South African Journal of Information Management
[DoE accredited]

Peer Reviewed Article Vol.6(3) September 2004

World-class knowledge management: a proposed framework

Peter K.J. Tobin
Gordon Institute of Business Science (GIBS), University of Pretoria

Retha (M.M.M.) Snyman
Department of Information Science, University of Pretoria
msnyman@postino.up.ac.za

Contents

Key words: Benchmarking; best practice; capability maturity; knowledge management; quality management; standards; world-class

1 Introduction

As enterprises and organizations of all types and sizes become ever more part of the global village, there is increasing pressure to match up to international competition and levels of performance. The last 50 years have seen an evolution from relatively closed economies and societies to a situation today at the dawn of the 21 st century where 'thinking global and acting local' seems to be for many a new mantra for the present and increasingly the future.

In the context of the growth of globalization, a significant number of international bodies have been established to encourage trade, political stability and growth, such as the United Nations (UN), General Agreement on Trade and Tariffs (GATT) and Organisation for Economic Co-operation and Development (OECD). Regional groupings have also emerged, such as the European Union (EU) and Southern Africa Development Community (SADC), to name but two. All these have helped to spur the growth in the recognition that competitive

performance must increasingly be measured on a global basis.

In many fields, such as those measuring achievements in sport, the arts and entertainment, industry and commerce, the measure of good or best performance is now often described as 'world-class': World-class athletes take gold in the various competitions organized between the top competitors in a particular sporting code; competitors in cricket, rugby and soccer compete every four years for the honour of being acclaimed 'world champions'; and each year sees the Academy of Motion Picture Arts and Sciences in the United States recognize world-class performance in the film industry.

What is the business equivalent of 'world-class' performance? There are numerous different rankings of the highest performers as measured by a number of criteria (such as the Fortune Global 500), as well as the competitiveness report issued annually by the World Economic Forum (n.d.) where competitiveness of nations (rather than enterprises) is the basis for comparison. In this article, the authors propose a framework for the assessment and measurement of world-class performance. It is suggested that the elements included in the framework be used individually or in combination to measure, improve and sustain world-class performance, with specific reference to knowledge management (KM).

top

2 World-class performance

What does it take to be 'world-class'? If an organization implements all the best practices it can lay its hand on, conforms to all the known standards in its field of operations and wins one or more performance or achievement awards, do these factors automatically render the organization 'world-class'?

One of the obvious places to start in the discussion of world-class performance is to look at some dictionary definitions. The *Collins English Dictionary* (2000), for example, lists the term world-class as 'an adjective … denoting someone with a skill or attribute that puts him or her in the highest class in the world for example: a world-class swimmer'. The *Merriam-Webster Collegiate Dictionary* as used in *Encyclopaedia Britannica* (2003) also lists world-class as an adjective, giving the date of first listing as 1950, and defining world-class as 'being of the highest caliber in the world (a world-class polo player)'. *Encyclopaedia Britannica* (2003) gives the example of Chris Evert, the American tennis player who began playing 'world-class tennis in 1969 and did not retire until 1989'. As evidence of this world-class status her achievements are listed, including 18 grand slam singles titles over a career spanning 20 years.

Although the term 'world-class' is frequently used in a wide variety of fields, from sporting achievements to business performance comparisons, surprisingly little has been written about the exact nature of the term 'world-class' as applied in a business environment. An initial perspective might be to assume that any activity or process or aspect of an organization's performance can be deemed (or claimed) to be 'world-class'. This then prompts a number of questions that need to be answered:

- What are the criteria that will be used to measure world-class performance?
- Is world-class a certain state achieved at a point in time or a journey of performance through time?
- If an organization is to be world-class, to what element of its activities can or should the term be applied?
- How can the best-in-class performance be measured and by whom?

One notable reference to world-class performance is reported by Faulkner (2000:51) who states that there are 'a host of established and widely used standards and models such as ISO, IiP and the EFQM – Excellence Model'. He reports on the world-class service model PROBE (Promoting Business Excellence, launched in 1999) developed jointly by the London Business School and the UK-based Confederation of British Industry. PROBE enables organizations to 'quantify their competitive positioning, from “could do better” to “world-class” and their relative scores for practice and performance' (Faulkner 2000:52). The International Service Report, which gave rise to PROBE, was conducted in 1997 and looked at 150 companies, in each of the UK and USA. These companies were compared using the model.

