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**AGREEMENT**

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## European Guide to good Practice in Knowledge Management - Part 4: Guidelines for Measuring KM

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# Contents

Contents.....	2
Foreword.....	3
Introduction .....	4
1 Why Measure Knowledge and KM? .....	6
2 What could be measured: KM Results and KM Activities .....	7
3 How to measure KM: Strategies and tactics.....	10
3.1 General overview.....	11
3.1.1 Intangible Assets Monitor (AIM) .....	11
3.1.2 Skandia Navigator .....	12
3.1.3 Patton approach .....	13
3.1.4 Measuring collective knowledge.....	14
3.1.5 Real option valuation of knowledge assets .....	14
3.1.6 Table of methods and tools for collective knowledge evaluation .....	15
3.2 Measuring results: Direct measures.....	16
3.3 Measuring activities: Indirect measures .....	17
4 Examples of typical measures, and Key Performance Indicators .....	18
5 Appendix 1: Example of a diagnostic tool: Knowledge Quick Scan .....	19
6 Appendix 2: References .....	23
<b>Annex A: Work Items as described in the CEN/ISSS Workshop Business Plan .....</b>	<b>26</b>
<b>Annex B: Bibliography.....</b>	<b>29</b>
<b>Annex C: Acknowledgements .....</b>	<b>33</b>

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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.

# 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.

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 Why Measure Knowledge and KM?

*"Dear Mister Franklin, what is the value of your discovery?"*

*"Dear Member of the Congress, I have no idea, but one day you will tax it!"*

One of the key challenges of developing metrics for KM concerns "cause and effect." We can measure many activities, but what does the measurement represent? Does the activity we measure have an undisputed connection to other established business metrics? And how credible and actionable will any resulting numbers be?

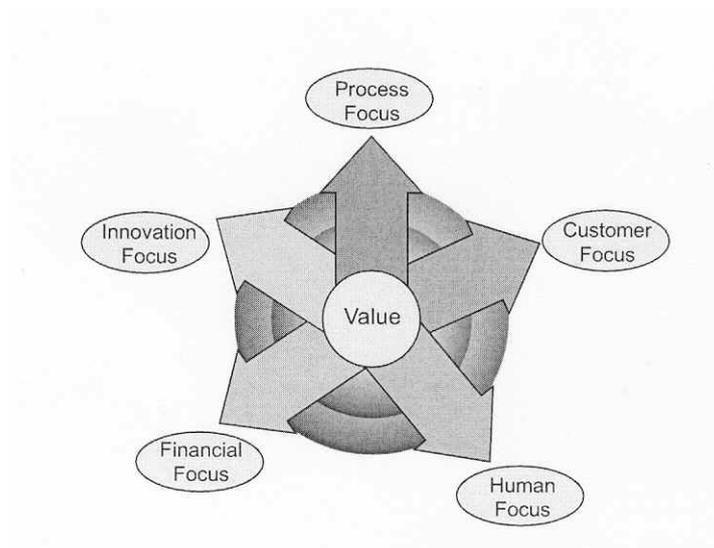
There are both internal and external developments that force organizations to think about the way they are managing their knowledge as a strategic asset on behalf of all their key stakeholders (see also booklet 1 – KM Framework)

- The leadership of the organization wants to know the Return On Investment (ROI) of KM activities. Sometimes people try to develop a 'business case' for KM.
- Employees as knowledge professionals want to know what the organization can offer to help them further develop their skills and to increase their market value. Knowledge workers want to learn and expect more and more to work for an organization in which they are empowered and where their knowledge is valued. They expect transparency and access to the corporate knowledge base.
- Clients expect that they will benefit from the collective knowledge of the organization. By managing knowledge in an effective way, the products and services that customers receive will be of the best quality and delivered in the most (cost-) effective and efficient way.
- Financial partners require that knowledge be carefully managed since it represents a substantial part of the organization's intrinsic value. There is an increasing focus on the issue of reporting on intellectual assets within the investor community, because investors want to have a better understanding of the drivers for performance over the longer term.
- In general, society (including governments) are interested in the way organizations deal with their resources and are able to carry out effective KM as a way to achieve sustainable competitive advantage. More openness is expected from organizations and there is an increasing pressure on organizations to share their knowledge with others so that everyone can benefit. let us know, as we would really like to get feedback from readers.

## 2 What could be measured: KM Results and KM Activities

First of all, we want to warn the reader that measuring knowledge (management) is not a science as 'exact' as accountancy. There are many interdependencies with other activities and quite often the context in which value is created is not the same as the one in which some of the knowledge efforts take place. In fact, value is not an 'intrinsic' property of knowledge: the value of knowledge fully depends on how knowledge is being used (Iske, Boekhoff 2001). Some knowledge can have a lot of value in one situation but be worthless in another. Think e.g. of a certain patent in biotechnology, which has only value for those organizations that can create a product from it. On the other hand, this underlines the importance of measuring: trying to evaluate the impact of KM should produce insights into how the organization is managing to develop and use its knowledge assets.

