

Guide to Measurements in Knowledge Management



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Foreword

“Hard though it may be, the measurement of the value of intellectual capital or knowledge looks set to be one of the key factors for business success in the 21st Century” – *Return on Investment is hard to quantify*, Financial Times, 28 April 1999

The British Standards Institution (BSI) intends to develop a number of publications that cover the following areas:

- (a) The emerging management science commonly known as Knowledge Management (KM);
- (b) KM’s relationship with other management sciences

KMS/1, the committee of experts formed by BSI to steer and review these KM publications, is currently working on a range of publications looking deeply into the subject. Many of these will be in the form of guides to good practice, aimed at helping readers and their colleagues to improve their management of knowledge.

The first KM publication by BSI, and one that we would recommend to all those with limited familiarity with the subject, is *Knowledge Management: a Guide to Good Practice*, often known simply by its reference – *PAS 2001*.

For those seeking more depth to specific aspects of KM, there are now also the following BSI publications:

- PD 7500, Knowledge Management Vocabulary
- PD 7501, Managing Knowledge and Culture: Guide to Good Practice
- PD 7502, Introduction to Knowledge Management in Construction

BSI KM publications are available at www.bsi-km.com.

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In brief, the authors' approach combined:

- 1. Literature review (desk research):** There is already in the public domain a substantial literature on approaches, models and existing practice relating to KM and IC. The authors identified, analysed and summarized what they considered to be the most relevant aspects of this literature for UK private and public sector readers.
- 2. Interviews (primary research):** The authors interviewed 10 practitioners in the public and private sectors. Questions focused on which KM and IC models/frameworks were familiar to the interviewees, their perceptions of them and their experience, good and bad, of particular KM and IC measurement models.

1 Scope

This Published Document (PD) gives guidance on how to measure the effectiveness, efficiency and value of KM within and between organizations. The PD is therefore intended for employees, managers, directors or anyone else involved in a programme of measuring KM in or between organizations.

The PD combines both desk and primary research and also offers a comparison of different models and case studies. It explores the possibility of measuring both KM as a process and knowledge (or “Intellectual Capital”) as an asset. (Readers should note, however, that although this PD touches upon various management sciences, including asset management, it does so only by way of example or analogy.)

“Just like the Sixties, the Nineties are over. From free love to free information, it was all quite a ride. But that was then, this is now. It’s time for definition, time for metrics, time for standard processes.” – Gerry McGovern, *New Thinking*, March 2003 - <http://www.gerrymcgovern.com/>

This *Guide to Measurements in Knowledge Management* is intended to provide its readers with a practical introduction to measurement in the context of KM, and in the related area of Intellectual Capital (IC). The authors have therefore included the following in this guide:

- (a) A discussion document to help readers understand the context for KM measurements (clause 3) and IC measurements (clause 4);
- (b) A selection and classification of models used in KM and IC measurement (clause 5);
- (b) Primary research findings, based on interviews with leading figures in the KM and IC fields (clause 6);
- (c) An overview of emerging developments and trends in these fast-evolving fields (clause 7);
- (d) Summaries of case studies in KM and IC measurement from organizations across a wide range of industries (appended to each clause as “Good practice examples” and “Talking points”);
- (e) “In brief” summaries of key points at the end of each clause;
- (f) Annexes describing how KM and are covered by the media, suggestions for further reading in the area of KM/IC measurements and the questionnaire used during the primary research for this guide;
- (g) Notes and references.

Readers should note that this guide is intended as a:

- (a) “Child” document to *Knowledge Management – a Guide to Good Practice*, an overall introduction to KM published by BSI in 2001 as a publicly available specification (document *PAS 2001*).
- (b) “Sister” document to other children of *PAS 2001*, which currently include:
 - *Vocabulary of Knowledge Management*
 - *Managing Culture and Knowledge: Guide to Good Practice*
 - *Introduction to Knowledge Management in Construction*.

In the hope of encouraging a public debate on KM and IC measurements, BSI will provide readers with a framework for feedback, ideas and questions relating to this guide. Readers who would like to get involved with further KM projects should contact BSI at knowledge@bsi-global.com.

The authors of this guide are not recommending any particular measurement approach to KM or IC. Their aim is simply to provide “informed clarity”. They are therefore presenting readers with a range of alternative tools and approaches, which should allow them to either get started in KM measurement, or take their current measurement activities to a new level. In the interest of impartiality, it should be noted that many people believe in the value of KM, but many remain sceptical about how far one can actually measure such value. They point to the danger of false measures (for example, the number of “hits” on a website or KM system does not in itself measure that system’s real value to the user) and remind the user that popular measurement tools such as the Balanced Scorecard (see clause [3.4.3](#)) are discretionary rather than mandatory, and have yet to prove their staying power during economic downturns.

Nevertheless, there is a growing body of both anecdotal research (see clause [6](#)) and published research (see clause [5](#)) that appears to indicate that KM and IC measurements are here to stay, and that organizations of all types – public and private, large and small, commercial and academic – should understand where this field is heading and feel informed enough to make their own decisions. This is, in short, what this guide aims to do.

2. Definitions

For the purposes of this standard the following definitions apply:

Knowledge Management: The creation and subsequent management of an environment which encourages knowledge to be created, shared, learnt, enhanced, organized and utilized for the benefit of the organization and its customers (see also *PAS 2001 passim*).

Intellectual Capital: The intangible intellectual material such as knowledge, information, intellectual property and experience that can be put to use to create value (see also *PAS 2001 passim*).