Voss, Blackmon, Chase, Rose and Roth (1997), authors of the PROBE model, looked at the issue of achieving world-class service in the context of global competitiveness. The objective of the report was to compare service practice and performance in UK organizations against a similar sample in the US. The US was chosen because 'its services are typically viewed as world leaders' (Voss *et al.* 1997:2). Using a model of service management, the report covers a benchmark survey comparing over 300 US and UK organizations in the service business. The key findings of the survey included the positioning of organizations on a two-by-two matrix, relating service performance and service practice (Table 1).

Table 1 Service performance and practice matrix (Voss *et al.* 1997:6)

High Overall Performance Low	Vulnerable	World-class Contenders
	Could do better	Promising
	Low Overall practice High	

In their report, Voss *et al* . (1997:6) defined world-class organizations as 'those which had both leading management practices and performance equal to the world's best'. To be classified as 'world-class', organizations needed to achieve a score of 80% or better in both aggregate practice and performance. The article found that 13.2% United States-based companies and only 5.3% United Kingdom-based companies met these criteria.

The report also examined the extent to which firms in the USA either used or were preparing to use the Malcolm Baldrige National Quality Award (27.1%) or the ISO 9000 assessment (13.4%). The authors found that there was a strong match between their survey findings of company performance and that of the assessment as measured by the Baldrige criteria. The results achieved by Voss *et al* . (1997) gave rise to a series of offerings from the CBI under the PROBE brand in the areas of service, manufacturing, human resources and environment (CBI n.d.).

From a different perspective, Schonberger, cited in Waldron (1999), suggests that the term 'world-class manufacturing' came into popular use in the 1980s at a time when Japanese manufacturing was seen to be in the ascendancy. Schonberger offers his definition of world-class manufacturing:

> 'World-class manufacturing has an overriding goal and an underlying mindset for achieving it. The overriding goal may be summarised by the motto of the Olympic Games: *citius, altius, fortius*… the world-class manufacturing

> equivalent is continual and rapid improvement' (Schonberger, cited in Waldron 1999:8).

Waldron (1999:6) offers examples of specific best practices in manufacturing, such as quality circles, kanban system and total quality control, as examples of achieving world-class performance.

We have, then, more than one study through the 1990s that used benchmarking as a key tool in helping organizations to measure the extent to which they were achieving world-class performance. These measures in both cases were based on the 'best practices' found in organizations studied.

2.1 World-class performance and knowledge management (KM)

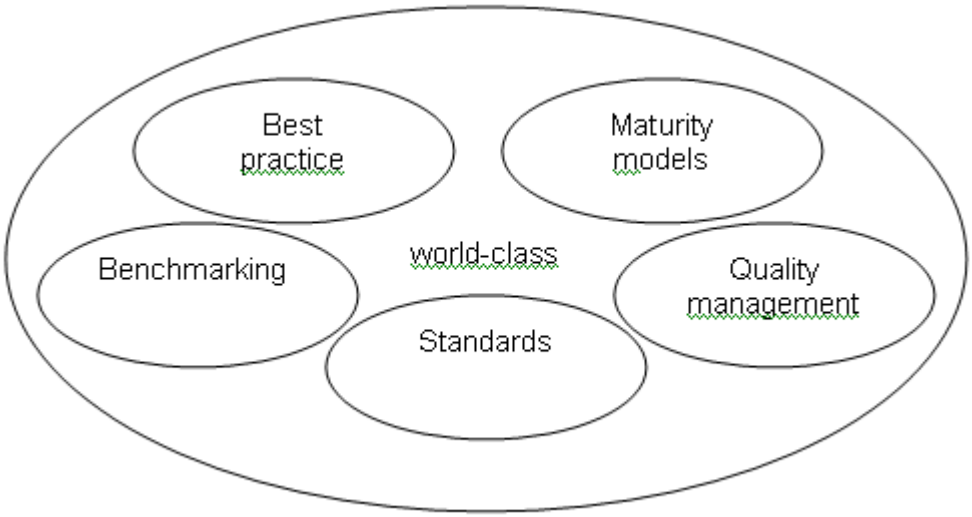
The field of KM as we know it today is still relatively immature, given that its growth largely took place in the 1990s. It is therefore remarkable, in a sense, that already by 2003 Teleos, in conjunction with the KNOW Network, announced the sixth in a series of annual awards for achievement in KM on a global basis (Chase 2003). These awards are presented on the basis of achievement in North America, Europe, Japan, as well as on a global basis, and seek to recognize outstanding achievements by most admired knowledge enterprises (MAKE).