As is indicated in Figure 1, value can be added in five dimensions:



**Figure 1 — Five dimensions for adding value through KM**

- *Financial*: The knowledge effort results in direct cost savings or an increase in revenues.
- *Innovation*: By effectively developing, sharing and applying knowledge, organizations are better able to quickly develop and introduce new products and services.
- *Processes*: Knowledge is or should be embedded in most processes. Examples include, but are not limited to: product development, marketing and sales, customer service and procurement. KM can help to make such processes more efficient and effective.
- *Clients*: Knowledge can help to create customer capital (see below). Better understanding of customers and their needs will help to optimize product and service offerings. Furthermore, sharing knowledge with clients helps to build customer intimacy.
- *Human (employees)*: Many employees can be considered as knowledge workers. Effective KM means for them creating an organization in which they can develop and use their talents. It provides an environment in which it is fun to work and where they can learn and share with their colleagues, partners and clients. It means that the HC of the organization can effectively be developed.

The five dimensions mentioned above are directly related to Intellectual Capital (IC). IC can include the knowledge of employees, data and information about processes, experts, products, customers and competitors; and intellectual property such as patents or regulatory licenses. IC is composed of the understandings, insights, and technologies that result in innovations, new developments, and the increased wealth of the organization. It is the knowledge at the disposal of a organization that can be converted into a tangible asset of specific commercial value. This often manifests itself as the difference between the "book value" and the "market value" of publicly quoted organizations.

Valuing IC means supporting certain business activities, such as building customer loyalty or employee competence, that may not impact the bottom line of an organization for years. And it places less emphasis on near-term success that may not position the organization for the future. It brings tangible value to the notion of people and what they can contribute to the ongoing viability and success of an organization, if supported by the right culture (see booklet 2), technology and business processes.

One can distinguish between three different types of IC:

**Human Capital (HC)** is composed of the skills, talent, knowledge, and expertise of the employee base. It can be described as an organization's collective capability to extract the best solutions for customers from the knowledge base of its individuals. HC resides in the people who walk in and out the front door every day.

**Structural Capital (SC)** can be thought of the knowledge that has been captured and institutionalized within the structure, processes and culture of an organization. It includes patents, copyrights, proprietary software, trademarks, trade secrets and general organizational know-how. It can be stored in the form of documented procedures, databases, expert systems, decision-support software and KM systems. Furthermore, SC is being built up by the relationships with suppliers, governments and the investment world. SC is everything left at the office when the employees go home, and can clearly be regarded as organizational property.

**Customer Capital (CC)** refers to an organization's network of satisfied clients, and their loyalty to the organization. The value of an organization's IC should be measured in terms of the quantity and quality of the client relationships that have been built up over time. It is the clients' confidence in the products and services provided that has value. CC would have been a truly alien notion to accountants just a few decades ago. Yet it has always been there, hidden within the balance sheet entry for "goodwill."

A key aim of KM is clearly to create IC, knowing that it can result in improved future financial performance!

So, we can see that effective KM will usually contribute to the development of IC. Measuring the added value of KM therefore means measuring the contribution to the development of IC.

As we will see in the following sections, one could also measure the impact of KM itself, without having an ambition to directly translate this to business value. One has to be careful here, since KM should be seen as a means to an end and not as a goal in itself. If the link to business value cannot be made, people will always remain dependent on beliefs and perceptions, which might lead to important initiatives being stopped, especially in (economically) difficult periods.

In Table 1, an example is given of an organization that created an "IC Statement" to track the development of its IC. For more background and examples, see Danish Ministry of Science, Technology and Innovation (2003).

Table 1 — IC statement - The Danish Maritime Authority

What value does the Danish Maritime Authority create for its customers? (= Use value)	Challenges that enable the Authority to create value for its customers (= Management challenges)	What initiatives are required? (= Initiatives)	How do we measure this? (= Indicators)
<ul style="list-style-type: none"> <li>• Shipping and assimilated industries: The Danish Maritime Authority pursues a policy that creates good framework conditions for the industry's ability to compete and for increased Danish employment</li> <li>• Seafarers and fishermen The Danish Maritime Authority works for high levels of safety, health and qualifications</li> <li>• The minister: The Danish Maritime Authority ensures that the minister always receives an on-time qualified service</li> </ul>	<ul style="list-style-type: none"> <li>• The Authority is to be an IT-based workplace using IT to support production and KM internally and externally</li> <li>• The Authority is to co-operate with the industry and its organizations to create the best possible national and international framework and conditions</li> <li>• The Authority must be able to retain and attract highly qualified labour and be an attractive workplace at all times</li> </ul>	<ul style="list-style-type: none"> <li>• Train employees in the use of IT</li> <li>• Develop "super-user" organization</li> <li>• Develop and use system supporting KM by being user-friendly and accessible to all</li> <li>• The Authority must use IT and particularly the Internet more extensively to share knowledge externally</li> <li>• Increased meeting activity frequency and information on the affected industry and its organizations</li> <li>• Partnerships</li> <li>• Participation in International Maritime Organization council</li> <li>• Co-operation with other flag states</li> <li>• High success rate in serving the minister</li> <li>• Employee satisfaction survey</li> <li>• Identifying new methods for development of competencies</li> <li>• Development projects</li> <li>• Seminars</li> <li>• Recruitment</li> <li>• New, flexible wage and working time policies</li> </ul>	<ul style="list-style-type: none"> <li>• Time spent on IT training</li> <li>• Number of super users</li> <li>• Time spent on training of super users</li> <li>• Number of employees with pc driver licence</li> <li>• Number of international visitors the website</li> <li>• Meeting activities in national forums</li> <li>• Meeting activities in international forums</li> <li>• Participation in international co-operation projects</li> <li>• Meeting activities with the industry and its organizations</li> <li>• Minister service performance measures</li> <li>• Proportion of world tonnage</li> <li>• Number of Danish seafarers</li> <li>• Results of employee satisfaction poll</li> <li>• Competency development activities</li> <li>• Number of employees who are active in experience groups/project groups externally</li> <li>• Evaluation of courses etc.</li> <li>• Staff turnover</li> <li>• Number of employees in the labour market</li> </ul>

