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**WORKSHOP**

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**AGREEMENT**

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English version

## European Guide to good Practice in Knowledge Management - Part 3: SME Implementation

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## Foreword

This European Guide to Good Practice in Knowledge Management (KM) has been prepared by a Project Team reporting to the CEN Workshop on Knowledge Management in the period September 2002 till September 2003. The decision to produce this Guide in the form of a CEN Workshop Agreement was taken at the Workshop's Kick-Off meeting on 2003-06-24.

### ***Reason for this guide***

This guide aims to:

- (a) Provide European readers with a practical introduction to mainstream thinking in KM;
- (b) Give an indication of some of the emerging new thinking in KM;
- (c) Stimulate interested readers to join an ongoing public discussion about KM, which will be facilitated through the European Commission's KM portal at <http://www.knowledgeboard.com/>

The authors have therefore produced:

- (a) A discussion document to help readers develop their plans for getting started in KM;
- (b) A synthesis of good KM practices from around Europe – from the private and public sectors and from academia;
- (c) A reflection of their own experiences in KM;
- (d) An indication of some of the new thinking in this fast evolving field.

### ***A fast track through this guide***

The guide comprises five main booklets<sup>1</sup>, published each as a CWA part, each of which can be read separately, although we would strongly recommend readers to consider these booklets as one integrated good practice guide, which can perhaps be best read in the following order:

- 1. KM Framework**, which sets the overall context for KM at both the organizational and personal level; (CWA 14924-1)
- 2. Culture and KM**, which explains to readers how to create the right cultural environment for introducing KM; (CWA 14924-2)
- 3. Implementing KM in Small and Medium-Sized Enterprises (SMEs)**, which provides a project management methodology to help SMEs (and other organizations) get started in KM; (CWA 14924-3)
- 4. Measuring KM**, which helps organizations assess their progress in KM; (CWA 14924-4)
- 5. KM Terminology**, which summarizes the key KM terms and concepts that readers will find useful when navigating through the guide. (CWA 14924-5)

These documents are therefore intended for employees, managers, directors or anyone else involved in a KM programme, within or between European organizations. The documents combine both desk and primary research and also offer a comparison of different models and case studies.

The document has been approved by a wide range of interests, representing the Knowledge Management community. The list of experts who formally supported the CWA's contents may be obtained from the CEN/ISSS Secretariat.

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<sup>1</sup> Please see Annex A for the detailed terms of reference for each Work Item of this project.

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# Introduction

## ***Why KM?***

As organizations strive to improve their business performance and capacity for innovation, their attention is increasingly focused on how they manage knowledge.

Experience has shown that successful KM implementations in business settings prioritize attention on soft issues - including human and cultural aspects, personal motivations, change management methodologies, new and improved business processes enabling multidisciplinary knowledge sharing, communication and collaboration - and see technology as an enabler.

Despite this, most efforts so far at addressing the challenge of KM in business environments have typically taken a "technology-push" approach, concentrating major effort on putting in place IT tools that will "solve the knowledge creation, sharing and reuse problem".

Given this, it has been the objective of this guide to investigate those soft areas related to KM which can be the subject of common approaches, good practice identification or standardization initiatives, and to situate and describe these in the wider organizational context. The overall intention has been to provide meaningful and useful guidelines to companies, and notably SMEs (see below), as to how they might align their organizations culturally and socially to take advantage of the opportunities of knowledge sharing within and beyond their organizational boundaries.

These guidelines therefore take the form of a European Guide to Good Practice in KM which describes how to implement KM successfully within an organization, and lists the benefits awaiting those organizations that are able to do it. Through its soft, culturally focused approach, the guide aims to add value to other more technology-focussed initiatives underway within companies and standardization bodies. The overall result will be a greater complementary benefit for European companies, large and small.

In short we have aimed to identify and develop good practices which can be applied to all types of European businesses, including SMEs, to ensure that these organizations can be assisted as they seek to put in place the cultural, human and environmental ecology necessary to take full advantage of their collective knowledge as they do business in the knowledge economy.

## ***Why KM in SMEs?***

Owners and managers of SMEs differ in what they term success. Survival and continuity, profit, return on capital employed, numbers of employees and customers, pride in product, skills and service, employment for family members, and enjoyable work life, are frequently mentioned criteria.

Knowledge will tend to play a more significant role whenever change, innovation and growth are being pursued in a competitive and complex field. Some identified KM routes to success have been through the following:

- Being adaptive to the business environment you are in
- Having a special group of customers; we may learn a lot from leading customers and from companies with a good innovation record
- Sticking to a small niche that others do not want to contest
- Benefiting from local monopolistic circumstances
- Addressing inertia/lack of information among the customer base
- Creating a stable technology infrastructure over a long period of time
- Maximizing the profitability of the activity
- Capable management with a good development process supporting them
- Loyal and capable workforce
- Being responsive to customers' needs and requirements.

## **CWA 14924-3:2004 (E)**

For the SME these simple steps can provide substantial benefit:

Although extended knowledge locations and flows are obvious in larger organizations, why is a KM approach especially important in the SME? Reasons are as follows:

- Knowledge in SMEs tends to be tacit/informal/not recorded
- Know-how in SMEs may not be valued as highly as it might be
- Lack of know-how may be hard to talk about in SMEs
- Short-term approaches to knowledge gaps may work sufficiently to make change appear unnecessary
- Know-how in an SME may easily be lost or fragmented when the owner sells the business or retires.

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# 1 Scope

Throughout Europe, Small and Medium-sized Enterprises (SMEs) and SME communities are refocusing their activities to collaborate and compete through knowledge. Hence their awareness grows that efficient management of knowledge is essential for remaining competitive.

But KM is not something that may be bought off the shelf, and it is generally agreed that there is not just *one single* way to implement KM in SMEs.

This booklet 3 in the European Guide to Good Practice in KM presents a unifying guide with good practice examples for KM implementation in SMEs across Europe and thus assists SMEs and SME communities in identifying their readiness for KM, identifying and motivating key players, implementing KM successfully within and across their organizational boundaries and networks, and measuring the results of their efforts.

Readers can benefit from the content of this booklet alone, but we strongly recommend that they actually read this document along with the other booklets of the guide (all booklets are complementary and cross-referenced), namely:

- Booklet 1: Framework
- Booklet 2: Culture
- Booklet 4: Measurement
- Booklet 5: Terminology

This booklet presents guidelines, checklists, practical examples, models, and tools based on common needs. Tools selected to enable KM implementation should meet several criteria: they should provide a sound conceptual basis, they should have gone successfully through practical testing, and should reflect a variety of business environments. The work builds on currently available guides to good practice, lessons learned, problem solving histories and experiences, and input provided by SME representatives (see reference list for details).

In short, this chapter intends to provide its readers with an easy to understand, easy to use and step-by-step guide to successful KM implementation across diverse SME environments

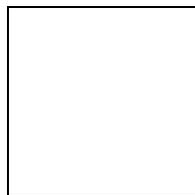
## 2 A Project Management scheme for KM implementation in Small and Medium-sized Enterprises

A central objective of KM should be that it becomes a natural part of everybody's daily work. For example, one should ensure that KM-related IT tools are used, that lessons learned are an integral part of every project and work flow, and that there is an open knowledge-friendly culture (see also booklet 2 on culture). However, when starting out in KM, one can't expect that all people will work like this right from the outset. First they and the entire enterprise have to learn about KM. It makes sense to introduce KM gradually into small projects, concentrating upon carefully focused items.

Below we present a project management (PM) structure adapted to SME needs in a KM context. At every step there will be examples, good practices, helpful tools etc. that will assist the overall implementation process of KM in a SME. As it will not always be possible to draw a solid line between the separate phases, there might also be overlapping and similarities between tools presented in different phases.

A general project management scheme for KM can comprise five phases<sup>2</sup> (see Figure 3.1).

Phase A: Setting up a KM Project:	In the first phase, the vision, mission, strategy and aims for the KM initiative should be defined and the objectives set.
Phase B: Assessment:	The current state of knowledge assets and flows should be assessed.
Phase C: Development:	Requirements should be defined, alternative solutions evaluated and the design of the core elements of the KM solution (tools and methods) carried out.
Phase D: Implementation:	Covers the processes of implementing the KM solution into the organization and, if appropriate, how to train the end-users of the tools and methods.
Phase E: Evaluation/Sustainability:	An evaluation of the project should be carried out and results measured (see also booklet 4 on measurement). But that should not be the end – an on going process of integrating the results/findings into the SMEs daily work should begin.



**Figure 3.1 — Project Management Scheme for KM Implementation**

In parallel with these sequential phases<sup>3</sup>, leadership should consider starting a change management process in the organization (see also booklet 2 on culture): leaders should communicate with and involve all relevant

<sup>2</sup> There may be possible adaptations in different project contexts, but in order to keep it general we will make use of this scheme in the following and name the chapters accordingly.

stakeholders in order to generate openness, foster trust and manage varying expectations right from the start<sup>4</sup>. The KM implementation process covers all people-related activities that aim to support the implementation of the KM solution, by involving people within the planning, analysis and implementation tasks – and of course by training both the knowledge workers about the new processes and technologies, as well as potentially developing new knowledge-related roles (e.g. “knowledge manager”, “knowledge broker”). KM implementation should also include systematic internal communication between the different stakeholders about the objectives and envisaged project steps.

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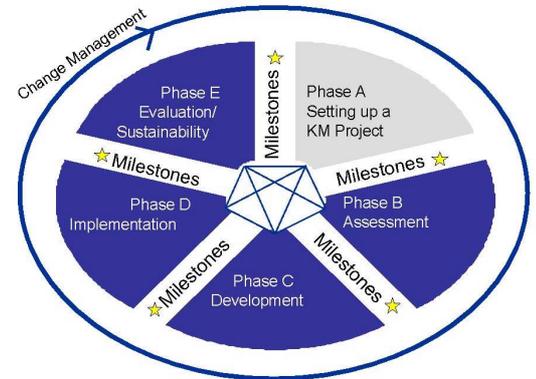
<sup>3</sup> In practice, we must and cannot regard the phases of our project management scheme as separate entities. On the contrary, they are all closely related and interdependent, as Figure 2.1 indicates.

<sup>4</sup> For detailed information about the cultural aspects of KM. Please read booklet 3 of this European Guide to Good Practice in KM.

## 3 Phase A: Setting up a KM Project

### 3.1 Introduction

“In the past we started with KM where the ‘energy’ was - where some managers and their staff were enthusiastic about KM and wanted to start implementing it. Today, we try to align our KM initiatives with our business strategy and our business processes.” This statement from a knowledge manager of a KM pioneering British organization reflects very well the evolution KM has undergone during the last years.



**Leadership should carefully define their mission, vision, strategy and the aims for their KM initiative. This task is not a one-off exercise, but an iterative process. The defined strategy and aims have to be reviewed in the light of future market requirements, the development of knowledge in the respective areas inside and outside of the organization and the results of the ongoing KM initiative. Therefore management should regularly review these subjects. Mission, Vision, Strategy and Aims**

When an organization plans to start a KM initiative, it often struggles with questions like: Where do we start? What are our aims? Where should we invest our efforts? Which knowledge should be managed today and in the future? To answer these questions is not an easy task. Nevertheless management should spend some time discussing and defining how to give the KM initiative an overall direction<sup>5</sup>. Despite the fact that these strategic tasks are the overall responsibility of senior management, other employees should also be involved in order to ensure that their needs are met and so that they can integrate their own knowledge into the strategy process. The following questions serve as a good guideline for this task:

- A KM mission statement might be useful to explain *WHY* KM is important for the organization in its competitive environment today and in future.
- The KM vision states *WHAT* the organization strives for in the long run with their KM initiative and how the desired “KM-enabled” organization will look in the future.
- The KM strategy defines the steps and procedures on *HOW* to become a KM-enabled organization.
- The KM aims define the detailed objectives the organization wants to achieve with the KM initiative, in terms of deliverables and degree of improvement, e.g. “to decrease the duration of the preparation of bids by 30 % within the next six months, by re-use of existing offers and proposal documents”.

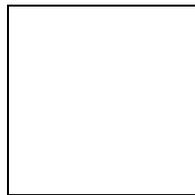
The definition of a KM strategy is an important step towards achieving a successful KM implementation. The large number of different KM tools and methods available means that organizations should have a solid understanding of their own needs and objectives, in order to ensure that they choose the right ones. KM strategy and aims will act as reference points in order to guide the project tasks during the next phases. Even as the KM strategy is being developed circumstances will change, as change is the only constant in business. This does not mean that developing a strategy is a useless exercise. Without a strategy there is no touchstone to assess what has changed and what the implications will be for the KM initiative. What it does mean is that the KM strategy should be concise, developed over a fairly short period of time, and a process put in place to monitor the need for revisions to the strategy in the future.

<sup>5</sup> See Weggemann (1998).

## 3.2 Processes, Tools and Methods

The following paragraphs summarize some approaches that serve to help develop a KM strategy and explain some tools supporting the initial steps towards setting up a KM project.

One approach<sup>6</sup> starts from the basic business strategy that an organization is already following. For example, if the organization is operating in high volume markets, it will usually offer standardized products and services. Its aim is to achieve high efficiency through standardized products and processes. This orientation calls also for re-use of knowledge, e.g. within the sales department, by using standard offers and within the customer service function with perhaps a question– and answers database providing the customer with accurate information. Therefore such organizations should strive for the codification of their knowledge – e.g. product descriptions for the customers and process descriptions for the workers and technicians. If an organization operates in a market in which customers require unique solutions for their problems and needs, standards will not satisfy their clients any more. Customized solutions have to be offered. In this environment, there is not enough time for document and codification of all relevant know-how - only some basic specification of the expertise of the employees should be stored in a database in order to allow easy identification of internal experts. In this case, knowledge will be exchanged directly on the phone, face-to-face, on-the-job or online and supported by easy-to-use collaboration tools. Nevertheless, choosing between these strategies should not imply an either/or decision, but rather should be about finding the right balance between how much codification is required and how to enable direct exchange of knowledge. These approaches are also called<sup>7</sup> “codification” or “people-to-system” and “personalization” or “people-to-people” (Figure 3.2).



**Figure 3.2 — Two generic KM strategies following Hansen et al. (1999)**

Empirical findings<sup>8</sup> suggest that organizations start their first KM initiative mostly in the areas they consider as their core competencies, such as marketing and sales, research and development or manufacturing. Therefore one possible approach could start with the selection of the business area or processes that should be supported by KM (Figure 3.3). If the organization strives for permanent product innovation, then the KM initiative could improve the management of development knowledge, build up network relations with external research units in universities and employ a knowledge broker to constantly search for the most recent inventions and patents within the business area. If the organization goes for manufacturing excellence, its KM efforts should be invested in internal continuous improvement efforts, involving the production workers, effective sharing of maintenance and sharing knowledge between planning, technical, maintenance staff and production line workers, as well as training in the use of new technologies and equipment.

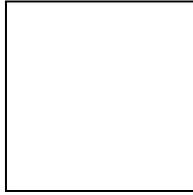
There is also a connection to process-oriented management systems often already existing in SMEs, e.g. ISO 9001:2000 Standard or EFQM Excellence Model, as interfaces to integrate KM. This might easier the entrance of the KM procedure for such SMEs, because the idea of process thinking and continuous improvement is (or should be) already implemented.

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<sup>6</sup> Hansen et al. (1999).

<sup>7</sup> Hansen et al. (1999).

<sup>8</sup> Mertins et al. (2001).



**Figure 3.3 — Example of an organizational process map**

Another approach has been developed by the Dutch KM organization CIBIT, refined in collaboration with Siemens AG and applied in various medium-size and large organizations<sup>9</sup>. This Knowledge Strategy Process (KSP) has six basic steps:

- Step 1: What is the most significant business perspective for the near future?*  
Examples are new products, process innovation or a business as a whole.
- Step 2: Which knowledge areas are significant for the selected business perspective?*  
A knowledge area could range from project management expertise to run projects successfully up to know-how about new manufacturing technologies and their application.
- Step 3: Which of the key performance indicators (KPIs) used for business apply to the selected perspective? (This step is often alternated with step 2)*  
KPIs should be taken directly from the business strategy. Such KPIs could be an innovation index for new products, customer satisfaction for the service area or process efficiency of the manufacturing processes.
- Step 4: What is the current and future impact of the knowledge areas on the KPIs?*  
The results of the discussion and assessment within the management team show the key knowledge areas to be those ones with the highest current and future impact on the KPIs.
- Step 5: What's the status of our knowledge areas and where should we improve?*  
The KSP uses three key dimensions of knowledge to evaluate the actual or target status of the key knowledge areas identified in the previous step (cp. Figure 3.4):
- *Proficiency (abilities, skills and expertise)*, which represents the depth or abstraction of knowledge and is always tied to particular people within organizational structures.
  - *Diffusion*, which reflects to what degree abilities and expertise are distributed and how the processes for distribution and networking are working.
  - *Codification*, which conveys to what extent and how knowledge is documented, structured or expressed in some other way<sup>10</sup>.
- Step 6: What's our plan and how do we monitor our progress?*  
Based on the conclusions drawn from the analysis and evaluation steps, proposals for the most relevant knowledge areas are formulated by the management team. These proposals are improvement actions for knowledge work or learning. The improvement actions are executed by the related subject experts with the support of a cross-disciplinary KM team and driven by the management team.

