Developing a High Performance Workforce

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Practical strategies for exploiting knowledge in the intelligent enterprise

Karin Breu and Geoff Smith

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Acknowledgements

This report draws on a combination of empirical research, conducted by the Information Systems Research Centre at Cranfield School of Management, existing thinking as reflected in the academic literature, and our own interpretation of the subject matter at hand.

Two large-scale studies of knowledge management in business organisations provide the empirical evidence for this book: a survey entitled *Europe's State of the Art in Knowledge Management* undertaken in 1998 and a follow-up work entitled *Releasing the Value of Knowledge – A Survey of UK Industry* undertaken in 2000, both by the Information Systems Research Centre. The 1998 survey gathered evidence from organisations based throughout Europe, whilst the 2000 survey focused on UK business only. This work, however, could not have been undertaken without the contribution of a number of individuals and organisations, which we would like to thank at this stage.

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Introduction

The research presented in this report makes it clear that businesses have no difficulty in accepting knowledge as contributing to competitive advantage and increasing profitability, ranked as the two most important knowledge-related business objectives in the 1998 survey[1] of 260 European firms (*see* Figure 0.1).

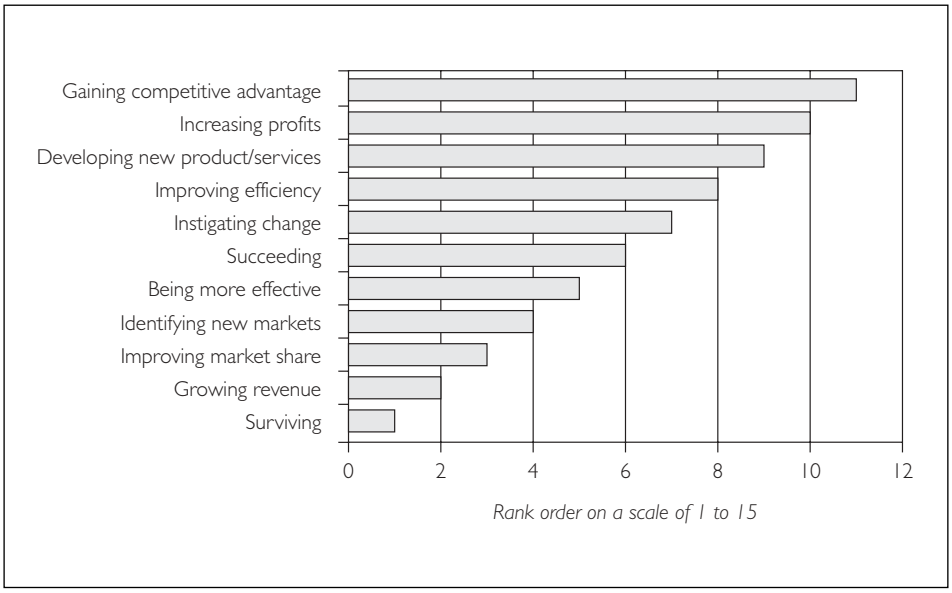

FIGURE 0.1
The importance of knowledge to organisations (n=260)

All the 128 firms in a 1999 survey rated knowledge as to some extent adding value to products and core processes in their organisations.[2] However, the adoption of knowledge management as a systematic approach to delivering such benefits found less pervasive support among the responding business community. In the 1998 survey, 37 per cent of respondents either dismissed knowledge management as a 'fad' or were not yet sure what to make of it. The more recent Cranfield research in 2000 involving 650 UK business decision makers[3] suggests management are still attempting to get to grips with the subject but as yet do not have a broad strategic view of how to go about it. Whilst exploitation of knowledge was on the board agenda of 47 per cent of those firms surveyed in 2000, only 28 per cent claimed to have an organisation-wide knowledge exploitation strategy in place.

It is clear that a wide range of managers see exploitation of knowledge and 'know-how' as a fundamental source of further potential business benefits.

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(*see* Figure 0.2), and 47 per cent of firms undertake a cost-benefit analysis prior to investment in this area, according to the 2000 survey. Yet when we look for systematic, firm-wide perspectives on managing knowledge, the picture becomes very diffuse. In the earlier survey, only 22 per cent of respondents had some focused responsibility for managing knowledge (*see* Figure 0.3).

FIGURE 0.2

The benefits of knowledge management (n=650)

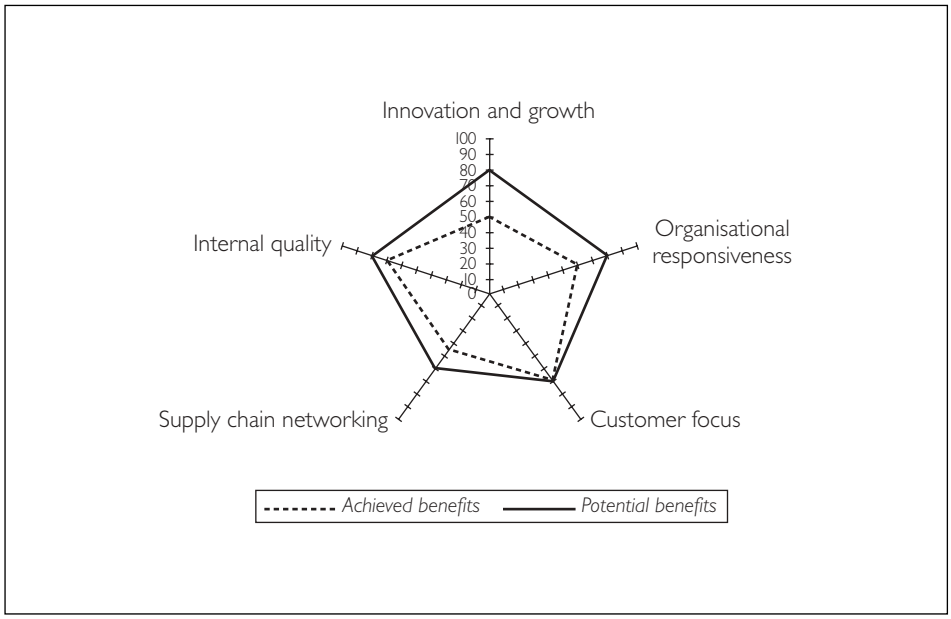


FIGURE 0.3

Responsibility for knowledge management (n=260)

The other 78 per cent distributed this responsibility around several people or departments, suggesting a diversity of local approaches rather than any company-wide change in thinking, despite acknowledging the pervasive importance of the knowledge resources in all aspects of the business (*see* Figure 0.4). This lack of focus was further confirmed by the finding in the

1999 survey that 43 per cent of respondents had no knowledge vision in their firms.[4] Against such a background, it is not surprising that few companies seem able to make any real headway, given that any major change programme must necessarily align different viewpoints and divergent initiatives.

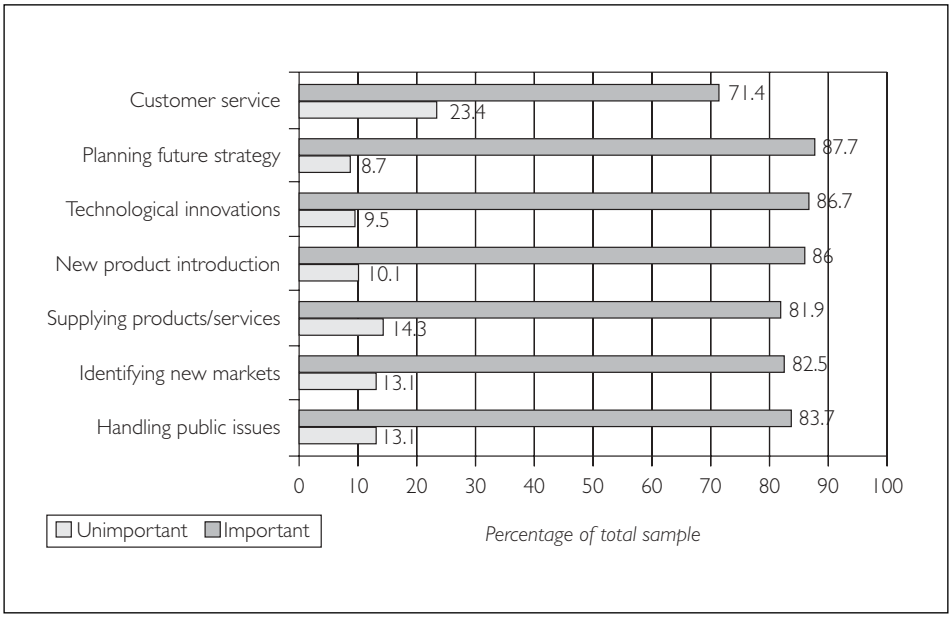


FIGURE 0.4

The importance of knowledge in business processes (n=260)

So, on the one hand, we have real, front-line issues that management are keen to address but for which they see no consistent, proven, *pragmatic* approach. On the other hand, we have the proponents of knowledge management, with a compelling rational vision for the subject, yet apparently unable to shake off the 'fad' label. In writing this report, we seek to bridge the gap between knowledge management theory and practice, between the apparent potential and deliverable reality, between communication and conviction. We believe the answer lies in the different *language* of the knowledge management evangelists and that of hard-pressed business managers. Managers need not fear that we are about to propose yet another theory. Rather, we seek to explain ways in which those with the potential answers can appreciate the true nature of the questions being posed, and respond accordingly. Based on the insights of this research, the authors believe the two groups can come closer together, with the 'true believers' at last able to talk in terms of knowledge management solutions that the 'true achievers' recognise as being of value.

The key is for the developers of knowledge solutions to *directly identify* with the needs of their business users, rather than attempting to 'convert' them. This change of approach will find a receptive audience: the evidence of this research suggests there is a real appetite for dramatic advance in

exploiting knowledge, so long as it remains directly relevant. In overcoming this obstacle, this report will help companies develop a new generation of practical and successful knowledge solutions that deliver real benefit and prepare the way for an ambitious future. Most importantly, it will help communicate, as Robert Buckman* has been doing for some years now, that *customers* are what come first, and that the better we manage our knowledge in all its manifestations, the better we serve them.[5]

Herein lies the clue to resolving the central issue of how managers and chief executive officers (CEOs) can be convinced that 'managing knowledge better' is at least as important as any other initiative competing for their attention and resources. Bob Buckman points out[6] that today his firm 'sells solutions – we don't even have to ship the chemicals'. In other words, *knowledge* is the key product, not the physical paraphernalia that accompany it. Where it is recognised that what the company is selling is its know-how, and very little else, then the gap between knowledge management and strategic business management disappears entirely. And whilst it may take other firms some time to reach this level of awareness of their activities, we believe that through localised application of this principle – that the customer drives everything – we can help accelerate the process significantly.

THE SURVEYED POPULATIONS

This section provides a brief description of the data source and, thus, the origin of the empirical evidence presented in this report. The figures and tables we refer to in this section, as well as a description of the research design, are provided in Appendix A (for the 2000 survey) and Appendix B (for the 1998 survey).

The Cranfield 2000 Knowledge Exploitation Survey

The 650 respondents to the 2000 knowledge exploitation survey represented UK-based organisations, making this the largest empirical study of this nature undertaken in the UK to date.

* Former CEO of Buckman Laboratories, a US-based specialist chemicals company, long recognised as pathfinders in knowledge management.

In terms of industry sectors of the respondents' organisations, over one-third of the sample (35 per cent) were in the manufacturing/engineering sector. This proportion is broadly representative of the total UK population of this sector. The construction sector was represented by over 8 per cent, the professional services and consulting sector by just under 8 per cent, financial services and retail/wholesale with just under 7 per cent, IT/telecommunications and pharmaceuticals with around 5 per cent, the public sector with nearly 4 per cent, transport/distribution and energy/utility with just above 2 per cent, and other business services with around 15 per cent (*see* Figure A.1).