Source: The Danish Maritime Authority's IC statement 2001

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## 3 How to measure KM: Strategies and tactics

As discussed in booklet 1 of this CEN guide to KM good practice, in which the European KM Framework is introduced, knowledge (management) can only add value when integrated into business processes. So, ideally one should be able to relate knowledge efforts directly to improved business performance. In such a case, KM could be directly linked to economic value. However, in practice, this direct link is not always that simple to establish.

The basic reason for this is that by creating and sharing knowledge, the organization is building those competencies that are necessary to achieve better economic results. But the realization of these results might take some time.

In this section we describe how an organization can try to measure (the results of) KM and how it can use these results. Some of the approaches described are more mature than others.

Clemmons Rumizen, M. (2002) outlines the following steps when developing measures:

### 1) Define your goals

Your starting point for measuring any KM initiative should be the original goals of that initiative: what is it that you set out to achieve? Developing measures will often lead you to become clearer about how you define your goals in the first place; if your goals are not concrete and clear enough, then measuring your success or progress against them will be difficult. Hence ensure that your goals define clearly what constitutes success in measurable terms.

### 2) Identify the stakeholders for your measures

When defining success, you will often find that different people have different ideas about what constitute success. Managers who approve the allocation of resources will want to know about the returns on their investment. Users of the KM initiative will want to know how it has benefited them and whether their participation has been worthwhile. Other beneficiaries of the initiative will want to know how they have gained.

### 3) Define the measures

Define what exactly you are going to measure, and what measurement approach or approaches you intend to take. Ensure that your measures are:

- Valid: they actually measure what they are intended to measure rather than something else
- Reliable: they give consistent results
- Actionable: they give information that can be acted upon if necessary.

### 4) Decide what data will be collected and how it will be collected

This is a process of 'putting the meat on the bones' – i.e. spelling out the details: what data will be collected, who will collect it, how, when, where, etc?

### 5) Analyzing and communicating the measures

When analyzing and presenting the results, be sure to refer back to your original goals and your audience. Aim to present results in a way that answers their questions in a meaningful way, rather than simply presenting facts and figures.

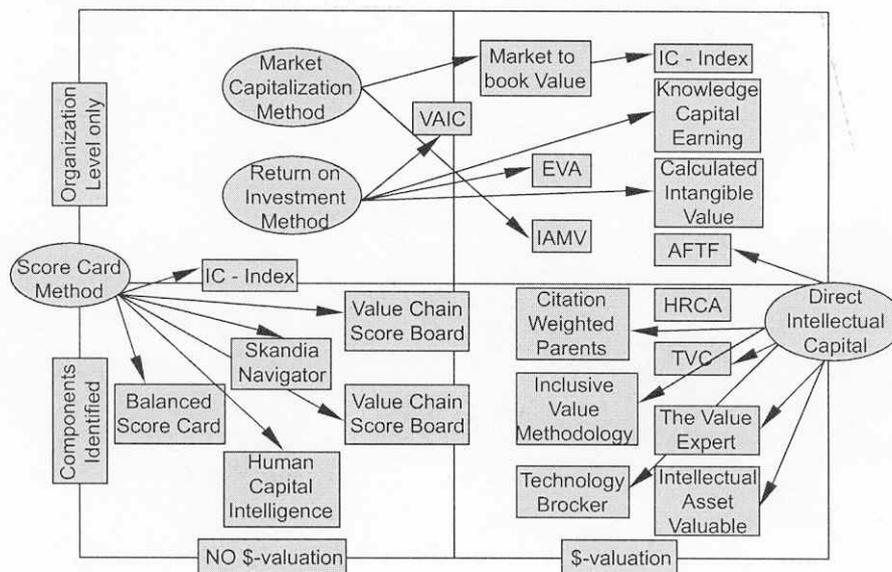
### 6) Review your combination of measures

Monitor and evaluate how your measures are working. Developing measures is a process of trial and error – don't necessarily expect to get it right first time. Similarly, remember that, as objectives and situations change over time, so will your measures need to change.

Additional pointers emphasised by other practitioners include:

- Measuring for the sake of measuring is a waste of time – be sure that you are measuring for a specific purpose.
- Be sure that some kind of action or decision will be taken as a result of your measures.
- Don't try to measure everything; instead, focus on what is important. Trying to measure too much not only requires a great deal of work, it also tends to dilute the important issues.
- If your organization already has a measurement system in place, then you can use those measures. If your KM initiatives work, then you might assume that this will show up in your organization's other performance measures. Of course there is no guarantee that existing measures are effective, so you might like to reappraise them, but there are two major advantages to 'piggy-backing' on existing measures: first, they are already accepted practice in the organization, and second, they are most likely measuring things that are important to the organization.