Thus the KSP leads to transformations focused on the business strategy and coordinated across all related support functions, especially competence development, organizational development and information management/IT infrastructure. One often hears the complaint that KM is failing to attract senior management

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<sup>9</sup> Hofer-Alfeis, van der Spek (2002), p. 28ff.

<sup>10</sup> Hofer-Alfeis, van der Spek 2002:27.

attention – however, with the KSP the management team takes the lead in knowledge-related business transformation issues and there is no longer a need to systemically plan for return on investment (ROI) considerations before a KM solution is even in operation.

Experience shows that the KSP should start with an interview of the business owner in order to identify the context and define the boundaries of the business case as well as the people to be involved. The six steps could all be performed during a one-day workshop, but it is recommended to divide the steps and run partial workshops in order to leave the moderator, the management team and other staff members the possibility to prepare the steps, digest the results and underpin presumptions with more detailed data.

<p><b>Proficiency</b> Our employees are able to apply this knowledge in products and services. We assess our capabilities as a company at the level of:</p>	<ol style="list-style-type: none"> <li>1. Beginner</li> <li>2. Apprentice: has basic knowledge and can apply it under supervision</li> <li>3. Specialist: can perform independently</li> <li>4. World-Class' expert: is considered to be leading in this knowledge area.</li> </ol>
<p><b>Diffusion</b> Knowledge in this area is diffused to relevant parties inside and outside the company. We assess the level of diffusion as follows:</p>	<ol style="list-style-type: none"> <li>1. The average proficiency across stakeholders is at the level of beginners.</li> <li>2. The average proficiency across stakeholders is at the level of apprentices.</li> <li>3. The average proficiency across stakeholders is at the level of specialists</li> <li>4. The average proficiency across stakeholders is at the level of world-class experts.</li> </ol>
<p><b>Codification</b> Knowledge in this area is codified and traceable/accessible for all relevant parties. We assess the level of codification at the level as follows:</p>	<ol style="list-style-type: none"> <li>1. Knowledge is only in the heads of our employees.</li> <li>2. Knowledge is codified in project descriptions, stories, or other forms of documentation, but limited filtering has been done.</li> <li>3. Knowledge has been codified into structured concepts, frameworks, and theories.</li> <li>4. Knowledge has been embedded in best or good practices that give direction to actions of our employees.</li> </ol>

Source: van der Spek, Hofer-Alfeis, Kingma 2003

**Figure 3.4 — Three dimensions of evaluation of the key knowledge areas<sup>11</sup>**

### 3.3 Setting up a KM Project and KM Project Team

A successful KM initiative has to involve from the outset the key stakeholders of the organization, because most of the knowledge will still reside with individual people. When setting up a KM project the following principal aspects should be considered:

- Appoint the right project team members.

Successful KM projects should usually be led by the process owner of the identified improvement area such as the sales manager for a KM project to improve the sales process, a production engineer as project manager for the best practice exchange about manufacturing procedures and the research and development (R&D) manager for better exploitation of new product ideas and lessons learned from former projects. The Information Technology (IT) and Human Resources (HR) function should also be involved, as they are needed to implement changes within their respective areas.

<sup>11</sup> v.d.Spek, Hofer-Alfeis, Kingma (2003), p. 453.

- Active support from the top management has been identified as a critical success factor. Therefore, the project should usually be actively sponsored by a member of the management team.

A software company with around 400 employees set up a KM project team based at its innovation centre. After a first requirement analysis based on interviews with the management, four main areas for improvement were identified: project knowledge, improved customer knowledge, skills management to support project staffing and centralized information processing. Based on these requirements the KM project team designed four pilot projects and carried out a workshop with external KM experts. Their task was to discuss the proposals based on two roles: pro as *advocate* and contra as the *devil's advocate*. The decision about the pilot projects was taken by the management team, so the project team defined as a indispensable precondition for the KM pilots that no pilot project would be started without explicit support by a management team member acting as the project sponsor. At least two further KM pilot projects have since been started.

- In several European countries the national industrial laws assign to an organization's "works council" different rights, such as to be informed about all changes and to decide upon related issues. The involvement of the members of the works council is therefore another important step for KM in some organizations

Depending upon on the KM solution chosen by the organization, such as a Community of Practice (CoP) or a customer knowledge base, certain roles and responsibilities have to be established. It might be useful to transform some project management roles into those roles required by the different KM method or tool.

## 3.4 Milestones

In short, the following results should be achieved by concluding Phase A.

- A mission, vision and strategy for KM is defined and linked to the overall business strategy. The KM vision is easy to understand and communicated throughout the business. It gives answers to the following questions:
  - Which knowledge is important for our business?
  - Why is this knowledge so important for us?
  - How we want to develop and handle this knowledge in the future in order to improve our business?
- The business area or business process with its key knowledge areas is identified and its status is assessed by the management team.
- The KM strategy is defined and detailed objectives are defined for the KM project.
- A KM project team is appointed and a sponsor from the management team is actively and visibly supporting the project.
- The KM project manager is appointed from within the business area selected for the KM project and other users are involved too. IT and HR, as well as marketing specialists are often nominated to provide expertise and to support the project team.

## 4 Phase B: Assessment

### 4.1 Introduction

Most SMEs today, confronted with the need to manage their knowledge, might already make use of tools and methods that could be seen as evidence of a KM approach, but which in fact are generally adopted in a rather disorganized fashion.

Many SMEs may not have the experience and the necessary methods to rate their KM activities. To do so, they'd need to answer questions like these:

- How efficient is our KM with regard to our organizational aims?
- Do we have a KM strategy?
- What is still missing?
- Where did we go wrong?
- Where do we stand in comparison to our competitors?

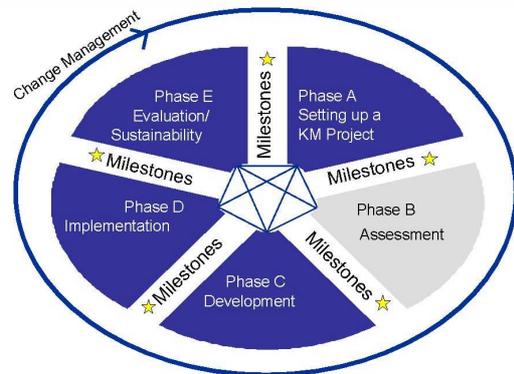
Answering such questions forms an essential basis for further development and implementation of successful KM.

Consequently, the aim of this subchapter is to provide SMEs with the means to self-assess the current state of their KM.

Such an approach can help SMEs position themselves with respect to their “as is” status in KM. In fact, as there is not only one single way to implement KM, neither is there one single way to assess an organization's progress in KM. The table below presents several methods/tools which have been successfully implemented and which are adaptable for any kind of SME (see also booklet 4 of this CEN guide – on Measurement).

### 4.2 Processes, Tools and Methods

Several tools and methods for a KM maturity assessment have been developed and successfully applied in practice by a range of organizations over the past few years. They differ according to the effort required by each organization (number of managers, employees involved) and the methods applied. For illustrative purposes, Table 3.1 classifies several such methods.



**Table 3.1 — Classification of KM assessment tools**

Approach	Author	Effort of the Organization	Quantitative Methods	Qualitative Methods
Fraunhofer KM Audit	Heisig, Finke, Ulbrich	Medium	X	X
KM Diagnostic (KMD)	Bukowitz & Williams	Low	X	
Knowledge Audit	Pfeifer et. al.	High		X
Knowledge Audit	Liebowitz et. al.	Low	X	
MOTEx Analysis	WZL, RWTH Aachen University	Medium		X
Start-up KM Workshop	Institute for Entrepreneurial Cybernetics	Low		X

A further way to classify assessment tools is to differentiate between diagnostic tools, knowledge audits and KM audits:

- Diagnostic tools requiring low effort are mostly performed within a moderated management workshop. The self-assessment criteria to be used in the workshop can be based on a KM framework (see booklet 1).
- Knowledge audits often focus more on the required knowledge itself and provide a useful basis for structuring knowledge for electronic applications such as intranet or document management systems.
- KM audit tools, using quantitative methods, apply standardized questionnaires in order to conduct a survey of the whole workforce, management team or a representative number of employees of the organization. Such approaches often also include some items related to the culture (see also booklet 2 – on culture) and management style of the SME.

Below, each of the KM approaches listed in Table 3.1 is described briefly<sup>12</sup>.

### **The Fraunhofer KM Audit (FKMA)<sup>13</sup>**

The FKMA method is based on the following objectives:

- Uncovering strengths and weaknesses within the current management of corporate knowledge.
- Analyzing framework conditions, barriers and enablers for KM.
- Increasing attentiveness for KM within the organization.
- Designing a roadmap for future KM measures.
- Collecting measurable data for checking progress in KM.

The Fraunhofer Audit integrates the level of business processes with the level of the design fields for KM. On the level of business processes the relevant types of knowledge, the demand and the availability of each type are identified. Furthermore the methods of generating, storing, distributing and applying knowledge, which are

<sup>12</sup> The following descriptions of “Knowledge Audit (Liebowitz)”, “KM Diagnostic (KMD)”, “Knowledge Audit (Pfeifer)”, “KM Maturity Model” (KMMM), “The Fraunhofer KM Audit” are from the following source: Mertins, Heisig et al. (2003).

<sup>13</sup> 12 Mertins et al. (2003).

specific to the processes of each organization, are analyzed. Thus the activities conducive to KM within the business process are determined systematically. On the level of the design fields for KM the general conditions, - i.e. enablers for as well as barriers to KM - are identified.

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The Audit comprises the following steps:

Initial State (preparation)	Analysis of the relevant documents about processes, procedures and structures (e.g. process model, organigram, job specification, product specification).
Focus Setting	Choosing the target group (e.g. the whole organization, a department, a team) and the relevant processes.
Adjustment of inventory	Customizing the audit to the organization's requirements.
Survey	Gathering of data: questionnaires for the selected target group and face-to-face interviews with the process owners.
Analysis & evaluation	Analysis of the data; modeling of the business process for a description of the procedures, creating a roadmap with recommendations for further actions.
Feedback workshop	By means of a workshop, the results are reported back and the suggested measures prioritized (roadmap and action plan).
Project start	Projects recommended in the roadmap are planned and realized.

### **KM Diagnostic (KMD)**

The KM Diagnostic (KMD) was developed by Bukowitz & Williams (1999). It is based on a model of KM called the "KM Process Framework", which consists of seven KM activities ("get, use, learn, contribute, assess, build/sustain, divest").

According to Bukowitz & Williams, the four activities "get, use, learn and contribute" designate the daily routine in dealing with knowledge. By enhancing these activities, the organization's reaction to the demands of the market is improved. The three KM activities "assess, build/sustain and divest" are attributed to the strategic planning of the organization, by evaluating which kind of knowledge will be relevant in the future.

The KMD was designed as a tool for self-evaluation and collects subjective, qualitative data. It thus serves to enable users to determine how well the different aspects of the KM process have been realized in the organization.

The interview takes place in a written form, and the choice of the sample is left to the organization. Bukowitz & Williams, however, encourage the client to involve employees from wide-ranging areas. In addition, the authors recommend sharing the results widely in order to trigger a discussion about strengths and weaknesses in respect to the implementation of KM.

The questionnaire is divided into seven categories. In every category, 20 statements are given describing possible actions for KM, - e.g. "We build models of our decision-making systems to better understand why things happen the way they do", "People are members of multiple communities, making it easier to transfer knowledge across the entire organization".

The agreement level for each statement is measured on a scale ("The statement is strongly/moderately/weakly descriptive of my organization."). Points given for each attribute are added up for each of the seven categories and compared with the highest possible score.

In the single categories, the supporting factors relating to them, such as corporate culture and information systems, are surveyed on a general level. The specific situation of the organization is not taken into account.

### **Knowledge Audit (Pfeifer version)**

The knowledge audit, according to Pfeifer<sup>14</sup>, focuses on an evaluation of knowledge required at a certain point of time, the carriers of this knowledge, the connections between the knowledge carriers and the need

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<sup>14</sup> Pfeifer et al. (2000).

for additional connections. Furthermore, “it serves as an instrument for uncovering weak points, for encouraging improvements and for controlling the existing measures of KM”<sup>15</sup>.

This concept works exclusively with qualitative procedures. “For an exact determination of the individual demands, it is mandatory to talk to those involved in the process and especially important to get a description of the problems and inadequacies of the process. [...] In extensive personal talks [...] the existing behavior in communication is discussed in detail.” In order to extend the existing connections between knowledge carriers by those additionally needed, it is also important to consider whether single persons are capable of promoting an exchange of knowledge: “At this point the employees’ personality has to be strongly taken into account.”<sup>16</sup>

Owing to the discussions it requires, and the analysis of the structure of communication and the relations of single persons to each other, this concept can be time consuming and relatively dependent upon individual perceptions.

### **Knowledge Audit (Liebowitz version)<sup>17</sup>**

The concept of the knowledge audit according to Liebowitz focuses on the relevant content of knowledge: “In order to solve the targeted business problem, what knowledge do we have, what knowledge is missing, who needs this knowledge, and how will we use it?”<sup>18</sup>. The knowledge audit comprises, on the one hand, the knowledge already existing within an organization and, on the other hand, the current need for knowledge. The questionnaire dealing with this concept is detailed and extensive. A catalogue of questions is drawn up for every relevant item of knowledge. This procedure requires great commitment, as much time is needed for answering the questions.

The Liebowitz knowledge audit is based upon the notion that knowledge has to be seen as part of an organization’s inventory. If problems occur (e.g. a high turnover of personnel) a knowledge audit can provide an evaluation, looking at the following aspects: what knowledge is needed; what knowledge exists and what knowledge is lacking; and who needs this knowledge and how can it be made available. “A productive audit needs to only concentrate on answering the following questions in order to solve the targeted problem: what knowledge do I have, what knowledge is missing, who needs this knowledge and how will they use the knowledge?”<sup>19</sup>

This audit serves to take stock of the existing knowledge, and identify what knowledge is lacking. It will thus derive recommendations for actions capable of solving this specific problem. The current processes for dealing with knowledge and the organization’s general set-up are not evaluated.

### **MOTEx-Analysis**

This tool evaluates internal and external KM activities. It describes the current state of KM and the future needs of the organization. First, an introductory workshop with the responsible staff will diagnose the “as is” situation of KM in the enterprise. Based on the outcome of the workshop, the enterprise is rated along the dimensions human, organizational, technical, and external factors in four phases, according to their current state of KM when compared with their KM objectives. The next step in the MOTEx analysis is an in-depth knowledge audit to uncover the necessary areas of action for the future and to develop a detailed action plan. On this basis, the SME in question can plan appropriate activities/projects.

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<sup>15</sup> Pfeifer et al. (2000), p. 1277.

<sup>16</sup> Pfeifer et al. (2000), p. 1277.

<sup>17</sup> Liebowitz et al. (2000).

<sup>18</sup> Liebowitz et al. (2000).

<sup>19</sup> Liebowitz et al. (2000), p. 5.

Such a workshop should typically last one day. After explaining a few basic KM concepts, four case studies will be selected in consultation with the SME and discussed. These should not serve as a solution in themselves, but simply as a catalyst to help the SMEs in the search for their own solution. Based on the stimuli arising from the case studies, the second half of the workshop deals with the potential that KM can offer to the enterprise. At this point the strengths and weaknesses will be analyzed. At the end of the day an action plan will be drawn up. The plan will include some immediate measures as well as some starting points for the ongoing or, more specifically, the renewed internal project.