These MAKE awards may be the closest there is available currently to measure world-class performance in the KM field. However, there are drawbacks when using this awards process as a broader guide or road-map for organizations trying to become world-class, namely that relatively few companies are nominated as finalists (in the 2003 awards, only 49 organizations on a global basis); the awards process only measures against the criteria listed; and it does not provide any form of diagnosis, action plan or road-map for improved performance in the future.

2.2 Proposed world-class performance framework

It is not the intention at this stage of this article to finalize agreement as to what it means to be world-class but rather to open the discussion that will be explored more fully in the following sections of this article. In each of the next several sections elements of what might potentially be deemed as measures of world-class performance will be explored, including best practice, benchmarking, quality management, standards and capability maturity. These individual elements have been identified by the authors as perhaps the most significant contributors to a model that might be used to measure and manage world-class performance, with specific reference to KM. These topics are represented in Figure 1 below.

Figure 1 Proposed world-class performance framework



top

3 Best practice

As organizations have faced increasing levels of competition during the rise of the era of globalization, so they have sought to identify and implement ever-improving ways to do business. The popularity of the business re-engineering movement of the 1990s was largely built around the idea that organizations could learn from their own endeavours as well as from each other (Senge 1990).

In fact, as early as 1977 the American Productivity and Quality Centre (APQC) was founded to assist organizations in identifying and implementing best practices. Since that time there have emerged a number of initiatives from both the private and public sector which seek to identify and distribute best practices (such as that of the British government's Department of Trade and Industry).

Best Practices LLC (n.d.) defines best practices as 'documented strategies and tactics employed by highly admired companies. These companies are not “best-in-class” in every area – such a company does not exist'.

3.1 Best practice and knowledge management

Davenport, De Long and Beers (1998) reported examples of organizations that had successfully implemented KM projects and highlighted a number of practices (such as senior management support) that contributed to the success of KM projects. Davenport and Prusak (1998) also proposed a number of practices and processes for the successful deployment of KM. At much the same time, O'Dell and Grayson (1998) recommended a series of best practices and processes for successful KM. These included processes such as the creation, sharing and use of knowledge.

One of the most comprehensive investigations into best practice in KM was carried out by Szulanski and Winter (2002:64) who state 'whole industries are trying to replicate best practices and manage organisational knowledge – but even so, the overwhelming majority of attempts to replicate excellence fail'. The same authors suggest that there is widespread 'over optimism' and that organizations are generally much less disciplined than they need to be in getting the results they seek. Best practice management can become an end in itself. Elliott and O'Dell (1999:34) report that organizations 'manage and share their knowledge for

numerous purposes', including the sharing of best practices.

So which are the areas of an organization that should be the focus of best practice implementation? Elliott and O'Dell (1999:34) state that sharing best practices 'because it's popular' or 'the right thing to do' is not sufficient reasons on their own. They recommend companies understand why they are sharing, that they set a clear objective.

Where they exist, best practices can be used to help organizations to identify and adopt or adapt practices that have been found to work elsewhere. Best practice may also be used in conjunction with other approaches such as benchmarking to better understand and improve organization performance. In the next section benchmarking will be explored as a further element of world-class performance.

top

4 Benchmarking

Kouzmin, Loffler, Klages and Korac-Kakabadse (1999) provide a useful introduction to the background and development of benchmarking. They state that benchmarking was first introduced by Xerox Corporation in 1979, prompted by severe quality and cost problems. Camp, cited in Kouzmin *et al.* (1999:123), defines benchmarking as 'the continuous process of measuring products, services and practices against the toughest competitors or those companies recognised as industry leaders, [that is] the search for industry best practices that will lead to superior performance'.

Kouzmin *et al.* (1999:124) state that the aim of benchmarking is to 'identify competitive targets which render the weak points of the benchmarking organisation visible and to establish means of improvement'.

Szulanski and Winter (2002:66) present a useful table (Table 2) of the different forms of benchmarking that exist.

Table 2 Forms of benchmarking (Szulanski and Winter 2002:66)

Parameter	**Examples**			
Object of benchmarking	Products	Methods	Processes	
Target of benchmarking	Costs	Quality	Customer satisfaction	Time
Reference of comparisons	Intra-departmental competition	Constituencies and clients	Same agency or sub-unit	Different agency or sub-unit

Taking the classification offered in Table 2 it can be seen that benchmarking can be applied as a business tool broadly across all aspects of an organization's activities, suggesting that as benchmarking becomes more widespread and the basis for comparison grows, so the closer can the potential for world-class performance be said to exist.