### 3.1 General overview



**Figure 2 — Intangible assets measuring models**

Many approaches to the measurement of intangible assets (IA) can be identified. Figure 2 highlights four of the more well-known approaches. This shows that one may consider various facets, such as financial valuation, or high levels of evaluation that measure the effect of a KM implementation in terms of macro-elements or at a lower level (that is at the organizational component level).

#### 3.1.1 Intangible Assets Monitor (AIM)

The Intangible Assets Monitor (Sveiby 1997) is a method for measuring IA and a presentation format that displays a number of relevant indicators for measuring IA in a simple fashion. The choice of indicators depends on the organizational strategy. On the surface, the Intangible Assets Monitor looks similar to the well-known Kaplan/Norton Balanced Score Card. There are however big differences. The Intangible Assets Monitor can be integrated into management information systems. The Monitor itself should not exceed one page. It should be accompanied by a number of comments. Only a few of the suggested indicators should be selected. The most important areas to cover are growth/renewal, efficiency and stability. The purpose is to get a broad picture, so one or two indicators in each category should be designed.

### 3.1.2 Skandia Navigator

The Skandia Navigator is a collection of critical measurements that together comprise a holistic view of performance and goal achievement. The architecture of the Skandia Navigator is simple yet very sophisticated. Five focus areas or perspectives capture different areas of interest. Each area visualizes the value creation process. The Skandia Navigator leads to an understanding of the organization and its value creation along five focus areas:

- Financial focus captures the financial outcome of activities. Some like to see it as a “receipt”. It is here where we establish the long-term goals and also a large part of the overall conditions for the other perspectives. This could be the profitability and growth that our shareholders demand from us.
- Customer focus gives an indication on how well the organization fills the needs of its customers through its services and products. For example, how much of our sales derive from new customers when compared with old ones, or how loyal are our customers? The Navigator therefore represents a view that goes from the outside looking in, and shows that it is of great importance that we define our customers' needs.
- Process focus captures the actual processes of creating the services and products that our customers desire. It covers questions like how do we handle our customer support? This focus area is also connected to the internal processes. Are we working in an efficient way? Are we working in a correct manner? Connected to this could be the importance of SC (see above).
- Renewal and development aims at ensuring the organization’s long-term renewal and its sustainability. What steps and actions are we taking now to ensure long-term growth and profitability? What is required to attain and develop the knowledge needed to perceive and satisfy our customers’ needs?
- Human focus is the heart of the organization and is essential in a value creating organization. The process of knowledge creation is visualized in this focus area. It is also essential that the employees are pleased with their work situation; pleased employees lead to pleased customers, improving the organization's sales and results.

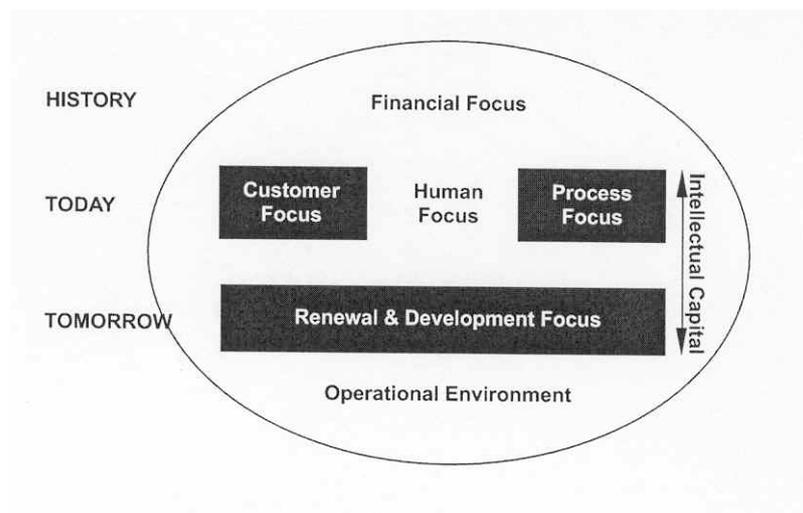


Figure 3 — Skandia Navigator

### 3.1.3 Patton approach

This evaluation approach considers the generation of “best practices” as a potential means for the evaluation of knowledge creation. Provided that concept of best practices is precisely defined, one can measure the generalisation of lessons learned into a more conceptual practice that becomes context independent.

According to Patton, the knowledge that can be applied to future action and screened according to specific criteria includes:

- Evaluation findings (patterns across programmes);
- Basic and applied research;
- Practice wisdom and experience of practitioners;
- Experiences reported by programme participants/clients/intended beneficiaries;
- Expert opinion;
- Cross-disciplinary connections and patterns;
- Assessment of the importance of the lesson learned;
- Strength of the connection to outcomes attainment.

A questionnaire has been derived from this:

- What is meant by a “lesson”?
- What is meant by “learned”?
- By whom was the lesson learned?
- What’s the evidence supporting each lesson?
- What’s the evidence that the lesson was learned?
- What are the contextual boundaries around the lesson (that is, under what conditions does it apply)?
- Is the lesson specific, substantive, and meaningful enough to guide practice in some concrete way?
- Who else is likely to care about this lesson?
- What evidence will they want to see?
- How does this lesson connect with other “lessons”, trends and how can one prioritize these according to specific criteria?