3 The Knowledge Management context

“It’s a mistake to use some false quantification, like an internal rate of return, on knowledge. No one can measure knowledge - you can only measure knowledge outcomes, like customer retention, patents and innovative work practices.” – Larry Prusak, IBM, presentation to KM Europe conference, 2000

3.1 General

In most organizations today, people are trying to achieve successful change through a range of radical management approaches. KM, one such approach, has often been portrayed in business literature as an innovation with the potential to affect the whole of an organization’s business, especially its processes and systems. For example, one major survey [1] found that 92% of executives already think that knowledge is extremely or very important to their companies and believe that effective KM could deliver them such efficiencies as improved communications, better innovation and product development, improved processes and decision-making, lower costs and a stronger corporate culture.

However, the issue of how to *measure* the success of KM is one that is still being hotly debated by organizations, researchers and consultants. [2]. In a traditional manufacturing environment, production output could always be assessed against benchmarks, but in a knowledge economy dominated by intangibles, output is harder to measure.

Some KM commentators, working from the theory that measurement is a good thing for organizational performance and that “what gets measured gets managed”, have looked to measure the value of knowledge itself, in an attempt to explain the startling difference between market and book valuations of many public companies. Since market valuations tend to be significantly larger than book valuations, such people believe that it would help investors and other stakeholders to make a more scientific analysis of companies, if they had a meaningful way of looking at the intangibles that drive the significant part of many market valuations. [3]

In fact, many of the solutions that have so far emerged to answer the KM measurement question are actually geared towards measuring knowledge as an *asset* – this is the so-called Intellectual Capital (IC) approach. In fact, as clause 4 below will make clear, IC measurement is becoming an important issue, not just for KM practitioners, but also, increasingly, for the business community at large. This first clause, however concentrates on measurement of the KM *processes* that go on within and between organizations

For a full background on the state-of-the-art in KM processes, readers should refer to *PAS 2001*. Here, it will suffice to explain that, broadly, the theory and practice of KM derives from two sources: management theory (which defines knowledge as a managerial concept) and accounting theory (valuing knowledge and IC). Beyond that, there is a range of different conceptual models for understanding KM:

1. Mechanical model (“it can be solved by structured process”)
2. Technological model (“it can be solved by search agents and data mining”)
3. Market model (“it can be solved by creating markets, exchanges and measuring systems which prompt the formalization, valuation and exchange of intellectual and social capital”)

4. Emergence or biological model (*“it is too complex to solve, but understanding the rules of interaction in a complexity model, and exploiting the links between a coherent framework and anarchic success bubbling up from direct action will create substantial innovation and sustainable successes.”*— Adapted and summarized from Sparknow submission to The Government’s Competitiveness White Paper, *Our Competitive Future: Building the Knowledge Driven Economy*, December 1998)

Although at first sight these models appear to be conflicting, in reality many organizations, as they gradually acquire (“knowledge consciousness” – Phrase coined by Paul Iske, Chief Knowledge Officer of KnoCOM and ABN Amro Corporate Finance), experience elements of each approach. Many start with models 1 or 2, and while there are then significant variations by industry (for example, many financial services companies often naturally gravitate towards model 3), a growing number are also realizing the potential value in the emergent model 4.

3.2 Why measure KM?

Whichever model an organization chooses, it will need to try and objectively analyse the effectiveness and impact of its KM approach. Indeed, it can be argued that amongst all the areas of KM that now demand management attention, measurement is perhaps the most pressing. If not, the current proliferation of untried and untested models could lead to, at best, confusion, and at worst, poor decision-making.

Yet one of the key challenges of developing metrics for KM concerns “cause and effect”. One can measure many activities, but what does such measurement actually represent? Does the activity measured have an indisputable link to other established business metrics and to the creation of value? If so, how credible and actionable will any resulting numbers be?

“The facts are that if you measure, what you measure is what you get. If you measure budget, that is what you get. Now if you measure performance against competition and performance against last year and the environment as your only measures, you will get different behaviour. Now, you will get numbers, you will get people stretching, reaching and the whole conservation is energising rather than enervating.”

– Jack Welch, former CEO, General Electric

The needs of many different stakeholders can affect how organizations start thinking about the way they should measure their KM processes:

- **Leadership** may want to know the financial Return On Investment (ROI – see clause 3.4), or just the overall effectiveness of KM investments.
- **Employees** may wish to know what the organization can offer to help them further develop their skills and to increase their individual market value. Employees choose, increasingly, to work for organizations in which they feel empowered and in which their personal knowledge is valued. They expect transparency and access to the full corporate knowledge base.
- **Clients** expect to be able to benefit from the collective knowledge of the organization. If the organization manages knowledge in an effective way, the products and services customers receive will be of the best quality and delivered in the most cost-effective and efficient way. More and more customers therefore also demand direct access to the corporate knowledge base.
- **(Financial) partners** require that knowledge should be carefully managed, since it represents a substantial part of an organization’s intrinsic value. Hence the increasing focus on reporting of IC (see clause 4) within the investor community, which needs to have a better understanding of the drivers of long-term performance.

- **Public sector organizations** may wish to find new ways of providing public services that are flexible, capable of being delivered in real time, based on citizen demand, designed around individual citizen needs, sensitive to changes in citizens' expectations and choice and responsive to user demands. Hence the increased interest in joining together and harnessing knowledge about citizens that is currently held in a variety of public sector organizational silos – the aim being to provide a single or unified initial point of contact for the generic “citizen to state” relationship.
- **Society** (including governments, see 4.5) is increasingly interested in the way organizations deal with their resources and manage knowledge as a way of achieving sustainable competitive advantage. More openness is expected from organizations and there is an increasing pressure on them to share their knowledge with others, so that everyone can benefit.[4]

3.3 How to measure KM

3.3.1 Dimensions of KM value

The value of KM in organizations can typically be measured across at least six dimensions:

- **Financial:** for example, does the knowledge effort result in direct cost savings or increase in revenues?
- **Innovation:** by effectively developing, sharing and applying knowledge, are organizations able to quickly develop and introduce new products and services?
- **Processes:** is knowledge embedded into key business processes such as product development, marketing and sales, customer service and procurement?
- **Clients:** how is knowledge being used to create so-called Customer Capital? (see clause 4)
- **Human:** are employees considered as “knowledge workers” (i.e. working in an environment in which they can develop and use their talents, learn and share with their colleagues, partners and clients?)
- **Service:** are organizations providing services to their customers or citizens that are flexible and designed around their needs and wishes, rather than forcing them to design their behaviour around the organization's own silos?”