4.1 Benchmarking and knowledge management

The APQC (1997) and O'Dell and Grayson (1998) have made a series of studies into benchmarking. Although not primarily aimed at satisfying the needs of KM practitioners,

there have been some interesting observations, such as the ease with which knowledge and best practice can be transferred. There is some sense of benchmarking that happens through the MAKE awards process, mentioned previously, but this is somewhat subjective in terms of the respondents to the awards process rather than the organizations themselves.

De Jager (1999:368) claims that the benefits of benchmarking to the knowledge worker 'are that management can be shown the value of the KM function in numerical terms'. Benchmarking can 'help to set realistic, quantifiable goals based on superior knowledge service practices … can result in a reduction of costs, improved customer service and increased system efficiencies'.

De Jager (1999) positions the KMAT as a collaborative and qualitative benchmarking tool, with the focus on internal benchmarking. The reports available from the KMAT are of three types: external reports compare the organization to the overall database or customized group; internal benchmarking compares an individual or other unit of measure with an internal peer group; and average benchmarking which is a combination of internal and external comparisons. De Jager (1999:370) says the KMAT is based on the way in which the four knowledge enablers build into the model (leadership, culture, technology and measurement) can be used to 'foster the development of organisational knowledge through the knowledge management process'.

Benchmarking as an activity seems to be well established, even widespread, and forms an additional tool that can be used by those organizations seeking to develop and sustain world-class performance. However, as with the case of best practices, there appears to be emerging an incomplete explanation and indication of world-class performance in the KM arena based on the use of benchmarking alone. Neither does the combination of best practices and benchmarking alone seem to complete the picture. In the next section, therefore, the role of standards and standards bodies will be explored as a further element of overall world-class performance.

top

5 Standards

For many years and in many fields there have been efforts to establish standards, at both a local and national level, for all sorts of fields: standardization in terms of practices and processes which have significant influence on the development and use of a wide range of both consumer and industrial products and services. These efforts often resulted in a form of common practice (such as which side of the road we travel on, the arrangement of pedals in a motor vehicle, in which direction a tap is turned for water to flow). Frequently these standards were established informally, but where necessary and deemed desirable by the stakeholders these standards were formalized, even to the extent of legislation being passed (for such issues as health and safety).

As the world's economy continued to evolve there became greater pressure to establish international standardization. According to the International Organisation for Standardisation, international standardization began in 1906 when the International Electrotechnical Commission was formed (ISO 2004). In addition to the ISO there exist today many industry, national and international standards bodies covering a wide variety of fields.

ccording to the ISO (2004) 'its members are the national standards bodies of 147 countries and it has issued over 14,000 standards … it has issued international standards for business, government and society'. It is from this body that a definition of what 'international

standardization' means can be found. According to the ISO (2004) 'when the large majority of products or services in a particular business or industry sector conform to International Standards, a state of industry-wide standardisation can be said to exist'. ISO itself states the case for standards, claiming

they make an enormous contribution to most aspects of our lives – although very often, that contribution is invisible.

5.1 Standards and knowledge management

To date there has been a good deal of debate about whether or not the field of KM is in need of standards being established through the traditional route of the national and international standards bodies.

The Knowledge Management Consortium International (KMCI n.d.) states that 'some individuals and organizations around the world have begun work on KM standards formulation. These include: the Global Knowledge Economics Council (GKEC), with American National Standards Institute (ANSI) accreditation in the United States, the British Standards Institution (BSI) in the United Kingdom, the Comité Européen de Normalization (CEN)…and Standards Australia International (SAI)'. KMCI (n.d.) says 'each of them differs in the degree to which they advocate for standards. But to one degree or other, all have committed to the idea that valid standards for the discipline of Knowledge Management can be formulated from processes begun now, rather than at some time in the future or not at all.'

Skyrme (n.d.) also discusses the issue of standards for KM. 'The announcement by GKEC (Global Knowledge Economics Council) … of an international standards effort in knowledge management raises a fundamental question of why we need standards, plus many supplementary ones, of how should they be developed, validated and used.'

A set of Australian interim standards for KM have been published, a world first in this field. In South Africa (SA), Standards South Africa (STANSA, a constituent part of the broader South African Bureau of Standards, SABS) has initiated an SA-specific standards-forming initiative but this remains in embryonic form. This perhaps provides further evidence of the relative immaturity of the whole KM field, when compared with the standards issued by the national and international bodies in other fields.