A medium-sized software company with 380 employees wanted to implement KM to achieve sustainable development in the company. The KM project team performed an internal review in order to identify their strong and weak points, collect internal best practices and discover the meaning of KM within their daily work environment, as well as to raise awareness of how the organization is handling knowledge. The aim of the external KM audit was to validate the internal review, to identify KM-supportive methods and tools, to evaluate the existing IT systems, to identify the knowledge and information needs and to diagnose the current company culture related to KM.

Starting with a first management briefing, during which the detailed aims were established and the scope and focus of the KM audit was defined, the documentation provided was analyzed and the KM audit instruments were customized. During a two-day visit, 12 in-depth interviews with managers, project managers, software workers were carried out and a company-wide survey with the customized questionnaire was started. 75 % of the employees participated in this survey.

The interviews and survey results were analyzed and the results, along with an action plan (“KM Roadmap”) were presented at the final workshop with the KM project team and the management team. The duration of this KM audit process, from the initial management briefing until the final workshop, was two months.

The KM Roadmap described short term (up to six months), medium-term (six to 12 months) and long-term (12 to 18 months and longer) measures. The measures were grouped according the critical design areas for KM and related to the identified core processes.

## **4.3 Milestones**

The following results should be achieved at the end of Phase B:

- An adequate KM assessment tool should be selected.
- The chosen audit should be performed.

## 5 Phase C: Development

### 5.1 Introduction

In Phase C of our KM implementation project the development of the KM solution is carried out. That is, the main building blocks of the KM solution are identified, planned, designed and prepared for the subsequent implementation process.

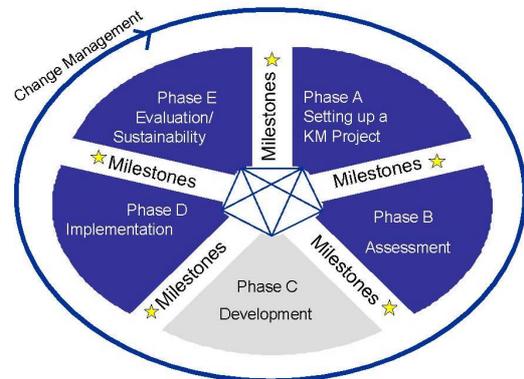
The starting point for Phase C is closely linked to Phase B, depending on the kind of assessment tool applied there. Some of these tools cover more than the mere identification of the current state of KM; they may already make suggestions for the development of a KM solution. Thus – as throughout our project management scheme – we must not regard the phases as separate entities.

We will base the following on the assumption that the assessment phase B covered only the identification of the current KM state. Therefore the decision has to be taken about what the KM solution should be like, and what kind of KM tools/methods should be applied. In this context, thinking about the following questions may be helpful:

- Do we have tools that may be adapted or further developed?
- What can we get/buy from external providers?
- Are there alternative solutions?
- Do we need/want external help?
- What are the respective costs?

The tables of the following subchapter will give the reader a selection of KM tools classified according to the knowledge processes described in the booklet 1 of this guide about KM frameworks):

- Identify knowledge.
- Create Knowledge.
- Store Knowledge.
- Share knowledge.
- Use knowledge.



## 5.2 Processes, Tools and Methods

We now present the processes, tools and methods that may form part of a KM solution. The following KM-Tool-Matrix was developed by a KM working group of the German Association for Personnel Management (Deutsche Gesellschaft für Personalführung e.V.) in 2002<sup>20</sup>. The classification is based on evaluation by those working group members with practical experience in KM. The matrix shows the relevant cultural aspects which should be considered and highlights starting points for change. Of course, it is not possible to present all existing approaches, but we try to give a representative overview. The following classifications have been used:

XXXX	Indispensable for success
XXX	Highly important
XX	Very important
X	Important
	Not important

**Table 5.1 — Classification of KM tools**

Identify Knowledge								
	Cultural factors relevant for KM					Starting point for change		
Tool	Willingness to learn	Openness	Constructive when dealing with power	Trust	Self-responsibility	People	Organization	Technology
After Action Review		XXX	X			X	X	
Lessons learned		XXX	X			X	X	
Debriefing		XXX	X			X	X	
Know-how balances		X	X			X	X	
Technology scouts	XXX						X	
Knowledge portfolio	XX	XXX			X	XXXX	X	
Knowledge maps	XX	XX				XX	XXX	
Knowledge broker	XX			XX	XX	XXX	XXX	
Balanced Scorecards		X					XX	
Patent evaluation		X					XX	

<sup>20</sup> Armutat et al. 2002.

Create Knowledge								
Tool	Cultural factors relevant for KM					Starting point for change		
	Willingness to learn	Openness	Constructive when dealing with power	Trust	Self-responsibility	People	Organization	Technology
Best Practices	XXXX	XXX		XX		XX	XXX	
Brainstorming	X	XX				XX		
Cognitive Mapping	X	X				XX		
External Partners	XX	X		XXXX	X	XXXX		
External Benchmarking	XXXX	XX				X	XXX	
Mergers & Acquisitions			X			X	XX	X
Internal Benchmarking	XXXX	XXX			X	X	XXX	
Open Space					X		X	
Success stories	XXX	XXX		X	(X)	XX	XXX	
Think Tanks	X				X	X	XXX	
Suggestion scheme	XX	X	X	XX	XX	XX	XXX	
Knowledge circles	XX	XXXX	X		X	XXXX		
Workshops	XX	XXX	X		XX	XXXX	X	
Library	X						X	X

Store Knowledge								
Tool	Cultural factors relevant for KM					Starting point for change		
	Willingness to learn	Openness	Constructive when dealing with power	Trust	Self-responsibility	People	Organization	Technology
Databases	X						XX	XXXX
Document Management System	X	XX				X	X	XXXX
Who's Who database		XXX		X			X	XXXX
Experience database	XX	XX		XX		XXXX	X	XXXX
Minutes		X				XXX	XX	
Yellow Pages	X	XXX		X	X	X	XXX	XXX
Data Warehouse	X						XXX	XXXX
Expert Systems	X						X	XXXX
Specialist literature	XX				X	X	XX	
Handbooks	XX				X	X	XX	

Share Knowledge and Use Knowledge <sup>21</sup>								
Tool	Cultural factors relevant for KM					Starting point for change		
	Willingness to learn	Openness	Constructive when dealing with power	Trust	Self-responsibility	People	Organization	Technology
Internal Knowledge market	XX	XXXX				X	XXX	
Telephone conference	X	XXX		XX		XXX	X	X
Video conference	X	XXX		XXX		XXX		X
"Coffee Machine"	XX	XXX	X	XXXX	X	XXXX	XXXX	
"Black Board"		X				X	XX	
Discussion forum	XXX	XXXX		XX	X	XX	XX	
Hotline		X				X	XXXX	X
Intranet	X							XXXX
Employee Journal		X			(X)	X	XXXX	
Newsgroups	XX	XXXX		XX	X	XXXX	X	
Circular			X				XX	
Knowledge Fairs (internal)	X	XXX					XXXX	

In the following paragraphs, selected approaches from each table are described briefly, along with several other useful tools that were not part of the study mentioned above<sup>22</sup>:

### Lessons learned

Many projects end without undergoing any rating of the success or failure of the project. This often causes the loss of valuable information that may be crucial for follow-up projects. The KM solution to this problem, known as "lessons learned" provides a systematic evaluation of all stages of a project by answering in detail such questions as:

- What went well?
- What didn't go well, and why?
- What could be improved?
- What should be kept for the future?

This kind of evaluation provides benefits for the project members as well as for other colleagues. That is why lessons learned should always be transferred to other project teams. This can often be achieved by publishing them on a special database or intranet. However, problems may occur when certain conditions are not fulfilled, e.g. there is an environment in which admitting mistakes is not established as part of the culture (see also booklet 2 on culture).

### Knowledge Manager

<sup>21</sup> In the tables by Armutat the items "Distribute Knowledge" and "Apply Knowledge" are combined. We will follow this approach here.

<sup>22</sup> The examples are taken from WK (2000), BTW (2003), KluG (2001) and IDWK (2002).

A knowledge manager is responsible for the organization of the information and knowledge flows within the enterprise. He/she has the overview of the whole KM process, especially if he/she identifies, selects, distributes, and stores knowledge, and keeps it up to date. It is important to note that knowledge managers are not expected to do all this by themselves, but should encourage fellow workers to act accordingly. Thus a good knowledge manager is also a good change manager.

### **Document Management**

The information that people need for their daily work is often provided in documents or other knowledge objects (e.g. videos, graphics). Document Management (DM) tries to provide solutions for processing, storing, changing, administering, searching, and deleting documents. It is crucial to have the information and the knowledge contained in documents available in the best possible way with minimum effort.

### **“Coffee Machine”/Information Centre**

Information centres support information and knowledge transfer between colleagues from different departments and hierarchical levels. Information centres, whether formal or informal, should be attractively designed and informative meeting points for informal exchange of information and experience and for discussions. They are typically to be found at a central location in an enterprise and are typically equipped with coffee machines, news bulletins from different departments or from the management, computer terminals, notice boards etc. Information centres invite encourage chatting, interaction and exchange of information and thus provide the environment for constructive conversation - in short, they may be described as informal market places for knowledge.

### **Yellow Pages**

Expertise locators (e.g. Yellow Pages) are instruments for identifying knowledge sources inside an organization. At the same time, they show which knowledge is not currently present and may have to be acquired externally. They can be internal directories that report on expertise, competencies, experiences, etc. from fellow workers. They may, for example, take the form of expanded organizational charts, or simple telephone or room lists.

### **Usage of customer knowledge**

The usage of customer knowledge can take different forms. On the one hand it describes the systematic gathering and usage of the knowledge about customers that is already present in the organization (e.g. through evaluation of sales reports, complaints, etc.), while on the other hand, it denotes the active integration of customers into product development or improvement processes. Both cases provide valuable knowledge that cannot be generated just within the organization itself.

### **Integrated IT support**

Information can be stored, distributed, combined or manipulated with computer-aided tools. In this sense, IT support plays an important role in KM. In SMEs there are often gaps in the integration of their IT infrastructure. They may use, for example, separate stand-alone tools for email, customer databases, and for writing orders or proposals. An integrated IT approach should make the work-, information- and knowledge-flow more efficient. It must however be noted that technology only provides the possibility for enhancing knowledge processes. People have to be convinced and trained to achieve the best possible benefits from their IT tools.

### **Capture and use knowledge of departing experts**

When experienced people leave an enterprise (for example because of retirement) their knowledge, their and their experience also leaves and is lost for the enterprise – if certain measures are not taken. Several choices are available: for example, the predecessor and the follower could work together for a certain time (as with the traditional “master-apprentice” model), or the departing expert could be re-hired as a part-time consultant. In either case it is important to analyze thoroughly what knowledge really should be secured and transferred.

## **5.3 Milestones**

The following results should be achieved at the end of Phase C:

- The final design of the KM solution should be laid down.

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- Adequate KM methods and tools should be selected.

## 6 Phase D: Implementation Processes

### 6.1 Introduction

Phase D – the implementation processes – covers the processes of implementing the KM solution into the organization and, if appropriate, training the end-users of the tools and methods.

Although implementation is presented here as a separate section, it is in fact a continuous part of KM. The implementation process begins as soon as the need for KM is identified: further implementation will be required as the project develops and additional areas requiring KM are defined.

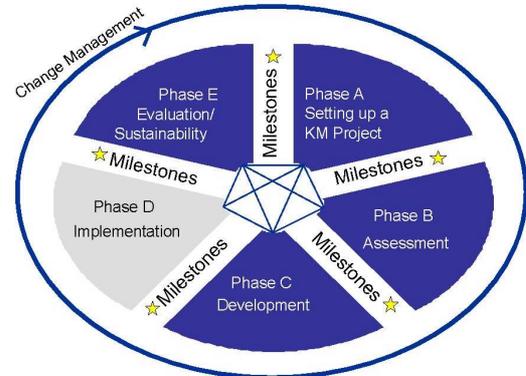
The most significant factors to take into consideration are

- People;
- Time;
- Budgetary control.

These three factors are crucial and unless enthusiastic core supporters of the project are involved - i.e. people who will 'infect' their colleagues with enthusiasm - the project will not flow successfully. Further, people with interest, experience and ideas, particularly people with standing within the enterprise, will help give the project the required status.

Time is important – if the KM team selected has too great a workload - it will almost inevitably give the KM project low priority. If the project is too long in getting underway, without any significant benefits being demonstrated, interest will wane and be extremely hard to regain.

Budgetary control is crucial. Even if the implemented project is estimated to produce a positive return on investment (ROI), unforeseen expenditure in terms of person hours or escalating costs of achieving the project will generally result in termination of the project. Most SMEs work with strictly limited resources, both human and financial.



### 6.2 Processes, Tools and Methods

The different action steps in the implementation process can be summarized as follows:

- Action 1: Take into account the outcome of the maturity assessment and the competencies necessary for the implementation process
- Action 2: Design of an internal communication plan, including identification of the barriers and facilitators for the implementation process
- Action 3: Definition of functions and responsibilities: personal and team/departmental
- Action 4: Action plan: definition of the phases, tasks, cost estimates, etc.
- Action 5: Selection of the tools to be used (which should already have been assessed)
- Action 6: Training and learning
- Action 7: Pilot implementation and feedback of results regarding progress/lack of progress.

The result of the implementation phase should be the integration of the (organizational) knowledge as an asset, or added value for the products/services, internal processes, client relations, etc.

### **6.2.1 Action 1: Take into account the outcome of the maturity assessment and the competencies necessary for the implementation process**

For each of the different action steps to be realized within the implementation process, different tools and methods are available to facilitate the process and to ensure maximum success.

On the people level, managers have to inform, involve and train their employees. This does not mean that information about strategy and objectives and involvement in the analysis and requirement definition should not have already started. But the detailed planning for the specific organizational situation requires close involvement of the staff. The KM project team should work very closely with the process owners and the employees to design the detailed implementation steps. The principle should be “find supporters – approach opponents”.

Enthusiasm needs to be created in order to spread the idea of KM around and foster the commitment of the different users. This action requires finding the opinion formers, involving “multipliers” (i.e. people who will pass the message on) and approaching directly potential opponents, in order to discuss their concerns and to try and find a jointly acceptable solution in order to get their buy-in.

Depending on the results from the KM Assessment phase, regarding the current organizational culture and the cultural requirements of the chosen KM solution, there might be a need to start with some cultural change activities (see also booklet 2 on culture) The aim of such activities would be to encourage people to have a personal ambition for KM (see also booklet 1 on framework).

A medium-sized software organization with 380 employees implemented some new IT applications. A KM audit revealed that some software applications were not well known by their targeted users, so the short term action was to better market them internally.

### **6.2.2 Action 2: Design of an internal communication plan**

Today, organizational change is no longer an occasional event, but a daily reality. Therefore employees often adopt a policy of wait and see before they buy-in or accept the new forms of working or behavior. One basic requirement is transparency of information. An internal communication plan should be designed in order to deliver the adequate information to the right target groups, such as staff, top management, middle management and, if appropriate the works council.

When looking at different sources of knowledge, it is often possible to detect information gaps in the process, i.e. to identify “islands” to which the necessary information is not transmitted at the correct point in time. Such lack of communication prevents the contents - be they experiences, knowledge or information – flowing freely and reaching their destination. The definition of an action plan, describing the processes and who will be affected by them, is therefore essential to the success of the KM implementation. This includes identification of the barriers to and enablers of the implementation process. It is therefore important to attempt to reinforce those factors that facilitate the process so as to reach the goals set out at the beginning of the KM project. For those factors that pose barriers it is necessary to identify possible solutions to overcome them.

#### **Factors that facilitate (examples):**

- Strong support of leadership
- Development of up-to-date IT infrastructure
- Organizational approach suited to working in teams

**Factors that impede (examples)**

- Distrust towards new projects
- Organizational culture that is not used to sharing information

**Possible actions (examples)**

- Holding “socializing events” between department members, the whole organization, external partners, etc.
- Holding coordination meetings between different departments and with management
- Coaching and mentoring actions
- Informal interviews with various members of the organization
- “Breakfast” or other short, targeted meetings.

**Annual staff meeting**

One Nobel Prize winner used a very easy approach to improve the sharing and usage of knowledge within his research institute. When he talked with his researchers about their annual performance and achievements he only asked two questions: “Which of your results has been used by your peers to improve their research?” and “Which result of your peers did you use in your research?”