Effective KM should usually therefore contribute positively to all the different components of IC (Structural Customer and Human Capital – see clause 4) in an organization.

3.3.2 Quantitative measures of KM value

“Focusing exclusively on financial objectives distorts the structure of organizations...and in ways that ultimately jeopardize them. This is the most important business lesson of the past decade” – John Kay – <http://www.johnkay.com/>

This area is one that many business people are particularly interested in, since quantitatively measuring direct business impact is, for many, the most powerful way of demonstrating the added value of KM. To do this successfully requires a very intimate relationship between knowledge processes and the primary business processes of an organization. Take, for example, the sales and marketing processes. There are several scenarios in which the impact of KM could be directly measured:

- By sharing knowledge between product development people and client-facing people (so that the producers better understand client needs and offer more appropriate products and so that clients have a better understanding of the products the organization can offer) an increased hit-rate on sales can be achieved.

- During the development of a major business proposal (incorporating commercial texts, product descriptions, pricing model etc.), exchanging knowledge can lead to increased buying power, and re-use of existing knowledge can lead to directly measurable financial benefits, such as shorter development time or quicker time-to-market.
- Many of the core business processes inside an organization, (eg monthly reports to the board, preparation of the annual report, monitoring of progress against the business plan) involve the regular one-off collation of knowledge and information from across the organization in a haphazard, onerous and duplicative way. By implementing a KM approach, the knowledge and information lying behind such core processes can be redesigned and integrated to provide strategic support to the organization which is (a) more timely (b) likely to be more accurate (c) less costly to produce (d) and more content rich.

Indirect quantitative measures give insight into the maturity, quality and effectiveness of KM tools and processes. Such measures might include user statistics for databases and intranets, the number of questions being asked in expert systems, the number of documents being added to a knowledge repository, the number of courses that people have attended, the number of workshops on a certain subject, etc.

3.3.3 Qualitative measures of KM value

Qualitative measures give insight in the way the KM efforts are being perceived. By collecting feedback, one can measure user satisfaction and gain insight into the “reputation” of an organization’s KM infrastructure. This could be expressed via testimonials in corporate magazines, during department meetings, in appraisal discussions, in conversations with clients etc.

To make qualitative judgments, it is important to know where an organization is situated in terms of maturity in its KM approach, since this can give a strong measure of progress being made. Typically, it takes one or two years to move from the start-up phase in KM to the acceptance phase (depending on the nature and the size of the business). Secondly, the strategy driving the KM project should take maturity into account: too often companies start projects on a large scale, or which require large budgets, without having the buy-in and sometimes, without even the awareness or understanding of the people who will need to work in a new way or who will have to use new tools.

Typical Key Performance Indicators (KPIs) regarding qualitative measures of KM value can include the following:

- Time to create new knowledge
- Time to competence
- Contribution to knowledge bases
- Increased employee satisfaction
- Better competence development
- Knowledge user complaints
- Proportion of employees offering new ideas
- Number of new ideas taken to market
- The “rookie ratio” – i.e. what is the average level of experience of staff?

3.3.4 Linking KM measures to desired business outcomes

In 2003, a major research project “*Measuring the Impact of KM*”, by the American Productivity & Quality Center [5], focused on what organizations need to do to effectively and meaningfully measure the impact of their KM initiatives. According to APQC, which has worked with, and studied, hundreds of organizations and their KM initiatives - from early adopters to recent entrants – organizations’ needs are always similar, but should be adapted as appropriate to suit a particular KM approach and its current stage of development. For example:

- (a) An organization with a KM approach primarily focused on Communities of Practice (CoPs) would measure the costs and impact differently from one using primarily a content management system;
- (b) A KM initiative focused on improving sales force effectiveness would measure proposals and sales, but such measures would be irrelevant to a KM initiative focused on building new knowledge in an engineering discipline;
- (c) A KM strategy in its early stages of deployment needs measures of alignment with business strategy, acceptance, and behaviour change - it would need a method to predict desired business outcomes and begin tracking them.

Organizations also need a framework that links KM measures to inputs, process changes, and desired outcomes:

- (a) Depending on the KM initiative, examples of inputs could include time, budgets, and information technology (IT) costs;
- (b) Process changes might include cycle time, participation, and contribution to a body of knowledge;
- (c) Examples of outcomes important to the organization might include employee and customer retention, reduced costs per transaction, or increased revenue.

Organizations also need a measurement system that actually works. Many have lists of measures, but lack a set of processes and accountability for collecting, organizing, reporting, and using the measures to improve the KM initiative, as well as to provide the basis for funding and investment. In addition, a measurement system should also capture intangible measures (see also clause 4) such as social cohesion, job satisfaction, and time to competency, which can provide a broader perspective of the success or otherwise of KM effort.