Organisational size as indicated by numbers of employees showed that more than half of the organisations represented by the respondents employed less than 1,000 staff. One-third of the sample organisations employed 1,000–4,999 staff, 6 per cent of the sample organisations 10,000 and more staff, and just under 5 per cent of the sample organisations were in the 5,000–9,999 staff category (*see* Figure A.2).

Just under one-third of the respondents (31 per cent) stated that they were on the board of the organisations they represented and the remaining share of just over two-thirds (69 per cent) indicated that they were non-board members.

Just under one-third of the respondents (31 per cent) stated that they were on the board of the organisations they represented and the remaining share of just over two-thirds (69 per cent) indicated that they were non-board members (*see* Figure A.3). Over half of the total sample (52 per cent) were in positions where they reported to the CEO/chairman/managing director, indicating a high level of seniority among the respondents (*see* Figure A.4).

In terms of the functional responsibility of the respondents, the majority (17 per cent) indicated that they operated in general management/strategy. Other functions such as marketing, human resources, operations, finance/accounting, product/services development, sales, and customer services were fairly equally distributed across a range of 6 per cent to nearly 13 per cent (*see* Figure A.5).

The Cranfield 1998 Knowledge Management Survey

The 260 respondents in the 1998 survey represented 98 organisations in the UK, 67 in Germany, 50 in France and 45 from across the rest of Europe (*see* Figure B.1). Expressed in terms of number of employees, over 70 per cent of the sample organisations were large-sized businesses, just under 20 per cent were medium-sized, and around 10 per cent represented small businesses (*see* Figure B.2).

In terms of representation of industry sectors, the sample reflects a fairly even distribution, with a share of over 27 per cent for the manufacturing/

engineering sector, around 13 per cent for the finance/banking/insurance sector, just over 10 per cent for the pharmaceuticals/chemicals sector, around 8 per cent for the retail/wholesale sector, about 7 per cent for the energy/utilities and the construction sectors, over 6 per cent for the transport/distribution sector, around 2 per cent for the telecommunications sector and 25 per cent for other business services (*see* Figure B.3).

The survey evidence has a strong bias towards the strategic management level, with half the respondents being CEOs, managing directors or chairmen of their organisations (*see* Figure B.4). In terms of a reflection of the level of experience of the responding managers, nearly half of them were aged 50 or above, one-third were 40 to 49 years old, a quarter were between 30 and 39 and the remaining small share of just over 1 per cent of respondents were under 30 years of age (*see* Figure B.5). Forty-five per cent of respondents had been with their organisation for over ten years, over 18 per cent for six to ten years, 15 per cent for three to five years and the remaining share of just over 21 per cent for less than three years (*see* Figure B.6).

NOTES

1 Cranfield School of Management, Information Strategy, The Document Company Xerox, 1998.

2 Rajan *et al*., 1999, Figure 2.1.

3 Breu, Grimshaw and Myers, 2000.

4 Rajan *et al*., 1999, Figure 2.2.

5 Smith, 2001.

6 Ibid.

1

A historical perspective on knowledge management

EXAMINING THE ORIGINS OF KNOWLEDGE MANAGEMENT

The history of knowledge management is relatively recent but extends across far more strands than those explicitly labelled as knowledge. In this chapter, we attempt a rapid tour of those approaches which contribute directly or indirectly to today's position. We offer some necessarily personal and subjective views on their contribution to the core goal of placing knowledge at the heart of business thinking rather than at the periphery. In so doing, we hope that newcomers to knowledge management can more easily judge which perspectives may or may not help *them* achieve this goal more rapidly.

TOTAL QUALITY MANAGEMENT

Many organisations worked hard to achieve ISO (International Standards Organization) quality certification in the 1980s and 1990s. In some areas, it became a pre-requisite for doing business, although for many the original insistence on certification has been tempered by business reality. Total quality management (TQM) principles of 'say what you do' and 'do what you say', plus continuous improvement, are obvious precursors of knowledge management's concepts of re-use, best practice and sharing insights. We see the concept of 'structural' or 'process' capital in today's knowledge management texts as the embodiment of the organisational knowledge locked up in processes and procedures that TQM has helped force organisations to identify. However, experience has taught us that the world rarely works according to documented procedures[1] and 'human glue' is necessary to connect the imperfectly documented pieces.

THE LEARNING ORGANISATION

Peter Senge's *The Fifth Discipline* offers a view that continuous learning is the key to organisational survival. The link between learning and managing a company's knowledge is intuitively obvious, yet surprisingly little attempt has been made to formally link the two. But when we consider well-established knowledge management concepts such as 'corporate memory', where better to find this than in the training a company offers its staff, or the standard procedures of its quality system? The concept of 'double-loop learning'[2] – of figuring out *why* things come to happen as well as what

actually happened – is also closely linked to change management and quality approaches. The similarities with capturing insights are obvious.

THE ADAPTIVE ENTERPRISE

No one in business needs much reminding that one needs to 'adapt or die'. This Darwinistic view of the *Adaptive Enterprise* is well expressed in the book of the same title by Stephan Haeckel, or in *Sense & Respond* by Bradley and Nolan, and also in Koulopoulos's *Corporate Instinct*. For a longer-term view, and one which also has much to say about the values of long-lived companies, *The Living Company* by Arie de Geus is recommended. In each case, the view is that the organisation must continuously acquire new knowledge which helps determine its future direction, the key points being the stress on new knowledge arising relentlessly and the need to continuously assimilate its implications. In many cases, 'knowing your customer' is the primary focus of knowledge, which leads to the dominance of customer relationship management (CRM) in this thinking. Whilst there is clear overlap between CRM and knowledge management, particularly in the idea of 'customer' or 'relationship' capital, CRM is much more concerned with managing the customer value proposition and has little to say about core knowledge management concepts such as knowledge sharing and re-use or knowledge communities.

THE PEOPLE-CENTRED ORGANISATION

Are there any companies which, at some point, have not asserted that 'people are our greatest asset'? Few seem to have articulated this much beyond enhanced employee benefits programmes, in an attempt to compete in the so-called 'talent wars' now emerging as Western demographics skew relentlessly towards an ageing working population. In this statement is the link to the much talked-about (but poorly understood) concept of 'tacit' knowledge – that which is in people's heads, which they find hard to articulate and which cannot be written down without some loss of meaning. Real-world knowledge management now has more to say about how to deal with the tendency for this most valuable asset – also known as 'people' or 'human' capital – to walk out the door and sometimes not come back. And unsurprisingly, the answer is not to try to get people to write down everything they know.

THE CONCEPT OF INTELLECTUAL CAPITAL

Tom Stewart, Leif Edvinsson and Karl Erik Sveiby have all published titles on intellectual capital, depicting it as 'the new organisational wealth' or variants thereof. There is a great deal to reflect on in these books – and the mere fact that there is such convergence of thinking and (almost) of terminology in this area suggests there is much of value. Indeed, some of these works set out very detailed approaches to measuring knowledge and the processes that support it. In general, the strategy here is to establish knowledge as an extremely valuable asset of the firm, which is in general *not being managed* – a fact that should strike terror into the hearts of every executive who is answerable to shareholders about how *their* assets are being managed.

In general, whatever your company knows, someone else is sure to find out eventually and the economic value of your knowledge will fall.

Therein lies the key to why this approach does not (except in the case of a few well-publicised exceptions) create the anticipated calls to action. Somehow, organisations seem to have managed pretty well so far without managing this area, although Kaplan and Norton's 'balanced scorecard' certainly makes some recommendations in this direction. The key issues are that, firstly, the most valuable asset – what is 'behind the eyes and between the ears' (to quote Robert Buckman) – is not in any practicable sense the property of the shareholders, and secondly, the value of knowledge (in terms of what can be realised by its application in the market) *changes over time*. Certainly, patents and trade secrets exist as very visible forms of real intellectual capital which can in fact be valued, but that is as far as it goes. Such assets may even increase in value should economic conditions be favourable. But in general, whatever your company knows, someone else is sure to find out eventually and the economic value of your knowledge will fall. And as for explaining the difference between market value and book value, one only needs to look at the recent falls in technology stocks to see the problem of using intellectual capital other than as a shorthand for the collections of *processes* it implicitly describes.

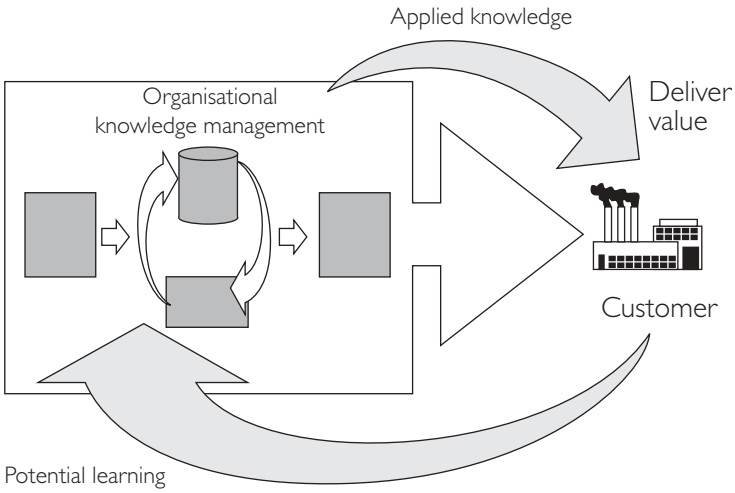
KNOWLEDGE AS A FLOW

There is one further problem with the intellectual capital approach (also known as 'knowledge as stock'), in that it appears to say that knowledge management is about managing knowledge 'assets' – and this in turn encourages the view that knowledge is a series of 'objects'. The role of

knowledge management then becomes to package, store and distribute these assets. Whilst the intellectual capital authors, if properly read, are not actually proposing this, the language itself promotes such a view.

Whilst not necessarily incompatible with knowledge having a 'shelf life', the asset-based approach makes it difficult to address the problem of knowledge value from the customer perspective. Knowledge value cannot be held to be *intrinsic*: it is ultimately determined by the market in which it is offered. Hence we see knowledge management as being about 'getting the right knowledge to the right people at the right time' – and ultimately that person must be the paying customer, or those serving him. A clever solution, offered to the customer after your competitor has already won the business, is of zero value. Equally, failure to capture potential learning means a lost opportunity to enhance future value delivery (*see* Figure 1.1).

FIGURE 1.1
Knowledge value generation



Adapted with acknowledgements to Ralph Poole

This subtle but important distinction, the need to see knowledge ('knowing') as itself a process in continuous flow rather than as a set of discrete objects to be protected, is an important step forward in integrating the complex socio-technical entities that today's knowledge networks have become. It is saying that the individual does not cease to be relevant once they have in some way documented or communicated some aspect of their knowledge explicitly. Building on what they have communicated, to qualify its applicability in different circumstances, or to extrapolate to the new, is a necessary part of what we see today as the total knowledge management

picture, including a much richer perspective on the interplay between communities, collaboration and learning (*see* Brown and Duguid, 2000).

THE PERSONAL PERSPECTIVE ON KNOWLEDGE

Mick Cope's *Know Your Value* has taken the discussion in a new direction with the concept of personal knowledge management. In other words, it is not just corporations that need to review what they know and how relevant it is to the market they operate in; individuals need to undertake such an audit themselves. What we are seeing today is the beginning of a redefinition of knowledge workers, and knowledge-based companies, in a networked knowledge economy. So-called 'knowledge exchanges' are developing where individuals can sell their know-how,[3] though quite how this differs from conventional recruitment models is not clear.

When it becomes possible to tie people into high-speed networks from just about anywhere, allowing rich interactions with a high 'tacit' content, then the boundaries of the knowledge firm become very blurred. Even today we see this, as companies increasingly allow access to their networks for external associates, partners, customers, academics and so forth. Knowledge managers have to contend with conflicts of interest, where two companies co-operate in one knowledge area and compete in another. It is clear that a simple corporate view of knowledge management is not enough: we have to redress the balance towards the individual 'nodes' in the knowledge network.