**Always acknowledge the individual’s input into the KM process**

A successful implementation of a KM solution requires transparency of information, training in the right skills, an ambition to perform and a clear definition of roles and responsibilities. Nevertheless managers and employees have to be motivated in order to achieve the desired results and show the required behaviors. Beside traditional incentive schemes, one other important motivator in KM is feedback to the person who provided knowledge. There are several ways to give feedback. Some KM tools have integrated feedback functionalities that the reader of a document could evaluate and give immediately feedback to the owner or author of the document. But feedback should be given by the management, or by the contributors and users of knowledge. Some organizations have linked feedback on KM into their annual appraisal system or integrated KM as part of their objectives-setting process. Other feedback mechanisms can include in-house newspapers, intranets, prizes, or verbal recognition at staff meetings.

**6.2.3 Action 3: Definition of functions and responsibilities: personal and team/departmental**

The first step is to take into account the results of the earlier phases and define the competencies necessary for the implementation process of each of the phases.

Limited resources available within an organization can cause the implementation process to fail. To try and guarantee success it is necessary to create a core team of people to support the correct sharing, application and management of knowledge. They need to have the skills and competencies necessary to assume this function and combine it with their daily work in the organization. The members of such a core team can have different roles, as shown in the examples below (note that e.g. one person can be responsible for more than one role and that the knowledge broker role might be extended to cover any of the roles shown below).

Role	Tasks
Project Manager	<ul style="list-style-type: none"> <li>• Coordinates the KM project</li> <li>• Aligns the organization's strategic vision with the KM project's mission</li> <li>• Establishes the objectives of the KM implementation process</li> </ul>
Technological coordinator	<ul style="list-style-type: none"> <li>• Implements the technology necessary for the KM project</li> <li>• Searches for the most adequate (technological) solutions to overcome barriers</li> <li>• Integrates the KM system with the rest of the organization's systems</li> <li>• (Often this is a role for the person responsible for the IT function.)</li> </ul>
Knowledge Manager	<ul style="list-style-type: none"> <li>• Animates the participation of the organization's employees in the process</li> <li>• Is in touch with all of them and intends to capture their knowledge</li> <li>• Maintains the KM system by motivating the employees to use it and to provide input</li> </ul>
Moderator	<ul style="list-style-type: none"> <li>• Coordinates the quantity and quality of the contents that are being introduced into the system</li> <li>• Moderates the ongoing debates and forums and ensures that they comply with the ethical norms established in the organization</li> </ul>
(Networked) Knowledge Broker	<ul style="list-style-type: none"> <li>• Responsible for feeding in information and knowledge from inside and also outside the organization into the KM system ( as a very large part of the information and knowledge relevant to an organization is typically found outside its boundaries).</li> </ul>

#### 6.2.4 Action 4: Action plan: definition of the phases, tasks, cost estimations, etc.

##### **Processes & Organization – Organizational Knowledge Capabilities**

Organizational knowledge capabilities need careful co-ordination in order to achieve a successful implementation. This is the stage in which the selected KM methods, tools and techniques (Phase C) will be put into practice. Therefore some processes may require redesigning and the methods and techniques used need adapting to the specific organizational environment.

##### **Design or re-design or processes**

The KM method, tool or technique selected (Phase C) will require some new tasks to be fulfilled or different ways of working. Dependent on the kind of tool chosen it might be necessary to design a new process or re-design existing ones. One primary design principal is to combine the KM tasks with the daily tasks in order to minimize the required changes and effort. A second important design principle is to consider all five core knowledge activities in a balanced way and not focus on one core knowledge activity only (see also booklet 1 on KM framework).

##### **Definition of roles and responsibilities**

Closely related with the process design are the definition of new roles and the assignment of responsibilities. These roles depend on the kind of knowledge strategy the organization has adopted (see Phase A).

If the organization has chosen a codification approach to secure the know-how in documents and store them in a knowledge database (the so-called "knowledge stock" approach) then roles to check the quality of these documents have to be designed. Another related role is responsibility for the monitoring and maintenance of the knowledge content stored in the database.

On the other hand, if the organization follows more of a people-to-people strategy (the so-called "knowledge flow" approach) and has chosen for example CoPs as the preferred KM enabler, then further roles, such as community facilitator will be required.

As in any implementation process, it is necessary to plan in a coordinated and coherent way all the phases of the process and describe the specific tasks and assign costs to them.

### 6.2.5 Action 5: Selection of the tools to be used and that have been assessed before

Having previously analyzed the norms, procedures and protocols for effective use of the KM system, a decision can then be made on the tool that is most suitable for supporting decision-making processes and communication within the organization.

#### IT & Infrastructure

Information Technology comprises the hardware and software used as tools to manage the information, electronic or written, which is identified and generated as a result of KM. Often, special KM tools for providing the end-user with a wide range of technical functionalities require customization in order to achieve the full potential of the application. Standardized software applications often provide their own functionalities to change the user interface and add some specific functions and routines.

A consulting organization attached high importance to providing a realistic assessment of employees and their capabilities. Optimum training of the employees is ensured by coordinated measures. Yet the firm was wrong in its assumption that all employees would be able to handle the systems. For example, after user tests within the development of a specific KM solution, 75 % of the system's functions had to be suppressed to increase the acceptance of the system. At regular intervals, the functions were then gradually connected again. (Baumbach, Schulze 2003:236).

#### Usability check of IT tools

An automotive manufacturer acquired a search tool that uses topic maps to support its retrieval process. Before the first users were trained with the new search engine, a usability test was performed by a team of four industrial psychologists. The team tested the software application for four hours at the organization's premises, analyzed the results and presented the report ten days later. The usability test revealed some substantial points for improvement.

One surprising example was that the web-based application did not hold the entered search string if the user pressed the back-button on the Explorer command menu bar instead of the back button provided by the application itself. Research on human computer interaction shows that more than 80 % of backward actions in web-based applications are carried out by using the back button on the left end of the command menu bar.

This deficit of the current version of the new search engine was quickly fixed and therefore the high expectations that users have regarding new software applications could be achieved and disappointment and frustration of the employees could be avoided.

### 6.2.6 Action 6: Training and learning

One of the most important actions is to encourage and stimulate learning and training within the organization. Training can constitute an incentive offered by the organization, and therefore intrinsically contains an important component of motivation. Learning, be it through (formal) training or through informal techniques, by means of exchange and support by other members of the organization, is a motor for the creation of knowledge. However, training which does not work is worse than no training at all, as it is likely to engender antipathy toward the task being undertaken. Training in KM works best when there is a component that is designed to change people's behaviors as required.

When asking employees to share their knowledge, it is necessary to move away from the assumption that all of them have the competencies to do so, so there may be a clear need to train them around issues such as how to acquire knowledge, how to share it, and how to apply it, thereby giving them the skills and competencies necessary.

### 6.2.7 Action 7: Pilot implementation and feedback of results, progress/lack of progress

In an ideal situation, instead of implementing the project immediately across the whole organization, a pilot implementation should be carried out, during which it should be possible to learn from the process and to avoid the pitfalls encountered when extending the implementation process across the whole organization.

The implementation phase should include a feedback process. The easiest way to ensure that this happens is at the planning stage of the project – by including a series of milestones to be reached at each specified stage. Although an important part of the project, it need not be complex. A simple decision can be that, at a given date, progress on the project will be disseminated to all team members, preferably at a meeting, so face-to-face discussion can help to provide positive feedback and solve any unexpected problems.

## **6.3 Milestones**

**The following results should be achieved at the end of Phase D:**

The implementation or pilot project is most important for the success of the full-scale project. It should be carefully planned as set out above, and each stage given a specified time-span for completion. Feedback on progress should be given to all participants, as this can have a positive effect on the morale of the people in the organization.

It is therefore advisable to carry out the following actions:

- Fix a cut-off date
- Decide how much time is to be spent on the implementation stage of the KM Project – e.g. two months.
- Set out the expected time required to reach each stage and at the same time organize a meeting of the people involved
- If this is a large group, it might be wise to limit the attendance to managers or other staff representatives who should report to their respective teams.
- Based on the results of the first milestone review meeting, the remaining planned milestones can then be moved forward or backward as required.
- Discuss the progress/implementation of the internal communication plan, including the identified barriers and facilitators for the implementation process. Hold the first meeting at the date and time specified, even if the project is not progressing as expected. The transparency and trust built up should be honored. The second milestone meeting could cover the success or otherwise of the use and acceptance of the tools introduced.

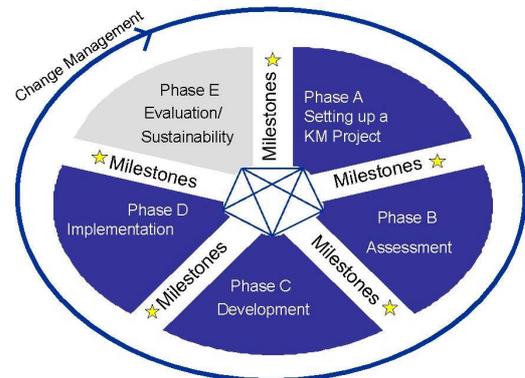
Relevant feedback on training and learning problems should be identified and again communicated to the whole participating group so any problems could be solved before the main KM project is established.

- The final milestone meeting should report on the results of the pilot implementation and feedback of results, progress/lack of progress should be disseminated to the whole organization. Presenting the whole process, including progress achieved at the various milestones should be given a high profile within the organization.
- It is important that the final deadline for the implementation of the project is met.

## 7 Phase E: Evaluation/Sustainability

### 7.1 Introduction

It is often the ultimate aim of KM to integrate into the work processes of an organization – that is, to become sustainable. But it cannot be expected that this integration will happen overnight and/or by management diktat. Thus, in this guide we recommend starting with specific KM projects, because this is a proven way to introduce KM into an organization. If such a project proves successful, its outcomes should be integrated into the every day routines and spread throughout the entire enterprise. If not successful, one may think of possible improvements and perhaps start a redesigned project, or even discard the idea completely.



In order to be able to make the decisions just described we need to talk about project evaluation. In this booklet we *only* talk about evaluation of individual KM projects – that is, we are not concerned with measuring knowledge or KM in general. For further information on the latter, please read booklet 4, on measurement, in this European Guide to Good Practice in KM.

Here we start with several suggestions for the identification of successful KM projects<sup>23</sup>. KM projects are successful if:

- There is a growth in the volume of knowledge content and usage (e.g. in the number of documents or positive ratings for documents in repositories).
- It is likely that the project will be sustained beyond a particular individual or two - that is, that the project becomes an organizational initiative, not an individual project.
- The whole organization feels comfortable with the concepts of “knowledge” and “KM”.
- There is some evidence of financial return, either for the KM activity itself (if it is seen as a profit centre) or for the larger organization. This linkage need not be rigorously specified and may only be perceptual.

These suggestions are mostly of a more qualitative nature, as they don't deliver hard facts like ROI of an individual project. They may however serve well for a quick evaluation in enterprises that do not have the possibility, or do not want to invest in specific measurement approaches.

Quantitative methods for project evaluation are presented in the following subchapter.

### 7.2 Processes, Tools and Methods

#### Lessons learned

Many projects end without any rating of the success or failure of the project. This often causes the loss of valuable information that may be crucial for follow-up projects. The KM approach known as “lessons learned” provides a systematic evaluation of all stages of a project by asking detailed questions like: What went well? What didn't go well, and why? What could be improved? What should be kept for the future? This kind of evaluation provides benefits for the project members as well as for all other fellow workers. That is why lessons learned should always be pro-actively transferred to other project teams. This can often be achieved

<sup>23</sup> Davenport/Prusak (2000).

by publishing them on a special database or intranet. However, problems may occur when certain conditions are not met, e.g. there is an environment of trust in which people can admit mistakes.

### **Cost-Benefit Analysis**

The Cost-Benefit Analysis (CBA) is a tool for valuation and comparison of alternatives, which takes at the same time quantitative and qualitative decision parameters into account. Precondition for a CBA is that the user has formulated and weighed his/her aims and has found indicators to measure the achievement of objectives. Furthermore he/she has evaluated possible alternatives and for every indicator is able to state what benefit is gained at each step along the way towards achieving objectives.

## **7.3 Milestones**

The following results should be achieved at the end of Phase E:

- The KM project should be thoroughly evaluated.
- If the project was a success the methods introduced should be spread throughout the organization and become part of everybody's work.
- If the project was a failure, the reasons have to be investigated. It has to be decided whether the project should be re-launched or discarded.

## 8 Case Stories

We have received a series of Case Stories. The selection of the stories included here was made from both a geographical and a professional viewpoint. In order to provide a broad range of studies, care was taken to represent as many varieties of concerns as possible.

In this booklet we will present only short abstracts of the case stories to give you a concise and quick overview. If you are interested in more details on the presented cases, please visit the homepage of CEN/ISSS ([www.cenorm.be](http://www.cenorm.be)) and find the corresponding CEN Workshop Agreement.

In the following you find a quick link list with the selected case, their main themes and the sectors they come from:

Case Story	Main theme	Sector
1	Knowledge Management with workflow systems	Manufacturing
2	Knowledge database and competence mapping	Mechanics, hydraulics, pneumatics, electronics, optics and computers.
3	How to make efficient use of people's knowledge	Engineering
4	Knowledge Management in cross-team communication	IT Integration/software development
5	Knowledge Management in a SME network	Crafts enterprises
6	Process-oriented Knowledge Management	Service foundation
7	Preservation of the knowledge of departing experts	Software development
8	KM for visually disabled people	A charitable society

### 8.1 Case Story 1

**Theme: Knowledge Management with workflow systems**

*Sector: Manufacturing*

#### Background

The company is organized in a matrix structure and is a subsidiary of the largest Portuguese group of companies manufacturing wood based products, integrating world-wide industrial and commercial activities concerned with the wood based panel business. This company now operates 39 plants spread over 10 countries.

#### KM with workflow systems

In order to solve the problems of geographical dispersion, communication, information gathering, registration and retrieval, standardization, optimization and paper volume in circulation, the organization decided to develop and to implement a workflow system. The results obtained from the workflow system were mainly improved process support (from paper to electronic, all tasks are performed from employees' desks) and process transparency. Furthermore the number and amount of time for individual contacts decreased because of electronic communication. Additionally the process management has become easier through the deployment of a database that is "nurtured" from internal as well as external resources. From all this, a more complete knowledge of all processes evolved.

### Lessons learned

In this study we tried to identify the organizational factors that enabled the change. The main learning points for a successful workflow system implementation are:

- Change started with simple processes that were not vital to the core business
- The process was fully registered, not only the documents but also its history
- Electronic format of the content was similar to that of the paper version (which helped in the learning process of the employees)
- The control of processes were enabled because all the movements are registered
- The use of the application is simple and intuitive.

## 8.2 Case Story 2

### Theme: Knowledge database and competence mapping

*Sector: Mechanics, hydraulics, pneumatics, electronics, optics and computers.*

### Background

The present case story deals with a company that designs and produces high tech products and systems, and which is under great pressure from its rapidly evolving and high demanding environment. To be able to keep up its competitors, two main KM approaches have been implemented in the company:

- a) *creation of a knowledge database* in order to help the firm reduce costs and delays through the increased re-use of existing solutions;
- b) *competence mapping* in order to help the firm optimize its decision-making processes.

### Lessons learned

The size of the knowledge database is not as crucial as is often claimed; the essential issue is to make sure that databases are used.

The fact that it is not possible to put all knowledge in databases means the company's KM approach relies heavily on competence mapping.

## 8.3 Case Story 3

### Theme: How to make efficient use of people's knowledge

*Sector: Engineering*

### Background

A Small engineering company which lost market share because of new technology appearing, uncovered knowledge gaps and breaks in its cycle of knowledge processes. The KM method chosen in this case was the establishment of a team whose purpose is finding better ways of using knowledge about employees' expertise, and knowledge about the firm's products and processes. Team sessions showed that people were not comfortable with spending time at work talking informally with their colleagues; risk management was not functioning and a need to move away from a "blame culture" was uncovered.

### Lessons learned

Freedom to have some informal time together at work place is necessary if individuals are to share knowledge. It has to be accepted by managers, not only by written word, but also especially by managers' own attitudes and actions. "Blame cultures" tend to be risk averse – people must be allowed to fail on the road to success. Managers should become a working part of the internal culture.

## 8.4 Case Story 4

**Theme: Knowledge Management in cross-team communication**

*Sector: IT integration/software development*

### Background

The company is a global provider of collaborative Customer Relationship Management (CRM) software and solutions. In a period of rapid expansion it had become imperative to ensure that the knowledge of existing employees was harnessed and maintained in an effective manner. The long-term objective of the company is to own and maintain a centralized knowledge base, covering all aspects of the company's business.