### 3.1.4 Measuring collective knowledge

Two kind of views are common: collective knowledge can be considered either as a static object (such as CC, SC or HC) or a dynamic process that leads to the ability to learn, which leads in turn to the production of information, competencies and knowledge-based products such as patents (see Figure 6).

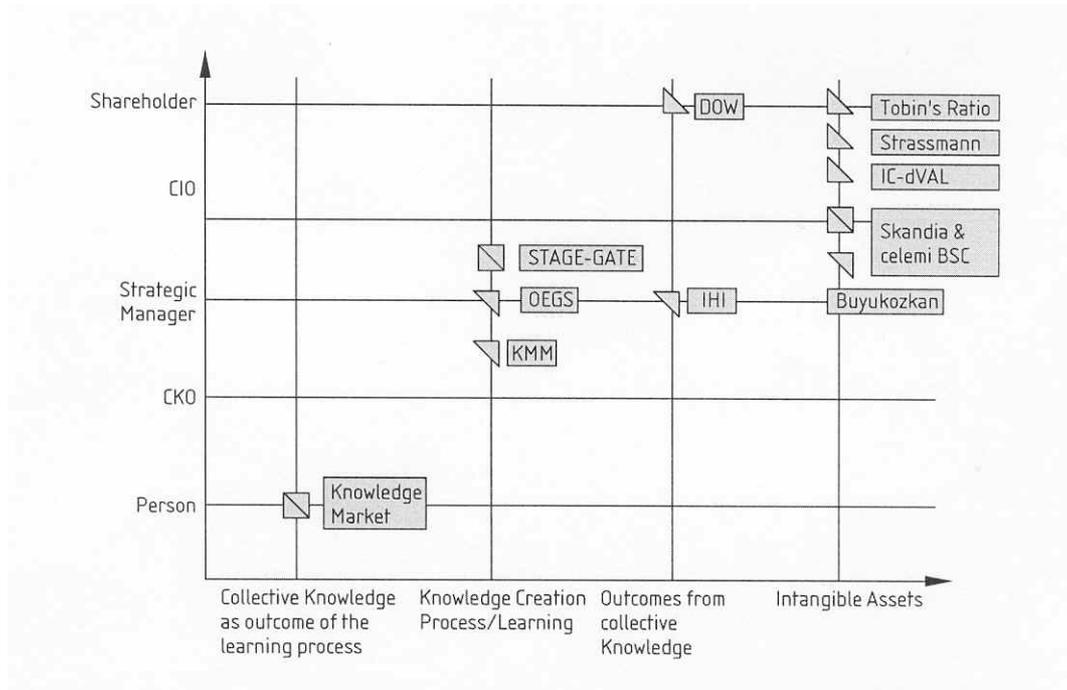


Figure 4 — Measuring schemes for collective knowledge capital

### 3.1.5 Real option valuation of knowledge assets

We will not describe in detail here the complexity of real option valuation. This is a relatively new approach in which intellectual assets (hence knowledge) are seen as valuable because of the opportunities they generate. Opportunities may be thought of as possible future operations. When you decide how much to spend on KM you are valuing opportunities. Spending now doesn't create cash flow from operations, but the opportunity to invest again later, depending on how things look. Many marketing expenditures have the same characteristics. Spending to create a new or stronger brand probably has some immediate payoff, but it also creates opportunities for brand extensions later. The opportunity may or may not be exploited ultimately, but it is valuable nonetheless. Organizations with new technologies, product development ideas, strong positions in fast-growing markets, or access to potential new markets, all own valuable opportunities. For some organizations, opportunities are the most valuable things they own (Luehrman 1997). In financial terms, an opportunity is analogous to an option. With an option, you have the right - but not the obligation - to buy or sell something at a specified price on or before some future date.

Corporate opportunities have the same features as financial options: "if the knowledge that we want to create, store, share and use is valuable..." is analogous to "if the stock price rises in the next few months". Similarly, "we'll go ahead and invest" is analogous to "we'll exercise the option".

According to Damodaran (2001):

- Having the exclusive rights to a product or project is valuable, even if the product or project is not viable today. This can be translated into: "having (exclusive) knowledge is valuable, even if the knowledge is not being used today."

- The value of these rights increases with the volatility of the underlying business. In case of KM one could read this as: “the value of knowledge increases with the number of applications (of that knowledge)”.
- The cost of acquiring these rights (by buying them, or spending money on development, for instance) has to be weighed against these benefits. Or, in terms of KM: “the costs to create, store and share knowledge have to be weighed against the benefits from using it”.