LINKING TACIT AND EXPLICIT KNOWLEDGE

The articulation of tacit knowledge started with Michael Polanyi's work in the 1960s. Today, almost every reading list on knowledge management starts with Nonaka and Takeuchi's *The Knowledge-Creating Company*, and there is much insight in concepts such as 'the knowledge spiral' to link tacit and explicit knowledge. Yet few of today's line managers can spare the time to internalise what this means, still less to apply it. On their own, insights into the interplay between people and how they share what they know are not particularly helpful: they represent a framework for understanding human behaviour that we are all implicitly familiar with. What are needed are ways to exploit these exchanges more effectively in an

organisational context. Unfortunately, this is sometimes interpreted as a series of mechanical steps. When we read product vendors claiming that their software 'enables the business to capture its tacit knowledge' we can be sure that the subtleties of the processes described by Nonaka and Takeuchi have been lost.

We take the pragmatic view that, at the end of the day, all that matters is that information or knowledge is able to be *acted* upon, regardless of whether it resides in someone's head or in a database. Finding and talking to the right person usually turns out to be far quicker and more effective than attempting to transcribe their experience into documented responses, but of course this cannot always be scaled up to meet real-world demands for access to expertise. Understanding how to strike this balance effectively is a theme we will return to later, when examining the concept of *communities*.

All that matters is that information or knowledge is able to be acted *upon, regardless of whether it resides in someone's head or in a database.*

GIVING KNOWLEDGE MANAGEMENT A NEW SCRIPT

We have outlined a number of persuasive viewpoints on knowledge management, all of which have their enthusiastic supporters and have much to commend them – except that management are not listening. The problem seems to be that there is too much to take on board before other priorities reassert themselves. For an understanding of the problems with conventional evangelising approaches to knowledge management, one cannot do better than read the work of a man who learned from these shortcomings and built a very different (and much more successful) approach. Stephen Denning, in his book *The Springboard*, takes the reader through precisely why a concept as complex and multi-dimensional as knowledge management cannot be communicated on an organisational scale by rational logic or detailed explanation. Instead, one needs to engage the interests and resources of the target audience and unleash their enthusiasm to solve what they see as *their* problem in ways that are relevant to them. In this notion, we see the fundamental principles that we seek to extend and complement in this report. Denning shows how to ignite action for change through effective storytelling by tapping into personal energy and commitment. We would hope to build on this emotional starting point by showing how to identify the specifics that will lead to enthusiastically supported, business-led, *demand-driven* knowledge programmes.

Summary

The explosion of writing about knowledge over the past ten years or more has certainly made it a suitable subject for academic study, as evidenced by a growing number of specialist courses. There is a plethora of ideas about knowledge competing for attention. However, initial confidence that this thinking held the key to most of the business issues facing management has been tempered by a general inability to translate it into solutions to real business issues. This has led to an unfortunate backlash, given (as we shall see in the next chapter) that managers implicitly accept the importance of knowledge in all its forms. A reassessment of the knowledge management tool kit is called for, with elegant ideas that have not proved helpful being quietly replaced by pragmatic approaches that, however untidy or simplistic, have produced results. The remainder of this report attempts to show how this new message can best be communicated and put into practice.

NOTES

1 Orr, 1987; Argyris and Schön, 1978.

2 Argyris and Schön, 1978.

3 'The knowledge commodity', *The Times*, London, 1 February 2001.

2

Presenting knowledge management in terms of the issues facing business today

THE INTERNET IMPERATIVE: GET CONNECTED

Although the dot.com frenzy has cooled, businesses have been quietly getting on with putting an 'e' in front of what they do anyway. The high-profile side of this, the web site allowing consumers to place orders for their shopping or to book flights, remains in its early stages of development with mixed success. In the background, the real engine of business relationships along the purchase and supply chain has been transformed by e-marketplaces and web-based collaboration between companies. The effect in this business-to-business (B2B) arena has been a real transformation of cost bases and speed of response, which could not have been envisioned just a few years ago. Suddenly, it is a buyer's market in every sense – and almost everyone is in some way a seller.

One immediate effect of this is to increase further the pressure on businesses to find answers *quickly*. If a major bid to supply components is on offer on the web for only a limited time and your company wants to stay in the game, you have to know *now* whether you can supply, whether you can meet the specifications, whether you can supply the associated services and so forth. We see the mix of hard and soft information that constitutes 'knowing' in today's business, and the need to be able to access this fast from anywhere in the world. If you want to know whether your manufacturing plant can meet the requirement, there is only so much that the hard data can tell you – the real judgement call will be made on a basis of personal relationships with trusted associates who understand the realities of the situation on the ground, plus other background material that will help build a good decision.

In this situation, it is no longer acceptable for a mix of non-integrated systems to be the basis for a response – you cannot be 'e-enabled' and connected to the outside but disconnected on the inside. It quickly becomes obvious to customers that the back-up is not there. Hence, the concept of the 'connected enterprise' where Internet protocol (IP) becomes the basis for *all* communications within an organisation. Technologies such as desk-top video conferencing provide rich channels for semi-tacit communications, where a window into production figures can sit alongside a presentation showing product specifications, and all participants on the call can exchange all the content as required. The customer document no one can quite recall that answers a key question can be found by an intelligent search in moments, and external experts and partners can participate seamlessly across intelligent firewalls.

If knowledge management is to seize the opportunity that e-business offers, it has to blend in with this new landscape.

As this scenario accelerates to become everyday reality, the notion that knowledge management can somehow be separate from all this becomes as untenable as keeping client records on a card index. What people are dealing with is the know-how and knowledge of the business: what separated these concepts has for all intents and purposes disappeared. Certainly, best practices are still in there and we are re-using all the time. Exchanges of tacit knowledge, which have always been recognised as the most valuable interaction, continue and accelerate, aided by the ability to overcome time and space in ways that were not possible without IP technology – at least on the scale of accessibility, ease of use, richness of interaction and low cost that we see today. (A few businesses could operate this way in the 1980s,[1] but only with proprietary technologies that could not talk to each other and which did not convey the full range of content we see today.) If knowledge management is to seize the opportunity that e-business offers, it has to blend in with this new landscape.

WINNING BUSINESS

Some things do not change, even with the Internet, and one of them remains the need to win business in the face of competition. Today, this competition is increasing in every area thanks to globalisation and deregulation, and consequently the need to present *your* company's capabilities effectively is ever greater. Sales people need at hand every relevant fact about the product or service they are selling, and access to the experts behind it. They must also be able to access a track record – something which in the past has proved surprisingly difficult to do even for major global players. And ask any sales person who has been confronted by a client who was better informed than they were (particularly about activities between their respective companies) whether they feel that knowledge services need to be improved. This issue is examined in more depth in the next chapter.

GIVING CUSTOMERS WHAT THEY WANT

Another thing which does not change is the need to understand what customers are looking for, which means in today's world that products and services must continuously evolve to stay in touch with technology developments, market realities and fashion. Updating the firm's knowledge is profoundly important in this area, whether it be in absorbing new mobile

technology or current thinking on the 'retail experience'[2] that shoppers seek. Again there is no clear-cut dividing line between this real-world business knowledge and the stuff of 'classical' knowledge management.

The numbers can tell us something is wrong – fewer people coming through the door, smaller spend per visit – but they cannot tell us *why*. Here again is the realm of the tacit, of expert judgement, of comparison with past situations, of analysis and interpretation, of understanding why approaches that have worked in the past no longer work today. The bottom line of success here is clear enough: increasing revenues and market share. Not *knowing* the answers is not an option, but there is no easy way to frame the questions either. The importance of this is emphasised by the dominance of *customer satisfaction* as the key business performance indicator improved by knowledge sharing in the 2000 survey, as nominated by almost all business functions (*see* Table 2.1) and across all sectors (*see* Table 2.2).

TABLE 2.1

Top-ranking performance indicators of knowledge exploitation by business function (n = 650)

Function	Ranked 1st	Ranked 2nd	Ranked 3rd	Ranked 4th
Customer service	Customer satisfaction	Customer value	Profit levels	Cost saving
Operations	Customer satisfaction	Cost saving	Profit levels	Project delivery
Finance/ accounting	Cost saving	Profit levels	Competencies	Employee satisfaction
Product/ services	Customer satisfaction	Project delivery	Cost saving	Product/ service quality
General management	Customer satisfaction	Profit levels	Cost saving	Market share
Sales	Customer satisfaction	Market share	Profit levels	Cost saving
Marketing	Customer satisfaction	Market share	Profit levels	Cost saving
Human resources	Employee satisfaction	Competencies	Employee skills	Customer satisfaction

TABLE 2.2

Top-ranking performance indicators of knowledge exploitation by selected industry sectors (n = 650)

Industry Sector	Ranked 1st	Ranked 2nd	Ranked 3rd	Ranked 4th
Manufacturing/ engineering	Customer satisfaction	Cost saving	Profit levels	Project delivery
Financial services	Customer satisfaction	Customer value	Cost saving	Employee satisfaction
Retail/wholesale	Customer satisfaction	Profit levels	Cost saving	Market share
Public sector	Customer satisfaction	Cost saving	Public reputation	Competencies

KEEPING YOUR EMPLOYEES

Increasingly today we hear of 'talent wars', with more and more opportunities chasing fewer people with the right skills and experience. Up to a point, such battles are fought with the chequebook and the offer of other inducements. It was noted in a 1999 survey[3] that, with few exceptions, the workforce world-wide is looking for *career security* rather than the long-cherished 'job' security, meaning that remaining marketable *as an individual* (and hence always having an option to move on) is at least as important to people as their current role. This attitude is not unique to hi-tech workers: it extends to the 'blue collar' space as well. Hence companies are increasingly seeing the importance of offering an environment which enables continuous learning, not just through conventional training but more importantly through real experience on cutting-edge projects.

Again, knowledge sharing comes to the fore – experts are the 'teachers' in demand. There is also the satisfaction of working in an environment where all the knowledge and information resources people require are easily at hand, leading to reduced frustration and time-wasting. Both are factors which might seem hard to put a price on – until the bill from the recruitment process comes in, plus the cost of disruption to production. Knowledge management cannot eliminate employee turnover, but it can contribute both directly and indirectly to reducing its impact, particularly where a strong community basis exists for sharing, and the response of human resources functions to the 2000 survey reinforces this expectation (*see* Table 2.1).

PROFITABILITY OF THE BUSINESS

The fact that *cost saving* appeared as a top-four ranked business performance indicator for all bar one of the eight functional areas in the 2000 survey (*see* Table 2.1)[4] indicates that real-world businesses can see the link between knowledge and improving the bottom line. Furthermore, the same data also show *profit levels* as a top-four ranked item for six out of the eight business areas, and ranked second by the retail sector (*see* Table 2.2). Knowledge management can be expected to save costs through learned improvements, re-use, reducing risks and the elimination of repetition of avoidable mistakes. Business cases have been made on the basis of reduced travel costs, although there is anecdotal evidence that increased electronic communication actually increases face-to-face encounters. Some have gone

as far as calculating costs saved through not having to print and distribute paper directories and other materials, although again the observed behaviour may actually lead to an increase in printing – people print material anyway, and intranets make it easier to find.

What is more important, and has a far greater impact, is the positive effect on profitability in terms of commanding higher prices for more innovative products or better-informed employees.[5] In professional services, the fee rates of the most experienced and highly qualified practitioners will always be very significantly higher than those of less well-equipped competitors. The key contribution from knowledge management is to keep such practitioners at the top of their profession, since the 'state of the art' changes daily. Again, this is no simple operation, with a mix of external information (39 per cent) and internal information (61 per cent) needed, according to the 1998 survey. Sourcing external information cost effectively and synthesising intelligence from research or feedback from market-facing activities is a key underpinning for the premium pricing of services. Clients expect access not only to the expertise in the head of the professional in front of them but also to the network of his or her expert colleagues. Knowledge management can make this principle of 'many heads are better than one' work in reality.