Although the principle of establishing national and international standards is well established in many other fields, in the case of KM standards cannot yet be used to measure the extent to which an organization is world-class as such standards (with exception of the Australian national interim standards) do not yet exist.

top

6 Quality management

Can an organization claim to be world-class without proving its ability to adhere to the principles of effective quality management? It would seem a position difficult to support, given the focus that there has been on quality as a management and business issue of the past 30 years and more. Therefore, in this section the role of quality management in world-class performance is explored.

The concept of quality management has been around for some considerable time. While the quality movement can trace its origins back many years, there are two names particularly associated with the whole concept: Deming and Crosby. Crosby's landmark work can be seen

as a building block for much of what followed during the 1980s and later. Crosby (1979:25-40) discusses the quality management maturity grid as a way to help organizations understand their strengths and weaknesses and where attention should be given in an effort to enhance organizational performance.

Deming became interested in the use of statistical analysis to achieve better quality control in industry in the 1930s, and in 1950 he was invited to Japan by Japanese business leaders to teach that nation's executives and engineers about the new methods. Japan's Deming Prize (established 1951), which is given annually to major corporations who win a rigorous quality-control competition, is named for Deming. The 'total quality management – TQM' approach advocated by Deming (Mead n.d.) saw the rise of interest in terms such as quality control, quality assurance, quality inspection, quality circles, sampling methods, root cause analysis, Pareto charts and the like.

In the USA, the American Society for Quality was formed in 1946, with about 1000 members from 17 existing societies (originally named the American Society for Quality Control, with the name change in 1997). Among other achievements, the APQC spearheaded the development of the Malcolm Baldrige National Quality Award in 1987 and jointly administered the award for first three years.

In Europe, the European Foundation for Quality Management (EFQM) was founded in 1988 by heads of 14 major European companies with the endorsement of the European Commission (EFQM, 1999). The EFQM was founded to assist and foster a total quality management (TQM) approach in every aspect of an organization's activities, both internal and in relation to the value chain and community. The impetus to found the EFQM came from the need to develop a European equivalent to the US Malcolm Baldrige award and the Deming Prize in Japan, both of which addressed the growing quality movements in those countries in the 1980s and 1990s (EFQM 1999). By 2003 the EFQM had grown to over 800 member organizations in 38 countries world-wide, from large corporates to small enterprises. Jacques Delors, EC President at the time of the foundation of the EFQM, stated: 'The battle for quality is one of the pre-requisites for the success of your companies and for our competitive success' (EFQM 1999).

In South Africa, the South African Excellence Foundation (SAEF) was established in August 1997. The SAEF's main purpose is to manage and promote continuous improvement through the use of the South African Excellence Model (SAEM). The SAEF claims that a suitable tool had to be found whereby South African organizations, large and small, could upgrade their business practices and find a meaningful way of benchmarking their performance against world standards. This requires the use of internationally recognized benchmark measures, which focus on sustained improvement, rather than short-term gains.

With the growth in the pressures of globalization and international trade during the 1970s and 1980s and with expectations rising in terms of product and service quality, the focus on quality as a management issue seemed to rise exponentially. The number of books, articles and conferences held on the subject mushroomed. It seemed that an organization without a serious commitment to quality was unlikely to survive.

6.1 Quality management and knowledge management

KM as a field should in principle lend itself to the application of quality management in much the same way as any other area of business or management endeavour. That implies that there need be no special focus on quality in respect to KM if the concept of quality management as a desirable objective has already been accepted by the organization as a whole.

Even if that is the case, how might quality management in the KM field be recognized? Although there are quality awards to be won in a number of the world's leading English-speaking countries and regions, such as in the USA, Europe, Australia and in South Africa, none of these awards has a particular KM focus. The closest equivalent to these more generic quality awards in the KM field would be the MAKE awards, already discussed above.

Therefore, quality management is an issue that is likely to remain firmly on the agenda of organizations large and small, both in terms of overall organization performance and specifically with regard to KM. However, on its own, quality management may be a necessary but not sufficient reason to be deemed world-class. Attention will now be turned to the last element of the proposed framework for world-class performance: the capability maturity model.

top

7 Capability Maturity Model®

The Capability Maturity Model ® (CMM) represents the final building block in terms of the proposed framework of world-class performance. The growing interest in and use of the CMM approach in a number of fields over the last ten or so years suggests that the CMM concept could and perhaps should form part of an assessment of world-class performance.