### 3.1.6 Table of methods and tools for collective knowledge evaluation

**Table 2 — Methods and tools for Collective Knowledge evaluation**

	Object	Objective	Actor	Technique used
Tobin's ratio	Intangible Asset	State of the art ROI	Shareholders	Quantitative  Financial  Ratio between market value and the asset replacement
VAIC	Intangible Asset	State of the art ROI	Shareholders	Quantitative  Financial  Value Added Intellectual Coefficient
Strassmann	Intangible Asset/Knowledge Capital	State of the art ROI Improvement of Management Systems	Shareholders CIO Finance Manager	Quantitative  Financial
BSC (Skandia, Celemi)	Intangible Asset	State of the art Activity monitoring ROI Transparency Analysis of Strong and weak points	Shareholders Strategy Manager	Quantitative/Qualitative  Identification and evaluation of the CC, organizational capital and HC
IC-dVAL	Intangible Asset	State of the art Activity monitoring ROI Transparency Analysis of Strong and weak	Shareholders Strategy Manager	Quantitative  Performance indicator

	Object	Objective	Actor	Technique used
		points		
Büyüközkan	Intangible Asset	State of the art Activity monitoring	Shareholders Strategy Manager	Qualitative Questionnaire and weightings
IHI	Information	State of the art Analysis of Strong and weak points	Strategy	Qualitative Questionnaire, cartography
DOW	Patents	State of the art ROI	Shareholders	Quantitative Financial Patent value= Cash flow value weighted by the technological factor
Evaluation tools for patents	Patents and know-how		Shareholders	Quantitative Financial
Investigation methods	Competency for innovation	State of the art activity monitoring	Shareholders	Qualitative Questionnaire

### 3.2 Measuring results: Direct measures

This area is the one that most (business) people are interested in. Measuring direct business impact is the most powerful way to demonstrate the added value of knowledge (management). As is shown in the European KM Framework (booklet 1), it requires a very intimate relation between an organization's knowledge processes and its primary business processes. As an example, one could consider marketing and sales. There are a couple of scenarios in which the impact of KM could be directly measured.

By sharing knowledge between product people and client people (so that the product people better understand client needs and offer more appropriate products and so that client people have a better understanding of the products the organization can offer) increased sales could be achieved. The same could happen if sales people share their knowledge about customers. Furthermore, a process that stimulates the sharing of commercial ideas with the right people will lead to increased sales. Another example could be the development of a best practice proposal (including commercial texts, product descriptions, a pricing model etc.) that can lead to a reduced time to produce proposals (which can be measured quantitatively) and an increased success rate (idem). Direct financial results could also be achieved by exchanging knowledge with suppliers: e.g. around how to increase buying power, how to re-use knowledge from consultants etc.. Finally, one can achieve a shorter development time or time-to-market through better management of knowledge.

Narrative techniques such as storytelling (see also booklet 2 on culture) can be used to communicate achievements through KM efforts and to generate recognizable examples that inspire other people. Storytelling is becoming an increasingly accepted formal technique for developing organizational knowledge assets. Storytelling has of course existed for thousands of years as a means of exchanging information and generating understanding. Similarly, it has always existed informally in organizations – often being known as 'the grapevine'.

Structured storytelling is used to embody and transfer knowledge – similarly, a simple story can communicate a complex multi-dimensional idea, often more effectively than simply transmitting information as a message, since story actively involves the listeners in co-creating that idea. Furthermore, as a story is told and retold, it changes, and so the knowledge embodied in it is constantly being developed and built upon.

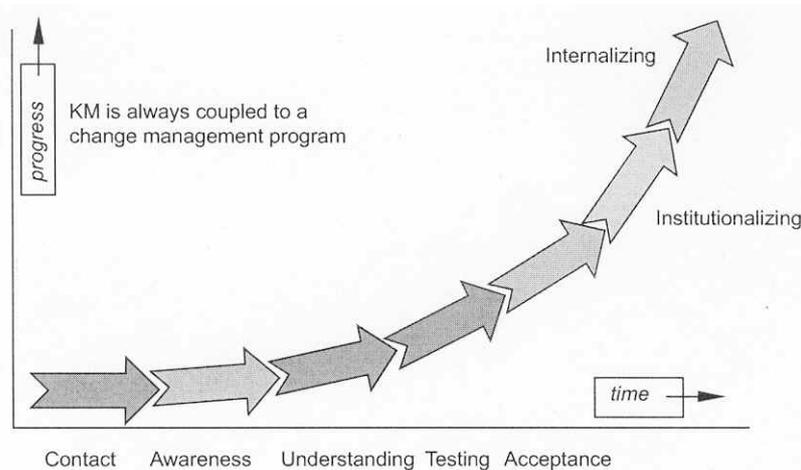
For more information about the use of storytelling to communicate results of KM efforts, we refer to <http://www.creatingthe21stcentury.org> and Armstrong (1999).

### 3.3 Measuring activities: Indirect measures

Indirect measures give insight into the maturity, quality and effectiveness of the KM tools, processes and culture. Indirect quantitative measures include user statistics of databases, intranets, number of questions being asked in expert systems, number of documents in the knowledge repository, number of people who have attended a course, or number of workshops held about a certain subject etc.

Indirect qualitative measures give insight in the way the KM efforts are being perceived. By collecting feedback one can measure user satisfaction. It can give insight into the reputation of the KM project/programme. This can also be expressed via testimonials in corporate magazines, during department meetings, in appraisal discussions, in conversations with clients or via client feedback etc.

It is also important to know where the organization is situated on a change curve (see figure 7), as this gives an indication of progress being made. Typically, it takes one or two years to move from the contact phase to the acceptance phase (depending on the nature and the size of the business). Secondly, the strategy behind the KM project should be adapted to the position on the change curve: too often organizations start projects on a large scale, or projects requiring large budgets, without having the buy-in (acceptance) and sometimes even without building awareness or understanding with the people who will need to work in a different way or who have to use new tools.