STAYING AHEAD OF THE COMPETITION

With customer satisfaction ranked the number one performance indicator impacted by knowledge exploitation across all sectors and six out of eight business functional areas, the rule that the best way to stay ahead of the competition is to take their customers whilst keeping hold of your own becomes obvious. Clearly strategies in this area will differ widely, but the key potential for contribution by knowledge management is in terms of time to market, with a more responsive organisation able to react faster to change, make decisions and resolve customer problems more quickly, whilst also (hopefully) avoiding repetitions of past mistakes. Improvements in customer relationships, quality of service delivery and productivity can also be expected, by allowing people to focus on the customer's issues rather than on the problem of finding information[6] and by ensuring feedback on improved ways of doing things. Finally, innovation (as opposed to re-invention) should be accelerated, as systematic sharing and communication increases flow of ideas and insights between people, ultimately feeding through into new products and services.

The overall analysis of best practices in knowledge exploitation from the 2000 survey (*see* Figure 2.1) confirms this view, with all of the above shown as important in the experience of respondents. A business function-based view of the responses is even more striking (*see* Table 2.3), each area aligning its experience of effective practices in knowledge exploitation with its primary function. Ironically, the clarity of this view contrasts with the strong perception that overall success in these areas is currently almost in inverse proportion to their importance (*see* Figure 2.1).

FIGURE 2.1

Importance–performance gap in knowledge exploitation practices (n=650) – ranked by 'importance'

Out in the field, people do not need to be convinced that there is a link between effective exploitation of knowledge and benefits in terms of improved business relationships, efficiency, speed and so on.

Again, we return to a view that out in the field, people do not need to be convinced that there is a link between effective exploitation of knowledge and benefits in terms of improved business relationships, efficiency, speed and so on. What they do not see is a relevant, comprehensible way to make it happen, other than in the quick-fix promises of technology suppliers. Fortunately, the understanding that knowledge management is much more than technology, firmly established in the 1998 survey (*see* Figure 2.2), continues to grow, although as yet without (until recently) a rallying point for convergence of thinking.

TABLE 2.3

Top-ranking practices in knowledge exploitation by business function (n=650)

Function	Ranked 1st	Ranked 2nd	Ranked 3rd	Ranked 4th
Customer services	Improving customer/ supplier relationships	Delivering products/ services faster	Increasing process efficiency	Getting people to collaborate
Operations	Delivering products/ services faster	Increasing process efficiency	Introducing new ways of working	Improving customer/ supplier relationships
Finance/ accounting	Improving quality and speed of decision making	Capturing and transferring knowledge across projects	Incorporating insights and experiences into good practice	Getting people to collaborate
Product/ services development	Capturing and transferring knowledge across projects	Incorporating insights and experiences into good practice	Getting people to collaborate	Facilitating access to expertise
General management	Getting people to collaborate	Capturing and transferring knowledge across projects	Incorporating insights and experiences into good practice	Improving customer/ supplier relationships
Sales	Improving customer/ supplier relationships	Getting people to collaborate	Delivering products/ services faster	Increasing speed of communi-cations
Marketing	Delivering products/ services faster	Capturing and transferring knowledge across projects	Improving quality and speed of decision making	Getting people to collaborate
Human resources	Getting people to collaborate	Matching people, skills and tasks	Capturing and transferring knowledge across projects	Incorporating insights and experiences into good practice

Summary

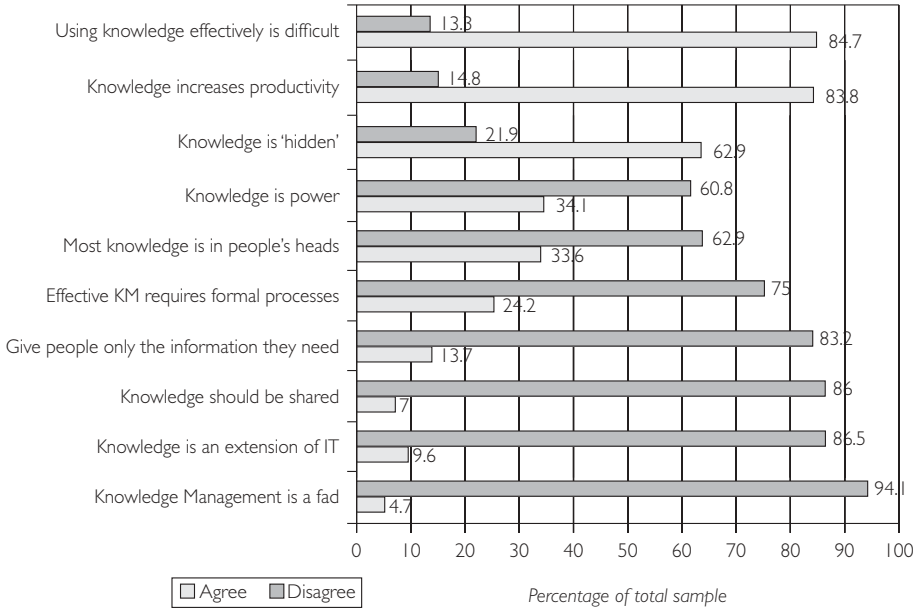
The point of departure for knowledge management should not be knowledge but *business needs*. Making the connection with the issues facing every business is not difficult, but recognising the mixed bag of hard and soft information and processes needed as 'knowledge' may cause problems for the purist looking to provide something rather more clear-cut.

The good news is firstly that managers do not fundamentally have a problem in seeing the exploitation of knowledge as important, and secondly that there is no real competition to knowledge management as a viewpoint that comprehensively

addresses the issues. No competition that is except for knowledge management itself, which has created its own bad press. Attempts to evangelise have led to management losing interest, pressured by the fact that they have a business to run.

In the next chapter we look at the untidy ways in which real-life knowledge needs manifest themselves, and start to understand better approaches to 'selling' knowledge solutions.

Figure 2.2
Views of knowledge (n=260)



NOTES

1 Companies such as Digital Equipment Corporation had effective 'intranets' in the early 1980s where it was possible to submit ideas and leverage world-wide support using green-screen tools such as Vax Notes.

2 Marks and Spencer's difficulties in this area have been well publicised in the general press, cf. 'Directors pay the price as sales take a dive at M&S', *The Times*, 19 September 2000.

3 Yankelovitch Partners for Gemini Consulting, 1998, *The International Workforce Management Study: Examining Workers' Attitudes toward Work and the Workplace*.

4 The exception is human resources, which unsurprisingly focused on employee satisfaction, skills and competencies.

5 Stewart, 1998.

6 A 1996 EDS survey of knowledge workers found that 60 per cent of their time was spent searching and validating information and only 18 per cent using and acting on it (http://www.dmr.com/corporatif/en/services_and_solutions/factsheets/KSO.pdf).

3

The need for knowledge: a view across the organisation

PREACHING TO THE CONVERTED?

The Cranfield 2000 survey on knowledge exploitation viewed a wide cross-section of UK companies, and within them differentiated attitudes across functional areas.[1] In this chapter, we review the expectations versus the delivery of knowledge across the business and highlight those factors which seem to make the biggest impact. As noted earlier, the evidence suggests those on the front line do not need convincing that knowledge is a key part of what they do. However, in many cases they are not convinced that systematic knowledge management offers them anything other than an administrative overhead. The key to changing this attitude lies not in knowledge management professionals explaining their subject more persuasively but in their gaining an understanding of the *implicit* business needs of each functional area and focusing efforts on addressing these expectations.

WHERE KNOWLEDGE SHOULD DELIVER BENEFIT

In **customer services** there is a clear perception that benefits should flow from better exploitation of knowledge, primarily in terms of greater innovation and growth, with improvements in organisational responsiveness and internal quality some way behind (*see* Figure 3.1[2] and Table 3.1). In practice this means ensuring that customer services are able to stay in step with *new business opportunities*, changes in *products and services*, or scaling of operations as *new markets* are developed.

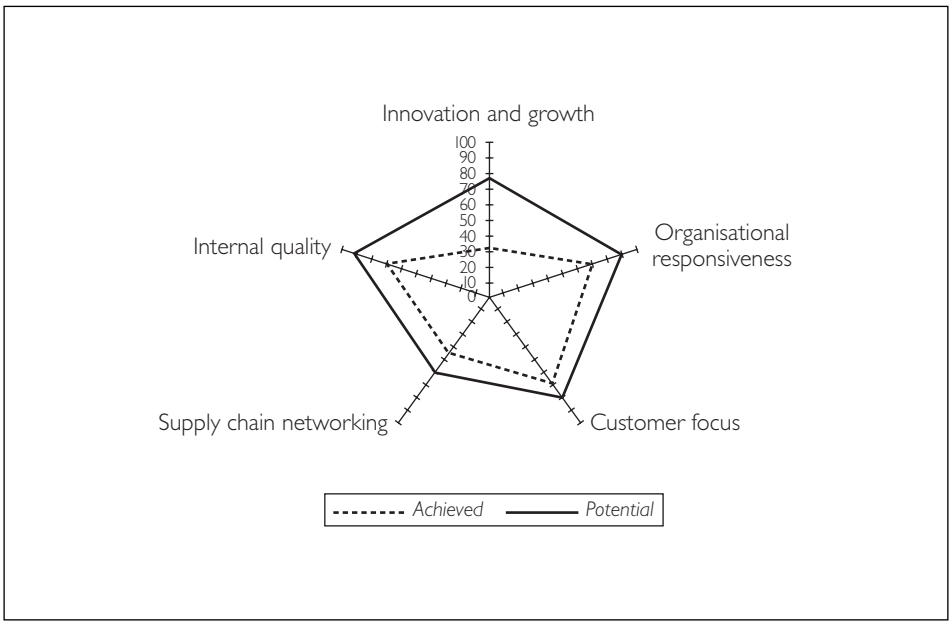


FIGURE 3.1

The benefits of knowledge exploitation in customer services

TABLE 3.1

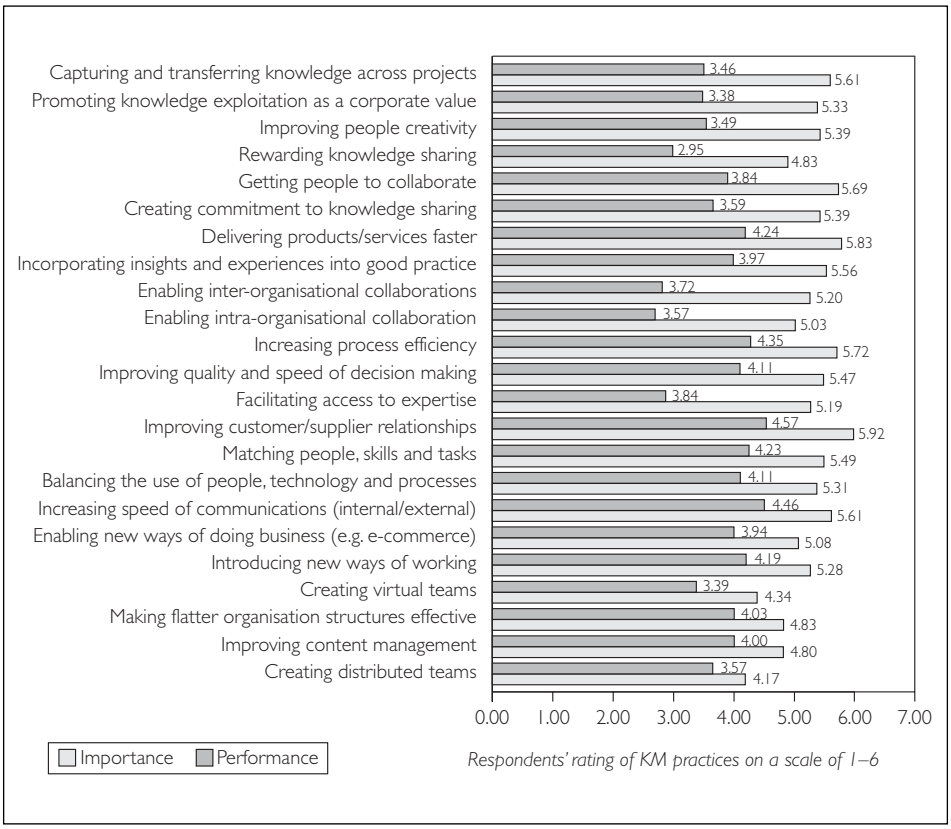
Future value creation from knowledge in customer services

Areas	Aspects	Achieved %	Potential %	Gap %
Innovation and growth	New business opportunities	13	57	44
	New products/services	16	35	19
	Developing new markets	16	32	13
Internal quality	Quality of decision making	29	51	22
	Staff morale	32	54	22
	Process innovation	23	38	15
Organisational responsiveness	Organisational flexibility	16	65	49
	Organisational learning	10	51	41
	Speed of decision making	19	38	19

Looking at ranking with respect to the importance of specific knowledge-related practices, we find, as might be expected, that *improving customer and supplier relationships* and *delivering products and service faster* are ranked highest (*see* Table 2.3), yet all are poorly ranked when it comes to the gap in perceived importance versus actual performance (*see* Figure 3.2). It is also interesting to note customer services placed *promotion of knowledge exploitation as a corporate value* second in terms of shortfall – an explosion of demand for more knowledge enablement in call centres and help desks is understandable.