At every stage of KM deployment, organizations will need to identify examples of success, internal or external, from which they can communicate the potential of their initiative and give their leaders a vision of what is possible. This should be linked to their key value propositions, whether they are operational excellence, product innovation, time to market, or customer-focused outcomes. Different measures might be needed to gauge the effectiveness of different KM enablers, such as CoPs, After Action Reviews (AARs), content management systems or best practice transfer. The APQC research therefore also reinforces the need to focus on the following:

- Uncovering maturity models for evaluating the health and progress of KM initiatives
- Linking KM to wider organizational measurement frameworks (for example, families of measures, ROI, Balanced Scorecards, controlled experiments, and process frameworks)
- Connecting knowledge performance measures to business results
- Establishing roles and accountability for measurement
- Developing measurement approaches appropriate to different stages of KM implementation.

3.4 Return on Investment (ROI) measures for KM

3.4.1 Demonstrating ROI in a KM programme

To prove that investment in a KM programme has been successful, organizations should consider developing metrics that ROI. Such metrics could include the following:

- **Strategic effectiveness:** Senior management often finds so-called strategic effectiveness measures to be most relevant when evaluating the benefits of KM. Examples could include shorter time to create winning proposals, new strategic customers, and higher rate of innovation and growth in high-value orders.
- **Organizational effectiveness:** Such measures would focus on KM-generated productivity in the workplace. Examples could include improvements in employee satisfaction, product and service innovations that result from the collaboration of employees, best practices, and customer satisfaction.¹
- **Job effectiveness:** Such measures would focus on the KM programme's ability to support each employee's job performance. Examples could include increased hits on a website, amount of use of, or contributions to, a particular KM application and the formation and activity level of online communities. If an organization has already launched an intranet or similar internal KM system, it should perhaps be trying to measure ROI by asking the following types of question: how will usage be measured? what measures will track usability?; will there be, for example, annual business targets for intranet usage? what are the specific benefits or efficiencies to be achieved? Note, however, that while such measures can be a useful proxy, results should be treated with caution (and such an approach can even run foul of data protection regulations).

Overall cost/benefit metrics of a KM programme could include measuring, as follows, how much KM:

- Cuts the direct and indirect costs of getting people together physically, by supplanting meetings by increased virtual contact
- Encourages remote working (and therefore lowers fixed costs)
- Provides people with the chance to make fewer mistakes, thereby reducing business risk, because their information sources are likely to be more current and accurate than they would have been in the past
- Helps training to be distributed through virtual classrooms (the more people who use an e-learning tool, the cheaper it becomes per capita – usually the opposite of traditional classroom-based training)
- Connects people better through tools and communities, meaning that expertise need not be replicated/duplicated everywhere, thereby potentially saving on human resource (HR) costs
- Cuts costs of administration (eg. the recruitment process) through the use of effective intranets/portals.

¹ This list builds on Gartner Group research and tallies with separate Conference Board research, which found that the most important KM measures are: 1. Increased customer satisfaction/value; 2. Cost reduction/savings; 3. Better employee attitude/morale/involvement; 4. Better time to market; 5. Increased sales effectiveness; 6. Increased new product sales; 7. Higher number of CoPs; 8. Reduced employee turnover; 9. Higher number of KM initiatives.

3.4.2 Measuring individual KM projects

Demonstrating ROI can sometimes be easier if KM is applied at a project level. One could predict the costs and revenues of a project, apply KM, and then see what the actual cost and revenue is. Some baseline figure would be needed so that one could demonstrate the improvements that KM has brought - maybe the baseline could be the predicted revenue, or how much the project cost last time, or a benchmark against similar projects elsewhere. [6]

Recent research has found a still wider range of potential KM measures. For example, a KM pilot or project can be measured in the following ways:

- **Proficiency:** Has a process become world-class, or has it made only mediocre improvement?
- **Diffusion:** Has KM been properly executed? Is the project and knowledge well managed and understood?
- **Codification:** Because codifying knowledge can be expensive, should the organization limit that? Is that limitation visible and understood?
- **Openness for combination/innovation:** Is the knowledge described in language that people understand? Is the knowledge open to all business units in the organization? [7]

Going one step further, by applying KM at a programme rather than just a project level – i.e. by taking a view across and between a number of interlinked projects, - one could demonstrate the ROI more systematically.

3.4.3 “Balanced Scorecard” measures

In response to the increased pressure to measure and justify investment in KM programmes, a variety of non-financial measurement tools are also emerging (see clause 5). For example, many organizations have adopted variants of the “Balanced Scorecard” (BSC) approach². This approach takes a rounded view of an organization’s strategy, to promote customer satisfaction, employee motivation, process performance, and profitability – i.e. so that individual investments in KM can be judged within a wider, more balanced framework.

The BSC offers a practical method for relating individual and business unit KPIs with group-level objectives. The approach requires four business perspectives to be monitored and balanced – i.e. financial, internal business processes, customer and learning and growth (see Figure 1).

² As detailed in The Balanced Scorecard – Translating Strategy into Action, Kaplan & Norton, 1996. The BSC is a management system that provides feedback on both internal business processes and external outcomes in order to continuously improve strategic performance and results. It was formulated by Robert Kaplan and David Norton in 1992. The model integrates both financial and non financial metrics into four perspectives:

- The financial perspective: “how do we look to shareholders?”
- The business process perspective: “what must we excel at?”
- The customer perspective: “how do our customers see us?”
- The learning and growth perspective: “Can we improve and create value?”