### Knowledge Management in cross-team communication

The decision was taken to concentrate on a single aspect of the business and test this aspect in the KM project. The area chosen was the interaction, and exchange of knowledge between the Product Design group and a selected team of people from the Sales and Consultancy groups.

Communications across different teams already existed in an informal manner. There were many and varied means by which knowledge could be disseminated within the company e.g. internet, intranet, email and teleconferencing. Lastly, the central server provided information relating to current and previous projects, sales initiatives, marketing campaigns, administrative procedures, etc.

Furthermore within the company's software, there is a module called the "Knowledge Base". Within the company, this was being used to store information and knowledge relating to the software. An integral part of the KM strategy was to incorporate the Knowledge Base into the "Know-Net" method, which was about to be implemented. After considerable thought, the area selected to pilot the Know-Net method and tool was the communications between the Product Design and Sales and Consultancy groups. Additionally, the marketing group provided brochures and presentations in electronic format, thus ensuring that the company provided a common image to the outside world.

### Lessons learned

The results of the KM assessment indicated that, quite naturally, there would be some resistance to change in work and communication practices that could be largely overcome by increasing the knowledge and understanding of KM by means of seminars and workshops. KM was recognized as one of the means by which the company could maintain its position as the leading supplier of CRM software solutions. In order to maintain this position, the efficiency and effectiveness of cross-team communications, as well as the efficiency and effectiveness of inter-office communications had to be further improved.

## 8.5 Case Story 5

**Theme: Knowledge Management in a SME network**

*Sector: Crafts enterprises*

### Background

In September 2000, 31 German crafts enterprises formed a co-operation to be able to react faster to market changes. Synergies should emerge through developing and learning in co-operation. Beside this, a collective trademark should be established, based on a collective marketing concept. Furthermore, national, area-wide market presence had to be realised and the costs should be reduced by "bundled purchasing".

### Knowledge Management in a SME network

To realize this, a low-priced communication platform had to be found that bridged huge geographical distances and enabled a quicker, continuous information flow without losing any information and which ensured collective solution finding and developments. The adoption rate of the established communication platform was, after some initial euphoria, quite low, because only a small amount of knowledge was accessible at the beginning. But the amount of knowledge and the acceptance of the medium grew with the increased work of the workshops, which posted their collected documents on the platform. The adoption grew even more through examples of successful applications.

### Lessons learned

The expenses for hardware and software added up to about €80,000, not including the internal work costs for programming and knowledge input, which was provided by the participants of the co-operation without payment. For servicing of equipment and applications, as well as the update service, further costs had to be taken into consideration.

The extranet includes a shared interface, which allows every company to use the information sites collectively.

In the future, some projects are considered likely to increase the effectiveness of the knowledge network, for example in terms of improved usability, the introduction of additional levels for different employees, the implementation of external databases, as well as the implementation of supplier and partner enterprises. Furthermore, the introduction of videoconferencing and the development of online training are planned.

## 8.6 Case Story 6

### Theme: Process-oriented Knowledge Management

*Sector: Service foundation*

#### Background

A process-oriented KM system has been implemented at a medium-sized service foundation in Germany. The first step was to produce a diagram showing the process environment of the company, dividing existing processes into strategic, value-added and support processes. These processes were subsequently the subjects of additional analysis. The outcome of this analysis was a complete collection of accurate process descriptions, which were used as a basis for the definition of existing areas of weakness and areas of potential.

#### Concept of process-oriented Knowledge Management

The requirement for action was used as the basis on which a list of the requirements to be met by the KM concept was drawn up. The preceding prioritization stage ensured that attention during the concept development stage focused on the requirements weighted most heavily by the employees who had been interviewed.

A model that uses the available operative knowledge as a basis was set up in order to ensure that all available strategic knowledge was communicated and used in the same way. On the operative side, a concept was drawn up to ensure that the process support requested by staff was in fact provided.

#### Lessons learned

The work completed to date demonstrates that it is vital to study the processes in depth before embarking on the development of a KM system. This ensures, firstly, that staff and their experience engage systematically in the development process from the very beginning. Secondly, the actual requirement for information became part of the development brief and no measures were implemented which did not meet specific requirements. It is the employees who must be the focus of all investigations.

It is essential to take full account of the pressure experienced by employees in their daily activities. When this is kept in mind, developments achieve a higher level of acceptance among staff and are backed by them. This project also shows that one of the basic conditions for successful project conclusion is that management is open to changes. All of these angles were systematically addressed during the project implementation. The staff involved in this project were convinced of the necessity of these measures and of the benefits to be gained from them. They actively promoted the implementation of these measures through a range of working parties.

## 8.7 Case Story 7

**Theme: Preservation of the knowledge of departing experts**

*Sector: Software development*

### Background

The two main demands from a software development company on KM implementation were: a) an “expert system” for reference when senior employees leave the firm and b) a motivating tool for those employees who wish to further develop their careers within the firm. A KM project was carried out in one of the company’s departments and four main processes were started: via pre-analysis, knowledge gaps and needs were discovered; afterwards area of investigation were determined, which delineated employees’ competencies; a solution model could be then decided upon and initiated – in this case it involved establishing an IT system as a competence supporting tool. Market evaluation about suitable IT systems and a final selection, planning and implementation was carried out. A series of benchmark goals were also implemented in the KM project.

### Lessons learned

There will always be some information loss as a result of conversion of implicit knowledge into explicit knowledge stored in IT systems. It is therefore important to work at creating a high degree of engagement with the implementation of the IT system, through active adaptation of routine and attitudes. It is also crucial that employees who actively create and share knowledge are acknowledged and that questions such as “How will it affect me?” and “How does it benefit me?” are answered. The objective is to gain success in a carefully defined area, which can then bring motivation to further projects.

## 8.8 Case Story 8

**Theme: KM for visually disabled people**

*Sector: A charitable society for the visually handicapped*

### Background

The case study briefly describes the gathering together of printed reference, Braille, and audio-visual (AV) materials held at the headquarters of a charity for visually disabled people. The whole project was carried out by volunteers, and took two months.

The end result was a complete listing of materials, collected in one place, or, where this was not possible, with clear indications as to where the item(s) could be found. The material was stored by subject, with each major subject being colour-coded for easy retrieval.

### Lessons learned

The unwieldy Braille material was found to be less relevant than expected, whereas the short-lived audiovisual-tapes of local news and items of interest were highly rated by the visually handicapped. (These should have been included in the KM exercise.)

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## Annex A: Work Items as described in the CEN/ISSS Workshop Business Plan

### Work Item I - Terminology

*Scope:* One of the main challenges in KM is to define clearly the terms and concepts involved. Organizations throughout Europe, and notably SMEs, would benefit greatly from a commonly accepted set of terms and definitions for KM.

*Approach:* Numerous definitions of key terms already exist in the published literature. This work item will therefore not choose to reinvent the wheel but rather to simply repackage those existing terms and definitions that are considered most relevant to the objectives of the Workshop. The result will be a European KM Glossary comprising 30 core terms and definitions in KM, along with their related translations into other European languages. This glossary will include terms relating to all areas covered by the Workshop – from framework, through metrics and measurement, to implementation and organizational culture. The glossary will be of significant practical relevance to SMEs as they exchange views and know-how in the domain of KM.

*Deliverables:* A European KM Glossary of 30 terms and definitions in KM, with translations into official languages of the European Union and EFTA.

### Work Item II - Framework

*Scope:* Successful KM is a balancing act. While experience has shown that socio-cultural issues are often the most difficult to tackle, it is equally important to keep in mind the “bigger picture” – the wider economic, technological and structural issues facing the company as it strives to innovate faster and within which any corporate KM initiative inevitably takes place. The aim of this work item is to provide a holistic framework, capable of future evolution and adaptation, for KM implementation within and amongst organizations throughout Europe, and notably in SMEs, by referring to diverse viewpoints – for example economic, socio-technical, techno-structural and socio-organizational. The work will address issues relating to organizational performance, added value, economic and financial criteria, interactions between information systems and individuals and between information systems and the organization (missions, structure, processes and relationship networks). It will also address socio-organizational issues including legal issues, leadership, power distribution, management styles, knowledge sharing, incentive and reward systems, professional culture, ethics and values. One would hope that through consideration of such a framework, socio-culturally-driven KM efforts could be sure to achieve balanced results anchored in a rigorous and holistic analysis of the organizational context.

*Approach:* Many interesting and applicable frameworks exist in Europe and elsewhere. The focus of this work will be on identifying a framework (or set of frameworks), which is meaningful and practical to European business organizations, and notably to SMEs. This framework will provide a reference basis for decisions about the application of KM in a variety of business settings.

*Deliverables:* A European KM Framework which acts as a meaningful and practical guide to the context of KM initiatives - economic, technical, structural, socio-cultural - within the enterprise, and the interplay between these elements.

### **Work Item III - Measurement and Metrics**

*Scope:* As companies focus on knowledge as a core organizational asset, a number of critical questions are raised concerning how best to measure and track organizational performance in this new knowledge paradigm, and how best to measure the impact of KM initiatives on business. These are not trivial questions. In order to start on the KM journey, business leaders need to know how applying KM might improve company performance, and how it might lead to faster and better innovation. Once a KM initiative has been launched, it is equally important to track the impact of this initiative and to find ways to measure results.

*Approach:* Many existing KM measurement and metrics guidelines exist in Europe and elsewhere. This work item will identify a commonly agreed set of key metrics and measurements which have demonstrated their ability to assist knowledge managers and business leaders in assessing improvements in organizational performance as a result of KM. Consideration will be given to describing what to measure, and how, why and when to measure it. Emphasis will be given to measuring results but also to measuring the process by which the results are achieved. Consideration will also be given to assisting managers (notably from SMEs) in deciding what is important to measure in their specific business settings.

*Deliverables:* A Guide to KM Measurement and Metrics, comprising a set of measurements and metrics which can be considered as good practices and can be applied in European organizations both strategically and operationally. The deliverable will include a Measurement Top 10 section, which will allow knowledge managers and business leaders, notably in SMEs, to kick start their measurement activities with a subset of the most widely used and generically applicable measures. The outcome of this work item should also provide assistance to help knowledge managers and business leaders to decide what is important to their business and how to measure it.

### **Work Item IV - Implementation in European SMEs**

*Scope:* Throughout Europe, SMEs and SME communities are refocusing their activities to collaborate and compete through knowledge. This work item will assist SMEs and SME communities in identifying their readiness for KM, building the business case for KM, identifying and motivating key players, implementing KM successfully within and across their organizational boundaries and networks, and measuring the results of their efforts. The work proposed is considered vital in stimulating take-up and broad adoption of KM practices in European SMEs.

*Approach:* At a generic level, the work will identify and/or develop guidelines, checklists, questions and answers, models, methodologies and tools based on common needs. It will also attempt to identify items that are partly customisable to meet specific business requirements and needs, particularly of fast-growing companies. Work will build on currently available guides to good practice, lessons learned, problem solving histories and experiences, and input provided by SME representatives. The result will be a sound, validated, easy to understand, easy to use and step-by-step guide to successful KM implementation in diverse SME environments.

*Deliverables:* A Guide to Successful KM Implementation in SMEs comprising (but not necessarily limited to) sections on:

- European maturity grid(s) which can be used by SMEs and SME communities to position themselves with respect to their AS IS status and TO BE targets as "knowledge-based organizations"
- Generic principles, methodologies, good practices, awareness raising and training materials designed to enable SMEs to progress on their journey to successful KM
- Measurement guidelines which will enable SME managers to assess the impact of their KM journey on the organizational competitiveness, and to understand the true impact of their KM activities on their business (taking due account of the activities in work item 3)

- A technology section addressing the specific needs of SMEs in the design of the information and communication technology infrastructure of their organizations, supply chains and communities as they move forward to implement new knowledge sharing and creation opportunities for their businesses
- A set of case studies and stories reflecting experiences and lessons learned by SMEs on the KM journey.

### **Work Item V - Organizational Culture**

*Scope:* The success of any KM initiative is dependant upon an environment which motivates people to communicate, collaborate, innovate, take risks, and share and re-use knowledge. Equally important are appropriate skills, competences and behaviours. The aim of this work item is to guide people at all levels, and in all types of organizations, on how best to use themselves, and their relationships with other people, to manage knowledge well. Fundamentals like values, trust, beliefs and organizational politics dictate success or failure of KM interventions, so to add real value the KM initiative must address appropriately the existing corporate culture and sub-cultures. This means using social processes and organizational structures (including self-forming groups) that facilitate the conversion of information to knowledge, and the sharing, distribution and creation of knowledge. Other social processes like change management, managing complexity and “slow management”, communities of practice/interest, organizational learning, narrative, visioning etc. that are important in KM interventions, will also be included in the work. Finally, technology impacts on culture change and can promote or frustrate KM interventions. Therefore it is proposed to address the issue of how to use technology to drive KM effectively.

*Approach:* Organizational Culture has already been addressed in a number of fora in European and elsewhere. The work will build on existing work to identify a set of practical guidelines to help knowledge managers and business leaders to tackle the difficult organizational and cultural issues around KM. The work will, where appropriate, be populated with short case studies, stories, lessons learned and experiences that illustrate in simple language the points being made.

*Deliverables:* A Guide to Organizational Culture & KM comprising (but not necessarily limited to) sections on: Achieving buy-in by Top Management, Selling KM to the Organization, KM and Organizational Learning, Change Management in Practice, Motivating Knowledge Workers and the Organization to achieve its Objectives, Relating KM Interventions to Existing Cultures, Using Communities Effectively, Using Technology to Drive KM, Effectively, identifying and developing and improving appropriate skills, competences and behaviours.

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- <http://www.cabi.org/>
- <http://www.strategy-software.com/>
- <http://www.csu.edu.au/>
- <http://www.steptwo.com.au/>
- [http://www.valuebasedmanagement.net/methods\\_skandianavigator.html](http://www.valuebasedmanagement.net/methods_skandianavigator.html)
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<http://www.isiwebofknowledge.com/>  
<http://www.navigateone.com/>  
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<http://wbln0018.worldbank.org/>  
<http://www.vaic-on.net>  
  
[www.technowledge.com](http://www.technowledge.com)

## **Booklet 5: Glossary**

Readers who wish to find out more about the terms in this booklet and further KM terms are recommended to visit the following websites:

<http://www.brint.com/km/>  
<http://www.knowledgeboard.com/community/zones/fs.html>  
[http://www.kit.nl/specials/html/km\\_glossary.asp#Top](http://www.kit.nl/specials/html/km_glossary.asp#Top)  
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<http://www.ey.com/knowledge/glossary.htm>  
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## Annex C: Acknowledgements

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## Annex D: Case Stories

We have received a series of Case Stories from throughout Europe. The selection of the stories included here was made from both a geographical and a professional viewpoint. In order to provide a broad range of studies, care was taken to represent as many varieties of concerns as possible.

In the following table you will find a quick link list with the selected cases, their main themes and the sectors they come from:

Case Story	Main theme	Sector
1	KM (KM) with workflow systems	Manufacturing
2	Knowledge database and competence mapping	Mechanics, hydraulics, pneumatics, electronics, optics and computers.
3	How to make efficient use of people's knowledge	Engineering
4	KM in cross-team communication	IT integration/software development
5	KM in a SME network	Crafts enterprises
6	Process-oriented KM	Service foundation
7	Preservation of the knowledge of leaving experts	Software development
8	KM for visually disabled people	Charitable society

### D.1 Case Story 1

**Theme:** *KM with workflow systems*

**Sector:** *Manufacturing company*

#### Description of the company

The company (known as Beta for the purposes of this case study) is a subsidiary of the largest Portuguese group of companies manufacturing wood based products, integrating worldwide industrial and commercial activities concerned with the wood based panel business.

When this company was acquired in 1993, it was already one of the largest Spanish groups in the sector, being established also in England and Canada.

Its acquisition was one of the holding company's major acquisitions in the expansion and globalization of its businesses, making it the leader in its sector in the Iberian Peninsula, as well as placing it among the five largest European producers.

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This company now operates 39 plants located in Portugal, Spain, France, Germany, United Kingdom, Canada, Brazil, South Africa, Gabon and Mozambique. The headquarters of the holding company, as well as the administrative staff of Beta, are situated in Maia (Porto). When this study took place, Beta's Portuguese factories were also situated in Maia. Today, they have moved to near Lisbon.

Beta is organised in a matrix structure. This means that the administrative staff not only manage Beta's employees but also the staff of all the other companies under the sub- holding company INDUSTRIA. This can be a problem, as the factories are geographically distributed.

To manage all the factories (spread across 10 countries), managers travel a lot. Communications and the management of daily workflows can be a problem.