FIGURE 3.2

Knowledge exploitation performance in customer services – ranked by gap



The **operations** view also identifies innovation and growth as (by some way) the key focus area for knowledge-driven benefits, followed by organisational responsiveness and supply chain networking (*see* Figure 3.3 and Table 3.2). The perceived key knowledge practices are in line with what might be expected for this function in terms of *delivering products and services faster, increasing process efficiency* and *introducing new ways of working* (*see* Table 2.3).

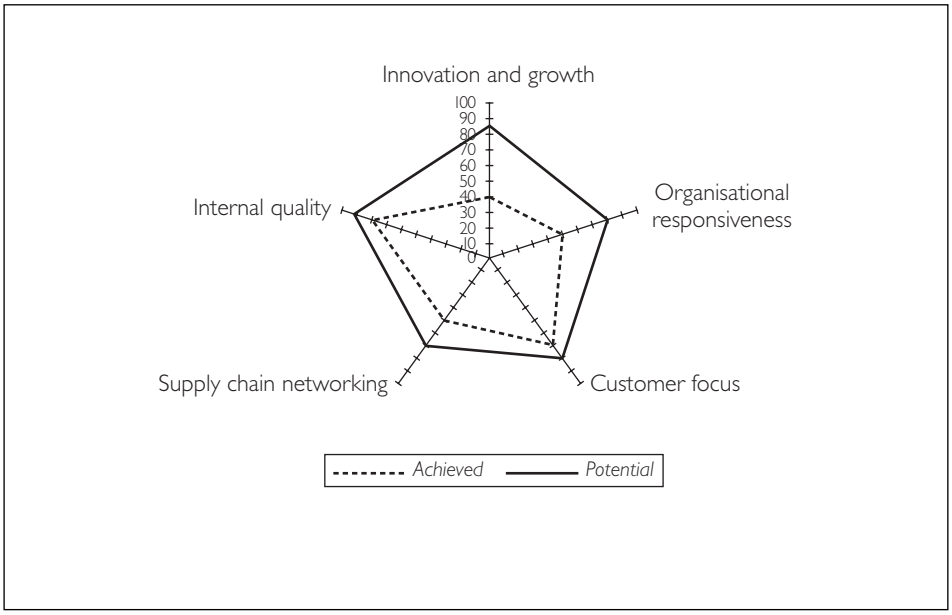


FIGURE 3.3
The benefits of knowledge exploitation in operations

Areas	Aspects	Achieved %	Potential %	Gap %
Innovation and growth	Innovative capability	9	50	41
	Developing new markets	9	49	40
	New business opportunities	12	44	32
Organisational responsiveness	Organisational flexibility	9	53	44
	Organisational learning	16	47	31
	Organisational integration	43	63	20
Supply chain networking	Supply chain efficiency	21	59	38
	Time to market	12	46	34
	Integration of logistics	16	47	31

TABLE 3.2
Future value creation from knowledge in operations

Knowledge is clearly not making its way down the production line or the supply chain.

But again, the perception of actual performance falls some way short of this high expectation, with all three in the top half of the ranking by gap (*see* Figure 3.4). There is also some frustration in terms of an inability to *gain commitment* to, or *reward knowledge sharing* practices. Knowledge is clearly not making its way down the production line or the supply chain.

The **finance and accounting** functions reverse the priorities for exploiting knowledge benefits, positioning organisational responsiveness as their highest priority, although innovation and growth comes a close second, with internal quality some way behind (*see* Figure 3.5 and Table 3.3).

FIGURE 3.4

Knowledge exploitation performance in operations – ranked by gap

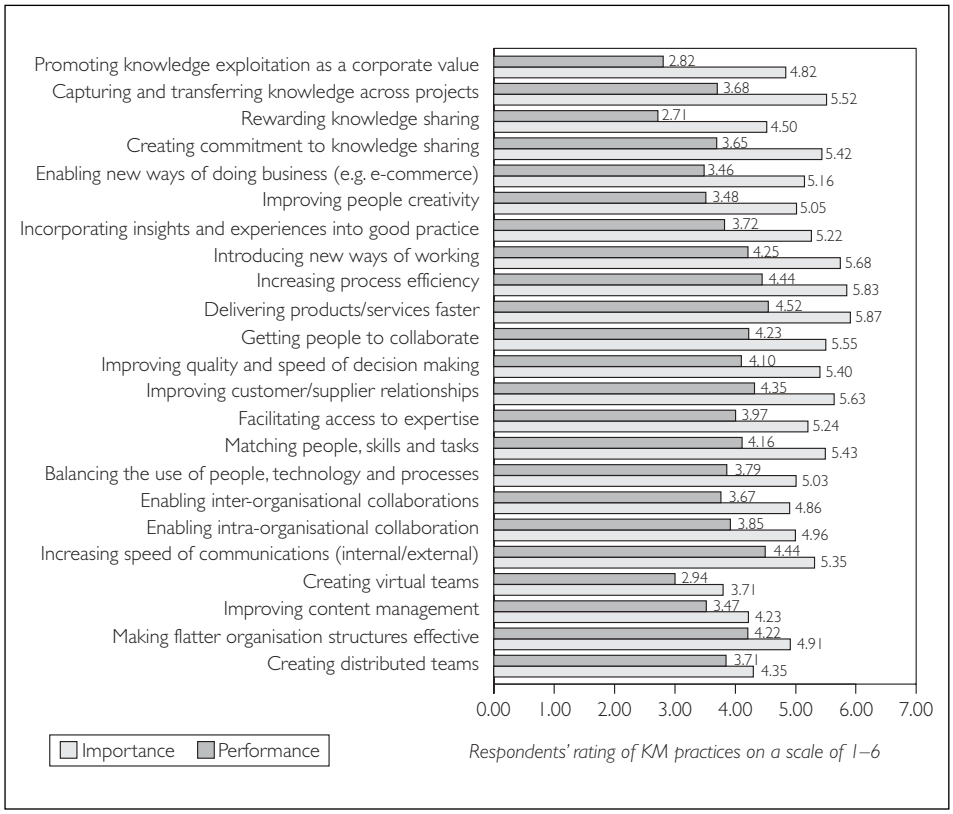
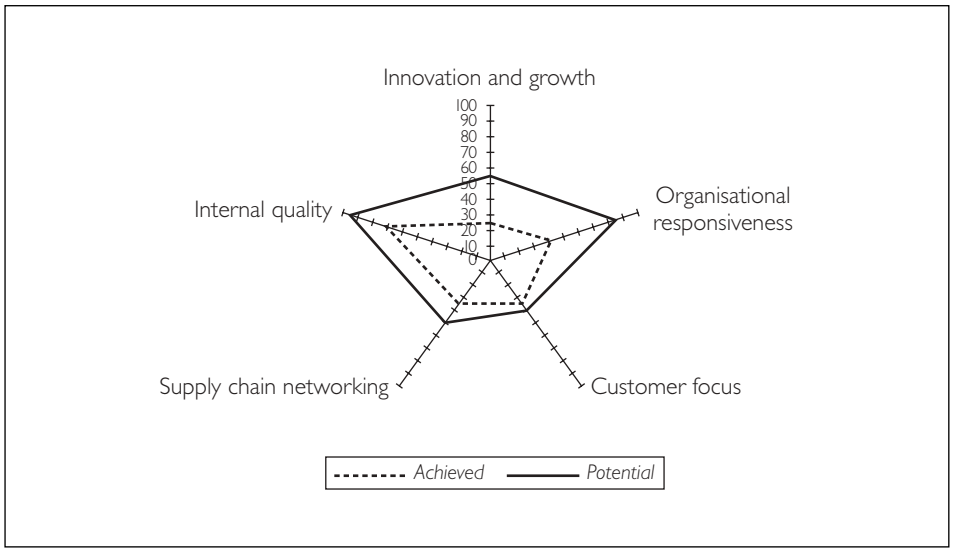


FIGURE 3.5

The benefits of knowledge exploitation in finance/accounting



For this business function, unsurprisingly we see improved quality and speed of decision making as the key aspect of knowledge exploitation practices,

followed by knowledge transfer (implying cost savings through re-use) and the leverage of best practice (*see* Table 2.3). And again, we see the perceived levels of achievement of these practices registering significantly lower scores than their respective perceived levels of importance – in fact, they are the worst three in terms of gap (*see* Figure 3.6).

TABLE 3.3

Future value creation from knowledge in finance/accounting

Areas	Aspects	Achieved %	Potential %	Gap %
Organisational responsiveness	Organisational flexibility	12	41	29
	Organisational learning	18	45	27
	Organisational integration	39	62	23
Innovation and growth	New business opportunities	8	26	18
	Innovative capability	14	31	17
	Developing new markets	2	16	14
Internal quality	Process innovation	10	50	40
	Capability for change	33	64	31
	Staff morale	31	52	21

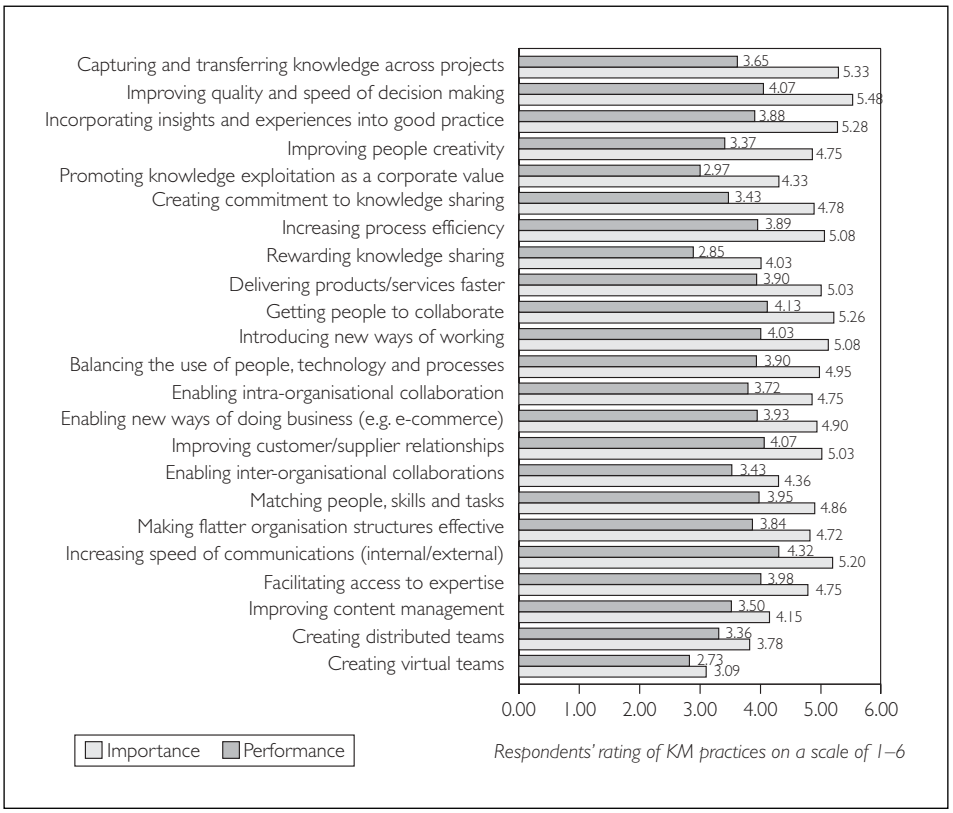


FIGURE 3.6

Knowledge exploitation performance in finance/ accounting – ranked by gap

It is also interesting to see *improving creativity* and the *promotion of knowledge exploitation as a corporate value* come so high up the ranking

of shortfalls. So even the money-men are clear on some of the less tangible gains they expect from exploiting knowledge, but are not seeing the results.