This framework recognizes that non-financial performance measures are idiosyncratic, i.e. sector and company specific. The Balance Scorecard helps to translate a company’s strategy into specific, measurable objectives. The metrics used derive from the company’s particular view of the world and its perspective on key success factors - see <http://balancedscorecard.com> or <http://balancedscorecard.org/>. *Renewal is about changing that which needs changing. Efficiency is about getting the most out of each employee.*

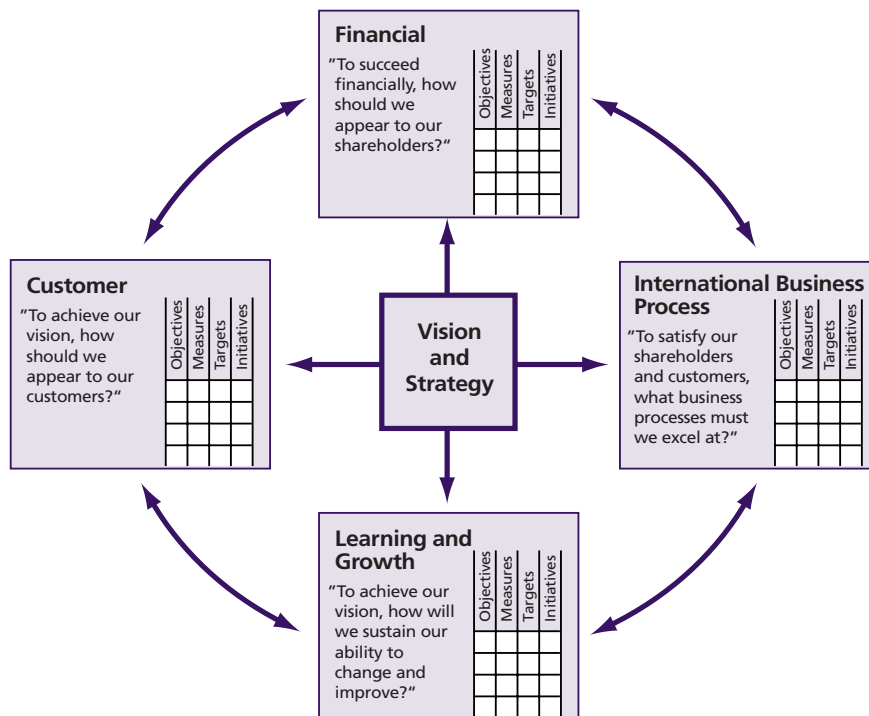


Figure 1 – the Balanced Scorecard [8]

3

However, the BSC has both strength and weaknesses, which should be well understood before using it:

- It has now been successfully used by knowledge-intensive organizations such as professional services firms, in the research and development departments of major corporations and is increasingly a tool of choice for some HR departments;[9]
- However, it should be used with caution in a KM context, since it was designed originally around performance management in a broad strategic context. In fact, some KM commentators have criticized it as using employees as the means to an end, rather than as the primary value drivers in an organization.

Some organizations have now taken the BSC approach much further – developing it into a kind of “dashboard” (see Figure 2) that measures progress at different levels, from the personal, through the strategic business unit (SBU), and right on up to the enterprise level. The dashboard metaphor can be presented as a speedometer surrounded by four meters that indicate performance against each perspective.

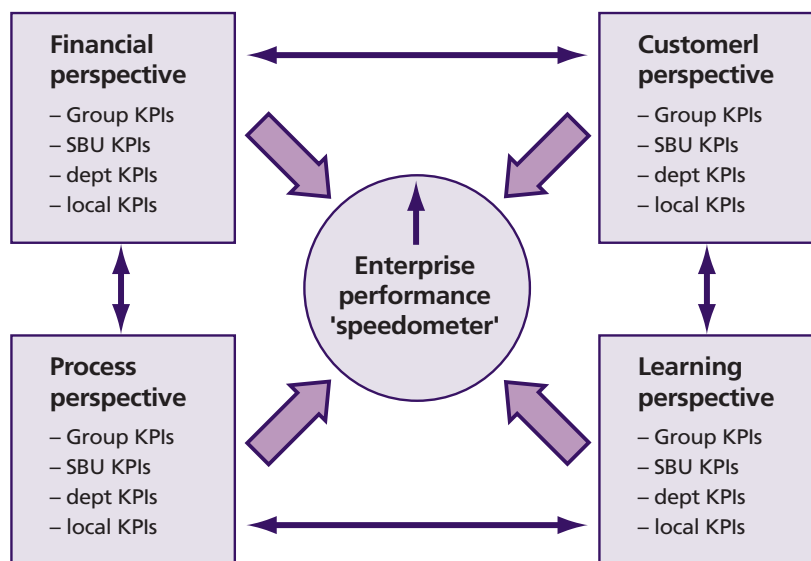


Figure 2 – A corporate “dashboard” [10]

3

Yet the fact remains that, despite such tools, many organizations still find that measuring KM ROI is difficult. As with training and other investments in “Human Capital”, too many variables can prevent the development of a formula that leads to a proof. A simpler metric, used in many organizations, is an internal survey of KM effectiveness, asking the following types of question:

- Is there is a culture of sharing in our organization?
- Do KM tools make it easier for me to do my job?
- Am I confused as to where to look for knowledge?
- Am I confused about how to submit knowledge?

3.4.4 KM during economic downturns

When an economic downturn or recession strikes, organizations that have successfully implemented KM may not be able to escape the effects of bear markets, but they may still be able to increase their market share at the expense of their peers who have not.³ For example, for suppliers, an economic downturn will typically accelerate price competition and the need for greater knowledge sharing, to drive innovation to find efficiencies. Solid forecasting of market demand may even become a prerequisite for survival, since an economic downturn would otherwise leave a supplier with excess inventory.

However, as noted in the scope above, some KM commentators question whether such measurement tools as the BSC and the various IC tools referenced in clauses 4, 5, and 6 below are really just discretionary “toys” for use during economic booms and that, when hardship strikes, organizations will always return to traditional financial measures. Yet this does not seem to be the case, and many of these tools look likely to stay around and grow in popularity – see clause 5.

³ Source: *Weathering an Economic Downturn With KM*, F. Caldwell, Gartner Group, December 2000. For example, even though the US defence market has been recessionary for the last decade, one or two organizations have bucked the trend by identifying, leveraging and redirecting their intellectual assets in new ways.