The origin of the CMM can be traced to the approach taken by Crosby (1979) in the way in which he built his original five-step quality model. The original concept for a process maturity framework, which evolved into the CMM as it is known today was developed at IBM in the early 1980s (Software Engineering Institute online). How and why did this happen?

In the 1980s, the US Department of Defense was spending large sums (around $30 billion per annum) (Software Engineering Institute online) on software development and was looking for ways to improve development project success. In response to this need and with support from the Department of Defense, the Software Engineering Institute (SEI) at Carnegie-Mellon University in the US was established, where the Software Capability Maturity Model ® (SW-CMM) was developed and first released in August 1991. The SEI claims that its model shows that software process improvement programs guided by the SW-CMM achieved an average return on investment of $5.70 saved for every $1 invested in process improvement (SEI 2002), giving some justification for the faith shown by the US government in the concept of maturity models as a tool for process and performance improvement.

What are capability maturity models? An interesting proposal for a definition comes from SECAT LLC (2003):

> 'Capability Models describe both unique product development practices and the common management practices that any organisation must perform. These practices are organised into five levels, each level describing increasing control and management of the production environment, starting with ad-hoc performance and culminating in controlled, structured, continuous improvement. An evaluation of the organisation's practices against the model, called an assessment, determines the level, establishing where the organisation stands and which management practices the organisation should focus on to see the highest return on investment.'

CMMs have appeared in other fields as diverse as project management (see for example the

OPM3 of the Project Management Institute at www.pmi.org) and IT governance (adopted for use with the Cobit methodology from the Information Systems Audit and Control Association at www.isaca.org). Yet another example of the application of the CMM is in the area of IT service (Niessink, Clerc and Van Vliet 2002). They report that as of January 2003 this model was under development and is built along the lines of the SW-CMM. The authors of the IT service-CMM discuss other process improvement models such as SPICE/ISO15504, Bootstrap and Trillium service (Niessink *et al.* 2002:11), which use a continuous model as opposed to the five-step model of the original CMM. This approach to a continuous model is addressed in the later CMM-integration (CMM-I) model that provides both a staged and continuous representation. CMM-I also offers the inclusion of different disciplines such as software and systems engineering and integrated process and product development.

Since the launch of the original CMM, there has been a good deal of debate as to whether the staged approach or continuous approach to a process improvement framework makes best sense. Garcia (n.d.) presents the 'evolving paradigms' surrounding the various views on this debate, highlighting the fact that ISO 15504 (formerly known as SPICE, **S**oftware **P**rocess **I**mprovement and **C**apability d**E**termination), an international standard for software development, is based on the continuous improvement concept. The importance of this distinction between the staged and continuous approaches is that organizations can assess performance of their processes at any time and in any sequence. This itself opens the possibility of creating a more flexible, practical approach to using the CMM.

7.1 Capability maturity model and knowledge management

A number of maturity models for application in the KM field have been proposed over the last few years by a variety of authors and organizations and Paulzan and Perc (2002:3) present a very useful analysis showing in total ten different models from various sources, which might be used to analyse and improve the quality of KM processes. Paulzan and Perc (2002:4), however, criticize the CMM because it 'only allows the evaluation of whole organizations, because each process is assigned to one maturity stage, and not assessed independently from the other processes.' They highlight the fact that SPICE was founded as a result of this limitation in CMM. This criticism has in effect been met by the development of the continuous representation that was discussed above.

Paulzan and Perc (2002:4) propose their own model, knowledge process quality model (KPQM), which is designed as a maturity framework, intended to support the implementation of a continuous quality improvement process. They explain how their model can be applied, using the specific example of a software development project.

Paulzan and Perc (2002:9) admit that further work needs to be done to test their proposed model.

Hiebeler (1996:24) describes how Arthur Andersen and the APQC jointly developed the KM assessment toolkit (KMAT), launched in 1995. Within the first year, 70 companies had completed the assessment, indicating two dimensions for each of 24 emerging KM practices: the importance of the practice and the performance of the practice. Coverage of the KMAT comes from De Jager (1999:367) who reported the use of the KMAT intended 'to help organisations make an initial high-level assessment of how well they manage knowledge' as well as being used as a benchmarking tool which could be used to help knowledge centres achieve two objectives: direct attention towards areas that need more attention and on the other hand identify KM practices in which they excel. The KMAT had in support a database containing data from 140 companies who had used the tool.