At first glance it might appear surprising, but **product/services development** places organisational responsiveness, internal quality and supply chain networking as areas for greatest potential benefit from knowledge exploitation (*see* Figure 3.7 and Table 3.4).

FIGURE 3.7

The benefits of knowledge exploitation in product/ services development

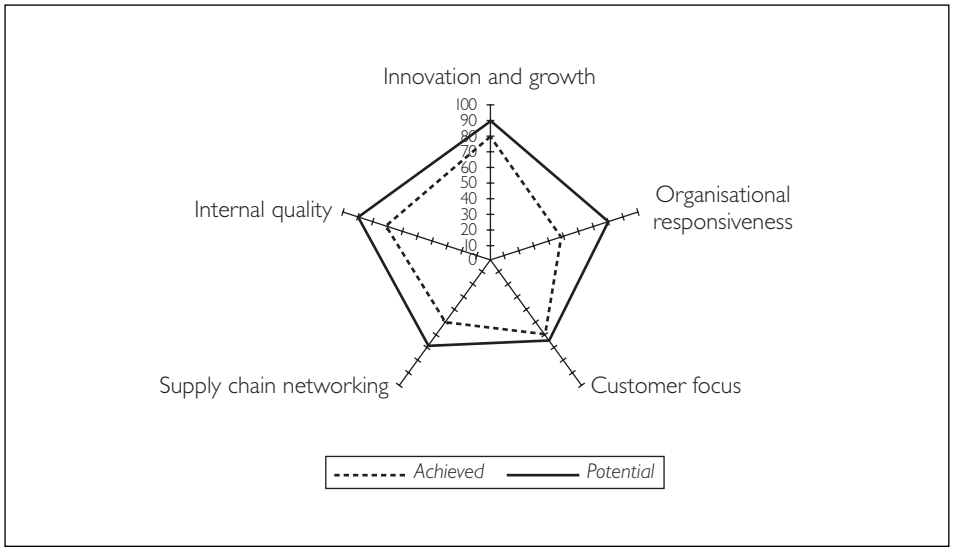


TABLE 3.4

Future value creation from knowledge in product/ services development

Areas	Aspects	Achieved %	Potential %	Gap %
Organisational responsiveness	Organisational flexibility	9	39	30
	Organisational learning	17	31	14
	Speed of decision making	37	49	12
Internal quality	Capability for change	31	61	30
	Process innovation	11	33	22
	Staff morale	23	39	16
Supply chain networking	Supply chain efficiency	9	29	20
	Integration of logistics	6	22	16
	Supplier relationships	29	39	10

Given that one might reasonably expect innovation to be the core competency of such groups, on reflection this is less surprising: they have already evolved in some form the knowledge processes they need to support what they do, although the high perceived shortfall in *creating commitment to knowledge sharing* suggests all is not as it should be (*see* Figure 3.8).

Their problems relate to scaling their capability, globalising it and accelerating the pace of their activities. Again, they have a clear perception of the knowledge practices that should help them do this – transferring knowledge across projects, feeding back insights, getting people to collaborate and facilitating access to expertise (*see* Table 2.3). But even here the pattern of achievement is similarly low, with all these practices appearing in the top half of the range of shortfalls (*see* Figure 3.8) – in fact, the two practices ranked most important show the biggest gaps.

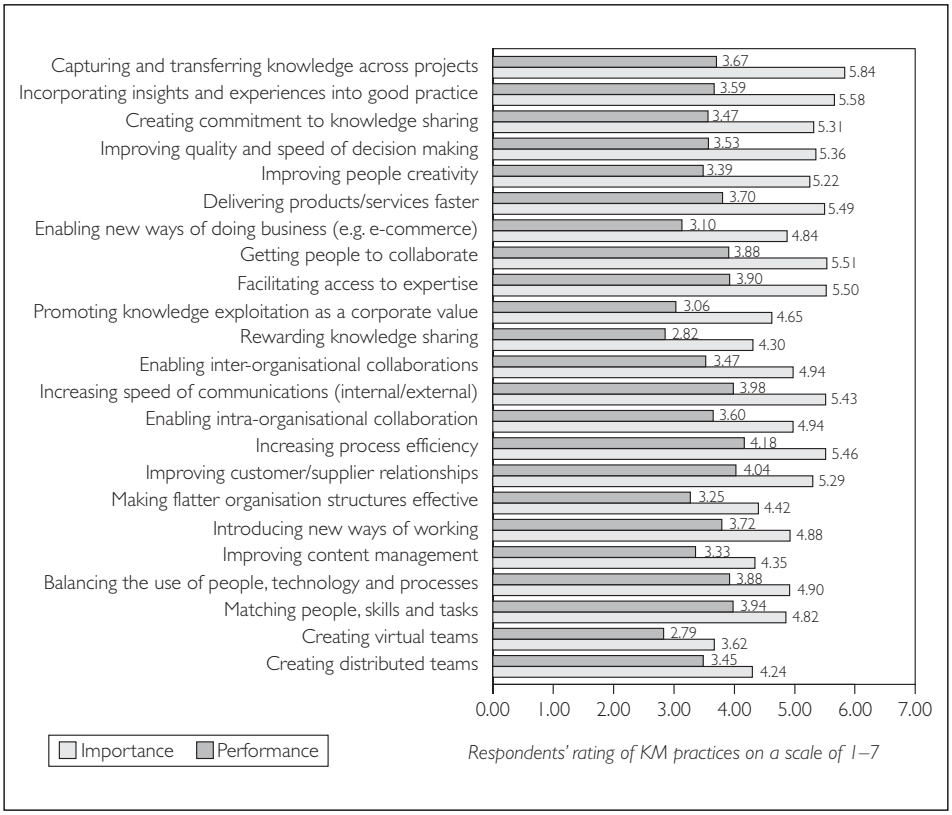


FIGURE 3.8

Knowledge exploitation performance in product/services development – ranked by gap

General management look to gain further benefit in the areas of innovation and growth, organisational responsiveness and internal quality (in that order). Taking into account that this area includes both the line organisation and business strategy, we have no difficulty in seeing developing new markets as a key knowledge perspective and the consequent need for faster decisions, organisational learning and flexibility (*see* Figure 3.9 and Table 3.5).

The top three contributions that better knowledge practices would make are the same as for product and service development (although ranked

differently – *see* Table 2.3) and the same overall levels of achievement apply (*see* Figure 3.10). This ranking of the shortfalls also highlights management concern in terms of *promoting knowledge exploitation as a corporate value, creating commitment to* and *rewarding knowledge sharing* plus *improving people creativity*. Clearly general management are sensitive to the 'soft' cultural issues but are frustrated by results to date.

FIGURE 3.9

The benefits of knowledge exploitation in general management/strategy

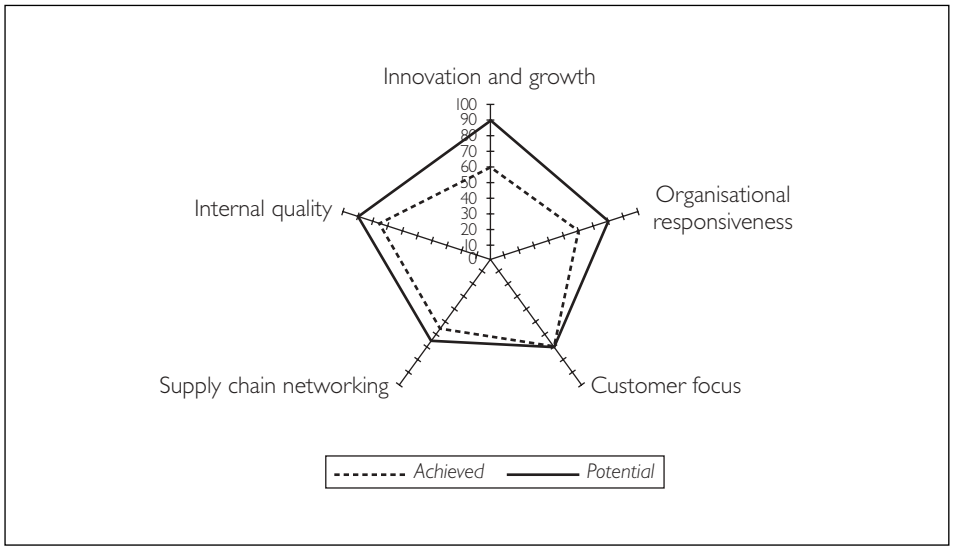


TABLE 3.5

Future value creation from knowledge in general management/strategy

Areas	Aspects	Achieved %	Potential %	Gap %
Innovation and growth	Developing new markets	20	56	36
	Innovative capability	24	45	21
	New business opportunities	34	53	19
Organisational responsiveness	Organisational flexibility	17	46	29
	Organisational learning	26	41	15
	Speed of decision making	34	44	10
Internal quality	Process innovation	16	43	27
	Operational efficiency	20	40	20
	Product/services management	22	42	20

Sales have all-round gaps between knowledge benefits delivery and expectation, this being most pronounced in terms of supply networks, customer focus and innovation and growth. In drilling into the benefits data (*see* Figure 3.11 and Table 3.6), what we find is that the frustration

centres around *time to market*, *meeting customer needs* and *innovative capability*, which dovetails with the perception that they are falling short in knowledge about new products and services.