3.4.5 Measuring the effectiveness of KM tools

One simple way of measuring the ROI of an enabling tool such as an intranet is to answer two basic questions:

- How does the intranet increase the level and quality of communication?
- How does it replace traditional forms of communication?

To answer this, one needs to be clear on the current level and type of communication within an organization. The intranet can result in a reduction in traditional forms of communication, such as print and person-to-person communication, so to justify the investment in an intranet one can measure how much it costs to carry out a particular activity or process using traditional forms of communication. If the cost of the process is less using the intranet, one is beginning to build a business case. Key questions to ask stakeholders can include the following:

- How much time do you spend finding and digesting information?
- How much time do you spend responding to requests for information from other staff and/or customers?
- How many of these responses do you feel could be delivered in a more formal, repeatable manner?
- Where do you currently acquire your knowledge? Is it from other colleagues, print, the intranet, external sources?
- How do you rate the organization in relation to its ability to deliver to you the practical knowledge you need to do your job effectively?
- Do you feel that the organization effectively communicates important strategic issues to you?
- What level of trust do you place in print, person-to-person, and intranet communication respectively?
- How would you rate print, person-to-person, and the intranet in relation to their ability to help you find the right information quickly?

The above questionnaire can become a benchmark against which one can measure progress. For example, in many organizations, people simply do not trust information on the intranet, because they feel it is out-of-date, or badly written. One way to try and solve such problems is by investing in more professional publishing processes, and in better information architecture design. Then, perhaps a year later, one can ask the same questions again. At this point, one should then see an improvement in how people respond to the intranet trust and “findability” questions. [\[11\]](#)

3.4.6 KM measures as a means of control

Some commentators believe that all such KM measures are really just evidence of the pursuit of control and predictability by organizational owners and professional managers. The assumption that drives this hypothesis is that the expertise, experiences, adaptability and imagination of people, patents and processes represent an important asset for an organization that are not represented in the balance sheet and that:

- It is possible to turn these intangibles into concrete assets, determine which of these assets are important and to give a value to them
- One cannot trust our employees to retain independent control over things that are of actual and potential value to the organization
- One cannot trust experts not to hold the organization to ransom

- Good management is about ensuring every aspect of every employee is harnessed in the service of achieving the organizational goal
- One does not want KM tools to undermine the authority and expertise of those in the established organizational hierarchy.

This ultra-pragmatic view suggests that KM risks turning into a battle between individuals and representatives of the organizational whole. If this were true, one would have to ask what is in it for the vast majority of employees, who hand over their insights, and so make themselves expendable, in an environment in which organizations lack a long-term commitment to their employees.[\[12\]](#)



Good practice examples ⁴

Return on Investment (ROI) in KM

- **Automotive company:** Ran a programme based on the development of “intellectual leadership”, which aimed to ensure that decisions were market-led and that the environment let people learn from mistakes – either their own or others. Included a formal process whereby the actual results of decisions were measured and compared to expected results, with built-in processes that allowed for changes if the results did not come up to expectations.[\[13\]](#)
- **Consulting firm:** In 2000 one major consultant bought a competitor for many billions of pounds. The rationale was to raise market share by leveraging the acquired firm’s KM capability. The integration of the legacy KM systems was seen as primarily a technological issue, but in reality these KM systems were inextricably linked with organizational culture, and in 2002, a decision was taken to scrap both KM systems and start again from scratch.[\[14\]](#)
- **Consulting firm:** Identified a baseline reference point by which to calculate ROI, using a control group to measure the effects of KM, and to assess the difference in performance of a group on a holistic basis. For example, it monitored a group of salespeople, who were given access to a portal designed very specifically to meet their needs, and who recorded some definite returns in terms of performance.
- **Consulting firm:** Implemented a KM system and reported early use statistics of only 13% of employees. After supporting a cultural transformation, combining incentives, training, and a top down mandate, use gradually climbed to 68%.
- **Consulting firm:** Created 30 “practice centres,” which were primarily industry-focused, and voluntarily staffed by a virtual community of consultants who marketed their expertise to the rest of the company. The objective of maintaining these electronic communities was to create a dynamic marketplace of readily available ideas. Most of the centres measured how frequently their internal customers used the material contained on the system. The centres’ “rapid response network” performed extensive follow-up and tracked customer satisfaction, publishing an annual report with statistics detailing its activities.[\[15\]](#)
- **Medical equipment manufacturer:** To support an initiative geared to implementing enterprise-wide product development projects, the company agreed to invest in a knowledge-sharing infrastructure that would enable remotely separated team members to work together. The KM function chose to develop an ambitious method for calculating return on investment (ROI). Their ROI formulas took into account shrinking cycle times, market share and sales-per-product and offset them against infrastructure costs like technology, training and research.[\[16\]](#)

- **Mining company:** Used an independent KM consultancy's "retrospect process"^[17] to identify operational difficulties in some of its most difficult and remote sites. The retrospect process assessed each project against such questions as: What was the objective? What did we achieve? What worked well and why? How can we repeat this? What did not work so well, why not and how do we avoid this next time? What was the satisfaction rating (out of 10)?
- **Networking company:** By implementing and measuring a KM strategy, the company was able to report such business benefits as streamlined work processes, such reduced foreign travel and reduced e-mail traffic, and less bureaucracy in hiring and integrating new staff.^[18]
- **Professional Services firm:** The only things it actually measured and quantified were efficiencies. Measurable benefits included, but were not limited to, the following:
 - Improved quality (staff survey responses indicated that, because of knowledge-sharing capabilities, people were either quicker to market with products, or able to gain time that could be spent in increasing product depth and breadth);
 - Heightened innovation, a greater focus on client issues, winning increasing amounts of work, providing better-quality service, and being able to bring to bear all the intellectual assets of the global organization;
 - Visible financial savings stemmed from the online research library, available through the intranet, which enabled staff to consolidate hardcopy research centres and make savings in infrastructure and research procurement costs.
- **Retailer:** Used a KM measurement model, based on an evolving set of processes for data collection and analysis, allowing managers to identify key business drivers. Model helped contribute to a multi-million increase in just one year.^[19]
- **Re-insurance company:** Evaluation criteria were defined at the beginning of projects. Before projects started a survey was carried out in which the product and market managers were asked to name their key processes and how they assess the quality of their work. After the system was installed the same survey was carried out again – giving a hint as to whether the system led to overall improvement of operational performance.
- **Telecom operator:** Published an annual "Statement of Human Resources", including a profit and loss account, visualizing human resource costs and a balance sheet showing investments in human resources.