The following table lists the most important KM-related issues concerning Beta.

<b>Structural features</b>	<b>Technological issues</b>	<b>Political issues</b>	<b>Human issues</b>	<b>Cultural issues</b>
<p>Matrix structure;</p> <p>Uses information technologies to communicate;</p> <p>Communication channels and circuits are clear and well defined.</p>	<p>PC's in all departments;</p> <p>Chiefs each have 1 PC;</p> <p>Web-based Intranet;</p> <p>Access to the Internet;</p> <p>Already using Lotus Notes;</p> <p>Know-how exists about how to develop a workflow system and how to implement it.</p>	<p>Power is decentralised but projects must be approved by the Administration Board;</p> <p>Intermediary managers can have initiatives and propose changes projects.</p>	<p>There are no formal teams;</p> <p>Most employees have good qualifications;</p> <p>Employees apparently are satisfied and enjoy working in this company;</p> <p>40 employees – 25 work in the factory and 15 belong to the administrative staff (these also manage the staff of the other enterprises under INDUSTRIA);</p> <p>Employees work in shifts – no more than 15 employees at the same time, in the factory;</p> <p>Employees' average age is 30;</p> <p>The minimum qualification to enter into this factory is the 12<sup>th</sup> grade. A lot of employees continue to study up to degree standard;</p> <p>The majority of employees know how to use computers.</p>	<p>Quality is an important concern;</p> <p>A keyword is family;</p> <p>There are several social activities during the year;</p> <p>Importance of the leader (founder of the company). He has a very important image among employees;</p> <p>Operates a quality certification process.</p>

### What was/is the problem?

As stated above, factories are widely distributed geographically, across 10 countries. Even in Portugal they are not located in just one place. This means that managers have to travel a lot to ensure that work flows and processes do not stop because a signature is missing.

One of the directors that experienced this problem at first hand was the Human Resources (HR) Director. The reasons for this are:

- She travels a lot in Portugal and abroad - she needed to ensure that processes did not stop just because she was not in the office all the time;
- In a holding company of this scope and with the importance it has in the employment market in Portugal, it is no surprise that it receives thousands of CVs annually; although, on the other hand, it does actively look for new employees very often.

So the HR Director contacted the Director of the Computer Department; together, they developed a project to automate the workflow for the process of selecting and recruiting staff. This process was chosen because it was going to be the first process to be automated; as this process was not the core system used for the running of the business, if anything went wrong there would be no major problem. This project was launched in 1998.

The expectations concerning this project were:

- To make uniform, to optimize and to speed up the workflows and the business processes;
- To reduce the paper volume in circulation;
- To assure confidentiality of information;
- To improve information management and information gathering for process;
- To register this information and make it available for “downstream” activities.

The intention was to learn how to restructure a process and how to develop and implement a workflow system. If the implementation were successful, it would also help employees to get used to it and make it easier to implement such a system for other processes.

As this implementation was successful, it was decided to restructure and implement workflow systems in other business processes: (1) quality certification process, (2) travelling applications, (3) recording actions to prevent and correct problems in the factory, (4) applications used to manage changes of shift and absences.

### What did the company do to solve its problems?

In order to solve its problems (geographical dispersion, communication, information gathering, registration and retrieval, standardization, optimization and paper volume in circulation) the organization decided to develop and implement a workflow system.

The team members of the first project to implement the workflow system were: the HR Manager, the Director of Computer Department (CD) and a trainee student that worked in the CD.

The system was developed using Lotus Notes, an application that the company already had. A trainee student who already worked in the enterprise did the programming. They did not have to look for extra resources outside the enterprise. There were already computers in the factory (so no need for extra investment).

To legitimise the project and get the involvement of top managers, it was presented to the Administration Board of the holding company. The President (the founder and charismatic leader) approved it. His approval meant that everybody involved in that process would have to use the workflow system. No more paper would be circulating in that process. All activities should be performed electronically and online.

The success of this initiative allowed the workflow system to be implemented in other processes (referred to in section 2).

## CWA 14924-3:2004 (E)

Below is a list with the most relevant issues that contributed to the adoption of the workflow system in the organisation:

- The existence of Lotus Notes in the company (no need to buy a new application)
- The in-house resources – the trainee student who was going to do the programming
- Employees work in shifts. This means that there are only 15 employees at any one time in the factory. It helps shorten the period of training and also reduces the number of computers needed
- The company was operating under a certification process – processes were being analyzed and re-designed, which helped the analysis of the workflow system.

### **What obstacles were encountered?**

Some inhibiting factors were identified in the organization. They involved structural, political, human, technological and cultural factors.

#### *Structural factors*

For some employees it was not easy to use the new system. This is because the tasks involving using the computer and the relevant application are sporadic. The employee did not always remember the steps needed to start the application and begin the process. Thus, the task being performed with the application became slower. Furthermore, some employees also did not like the fact that the application controlled the processes. They felt they were being watched and their performances measured. Also, formal communication, mediated by computer, can lead people being misinterpreted, in relation to what they have written. The message is as written and there are no other mechanisms available for clarification.

#### *Political factors*

Some employees resisted the application because they preferred the process on paper. They felt more important when they had to deliver the papers to their superiors. Now, as the communication was done by computer, they felt that they were more distant from the decision centre.

#### *Human factors*

Another obstacle concerns the know-how of some employees of concerning the use of computers. Although the majority of the staff has good qualifications, some employees also complained about the lack of training provided to use the new application. They say that training is not practical enough and is too theoretical and sporadic. For those people that did not use computers for most of their lives to perform their job, it was difficult to make them understand the advantages of doing so. So, training must be adequate to meet these challenges.

Another obstacle is related to the fact that operators consider that using computers to communicate makes the communication more impersonal; it drives people apart.

#### *Technological factors*

As for technological factors, the existing equipment can become an obstacle. This happens because sometimes the computer breaks down (some of the equipment is obsolete and does not have enough capacity). Furthermore, some tasks take more time to perform (the employee has to turn on the computer, introduce his/her login and password, open some windows before getting to the electronic documents); some operators do not recognise any advantage in using the computer and therefore develop resistance to it.

#### *Cultural factors*

The introduction of the workflow system created nostalgia in older people. They missed the familiarity of older times. They say that the computer is keeping people away.

### **What were the benefits/results?**

The table below lists the results obtained with the implementation of the workflow system in all of the processes. The first column represents the domain of change (e.g. knowledge) and the second column the physical change.

Processes	<p>Change in process (from paper to electronic)</p> <p>All tasks are performed from employees' desks. They do not have to move to another department to deliver a document</p> <p>Elimination of some tasks (e.g. to print and to distribute copies of documents)</p> <p>Process became more transparent</p>
Communication and Collaboration	<p>Decrease in the number and amount of time of individual contacts</p> <p>Use of electronic channels to communicate</p> <p>Elimination of barriers of time and space</p> <p>Damage in individual relationships</p> <p>Some people became more available</p>
Coordination	<p>Possible to know the status of the processes</p> <p>Easier process management</p> <p>Standardization</p> <p>Registration of events</p> <p>Decrease in individual interpretation of events</p> <p>Facilitation of supervision</p>
Productivity	<p>Reduction in time (execution, waiting)</p> <p>Elimination of paper</p> <p>Elimination of redundant tasks</p>
Knowledge	<p>Development of databases</p> <p>Databases are "nurtured" from internal and external sources</p> <p>Development of an electronic "organizational memory"</p> <p>This memory is available to all the employees (subject to some confidentiality levels)</p> <p>This memory is easily updated and is always up to date.</p> <p>Possibility to extract information</p> <p>A more complete knowledge about all the processes involved</p> <p>More rigorous information.</p>

It is possible to see that the initial expectations were met. Also some other changes (not expected at the beginning) emerged.

In this study we tried to identify the organizational factors that enabled change. They are summarized in the following table.

<b>Structural Factors</b>	<b>Enabling Factors</b>
Processes	<p>The fact that the change started with simple processes that were not vital to the core business</p> <p>Implementation was made outside existing procedures – the overall process has not changed.</p> <p>The process was fully registered, not only the documents but also the history</p> <p>Electronic format of the content was similar to that of the paper version (which helped in the learning process of the employees)</p> <p>As it helped paper reduction, people (mostly the directors) enjoyed seeing that they needed less space for filing.</p>
Tasks	In general, tasks have not changed.
Coordination and control	Facilitates the control of processes – all the movements are registered. The information available is always updated.
Formal Communication	Facilitates formal communication – people are more accessible.

<b>Political Factors</b>	<b>Enabling Factors</b>
Power	<p>Made available some existing information (and employees liked that)</p> <p>Facilitated information about the processes.</p>
Decision making	Information available is more likely to be correct.
Conflicts	<p>The individual's interpretation of a situation was less important – this new objectivity helped to resolve some situations</p> <p>Also the work styles were standardized – situations became more transparent.</p>

<b>Human Factors</b>	<b>Enabling Factors</b>
Knowledge about how to use computers	Employees already used computers in their daily work
Personality	Some employees were very receptive to the changes. They wanted to learn new things.

<b>Technological Factors</b>	<b>Enabling Factors</b>
Characteristics of the application	The use of the application is simple and intuitive.

<b>Cultural Factors</b>	<b>Enabling Factors</b>
Symbols	<p>The enterprise has got started with KM</p> <p>Information is seen as value-added</p> <p>There are incentives to documents and information sharing.</p>

## D.2 Case Story 2

### **Theme: Knowledge database and competence mapping**

*Sector: Mechanics, hydraulics, pneumatics, electronics, optics and computers.*

The company was created in 1980. Its main activity consists in designing and producing high tech products and systems in the following domains: metrology, industrial data processing and microprocessors, test and control systems.

The company has 100 employees, 70% of whom are engineers with a very strong technical culture of innovation and quality. The main problem encountered by the company is a rapidly evolving and high demanding environment.

### **Characterization of the problem**

The company is facing a high-pressured environment, characterized by a number of key challenges:

- As in most sectors, it is encountering strong economic pressure for cost and delay reduction, at the same time as its own costs are increasing;
- Competition is very intense, with low cost countries supplying more and more sophisticated products at lower prices;
- Technologies and components are rapidly changing, leading to more sophisticated technological systems based on combined technologies such as electronics and optics;
- To maintain its competitiveness, the company needs to build up a high level of expertise not only in each specific scientific field, but also in the combination of several scientific fields.

In short, the company's problems are more linked to its external environment than to its internal organization. Yet the consequences are organizational. In fact, the company faces a stark choice: either it enters into cost competition, which may in the long run mean working with international suppliers, or it by-passes it, by focusing on technological innovation and advance.

This strategic choice implies that how the company uses its knowledge will be a key to its survival. Knowledge about its scientific theory and expertise constitutes the core resource of the company. The managing director therefore understood quickly that this fundamental resource had to be managed. As a consequence, leadership intends introducing KM as one of its strategic priorities.

### **Deciding on which KM method to implement**

The question of KM is very sensitive in the company, because knowledge represents an individual's negotiating and power base. For this reason it was not possible for the firm to impose any kind of KM system. Instead, it created a task force team of volunteer employees (executives, engineers and technicians). The team was organized as in a typical project, with a project manager (a retired employee of the firm), a fixed timescale (two years) and human and technological resources. The objective was to propose a global KM approach, which would be accepted by the majority of employees.

The project team tested several types of KM software and carried out a benchmarking exercise with customers and competitors. The objectives were twofold:

- On the one hand, the system should lead to cost and delay reduction, through the increased re-use and exchange of expertise,
- On the other hand, it should increase innovation and creativity, through combination of the "know how" and "know what" developed in various fields.

## What was done to maintain knowledge competitiveness?

### *A knowledge diagnosis*

The managing director decided to implement a regular knowledge “diagnosis”, in order to compare the company’s KM strengths and weaknesses with the state-of-the-art, with customers’ demands and with competitors’ evolution. For seven years, this diagnosis has been carried out annually, sometimes with the assistance of consultants or external experts and sometimes within the leadership team.

This diagnosis presents not only a review of technological expertise, but also analyzes potential areas for development in order to prepare for future change or evolution.

### *The implementation of technological and business intelligence*

To maintain its progress in KM, the company introduced formalized business intelligence processes. 12 engineers and salespeople constitute the business intelligence group, which analyzes and stores information about the company’s environment. Information is captured by each employee of the firm, who fills an intelligence report for every event that seems important for the company. In fact the company works closely with its customers and employees are very often working physically at the client’s premises. This allows them to maintain up-to-date information.

In addition, the company has developed research partnerships with university laboratories, in order to maintain a high level of knowledge regarding scientific progress.

## **KM**

In this firm, two main KM approaches have now been implemented:

- a. Creation of knowledge databases;
- b. Competence mapping.

### **a) Knowledge databases group together different types of knowledge**

- Scientific knowledge coming from external sources (universities, research laboratories, publications, conferences)
- Technological knowledge emerging from internal expertise and developments:
  - *FAQ* (frequently asked questions): mainly solutions which have been developed to clients’ questions
  - *Think tank*: a reservoir of ideas that are not yet implemented
  - *Bugs tank*: a reservoir of problems encountered in design and proposed solutions.

This knowledge capturing helps build up the technological “memory” of the firm, helps the firm react rapidly to client demands, helps reduce cost and delay thanks to the increased re-use of existing solutions. The capturing process also helps design teams develop their creativity, since it involves cross-learning between technological specialists, leading to fertilization and mastering of complex and innovative solutions aimed at the company’s markets.

### **b) Competence mapping offers a “cartography of expertise”**

In addition to formal knowledge databases, the company has developed a genealogy of experiences based on its previous projects. This genealogy of competence comprises a “memory” of previous design and production processes – i.e. commonly experienced problems and their resolution that highlights past errors.

Competence mapping helps to optimize the decision-making process at two levels: decisions about people’s choices and decisions concerning technological choices.

## Human Resources management

Since knowledge and competencies are the core resources of the firm, the question of intellectual property protection turns out to be crucial in a context in which expertise and know-how are embodied in individual and collective action. In this case knowledge protection is ensured by the employees' attachment to the company. Thus the company's management aims at placing a high value on human resources and creating attractive working conditions. Since there is little scope for increasing salaries, executives essentially try to implement a friendly working environment: working hours are fully "individualized" - when the sun shines people can work outside, relationships are casual and colloquial. The managing director describes this ambience as follows: "*If you visit us after lunch, you may see paper bowls flying and hear jokes bursting out.*"

Nonetheless, employees have to prove their expertise. Each one is evaluated on an annual basis, based on individual results, professional practice, behaviour and contribution to the global performance of the projects that he/she worked on. This evaluation gives rise to a multi-criteria score. Such characterization and measurement of competencies (see also booklet 4 for more on measurement of KM) are the keys for the competence mapping presented above.

## Challenges encountered

*The attitude of employees: positive and collaborative*

At the beginning of the programme employees were rather reactive, i.e. neither for nor against the analysis that the managing directors conducted to help them think about KM. Some engineers and technicians were very excited by the idea and participated rapidly in the project team. One said "*But we did not have to face real resistance; people only needed to be convinced that KM would really be a tool to improve and facilitate their job and not be another administrative process.*"

The KM system has been progressively implemented. The take-up of tools and competence mapping varied according to individuals, but overall, was rather rapid. By now, all the tools implemented by the firm have been used and additional ones have been created by employees (such as science metrics tools).

*Difficulties of choosing KM tools from a large range available*

More difficult for the company was how to analyze options for choosing tools to support its KM system. There is a fast expanding supply of different software and hardware available, as well as of consultancy-based options. In such a "jungle", carrying out benchmarking to understand how others companies had implemented their own KM system was very helpful. The firm's own clients (large companies in the car industry, electronics industry, space industry) were an interesting source of information, because they had already tested several systems.

Faced with this profusion, the company's managing director finally decided to ask internal resources, helped by trainees, to design the KM systems for the firm.

## Results: qualitative and quantitative improvements

During the last 10 years, the company has succeeded in increasing profit margins and maintaining a high technological advance relative to most competitors. Measuring exactly what part of this result comes from KM implementation is very difficult. Nonetheless, the company can identify both quantitative and qualitative benefits.

On the quantitative side, one of the most meaningful results was the improved reaction to clients' demands: the company reduced by 30% its response time even in cases in which the projects became more and more sophisticated.

The employees, who claim that they feel themselves to be involved in a continuous learning process, can express the qualitative aspect. Their job interest is expanding, as is their employability (even if they do not benefit from this directly, since they stay within the firm, and indeed the resignation rate is the lowest in the industry).