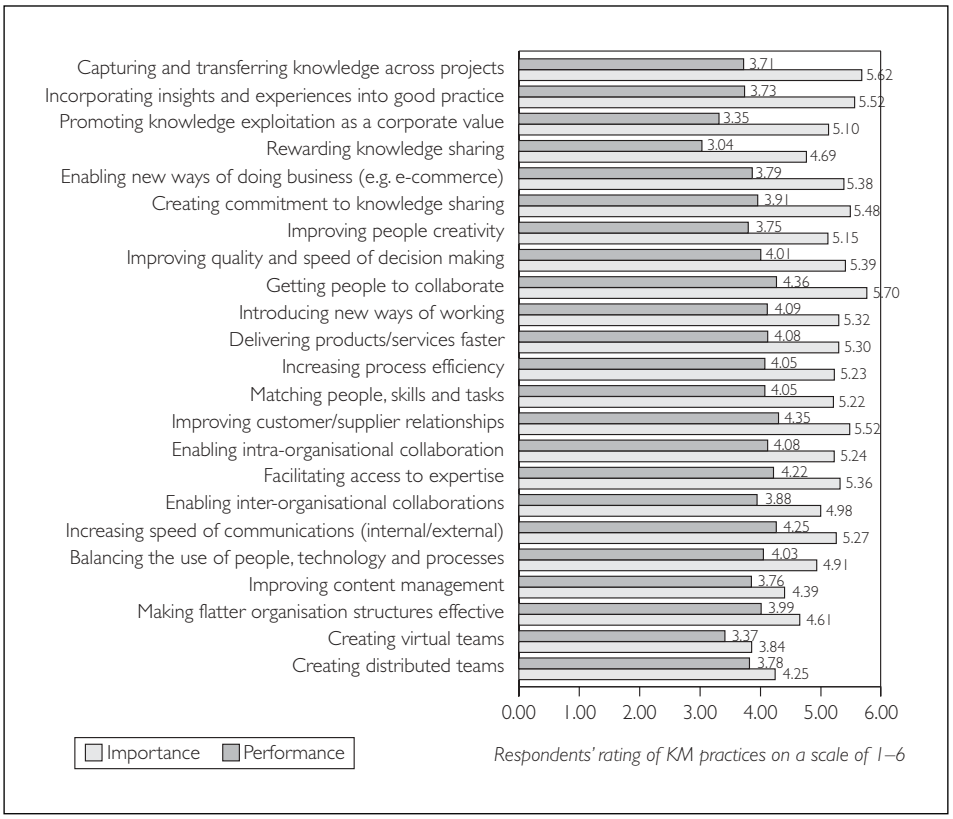


FIGURE 3.10

Knowledge exploitation performance in general management/strategy – ranked by gap

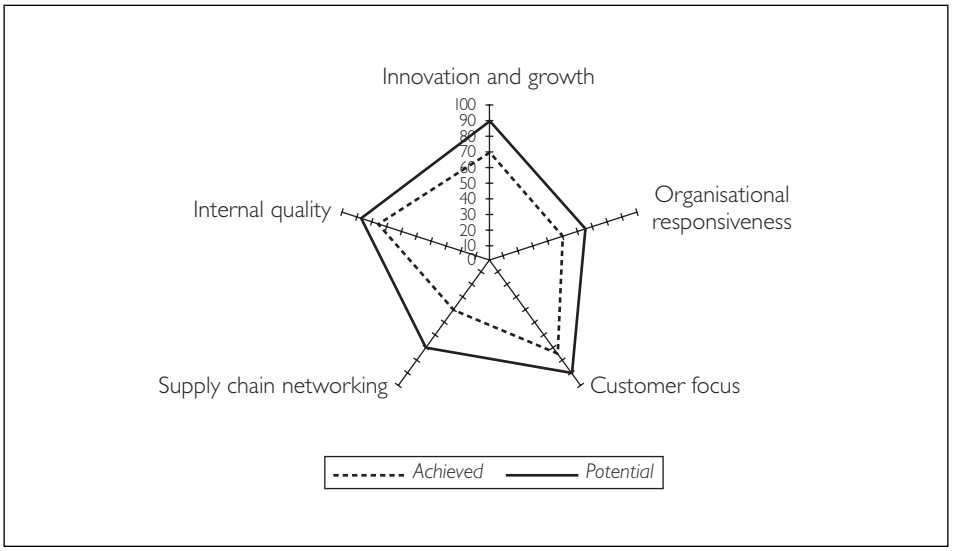


FIGURE 3.11

The benefits of knowledge exploitation in sales

TABLE 3.6

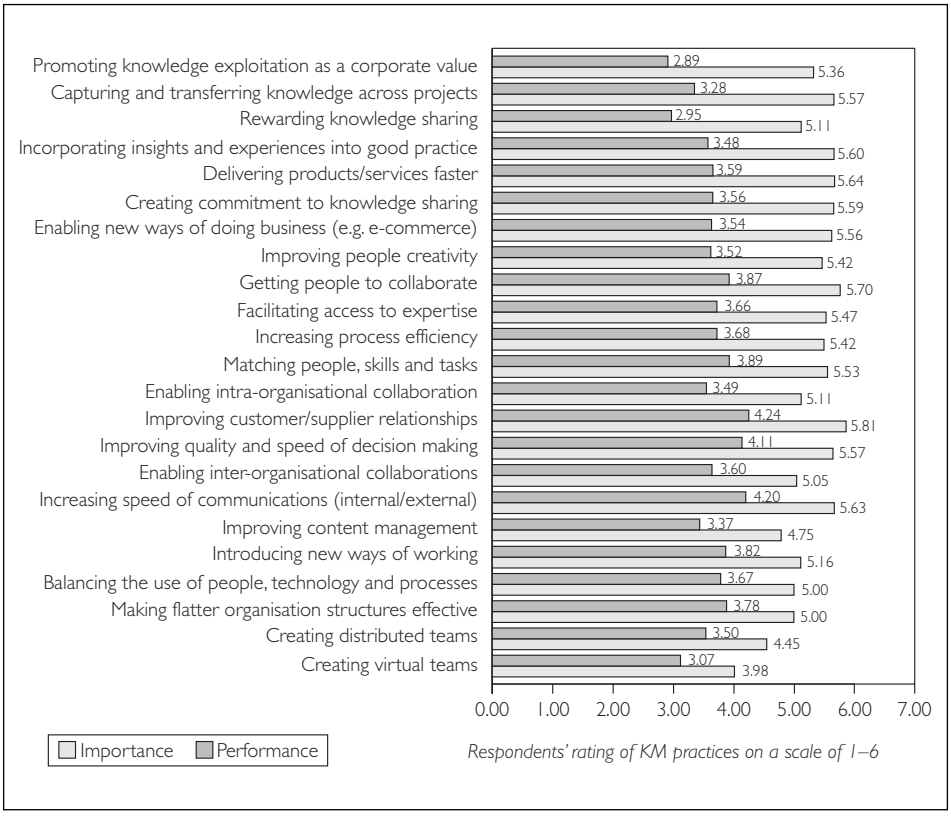
Future value creation from knowledge in sales

Areas	Aspects	Achieved %	Potential %	Gap %
Supply chain networking	Time to market	12	44	32
	Supplier relationships	17	40	23
	Supply chain efficiency	24	33	9
Customer focus	Meeting customer needs	38	60	22
	Customer retention	50	63	13
	Customer service	48	60	12
Innovation and growth	Innovative capability	10	42	32
	Developing new markets	40	67	27
	New products/services	26	48	22

The perception in sales is that knowledge practices should focus on improving customer and supplier relationships and collaboration, plus faster product/service delivery (*see* Table 2.3); however, none of these practices appears to have reached maturity, with a similar pattern of shortfall (*see* Figure 3.12). We can also see in the same data a frustration with the cultural issues of *values*, *rewards*, *commitment* and *creativity*. Again we have to say that sales people implicitly know what knowledge management could do for them – but they do not see it happening.

FIGURE 3.12

Knowledge exploitation performance in sales – ranked by gap



On the other hand **marketing** cites internal quality (specifically *capability for change*) as its biggest shortfall in exploiting knowledge benefits, with organisational responsiveness (*organisational integration*) and supply chain networking (*time to market*) as the key areas (*see* Figure 3.13 and Table 3.7).

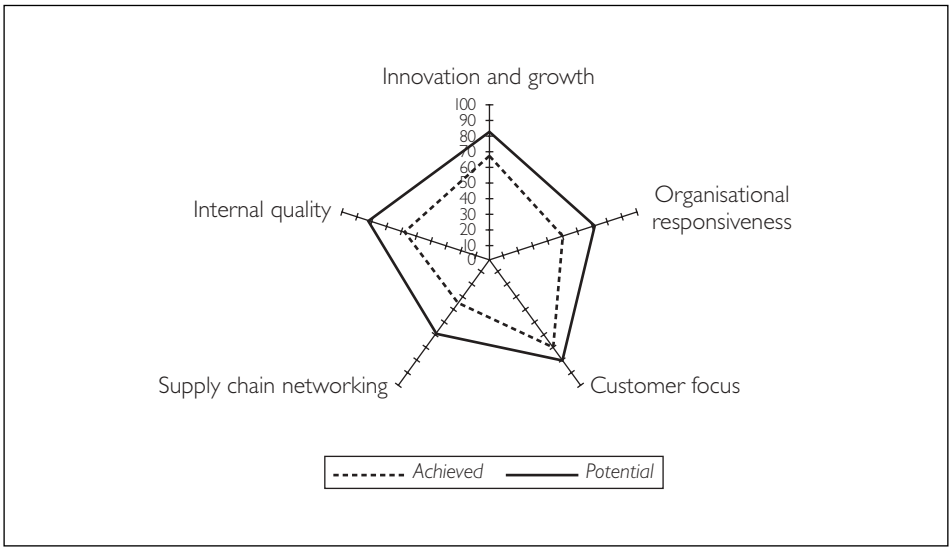


FIGURE 3.13

The benefits of knowledge exploitation in marketing

Areas	Aspects	Achieved %	Potential %	Gap %
Internal quality	Capability for change	15	53	38
	Operational efficiency	28	66	38
	Process innovation	14	41	27
Organisational responsiveness	Organisational integration	15	44	29
	Organisational learning	7	32	25
	Organisational flexibility	14	29	15
Supply chain networking	Time to market	11	32	21
	Supplier relationships	11	25	14
	Sustaining existing markets	20	33	13

TABLE 3.7

Future value creation from knowledge in marketing

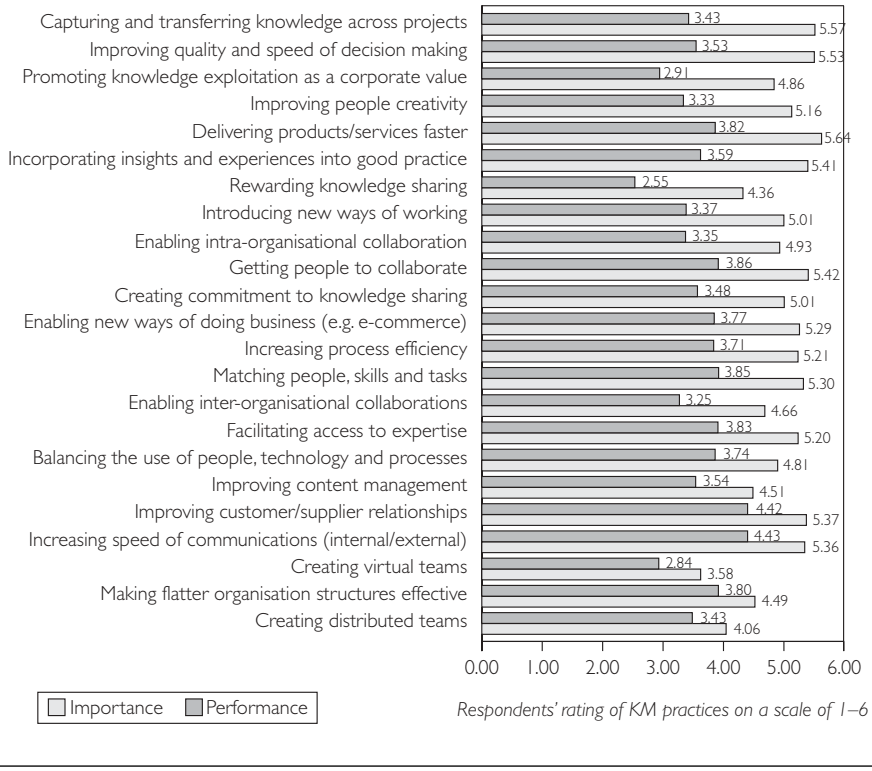
The implication is clear: for marketing and communication, knowledge is a key factor in the ability to respond rapidly to changes in markets, altering the direction of the whole organisation quickly. This was reinforced by the 1999 survey, which ranked the knowledge areas of customer segments, market trends and key competitors as critical to value creation in the respondent's organisations[3] – all areas about which marketing clearly needs to be well informed.