⁴ All good practice examples are either (a) summarized versions of cases already in the public domain, or (b) taken from the authors' own experiences. However, the authors would like to underline the important point that this guide is a synthesis of good practice in KM measurement from many organizations and they are not therefore trying to claim (a) that all the recommendations in this guide are based on their own original thinking or (b) that they themselves necessarily agree with all the recommendations made, since in the interests of "informed clarify" a range of alternative approaches is presented for various KM and IC initiatives. As shown in the primary research findings in clause 4, the best way to really test the effectiveness of KM and IC measurement approaches is to examine how they work in the "real world".

3.5 Linking KM measures to reward

“The ultimate test for the individual is “what’s in it for me?” If there is a perceived reward/ advantage for knowledge sharing and an environment where sharing is encouraged and enabled, then positive attitudes and behaviours will flourish.” – Bill Mitchell, former KM Consultant, UK Department of Trade and Industry KM Unit, Money for knowledge, KM magazine, July 1999 – <http://www.kmmagazine.com/>

3.5.1 Identifying incentives for KM

Employees can be motivated in a number of ways, either monetarily (through prizes, bonuses, options, trips etc.), through senior management recognition, through peer review, through competition etc. In reviewing different approaches, analysts have not proved that one way works better than another, as long as all are fairly administered, highly publicized, and supported by senior management. In general, organizations should take the following steps:

- **Analyse current incentives:** If an anti-knowledge-sharing culture prevails, it may be well established and motivated by current policies, performance measures, and processes. KM incentives cannot therefore be simply added on with an expectation that culture will change. Organizations should analyse current behaviours, determine what motivates those behaviours, set new targets and only then redesign their incentive programmes.
- **Where appropriate, customize incentives:** Expectations for knowledge sharing should match the levels of employees’ job responsibilities. For example, teams may include trainees, middle managers, and senior experts and KM expectations should be customized for each. For trainees, incentives may encourage quantity of contributions, with minimal emphasis on quality of the knowledge. For experts, contributions should meet expectations both for the mastery of their subject area, for the quantity of their contribution and for their responsiveness to requests for their help or advice.
- **Reward loyalty:** As the backlash against business process re-engineering has shown, the accumulated knowledge of long-term employees is high-value and often irreplaceable. KM incentives should therefore acknowledge and encourage participation of long-term employees with approaches that acknowledge cumulative contributions of high-quality content over time.
- **Reward innovative working:** Innovation may be a specific business goal. For example, innovation is often driven by employees who provide and seek content across and beyond their organization.^[20]

Whichever type of reward mechanism an organization chooses, it should often consider offering team-based, rather than individual rewards, to encourage sharing and creative exchange.

3.5.2 Further motivating factors for KM

“How do you motivate employees? Forget praise. Forget punishment. Forget cash. You need to make their jobs more interesting...more enriching. Job enrichment will not be a one-time proposition, but a continuous management function.” – Frederick Herzberg, Harvard Business Review, 1968

Readers should note, however, that some KM commentators reject the idea of formal rewards in KM, on the grounds that, in practice, such mechanisms produce the opposite of the behaviour that they are intended to produce. Organizations should also therefore consider non-financial incentives to encourage knowledge flow. Non-financial incentives, for example, could include the following:

- Recognizing individuals’ contribution by assigning them to preferred projects
- Providing attractive possibilities for training, which improve upon the qualifications of the employee
- Introducing knowledge sharer of the week/month/year awards
- Providing more opportunities for personal connection⁵, especially with peers (studies have shown that scientists and engineers in particular exchange knowledge in direct proportion to their level of personal contact, so efforts should be made to bring different CoPs together, so that networking can occur and relationships can be established)
- Simply thanking and recognizing an individual for a job well done, privately or even publicly (via corporate media).

⁵ Such periodic face-to-face meetings help sustain communication and knowledge sharing through KM tools once people are scattered back on their individual projects. One is perhaps (though not necessarily) more likely to respond to a request for knowledge help from someone one knows (the issue is once again, trust). Features to promote personal connection can be built into a KM tool; for example, in some discussion databases, there can be a button on discussion items that links to the personal profile of the individual making the contribution, so that even if one has not met the contributor, one can still learn their background.