## Lessons learned

Implementation of KM is crucial for the survival of a SME that usually possesses few resources besides intelligence. But KM does not necessarily demand large and sophisticated systems. Rather, databases have to be an enabler for design and production and in that sense their construction has to be adapted to people's needs. The result may be simple knowledge bases; the essential issue is to make sure they are used. As it would be a utopian ideal to try to put *all* knowledge in databases, the company's KM approach also relies heavily on competence mapping – i.e. the *who's who* of expertise supports the real process of innovation.

## D.3 Case Story 3

**Theme: How to make efficient use of people's knowledge**

*Sector: Engineering*

### Lessons learned in a small engineering company

New technology was causing this niche engineering company to lose market share. The directors decided their new product programme needed a different approach.

A preliminary investigation of formal and informal structures provided a rough map of knowledge flows, key knowledge assets and "nodes" (i.e. points of density in the flows). It also uncovered knowledge gaps, and breaks in the cycle of knowledge processes, which were thought to account for programmes that had started but never come to a successful conclusion.

There were also useful findings from an investigation about the company's image, on the availability of better pricing for raw materials, on outsourced work and on custom-built products already being offered to clients. Although this information was in documents, or held by individuals, the review created a new significance and provoked efforts to make the information more widely known throughout the organization to maximize benefit. Each of these areas eventually became an improvement project in their own right.

A team was formed to find better ways of using this knowledge about people and knowledge objects (products, policies, processes etc. developed from the knowledge). Through training sessions the team would be given a greater understanding of knowledge processes, the way in which meaning and understanding are generated and the way in which relationships are affected by culture.

The first team session was facilitated and it became clear that although there was recognition of the importance of the informal structure, people felt that it was not right to spend company time on developing informal relationships when there was already so much work to do. Upon being questioned by the facilitator, it was found that they felt they did not have the 'permission' of the directors to spend time this way. The facilitator and two of the team went to the directors and proposed that some time be set aside to develop informal 'anything goes' sessions where all sorts of possibilities could be developed. A proposal was put to the directors that 10% of everybody's time should be given over to new ideas and that people would be encouraged to form groups they thought appropriate. Agreement was reached with the directors on a basis that once a month a spokesperson from each self-formed development team would talk for a maximum of 10 minutes on progress. As a result of this initiative, there was an increase in personal contact that led to deeper personal relationships.

There were a number of other issues that arose as a result of the work of the knowledge team. One was on the management of risk and another on the behaviour of particular individuals, on the need to move away from the existing "blame culture".

A group comprising two members of the KM team and others formed a group to review risk and recognized its relationship to the blame culture. They decided that the intent should be to encourage controlled risk. Good ideas in the past had not been developed because people were afraid of making mistakes when trying new approaches; but they had also seen competitors develop those ideas and win business. More flexibility in managing risk, and a change in staff responsibilities to remove the influence of a manager who was affecting

the situation soon improved things. This was supplemented by improvements to the reward system. There was a rise in the levels of trust between people in different functions.

However, the directors, who had not played an active role, found themselves somewhat isolated and this led to an increase in an 'us' and 'them' attitude, as the culture in the rest of the work force was becoming freer and more cooperative and they (the directors) were being left behind.

### **Some learning points:**

Any project often produces unexpected information and knowledge on which action should be taken

Individuals gauge whether they should be doing something through their perception of what is allowed and what is not. Even written or spoken permissions might not make an individual feel willing to act if they feel that the statement is not supported. In KM it has often been found necessary for managers to make clear statements, which they support by actions, allowing time for knowledge sharing and expecting people to share knowledge as part of their job specifications.

"Blame cultures" also tend to be risk averse. Controlled risk is necessary for innovation and creativity. People must be allowed to fail on the road to success.

Reward systems that support developments arising from the work force and that the work force regards as valuable can be highly effective.

Even good managers can find themselves isolated from a workforce that has developed a strong internal culture, unless they become a working part of that culture (see also booklet 2 on culture).

## **D.4 Case Story 4**

**Theme: KM in cross-team communication**

*Sector: IT Integration/software development*

### **Introduction**

The company is a global provider of collaborative Customer Relationship Management (CRM) software and solutions.

Its solution is based on its company-specific software package and specific implementation model. The solution builds on-line customer intelligence and automates the sales, marketing and service functions of large enterprises across traditional and electronic channels (call centres, serviced outlets, franchisee outlets, the Internet etc.) The software enables collaborative partners to service the same customer base over multiple delivery channels.

The company is privately held, formed in 1989. It is financed and owned by its three founders and one of the largest European software companies, which is listed in the Athens Stock Exchange. It now operates via offices in London, Nicosia, and Athens. The company is now in a period of rapid growth and expansion.

### **What were the main KM problems within the company?**

The company was in a period of rapid expansion, taking on more and more employees. It had become imperative to ensure that the knowledge of existing employees was harnessed and maintained in an effective manner.

Knowledge was not organized, thus making it sometimes difficult to obtain. Information was generally held on a central server and, whilst this was useful, there were no procedures in place to ensure that it was actually stored in the correct location on the server. In some cases, information required for sharing was stored on an individual's PC.

The company recognized the fact that there was extensive knowledge within the company, but that this knowledge was not always readily available. Furthermore, in some cases, the company might have even been unaware of the knowledge. A KM approach was needed because:

- The market would become more competitive;
- The company was in period of rapid, but sustained, growth;
- There was a need to expand the customer base;
- There was a need to expand into, as yet, untapped markets.

### **What did the company do to solve the problem(s)?**

#### *Identification of problem(s)*

The company's mission is to enable the development of business communities to more effectively service a common customer base, and offer customers an expanded set of products and services. The company's vision is to enable its clients to become more profitable by becoming the world leader in the provision of CRM solutions. In order to achieve this, it was necessary to 'tap' the knowledge of all of its employees.

#### *Deciding on method to implement for solution*

The long-term objective of the company is to own and maintain a centralized knowledge base, covering all aspects of the company's business. However, "one must learn to walk before attempting to run". It was with this thought in mind that the decision was taken to concentrate on a single aspect of the business and it was this aspect that was tested in the KM project.

The area chosen was the interaction, and the exchange of knowledge, between the Product Design group and a selected team of people from the Sales and Consultancy groups. Whilst knowledge was already exchanged, it tended to be on an ad-hoc basis and there was a need to formalize and manage the flow of knowledge between these groups, thus making the knowledge available to all those who needed it.

The senior management of the company had long since recognized that the knowledge of its employees was an important asset and that such knowledge should be garnered for the ultimate good of the company. However, there had been no formal method of obtaining and sharing knowledge and, whilst the pilot would concentrate on a small area of the company's activities, the ultimate aim was to incorporate the Know-Net<sup>24</sup> method company-wide.

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Know-Net is built around a knowledge-networking approach that is a fusion of the knowledge-as-a-product (content) and knowledge-as-a-process (context) perspectives to KM. The approach covers the full web of leadership, processes, structures and tools that enable building a knowledge-based organization. It is a modular, phased method that guides companies wishing to undertake the journey towards managing knowledge for business advantage. The method facilitates the mobilization, planning, design, deployment and measurement of concrete KM initiatives. The Know-Net tool, a fully scaleable intranet-based KM software system, is tightly integrated to the approach and method. The tool supports knowledge workers and knowledge system administrators alike and integrates state-of-the-art content management, collaboration and communication facilities with advanced search and retrieval facilities.

### **In-house resources**

The project manager doubled as the Knowledge Officer for the duration of the project. In addition, the following also participated, to a greater or lesser degree, in the project.

- Product Design group – Nicosia
- Sales & Consultancy – London
- Sales & Consultancy – Athens
- Technical assistant
- Human Resources representative.

### **Critical knowledge assets**

As a result of interviews and informal conversations, the following knowledge assets were identified.

*Human Knowledge Assets:* The capabilities, experience, and skills of the employees, and their ability to generate new ideas and suggestions.

*Structural Knowledge Assets:* Defined methodologies for project management and product implementation. Existing administrative and human resource procedures. Patented software and registered trademarks.

*Market Knowledge Assets:* Considerable knowledge of the industry, customers, competitors, etc.

Further investigation into the areas above revealed that the critical market knowledge assets for the company were community-based software knowledge and work-related knowledge and abilities.

Having decided to do something about the problem, what objectives did the company decide upon? The focus of the project was on the transfer of knowledge of the product, and building knowledge of existing and target customers. While this sort of information was currently being held on the server located in Nicosia, very often there were problems with access from remote locations.

### **How were these objectives arrived at?**

Meetings were held with senior management and the departments concerned in the pilot to ensure that each person fully understood the reason for the pilot and also the part he/she was expected to play. The results of these meetings were very encouraging with all participants not only recognizing the need for knowledge sharing, but also demonstrating a keenness to see the project succeed.

### **What did the company do to achieve these objectives?**

A Knowledge Officer was appointed to organize the KM structure. The Knowledge Officer would define the 'new' knowledge base and would implement the procedures to ensure correctness of use. He would also promote knowledge as an asset.

### **What were the expected benefits in the KM project?**

#### *Cross-Team Communications*

As stated above, communications across different teams already existed, albeit in an informal manner. The communications generally covered such topics as software errors, issues, enhancements, and any other request affecting the software functionality. The pilot concentrated on formalizing the communications and knowledge flow between Product Design and Sales and Consultancy.

#### *Inter-Office Communications*

As the company has offices in the UK, Greece, and Cyprus, it was important that the communications and knowledge sharing between the various offices were effectively controlled. As with cross-team communications, the pilot project was used to formalize the knowledge between the various company offices.

**Which tools did the company use?**

There were many and varied means by which knowledge could be disseminated within the company.

All employees had access to the Internet and, in addition, to the company intranet. Although still in its infancy, the intranet was already being used to provide details of employees (location, phone/fax numbers, email addresses, etc.), social functions, and methodologies for project management and product implementation. Within this methodology, there are many and various tools and templates, which ensured a standardized approach. Extensive use was made of email and teleconferencing, and the company maintains its own website.

Lastly, the central server provided information relating to current and previous projects, sales initiatives, marketing campaigns, administrative procedures, etc. The marketing group provided brochures and presentations in electronic format, thus ensuring that the company provided a common image to the outside world. The need for collaboration was essential and communications across groups and locations needed to be improved. In addition, standardization of reports, documents, etc., was seen as important, as it provided the means to promote an enhanced professional image.

Critical to the success of the company would be the way in which it managed the knowledge of its employees. Whilst the sharing of knowledge became a good practice that was widely accepted within the company, there were still instances in which knowledge developed by one group of people was not necessarily made available to other groups that might also have need of that knowledge. A formalized means of collecting and sharing knowledge was of high importance to the company.

Apart from storing data on the central server, there was another method for storage that was definitely valuable. Within the company-specific software, there is a module called the "Knowledge Base", which was intended to be used by clients for storing customer intelligence. Within the company, this was being used to store information and knowledge relating to the software. It was used to post meeting agendas and minutes, white papers, discussion groups, etc. Whilst this was an excellent initiative, it was limited to software development process and was only available to those employees who had access to the development database, i.e. the Product Design group and the developers. Other employees did not have access and were therefore denied the use of the Knowledge Base.

An integral part of the KM strategy was to incorporate the Knowledge Base into the Know-Net method, which was about to be implemented. After considerable thought, the area selected to pilot the Know-Net method and tool was the communications between the Product Design and Sales and Consultancy groups. This area was selected because, if successful, it would provide great benefit, whilst keeping possible disruption to a minimum. This project would overcome this difficulty as the Know-Net tool is web-based and can be accessed from anywhere in the world.

**Social interactions – meetings etc**

Interactions between the groups were expected to include, but not be limited, to:

- Publishing the calendar of dates for new releases and versions;
- Requests for enhancements;
- Requests for customization;
- Error reporting and 'bug' fixing;
- Customer profiles.

**What obstacles did the company expect to be encountered?**

The KM assessment had been limited to the people who would be involved in the KM pilot. The results of this assessment indicated that, quite naturally, there would be some resistance to change in work and communication practices. This resistance was partly due to the, as yet, limited understanding of KM in the company.

The anticipated resistance was manageable and could be largely overcome by increasing the knowledge and understanding of KM by means of seminars and workshops. This should then lead to the eventual acceptance of the anticipated changes. The company prepared the materials for these seminars and workshops, which would be conducted in all three locations. As a technology-oriented company, no real problems were foreseen with the introduction and implementation of a new technology system. It was expected that any resistance to change could be overcome by effective human resource management.

### **Were people co-operative?**

The key stakeholders were identified as the company management, the Knowledge Officer, the Product Design and Sales and Consultancy groups. Of the above groups, the management and the Knowledge Officer naturally supported the change. The remaining groups, while not necessarily being against change, needed to be convinced that the change was for the best. The major area of resistance appeared to be the idea that the workload would increase without any obvious benefit to the users.

### **What were the expected results?**

#### *Defined policies and procedures*

The need for KM was recognized, and supported, at the highest levels of management within the company. KM was recognized as one of the means by which the company could maintain its position as the leading supplier of CRM software solutions. In order to maintain this position, the management identified the following critical success factors:

- Improve the efficiency and effectiveness of cross-team communications
- Improve the efficiency and effectiveness of inter-office communications.

### **How did the company evaluate its findings?**

Knowledge analysis was carried out using the Know-Net method. As part of the project, various groups within the company were asked to complete a "Knowledge Orientation" questionnaire. The composite results showed that the company already had an awareness of a knowledge sharing culture and was suitably positioned to implement a KM strategy. However, more effort needed to be applied to the areas of incentives and rewards, and the structure.

### **Measurement and Evaluation**

In the area that had been selected, the following measures could be used for evaluation purposes.

- Time to market for new versions and releases;
- The number of prospects converted to customers;
- Customer satisfaction;
- Quality assurance.

In the future, the KM strategy to be implemented will include:

- Analysis of who knows what

- Ensure that knowledge is held in one location that is readily available to all employees
- Ensure that the 'knowledge repository' is simple to understand and use.

## **D.5 Case Story 5**

**Theme: KM in a SME network**

*Sector: Crafts enterprises*

### **Circumstances**

With the idea of being “strong through co-operation”, 31 crafts enterprises, spread across Germany, formed a co-operation in September 2000. This happened after the members understood that every single enterprise would be able to react faster to market changes if it was willing to take part in a horizontal association.

For this association to function, a communication platform had to be found, which should help overcome all the deficiencies that had occurred before in each individual enterprise. The objectives were to:

- Bridge huge geographical distances;
- Enable a quicker, continuous information flow without losing any information;
- Avoid developing the same solution to the same problem in several different places;
- Produce information that would be available at all times and places;
- Create a platform for collective developments, including a regularly updated information exchange forum.

### **Goals**

The aim was that the co-operation should achieve the following goals for each member:

- Synergies should be available through developing and learning in co-operation;
- A collective trademark should be established, based on a collective marketing concept;
- A national, area-wide market presence would be realized;
- Constant further development by collective training and workshops would be necessary;
- The costs should be reduced by “bundled purchasing”;

### **Tasks**

The tasks necessary for the introduction of such a communication and knowledge platform are to:

- Create a quick and low-priced communication tool allowing for a continuous information flow, 24-hour accessibility and database availability
- Forming a network with each other on all levels and the collective development of organizational processes, questionnaires, checklists and tools for all future undertakings.

A high acceptance level by all participants for any selected electronic medium would be crucial.

## Approach

The steps necessary for introducing an information platform are:

- The definition of contents and features of this platform
- The specification of software features
- A definition of tasks and rights for all participants
- The structure of the workflow inside the co-operation and the project responsibility has to be fixed.

## Realization and introduction

The most complex parts of this procedure were, for example, the choice of software for the knowledge network and putting in place an authentication system. Creating a corporate online design and founding a project group (in the form of a workshop), along with the training the users and selecting and training and the editors turned out to be more complex than expected (despite the introduction of a web-based “airmile” competition system and the acceptance and adoption of the platform in people’s everyday work).

## Experience

Starting this work was a very new experience for all members of the network. The adoption rate of all participants was, after the initial euphoria, quite low, because very little knowledge was accessible at the beginning. The amount of knowledge and the acceptance of the medium grew with the increased outputs from the workshops, which posted their collected documents to the platform. The adoption grew even further through demonstrating examples of successful applications. (One example of this is the story of the black basin: an exhibition manager was asked to get a black washbasin for a customer, but this model of basin had not been produced for 10 years. However, thanks to a request in the network’s extranet forum, such a basin was found at an associate’s store, where it had been left over.)