Bornemann and Sammer (2003) propose an assessment matrix using four levels, combined with what they describe as 'four scopes of intervention': individual, team, organization and business environment. These combined give 16 fields of intervention. Using this assessment matrix, the authors recommend a seven-step methodology for the performance of the assessment. They suggest that this assessment is carried out on a regular basis to 'monitor and maintain the implementation process of a defined KM strategy' (Bornemann and Sammer 2003:28). It seems somewhat curious that the work of Bornemann and Sammer does not acknowledge the various models for measuring KM implementation as outlined in the article by Paulzan and Perc (2002).

Ehms and Langen (2002:1) developed their knowledge management maturity model (KMMM ®) with the intention of 'providing a reliable instrument for defining one's current position and driving long-term corporate development'. They based their model on the concepts of the CMM from Carnegie Mellon University, and have adopted and adapted the concept of the five maturity levels for KM in organizations. They recommend a six-phase approach to the implementation of the KMMM ® (Ehms and Langen 2002:6).

Gallagher and Hazlett (1999) present their knowledge management maturity model (KM^3) as a tool to evaluate current KM capability and facilitate effective measurement of the impact of KM initiatives. They base their model on the three overlapping and interlocking concepts of knowledge infrastructure, culture and technology. They use the CMM approach of discrete levels of organization performance tracking.

Klimko (2000) also discusses maturity models, and draws an interesting parallel to the well-known Maslow hierarchy of needs. He states that the 'obvious advantage of maturity models is their simplicity which makes them easy to understand and communicate'. Klimko focuses on three maturity models for KM: Microsoft's IT Advisor (no longer available); the KPMG model (based on a survey conducted in the UK in 1998 and 2000); and Gallagher and Hazlett's KM^3 model. Klimko's own ideas are only partially developed into a maturity model.

In the South African context, probably the best-known initiative is that of Sasol, a leading local fuel and chemicals company, which has developed its own KM maturity model (Hiscock 2004). This model looks at the various levels of achievement of maturity in the deployment of KM within Sasol, rather than using the more traditional five-level assessment process for individual processes or groups of processes (as per the staged or continuous CMM).

It can be seen, therefore, that there has already been extensive work that has been done on the application of capability maturity models for KM.

top

8 Conclusion

This article discussed a number of perspectives on the issue of what can be used to measure, improve and sustain world-class performance. The elements of a proposed framework for world-class performance were then each applied to the field of KM. The recommendations proposed arising from this article can be summarized as follows:

- There is no single measure or model which can be used to determine world-class performance, particularly in the field of KM
- The measures and models that make up the proposed framework should be treated as elements of a KM journey and not a single, one-time destination
- The selection of which elements of the proposed framework (and the relative

importance of those elements) to apply will depend on the context of the organization which seeks to reach and sustain world-class performance in KM
- Over time various elements of the proposed framework may be used both individually and in combination to improve and sustain the performance of organizations
- Those seeking improved performance of their knowledge management initiatives should be constantly scanning for developments in each of the elements of the framework
- More research should be conducted into the potential value to organizations of the proposed framework

top

9 Note

This article is a modified and expanded version of a paper entitled ‘World-class Knowledge Management: a proposed framework' presented by Peter Tobin at the 4th Conference on Information and Knowledge Management, Rand Afrikaans University, Johannesburg, 25 to 26 May 2004. The article is also based on Peter Tobin's doctoral studies at the Department of Information Science, University of Pretoria.

top

10 References

APQC Report. 1997. *Benchmarking benchmarking.* [Online]. Available: www.apqc.org [Accessed 23 September 2003].

Best Practices LLC. [n.d.] *What is benchmarking?* [Online]. Available: www.best-in-class.com/site_tools/faq.htm#best_practice [Accessed 3 September 2003].

Bornemann, M. and Sammer, M. 2003. Assessment methodology to prioritise knowledge management related activities to support organizational excellence. *Measuring business excellence* 7(2):21-28.

CBI. [n.d.] *PROBE.* [Online]. Available: www.cbi.org.uk/probe [Accessed 11 March 2003].

Chase, R. 2003. *MAKE awards*. [Online]. Available: www.knowledgebusiness.com [Accessed 2 September 2003].

Collins English Dictionary . 2000. New York: HarperCollins.

Crosby, P.B. 1979. *Quality is free.* New York: McGraw-Hill.

Davenport , T.H., De Long, D.W. and Beers, M.C. 1998. Successful knowledge management projects. *Sloan Management Review* 39(2):43-57.

