create a desire to use the content. Toy examples and trivial content on the other hand, will only repel the potential users.

In EKLär we used participative Enterprise Modelling (see e.g. Bubenko et al., 2001; and Stirna et al., 2006) to develop a concepts model/knowledge map containing the key concepts of the application case. This knowledge map was continuously improved throughout the project and used to identify knowledge gaps and to structure the existing knowledge. The knowledge bearers analyzed the knowledge map and the needs of the knowledge users in order to determine the knowledge gaps, which increased the value of the knowledge contents.

In case A the starting point was a large number of enterprise models. Knowledge content was extracted from the models, but not in a very systematic manner. The approach was analytical rather than participative. In cases B and C participative Enterprise Modelling was used to create some of the content, but in several trial applications the external consultants or providers of the KM approach were driving the effort.

In summary our recommendation is: *Make the knowledge bearers and users drive the development of the initial knowledge content based on their actual needs.*

#### 4.7 Ensure the quality of the knowledge content

Ensuring that the quality of the knowledge is high enough for the KM system to have the intended impact in the organization is a critical task. The level of quality is a motivating factor for the KM system users. Once an organization is aware of this, there is, however, a risk that they become overly cautious when selecting and developing the knowledge content. The organization might either be afraid that the knowledge content will not be interesting and valuable to the knowledge users or try to adhere to some imaginary rules and regulations restricting information spreading and publishing. As a result, formal and usually time consuming approval procedures involving senior management representatives are set up, which very few employees dare to use. In fact, the cautiousness can result in what the organization is afraid of – knowledge content that is not interesting and valuable to its users.

In the EKLär project the KM system will be publicly available on the web, in order to enhance knowledge dissemination to other health-care organizations. In relation to this, there was a discussion about liability in case of misuse. Some people used this issue to question the feasibility of the project as a whole. However, the problem was more of an imaginary nature and was dismissed after some investigation.

In case A the fear of revealing competitive knowledge publicly caused the application to fall in the trap of being overly cautious. In case B and C this was a non-issue. In case B this was due to the fact that the knowledge was intended for internal use only. In case C it was because the organization was operating under the rules of public information management.

In summary our recommendation is: *Develop quality assurance procedures that are efficient but not restrictive.*

## 5 DISCUSSION AND CONCLUSIONS

The experience from the cases that our work is based on is that a careful and well planned implementation strategy is critical for the success of KM implementation. The EKLär case is the last in a series of case studies that the authors of this paper have carried out. In this case we observe a significant improvement in comparison to previous cases, when it comes to the chances of survival after the implementation project of the KM approach and the knowledge repository. It is fair to say that we have been able to resolve the main portion of the challenges that are represented by the recommendations in this paper.

The recommendations reflect the fact that the main problems are related to people and to organizational culture. This is due to the fact that people, not technology, carry out KM. Changing the attitudes of managers and employees as well as convincing them that the KM effort will benefit them personally is a difficult task that needs to be addressed from a number of different perspectives. As a result KM implementation cannot be seen a traditional project with a determined budget, fixed delivery deadline and fixed project team. Instead, all these parameters change as the situation in the organisation changes and the team needs to constantly interact with and to involve the rest of the organisation. Furthermore, the organisation should also overcome the challenge of moving from a project type way of working with KM, which might be used in the early stages of KM adoption, to including KM in the core business activities.

We do not claim that the list of recommendations is complete. It is the list of the main issues that our cases have revealed. In different organizational settings there could be additional factors. This motivates further research in other organizational settings addressing other domain problems.

The recommendations are general not taking into account specific KM approaches, such as e.g. communities of practice. Interesting future research is therefore also to study the effect and implementation of our recommendations in cases where specific KM approaches are implemented.

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