**Figure 5 — Relationship between KM and change management (see also booklet 2 on culture)**

A knowledge “scan” or audit can help lead to better understanding of the maturity of the organization and its people with respect to managing knowledge. See appendix 1 for an example of a ‘Knowledge Quick Scan’ that can help to determine the position on the change curve.

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## 4 Examples of typical measures, and Key Performance Indicators

- Time to create new knowledge
- Contribution to knowledge bases
- Sharing and use of best practices
- Number of repeat complaints
- Number of identified expert.
- Number of people active in Communities of Practice (CoPs)
- Number of patents
- Number of new employees
- Number of knowledge debriefs
- Number of knowledge stories
- Invitations to speak at conferences/seminars, etc
- Number of publications in relevant literature
- Number of contacts with knowledge institutes
- Savings by knowledge re-use
- Reduction in cost of quality
- Employee satisfaction
- Information maintenance
- Tool availability
- Knowledge user complaints
- Knowledge user satisfaction
- KM budget availability
- Proportion of employees making new idea suggestions
- Time to develop new ideas
- Ratio of new ideas generated to new ideas implemented
- % of sales earned with new knowledge.

Based on the current situation - such as the tools that are employed, the strategy of the organization and the cultural focus of the project - a selection of the above mentioned parameters can be used to measure the success and progress of the project and the value being created.

## 5 Appendix 1: Example of a diagnostic tool: Knowledge Quick Scan

As stated above, it is often very difficult, if not impossible, to directly measure the impact of KM activities. However, it could already be useful to make the organization's efforts (instead of just its results) in the area of KM more transparent, e.g. when reporting, the management of an organization could indicate the effort that has been undertaken to support KM processes. More concretely, management should be able to indicate what it has done to stimulate the right processes and organization, to build a supporting (technical) infrastructure and, most importantly, to instill the right culture and the right set of behaviours within the organization.

In this appendix, we provide an example of a simple tool that can be used to measure how the organization is currently positioned with regard to the basic knowledge processes that are part of the KM framework (see booklet 1): i.e. identify, create, store, share and use knowledge. For each of these five processes, seven diagnostic questions are asked which, if necessary, can be further fine-tuned within an individual organization. These seven questions are related to the so-called "7S- model" from McKinsey, which focuses on Strategy, Shared Vision, Style, Staff, Skills, Structure and Systems.

Furthermore, seven questions are asked which relate to the organization as a whole, i.e. not focusing on the knowledge aspects in isolation, so that one is able to see whether the knowledge aspects of the organization are relatively strong or weak points.

Finally, for each knowledge process, the respondent is asked about his/her personal attitude and actual behaviour related to the knowledge processes.

The respondent is asked to give a rating for each answer from 1-5 (1=strongly disagree, 5=strongly agree). In the analysis of the questionnaire, it is important to identify the strongly negatively and positively rated questions and to compare the answers of different people/teams/departments. It may be wise to perform the scan on a regular basis, so that progress can be monitored and corrective actions can be initiated.

### **General Questions:**

- 0a. (Strategy): Does our organization have a clear Mission, Vision & Strategy?
- 0b. (Shared Vision): Are there any conflicts of interest within our organization?
- 0c. Is the culture in our organization based on trust, respect, collaboration and professionalism?
- 0d. Is the staff highly motivated to contribute to the organization's objectives?
- 0e. Does our organization have the competencies that support our strategy?
- 0f. Are we very well organized (i.e. we have the organizational structure and processes) to achieve our goals?
- 0g. Are we supported by state-of-the-art information systems?

**The KM Processes:**

**Identify Knowledge**

- 1a We know what knowledge we need to support the strategy
- 1b If you would ask any person in the organization what our most important expertise is, you would always get the same answer.
- 1c We are stimulated to look for existing knowledge in order to avoid re-inventing the wheel.
- 1d In our organization, colleagues know from each other who knows what.
- 1e We know how to find the knowledge that is available
- 1f Our organizational structure reflects our areas of expertise
- 1g We have systems in which we can easily find the knowledge that we have
- 1h *I often ask myself which knowledge I need to do my current and future tasks*
  - 1i *I know what I know.*

**Create Knowledge**

- 2a We have an explicit strategy for knowledge development (e.g. research and development) and acquisition (e.g. recruitment, partnerships, mergers & acquisitions).
- 2b In our organization we agree on how we should get new knowledge
- 2c We are stimulated to acquire and/or develop new knowledge
- 2d The staff is focused on learning and exploring new ways of working
- 2e We know how to innovate
- 2f We have developed ways to support the creation of new knowledge (e.g. via a "corporate university", traineeships, job rotation)
- 2g We have the right systems to capture and share new ideas and experiences
- 2h *I like to learn*
  - 2i *I always effectively develop new knowledge when I need it.*

**Store Knowledge**

- 3a We have a clear strategy for storing our knowledge assets
- 3b We all agree on what knowledge should be stored
- 3c The management stimulates staff to capture experiences and lessons learned and make these accessible
- 3d Employees spend time and effort to contribute to the corporate knowledge base
- 3e We know how and where we can store our knowledge for re-use by others
- 3f We have assigned roles and responsibilities for storage and maintenance of knowledge
- 3g We have the right systems, like databases, intranets, in which we can easily store our documented knowledge
- 3h *I like to make my contribution to the corporate knowledge base*