Davenport , T.H. and Prusak, L. 1998. *Working knowledge: how organizations manage what they know*. Boston: Harvard Business School Press.

De Jager, M. 1999. The KMAT: benchmarking knowledge management. *Library Management* 20(7):367-372.

EFQM. 1999. *European Foundation for Quality Management.* [Online] Available: www.efqm.org [Accessed 23 September 2003].

Ehms, K. and Langen, M. 2002. *Holistic development of KM with the KMMM.* Siemens AG unpublished paper.

Elliott, S. and O'Dell, C. 1999. Sharing knowledge and best practices. *Health Forum Journal* 42(3):34-38.

Encyclopaedia Britannica . 2003. London.

Faulkner, M. 2000. Benchmarking is no stroll in the park. *Customer management* Nov/Dec:50-52.

Gallagher, S. and Hazlett, S. 1999. *Using the Knowledge Management Maturity Model (KM³) as an evaluation tool.* [Online] Available: www.bprc.warwick.ac.uk/km028.pdf [Accessed 11 March 2003].

Garcia, S. [n.d.] *Evolving improvement paradigms: capability maturity models and ISO/IEC 15504.* [Online] Available: www.sei.cmu.edu [Accessed 11 March 2003].

Hiebeler, R.J. 1996. Benchmarking: knowledge management. *Strategy and leadership* 24 (2):22-29.

Hiscock, M. 17 March 2004. [Personal communication]. Sasol, email-address

ISO. 2004. *About International Organisation for Standardisation.* [Online] Available: www.iso.ch/iso/en/aboutiso/introduction/index.html#four [Accessed 3 June 2004].

Klimko, G. 2000. *Knowledge management and maturity models: building common understanding* . [Online]. Available: http://informatika.bke.hu/bke_web_new/db/kutatas.nsf/0/b1b19999f83faf59c1256ced004fa899/$FILE/Knowledge%20Management%20and%20Maturity%20Models.doc [Accessed 7 October 2003].

KMCI. [n.d.] *Position statement on issues in KM standards and certification.* [Online]. Available: www.kmci.org/PressRelease/KmciPositionState.htm [Accessed 26 September 2003].

Kouzmin, A., Loffler, E., Klages, H. and Korac-Kakabadse, N. 1999. Benchmarking and performance measurement in public sectors: towards learning for agency effectiveness. *The International Journal of Public Sector Management* 12(2):121-129.

Mead, A. [n.d.] *Deming's principles of total quality management (TQM).* [Online] Available: www.well.com/user/vamead/demingdist.html [Accessed 17 February 2004].

Niessink, F., Clerc, V. and Van Vliet, H. 2002. *The IT service capability maturity model.* [Online]. Available: www.itservicecmm.org [Accessed 25 March 2003].

O'Dell, C. and Grayson, C.J. 1998. If only we knew what we know. *California Management Review* 40(3):154-174.

O'Dell, C. and Grayson, C.J. 1999. Knowledge transfer: discover your value proposition. *Strategy and Leadership* March/April:10-15.

Paulzan, O. and Perc, P. 2002. A maturity model for quality improvement in knowledge management. *Proceedings of the 13 th Australasian conference on information systems:* 243-

253. Melbourne: ACIS.

SECAT LLC. 2003. *Using capability models to achieve organizational goals*. [Online] Available: www.secat.com/cmm/5lvl.shtml [Accessed 11 March 2003].

SEI (Software Engineering Institute), 2002. CMMI frequently asked questions. [Online] Available: www.sei.cmu.edu [Accessed 16 October 2003] .

Senge, P.M. 1990. *The fifth discipline: the art and practice of the learning organization*. New York: Doubleday.

Skyrme, D. [n.d.] *KM standards, do we need them* ? [Online] Available: www.skyrme.com/updates/u65_f1.htm [Accessed 26 september 2003].

Szulanski, G. and Winter, S. 2002. Getting it right the second time. *Harvard Business Review* 80(1): 62-69.

Voss, C., Blackmon, K., Chase, R., Rose, B. and Roth, A. 1997. *Achieving world-class service*. London: Severn Trent PLC.

aldron, D.G. 1999. *Manufacturing strategy: what does it take to be world-class?* [Online]. Available: www.sba.muohio.edu/abas/1999/waldroda.pdf [Accessed 23 September 2003].

top

ISSN 1560-683X

Published by InterWord Communications for the Centre for Research in Web-based Applications, Rand Afrikaans University