## Future aims

In the future, some projects are considered likely to increase the effectiveness of the knowledge network, for example in terms of improved usability, the introduction of additional levels for different employees, the implementation of external databases, as well as the implementation of supplier and partner enterprises. Furthermore, the introduction of videoconferencing and the development of online training are being planned.

## Conclusion

The aspects illustrated above form just a small part of the platform under development. Since the introduction and operation of such knowledge network constitutes an important competitive advantage for its members, that further information and content cannot be displayed publicly.

The expenses for hardware and software added up to about €80,000, not including the internal work costs for programming and knowledge input, which was provided by the members of the co-operation without payment. For the servicing of equipment and applications, as well as for providing an update service, further costs have to be considered.

The extranet includes a shared interface, which allows every company to use the information sites collectively.

## D.6 Case Story 6

**Theme: Process-oriented KM**

*Sector: A service foundation*

## **Introduction**

A process-oriented KM system has been implemented at a medium-sized service foundation in Germany, which employs approximately 40 staff. In addition to providing consulting services for medium-sized companies, it is committed to the provision of education and training services for its customers. The first objective of the KM project was to analyze the requirement for knowledge in the enterprise. The implementation of the concept laid the foundations for the development of a requirement-oriented KM system.

## **Identification**

The first question to be addressed related to the business processes, which required support. It was vital to identify and analyze the processes which had a suitably high level of potential in terms of the benefit which stood to be gained, given the support of KM techniques and tools. The first step in this operation was to produce a diagram showing the process environment of the company, dividing existing processes into the categories strategic, value-added and support processes. (c. Fig. 1)

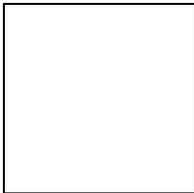


Fig. 1: Extract from the process environment of the enterprise

The “Acquisition, Development & Sales” and “Production of Goods and Services” groups were identified as creating value-added processes. Each of these groups can be further divided into sub-processes. Leadership specified that the investigation should focus on value-added processes.

The value-added processes selected from those available had previously been classified as being particularly knowledge-intensive, variable and repetitive. These processes were subsequently the subjects of additional analysis. The following processes were among those identified in the foundation: tendering, application management, education & training and project execution.

## **Analysis**

The value-added processes identified were modelled systematically during a follow-up stage. The individual steps in the various processes were identified in consultation with the staff actively involved in these processes and the processes were modelled accordingly. These process descriptions were used as the basis for partially structured individual interviews with each of the employees concerned. The purpose of these interviews was to identify the knowledge required at each stage and to record each subjective perception of the current situation with regard to the level of knowledge required.

It emerged, for example, that action was needed at the follow-up stage of the tendering process. The analysis showed that the task at this stage, at which bids could be followed up systematically, was not currently being executed. Consequently, the information, which was, in principle, available at this point for use in subsequent upstream operations, was not being exploited.

The outcome of this analysis was a complete collection of accurate process descriptions, which were used as a basis for the definition of existing areas of weakness and areas of potential. The process-specific success factors “success rate of the bids” and “average time required in order to process a bid” were defined for the tendering process. Realistic target values and time limits were set for these factors, making them achievable and practicable.

Those stages in the process where there was a need for action were identified on the basis of the evaluations recorded and compiled during the course of interviews.

## **Devising and implementing strategies**

The requirement for action was used as the basis upon which to draw up a list of the requirements to be met by the KM concept. The preceding prioritization stage ensured that attention during the concept development stage focused on the requirements weighted most heavily by those employees who had been interviewed. In a further stage, the requirements previously identified were grouped into so-called requirement areas for the concept development phase. These groups of requirements were then classified as either operative or strategic.

In many cases, the weaknesses analyzed prevented the processes under investigation from being executed with the degree of efficiency and quality previously assumed. A concept for a KM system was developed on the basis of the requirements formulated. One of the aims of this concept was to show how the KM activities to be implemented could be integrated within the organization and to identify the elements that would be involved.

### Concepts: Process-oriented KM

A model that uses the operative knowledge available as a basis on which to devise a strategy to be communicated throughout the entire company was set up in order to ensure that strategic knowledge is available and that it is used (Fig. 2). Sub-strategies and sub-objectives were developed on the basis of the fundamental goals of the company, with input from management and staff.

On the operative side, a concept was drawn up to ensure that the process support requested by staff was in fact provided. Distinctions were drawn at this point between various priority areas; customers, projects, processes, range of goods and services provided, staff, operating environment and management tools. The range of goods area, for example, demanded on the one hand that a concept defined in terms of strategy should be pursued and, on the other hand, demanded a concept that could be exploited selectively on the operative level in order to ensure a concentration of resources on those products with a promising future.

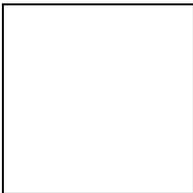


Fig. 2: The concept behind process-oriented KM systems

The concept includes, in the management tools area, the systematic provision of operative tools such as process descriptions, which staff can then apply selectively to their activities. Similarly, empirical knowledge acquired in the course of the project was made available by setting up a project database. In future, a project will not be regarded as complete until all information and documents required have been entered into the project database. In the operating environment area, a "competition watch" team was formed. The brief for this team was to analyze competitors and their respective product ranges and generate data from this work, which would be invaluable as a basis upon which to make strategic decisions.

### Summary

The work completed so far demonstrates that it is vital to study the processes in depth before embarking on the development of a KM system. This ensures, firstly, that staff engage systematically in the development process from the very beginning. This approach also highlighted valuable areas of good practice and individual solutions, which had previously been applied only in certain areas, and promoted their adoption throughout the company. Secondly, the actual requirement for information became part of the development brief and no measures were implemented which did not meet specific requirements (such as customer-oriented measures).

It is the employees who must be the focus of all investigations. It is essential to take full account of the pressure experienced by them in the course of their daily activities. Experience shows that solutions developed with this in mind achieve a higher level of acceptance among staff and are backed by them. However, they also show that one of the basic conditions which must be fulfilled if the project is to reach a successful conclusion is that management is open to change. Decisions relating, for example to the strategy to be pursued, must be taken jointly with staff and must be transparent to all employees. Similarly, managerial staff must ensure through their own openness that other employees lose any fear that they may have of making their own knowledge available to others.

All of these angles were addressed systematically when the model described here was implemented. The model provided the framework for the development of a process-oriented KM system, capable of taking account of company-specific requirements and thereby giving some orientation in relation to the implementation of the measures specified. The staff involved in this project are convinced both of the necessity of these measures and of the benefits to be gained from them. They actively promote the implementation of these measures through a range of working parties.

## **D.7 Case Story 7**

**Theme: Preservation of the knowledge of leaving experts**

*Sector: Software development*

*“Everything we do involves knowledge to a greater or smaller extent. New knowledge is generated so fast that smaller organizations in particular can have difficulties in following market developments. Various employees retrieve structure and create knowledge about the same subject, often independently of each other. Therefore management of knowledge is an increasingly important task for individuals, companies and organizations.”*

### **About the company and its knowledge needs**

The main activity of the company is the design, development and production of integrated information, communication and entertainment systems for the rail industry.

The company has approximately 95 employees. The company is a part of the Mark IV group, with 14,000 employees worldwide.

The company holds resources of great value in the shape of knowledge and know-how. The company is aware that these are probably underexploited. This could mean that the company is missing a possible opportunity for improved flexibility, faster development of products and a closer relationship with its customers and business partners.

The company further desires that its employees perceive the company as being a learning environment.

KM (KM) tools were therefore selected upon in order to put in place:

- An “Expert system” for reference when senior employees leave the firm.
- A motivating tool for those employees who wish to further develop their careers within the firm.

### **Method/tool**

The project “Key knowledge in the company” was carried out within the software department of the company. The process behind the project was:

- Pre-analysis
- Area of investigation
- Solution model
- Benchmarking.

### **Pre-analysis**

The purpose of the pre-analysis was to clarify the current knowledge sharing level within departments and to identify areas where working methods and processes could be improved through increased sharing of knowledge.

### **Area of investigation**

The area of investigation was selected based on the results of the pre-analysis, focusing on areas relevant for business returns. The design of the company's 'solution model' covered its purpose, expectations, level of ambition, previous knowledge and current situation analysis.

### **Solution model**

Now the solution model could be envisaged. If the case concerned an IT-system, for example, the requirement specification would be set up, and the market searched for relevant products. Then the work on implementation could begin. The process could result in refocusing certain work processes, the utilization of new tools, employee training and so on.

### **Benchmarking**

The purpose of this project is to create improvement. "Key knowledge in the company" has therefore incorporated an 'effect measurement' that shows the present situation, and also a follow-up of results after implementation of the chosen solution.

It is essential for the success of the project to begin with only one area and let employees take part in the process as much as possible. A basis for new areas of investigation is thereby created.

### **Project "Key knowledge in the company"**

#### **Pre-analysis: discovering knowledge gaps and needs**

The project was limited to the company's software department and its management. The project material was collected by observations of work meetings and in addition, project consultants also interviewed the group involved in the project.

The results of this data gathering were assembled in a report. The report showed the knowledge sharing requirements:

- Within the software department
- For cooperation with other departments
- For communication with customers
- For communication with sub-contractors.

An overview of explicit knowledge already available in the company, in the form of an intranet, other IT systems, handbooks/directories, requirement specifications and so on, was also drawn up.

The report listed some barriers that could be limiting efficient knowledge sharing, and gave recommendations on how these barriers could be avoided.

The conclusion from these projects was that knowledge in the company is spread throughout the entire organization and mostly embodied in individuals. Both management and employees wish to incorporate systems and routines that can facilitate exchange of this valuable knowledge. Not only facilitating, but also making the knowledge explicit, is desirable in order to create a basis for learning, re-use and creation of new knowledge.

The knowledge investigation was a time-consuming and difficult process, because the explicit knowledge is stored in many different places in the organization and mostly in an unstructured form. This explicit

knowledge is embodied in reports, process descriptions, correspondence, requirement specifications, presentations and so on.

**Area of investigation: discovering the competencies**

The pre-analysis made it obvious that there is a need to know *who knows what* and *who has worked with which systems and projects*. The following statements and observations made by people in the company illustrate this need:

- Knowledge is not efficiently re-used
- Lack of awareness of existing knowledge results in 're-inventing the wheel'
- Specific knowledge is mostly embodied in individuals (implicit knowledge)
- There is no overview of competencies and resources
- Time pressure, but no willingness to share experience
- No systematic sharing of experience between two projects
- People do not ask for help when they need information and therefore spend valuable time without achieving the best possible result.

In spite of some documentation of solutions in the company, it can be very difficult and time-consuming to find required information. The required knowledge is often tacit/implicit (i.e. embodied in individuals). As mentioned in the previous paragraph, the lack of a shared overview of competencies and resources is one reason why employees cannot learn from each other's experience.

It was therefore decided that the area of investigation should involve employee participation in the project, specifically involving a delineation of each individual's competencies and need for development; and of the department's collective competencies and competence requirements.

**Solution model**

Before modelling a solution, it is essential to establish shared frames of reference and define any new concepts.

The management of the software department was therefore introduced to new concepts and models about competencies.

The following subjects were discussed:

- Who needs what kind of information, and in what context?
- Management for steering and planning
- Human Resources for administration of staff issues
- Management of department for encouraging the professional growth of employees
- Management of staff development
- How Employees can identify tacit/implicit knowledge (who-knows-what).

The purpose and criteria of the project were defined and against this background, the company was able to set up the requirement specification. It became clear that it would be appropriate to establish an IT system as a competence supporting tool, because such a dynamic tool could contribute to the more suitable establishment of new projects and project teams.

Benefits expected included an increased re-use of knowledge and learning, improved output quality and meeting of deadlines.

Several IT competence tools were available on the market, and it was decided to carry out a market evaluation to see whether any of these would cover the company's specifications. Broadly, the market research comprised:

- Identification and description of IT competence tools
- Evaluation of relevance of IT competence tools
- Meeting with selected contractors and/or users of IT competence tools.

A consultancy participated in the final selection, planning and implementation of the IT- system.

### **Benchmarking**

A series of benchmark goals were incorporated into the model with the aim of testing the consequences of implementing the selected IT system. Measurements were made before implementation; and these will be repeated once experience has been gained in using the selected system, possibly after six months.

A general benchmarking tool was also developed; this could be adapted for use in other areas of investigation.

### **Evaluation**

The project's solution model was selection and implementation of an IT system as a competence tool. In spite of the fact that technology is a crucial catalyst for achieving knowledge sharing in organizations, technology itself does not generate knowledge sharing. Not all processes and actions should, nor can be, automated and supported by IT systems, because some will naturally involve human behaviour. There will always be some information loss as a result of conversion of tacit/implicit knowledge into explicit knowledge, which can be stored in IT systems. It is also by no means guaranteed that, even collected and structured information, stored in an IT –system, will actually be maintained and used.

It is therefore important to work at creating a high degree of engagement and positive involvement with the implementation of the system through active adaptation of routine and attitudes.

Failure is certain if relevant and convincing answers to the questions "how will it affect me?" and "how does it benefit me?" are not provided.

It is crucial that employees who actively generate and communicate new knowledge are acknowledged as being important and valuable members of the organization, and that such employees are always acknowledged as authors of the information that they have created.

It is therefore recommended to begin with a pre-analysis process. Pre-analysis will be able to reveal work methods and processes that can be improved. As a result, a better future basis for knowledge sharing should appear.

*In short, the objective is gaining success in a defined area, which can then bring motivation to further projects.*

## D.8 Case Story 8

**Theme:** *KM for visually disabled people*

**Sector:** *A charitable society for the visually handicapped*

**Aim:** Gather information scattered throughout the society and create a cohesive document system.

**Company:** The Royal Leicestershire, Rutland and Wycliffe Society for the Blind, a local charity that has been serving the interests of blind and partially sighted people in Leicester, Leicestershire and Rutland (UK) since 1858.

**Duration:** Two months

### **Effort**

The Society for the Blind was planning to move the library material from their present site to a tailor-built one, and as such wanted to know what material the Society held, and what was missing (e.g. gaps in the required information). The present building was not suitable for the visually handicapped and as such these people rarely used the collections. The reference material, intended for use by staff of the Society and assistants to the visually handicapped, was stored haphazardly at various places in the building, with the main collection of pamphlets etc being kept in the boardroom.

The collection included:

- Braille material,
- Audio material,
- Large print material,
- Pointers to available training aids for visually handicapped people,
- Material on guide dogs for the blind,
- Information about causes of visual impairment,
- Material dealing with the physical aspects of buildings and architecture in general – access, light levels, obstructions.
- Collections of pamphlets providing advice for helpers to the visually handicapped.

Finance was extremely tight as it was a charity and all money went to help the visually handicapped. The project was therefore carried out by volunteers, with help from the administrative staff. A detailed system was not required, merely an index of material available, and where and how to retrieve items when needed.

A list of contact names – people well informed in their particular area of expertise - was the starting point. Individual meetings were set up to establish what they had by way of printed, audio or Braille material, what they wanted to keep (and why) and what they felt they needed.

Some of the visually handicapped who came to the daycentre were also involved – and asked what they would like to have in the new library, both in terms of layout and material. Most of them were surprisingly indifferent, but a large demand for audiotapes was evident. Few wanted Braille, but they expressed great satisfaction with the weekly tapes of news etc. that were read, recorded and distributed by volunteers at the Centre. At the time of the project these tapes were not included in the collections, - they were held in a totally separate department, and were in fact ephemeral as the tapes were returned by the users and re-recorded. (This factor was not included in the KM implementation at that time, although with hindsight it should have been.)

The next step was to collect all the material lying about in the various offices. This was categorized into physical types of material: Braille, pamphlet, audio-visual, periodicals, books etc. These were then further classified by topic, and a final listing made.

The material was then stored in sections with material for general loan in colour-coded boxes rather than the more conventional Dewey or other classifications. This was because it was considered a simple way of identifying the various categories. The collection was comparatively small - colour coding would not be suitable for a larger, more comprehensively indexed collection.

Finally, a general guide to the collection of documents was printed in large print, and this was displayed on the door leading to the collection and also at various places along the shelves.

## **Results**

Most of the very varied material relating to the condition of and treatment and aids available for visually handicapped people was collected in one place. Where this was not possible, indicators as to where the material such as audiotapes could be found was provided. The items were stored by category, with each main category being assigned a colour. This made retrieval and return of material in the right place very simple. The simplified system is only suitable for a small collection, but it worked effectively in the described case. The implementation additionally showed a strong case for retention of technical, audio-visual and large print material, and less need for Braille material.