Good practice examples

KM and reward

- **Automotive company:** Employed a three-pronged approach to incentives: (1) incentives for knowledge sharing, (2) incentives for use, and (3) incentives for taking personal responsibility.
- **Chemical company:** Participation and a willingness to share knowledge were included in the performance review process. Management proactively rewarded collaboration as early as 1994, when the top 15% of contributors were recognized at conferences and received laptops as rewards. This incentive programme continues today, with key knowledge-sharing employees receiving a combination of rewards (at the “annual recognition conference”) and widespread visibility within the company.
- **Computer consulting company:** Employees whose customers agreed to provide references were rewarded with bonuses. All employees qualified for a quarterly bonus - equal to as much as 10% of their salaries - based on several performance measures, including input from customers. 40% of the potential bonus was tied to customer feedback. Four times a year, as well as at the conclusion of major projects, the company’s supervisors called all active clients to determine if they are satisfied with the company’s ability to communicate, solve problems, and respond to special needs. [21]
- **Financial Services company:** Used a combination of recognition and financial incentives. Employees submitted ideas and best practices to a “Staff Suggestion Programme”. Employees whose ideas were implemented receive financial rewards, which varied according to the magnitude of the benefit accruing to the organization.
- **Law firm:** Using the firm’s intranet as the vehicle, the KM team implemented a system for sharing subject matter expertise across the organization. To promote the project and familiarize everyone with its use, the firm introduced a system of bonus points that could be accumulated for meals, entertainment and even travel. While varying from location to location, buy-in was strong. For the first two years, the Chief Knowledge Officer (CKO) used bonus point distribution as a KM metric, coupling it with the simultaneous take-off in productivity that has also occurred over this period. [22]
- **Scientific equipment manufacturer:** Created an annual “not invented here, but I did it anyway” award.
- **Telecom company:** Gave employees a percentage of any revenue generated directly from an idea: either up to 10% of savings achieved from the new system, or additional income up to a ceiling of £30,000. During 2000 a total of £400,000 was paid out to employees. Also provided an incentive scheme, “Help to Win”, both for employees looking to secure a deal with a business and employees providing advice and information. This resolved the tricky “what’s in it for me” factor. When people looked at recent deals, won or lost, they saw which account manager was involved, and could e-mail or ring them for advice. Any employee requesting information from another received £50 for doing so. An employee providing information that led to a new business deal received a percentage of the total amount and use of the system was built into the traditional sales bonus system - now it is in people’s interests to request and supply advice.
- **Telecom company:** Pioneered a technique that allowed companies to measure the value that information adds to processes, which they called “business process auditing”. The technique uses the ideas of Andrey Kolmogorov, a Russian mathematician who determined how to concisely express the nature of complex systems. Business process auditing was able to demonstrate that a new process design for taking phone service orders would yield 80% more value than the old system. The major breakthrough of their approach was that it linked value as established by the customer to various elements of a business process. This linkage lets companies objectively evaluate the “smartest,” or most value-added way to configure a process. [23]

3.6 Knowledge mapping

It is worth emphasizing the point that one cannot start to measure knowledge without knowing where it is, who uses it and what they use it for. “Mapping” or auditing knowledge is therefore a pre-requisite for effective KM measurement.

Knowledge mapping can be defined as carrying out a systematic review of the knowledge required by an organization, department, team or individual to carry out its objectives effectively. It can include a needs analysis, information, competencies and communication audits, and a review of interactions and knowledge flows.

There are many types of knowledge map, serving different needs. The most fundamental type of map tries to show how knowledge contributes to the generation of organizational value, whether that value is tangible or intangible (as is usually the case, meaning that its value is not easily translated into financial value, and is therefore difficult to include in the “bottom line”).

Perhaps the obvious way to link knowledge to organizational value generation is to map knowledge against business processes. A first step is to gain a detailed understanding of how an organization currently works, including its person-manager, person-team and team-team relationships, as well as identifying the key internal knowledge flows. A next step might be to select a strategic area and build a process model for that area, then interview the people involved in each activity in the process, and ask them to state what knowledge and information they need to use to undertake their tasks successfully. [\[24\]](#)

“““

Talking points

“There are things you can observe and use as indicators to tell you how much networking is going on, how many cross-organizational teams there are and so on. Negative measures are important too – for example, the number of mistakes that wouldn’t have happened if people had been talking. Such metrics not only help prevent repeating the same mistakes but also help to win the intellectual argument for funding.” – Chief Knowledge Officer of a major R&D business

“We see KM as ‘procedurized best practice’. We look at the synthesis of Structural Capital and Customer Capital and Human Capital – our skills and training – to make the best use of resources available.” – Director of Information of a police service

“Your measurement systems must be both objective and subjective – for example, like the Balanced Scorecard. The whole point is to reveal a bigger picture of the business. It enables you to discover what knowledge you have that might be valuable. Then you can decide whether or not it should be protected, and how. Then you need to map it, ring fence it and take it to market.” – Intellectual Capital manager of a global energy business

“There are five critical success factors for measurement in KM and they have to be tackled sequentially. First is leadership. Second is organizational culture. Third is buy-in of stakeholders. Then you must develop the appropriate processes. When all these are in place you must choose and implement the right technology.” – Executive of a national research laboratory

“We measure both employee and customer satisfaction by extensive annual surveys. We communicate targets through the strategic planning process. All strategies are published on our intranet. The plans are ratified at executive meetings and the targets are trickled down by means of a Balanced Scorecard. The Executive circulates a monthly report to communicate the impact of KM. Our research centres produce a quarterly report. All staff have to provide an annual report.” – Executive of a national research laboratory

“It is very important to survey the subjective views of users. A massive amount of raw know-how is being shared through e-mail exchange and threaded discussions. Anecdotes are widely used and need to be captured. We’ve learned that new skills are needed – such as editorial skills.” – Knowledge Manager of a UK regulatory authority

“CoPs are a key challenge for us. Information flows are critical to our growth. We keep producing new things for clients and should ensure these are known to people in other units. A team member will go to other teams and describe a new product. Our motto is ‘I preach what I practice’.” – Managing Director of a multinational learning design consultancy

“Some companies have really good KM tools but have difficulty in motivating people to put their knowledge into the KM system. Some of the leading management consultancies have overcome this by making knowledge-sharing part of the employee appraisal and reward system. As a result their new graduates can become world class quite quickly.” – Founding Partner of a Swedish management consultancy