3i *My personal knowledge is effectively made accessible for others*

**Share Knowledge**

- 4a The strategy of our organization can only be realised if knowledge is shared
- 4b In our organization ‘knowledge sharing = power’ applies more than ‘possessing knowledge = power’
- 4c The management motivates staff to share knowledge by building trust, giving incentives, making available time and resources
- 4d We spend time to share our ideas and experiences with others, even if this is not directly relevant for our job
- 4e We know how we can optimally share our knowledge with each other
- 4f The way we are organized (departments, meetings) doesn’t introduce any barriers for knowledge sharing
- 4g We have the right systems, like databases, intranets, team-rooms and e-mail to support knowledge sharing
- 4h *I like to share my ideas and experiences with others*
- 4i *By sharing my knowledge I have made a significant contribution to the organization.*

**Use Knowledge**

- 5a We have a systematic approach to make optimal use of knowledge in our business processes
- 5b We agree on how we can make optimal use of our knowledge
- 5c We are encouraged to make use of the knowledge that is available
- 5d We apply knowledge to improve and to innovate in our job
- 5e We know how we can use the available knowledge in our work
- 5f We know how to link knowledge to the business processes and activities
- 5g We have systems that make it easier to make use of available knowledge
- 5h *I am flexible in applying other people’s knowledge, in order to become more efficient, effective etc.*
- 5i *I prefer to use other people’s ideas and suggestions, instead of figuring it out for myself.*

0. General		1. Identify Knowledge	2. Create Knowledge	3. Store Knowledge	4. Share Knowledge	5. Use Knowledge	Total
	a. Strategy						
	b. Shared Vision						
	c. Style						
	d. Staff						
	e. Skills						
	f. Structure						
	g. Systems						
	Total Organization						
xxxxxx	h. Attitude (P)						
xxxxxx	i. Performance (P)						
xxxxxx	Total Individual						

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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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Readers who wish to find out more about the Culture in the context of KM are recommended to consult the following publications:

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### Booklet 4: Measurements

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- <http://www.fit.fraunhofer.de/>
- <http://www.brint.com/>
- <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.bellanet.org/gkaims/>  
<http://www-edc.eng.cam.ac.uk/>  
<http://www.bus.utexas.edu/>  
<http://www.cepro.se/>  
<http://www.lotus.com/>  
<http://www.inmagic.com/>  
<http://www.pcd-innovations.com/>  
<http://www.mriresearch.org/>  
<http://www.ifad.org/>  
<http://www.qinetiq.com/>  
<http://www.mitre.org/>  
<http://www.darwinmag.com/>  
<http://www-wi.informatik.uni-oldenburg.de/>  
<http://jhmcis.jhmi.edu/>  
<http://www.avon.nhs.uk/>  
<http://www.ogc.gov.uk/>  
<http://www.dlib.org/>  
<http://www.ukoln.ac.uk/>  
<http://www.idea-group.com/>  
<http://www.atob.com.au/>  
<http://www.corma.net/>  
<http://www.entopia.com/>  
<http://www.csc.com/>  
<http://www.isys.com.au/>  
<http://www.mgen.com/news/press/>  
<http://www.isiwebofknowledge.com/>  
<http://www.navigateone.com/>  
<http://www.ed.gov/>  
<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)  
[http://www.knowledgepoint.com.au/starting\\_out/glossary.htm](http://www.knowledgepoint.com.au/starting_out/glossary.htm)  
[http://www.metainnovation.com/researchcenter/GKEC\\_term\\_draft\\_Sept072001.pdf](http://www.metainnovation.com/researchcenter/GKEC_term_draft_Sept072001.pdf)  
<http://www.ey.com/knowledge/glossary.htm>  
<http://www.library.ualberta.ca/subject/knowledgemanagement/index.cfm>  
[http://www.metainnovation.com/researchcenter/GKEC\\_term\\_draft\\_Sept072001.pdf](http://www.metainnovation.com/researchcenter/GKEC_term_draft_Sept072001.pdf)  
<http://jackvinson.com/archives/000051.html>  
<http://www.tfpl.com/resources/glossary.cfm>  
<http://www.icasit.org/km/intro/glossary.htm>  
[http://www.centricminds.com/public/company/resources/glossary\\_of\\_terms.asp](http://www.centricminds.com/public/company/resources/glossary_of_terms.asp)  
[http://www.wolfson.ox.ac.uk/~floridi/13\\_term0.htm](http://www.wolfson.ox.ac.uk/~floridi/13_term0.htm)

**CWA 14924-4:2004 (E)**

<http://www.kmtool.net/vocabulary.htm>

[http://sims.berkeley.edu/courses/is213/s99/Projects/P9/web\\_site/glossary.htm](http://sims.berkeley.edu/courses/is213/s99/Projects/P9/web_site/glossary.htm)

<http://www.cs.state.ny.us/successionplanning/workgroups/knowledgemanagement/terminology.html>

<http://www.soberit.hut.fi/wise/>

[http://www.nelh.nhs.uk/knowledge\\_management/glossary/glossary.asp](http://www.nelh.nhs.uk/knowledge_management/glossary/glossary.asp)

<http://www.intelligentkm.com/feature/06/SideBar2.shtml>

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