There are no surprises in marketing's ranking of key knowledge practices (*see* Table 2.3) and their lack of impact (*see* Figure 3.14) – the top three practices

are clustered near the top of the range of shortfalls. Knowledge practices relating to cultural issues of *corporate values, creativity* and *rewards* also emerge as needing attention.

FIGURE 3.14

Knowledge exploitation performance in marketing – ranked by gap



Lastly, **human resources** show a shortfall primarily in innovation and growth, plus organisational responsiveness. Here, the concerns are *innovative capability* and *organisational flexibility* respectively (*see* Figure 3.15 and Table 3.8). This underlines the close linkage between knowledge, innovation and change: HR needs to deliver a workforce that tracks business need.

FIGURE 3.15

The benefits of knowledge exploitation in human resources

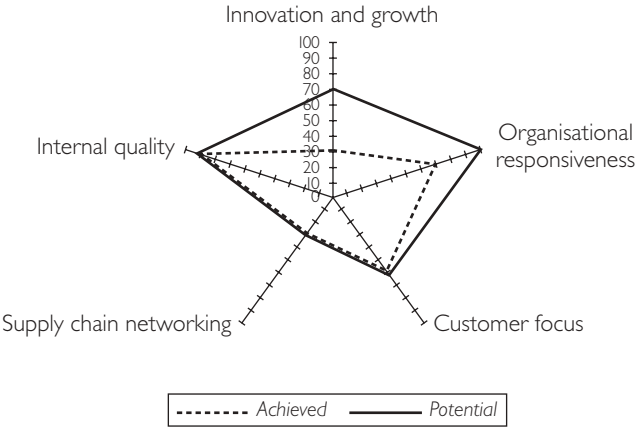


TABLE 3.8

Future value creation from knowledge in human resources

Areas	Aspects	Achieved %	Potential %	Gap %
Innovation and growth	Innovative capability	16	44	28
	Research and development	11	31	20
	Developing new markets	13	32	19
Organisational responsiveness	Organisational flexibility	27	72	45
	Organisational learning	25	47	22
	Speed of decision making	38	58	20
Internal quality	Process innovation	22	49	27
	Staff morale	42	68	26
	Operational efficiency	11	22	11

The HR focus for knowledge practices is understandably tightly linked to people – collaboration, skill matching, knowledge transfer and feeding back insight (*see* Table 2.3), but again there is little cause for celebration in terms of the gap between perceived importance and organisational performance (*see* Figure 3.16), with all these practices clustered around the top third of the deficit rankings. We also see disappointment in the high levels of shortfall in the cultural issues of *corporate values*, *creativity, commitment* and *rewards*.

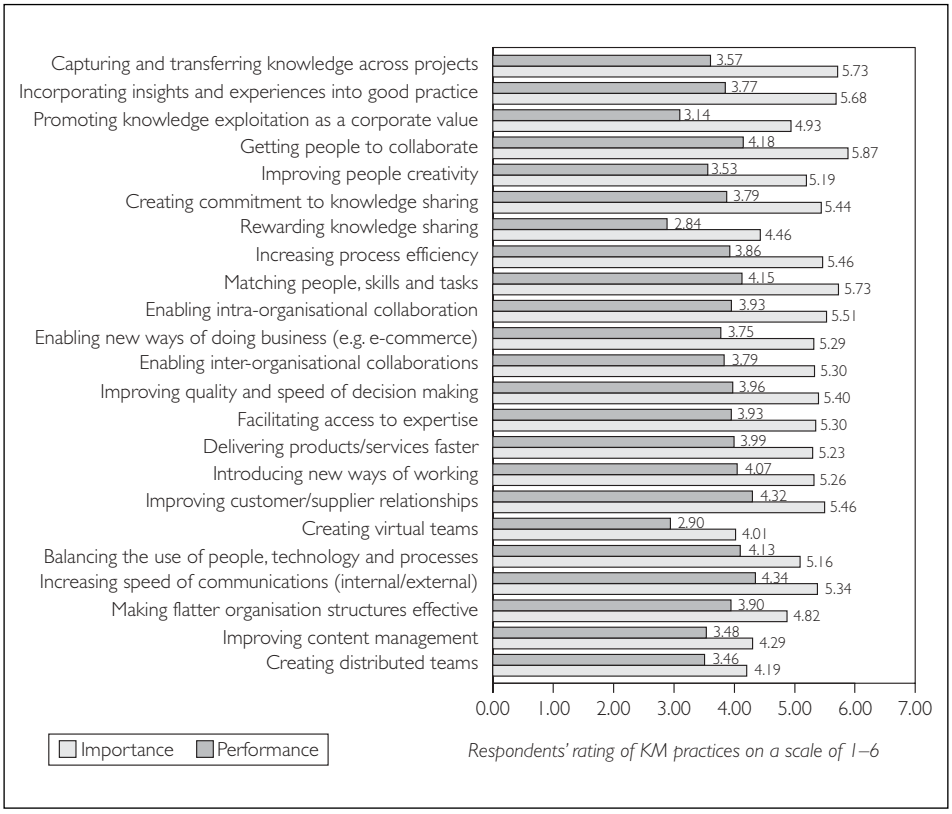


FIGURE 3.16

Knowledge exploitation performance in human resources – ranked by gap

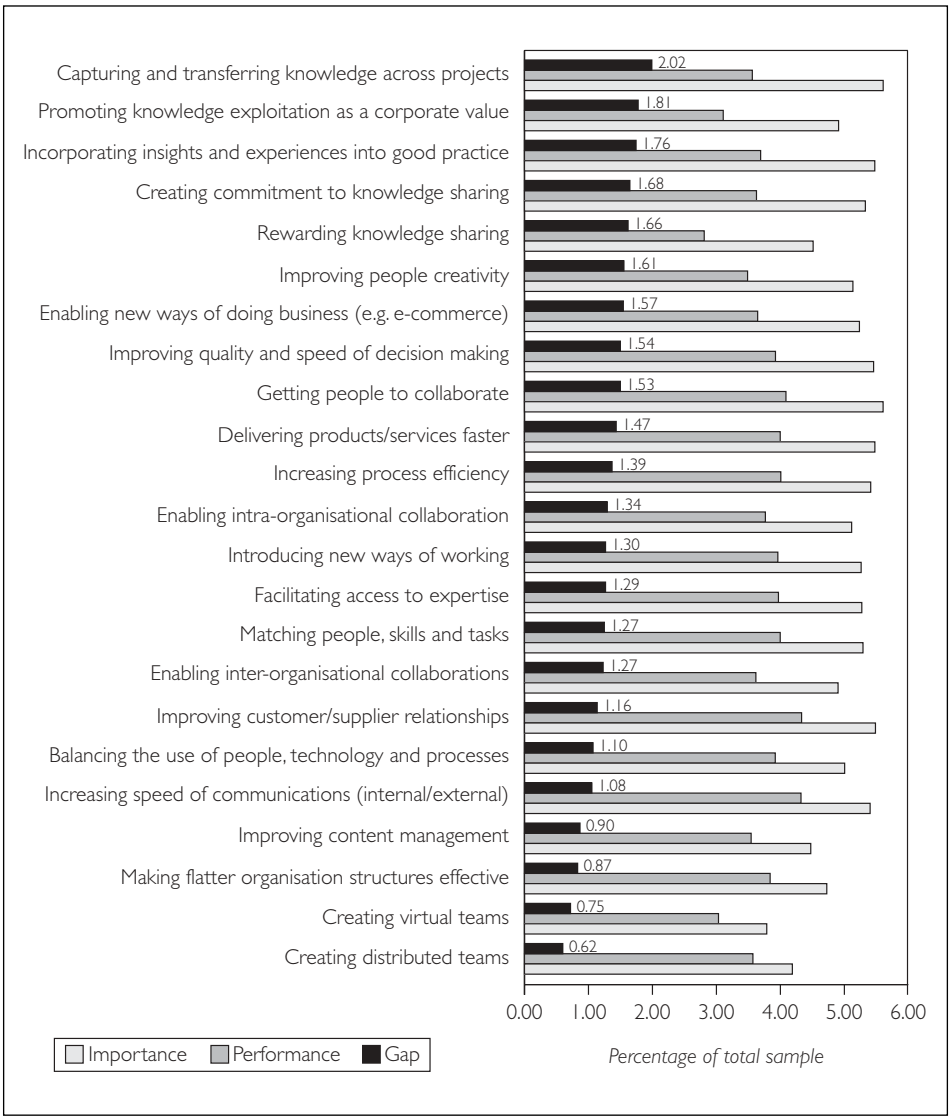
GOOD NEWS, BAD NEWS?

The message for senior management is clear: sharing means caring.

Looking again at an overview of the rankings of perceived importance of knowledge exploitation practices versus achievements, summarised across all business areas (*see* Figure 3.17), we see some general concerns and some cause for cautious optimism. The consistently high shortfalls for practices relating to *transferring knowledge across projects* and *incorporating insights into best practice* suggest that even the most basic re-use practices are still not working properly. This is no doubt related to the fact that the 'soft' issues of *incorporating knowledge exploitation into corporate values*, *creating commitment to knowledge sharing* and *rewarding sharing* are also seen as still having a long way to go. The message for senior management is clear: sharing means caring.

FIGURE 3.17

Importance-performance gap in knowledge exploitation practices (n=650) – ranked by gap



At the other end of the range, the process of 'wiring up' organisations has obviously produced some improvements in terms of ability to *increase speed of communication*, as well as to *create virtual* and *distributed teams*, which are both concomitant with *flatter organisational structures*, although all of these practices are still failing to quite reach their potential. It also seems, looking at the relatively small shortfall in *content management* practices, that the message that knowledge value is time- and context-dependent (to which we will return at length later) has finally got through – but there is still a long way to go. It is also debatable whether this perception has arisen from a 'knowledge' perspective or simply from the imperatives of e-commerce.

Summary

The results of the 2000 survey provide confirmation that every area of the business sees a performance gap in exploiting knowledge, and what the relevant priorities are. There is little doubt that *every* major function of the business sees the need to exploit knowledge, but what form does this requirement take? And is it ever expressed in a way which matches up with the approaches currently proposed by knowledge management solution providers? People seem clear enough about the kinds of practices that should realise these benefits, and there is an obvious linkage between certain areas, yet across the board performance falls short of expectation (*see* Figure 3.17).

Clearly these business functions are all using tacit and explicit, documented knowledge or embedded knowledge every day, but are unlikely to worry about drawing hard and fast dividing lines between them, even if they understand precisely what these concepts mean. They are vaguely aware of accumulating intellectual capital, but don't seem to be able to bank it. Can they gain anything from current prescriptions for knowledge management, that require the audience to take on board these and other concepts? Like the bumble bee that manages to fly, despite the fact that it knows nothing of aerodynamics? What approach to knowledge management can be taken which will lead to the potential of knowledge being fully exploited in businesses? To move towards an answer to this question, we need to understand better the real needs which are implicit in the responses underpinning the above findings. In order to illustrate how to do this, in the next chapter we will examine, by way of example, in detail the requirements of one business area.

NOTES

1 Breu, Grimshaw and Myers, 2000.

2 Respondents had to have selected at least one of the five measures for each individual benefit in order to qualify. This applies throughout to the radar charts in this chapter.

3 Rajan *et al*., 1999, Figure 2.3.

4

Putting knowledge to the test: satisfying front-line requirements

UNDERSTANDING WHAT SALES NEED TO KNOW

To make real progress in changing attitudes, knowledge management efforts need to be focused in the areas of greatest need, and to impress the toughest of organisational customers. Amongst the functions surveyed in the 2000 study, sales is a prime example of the all-round shortfall in delivery versus expectation of a business contribution from exploiting knowledge. A top-level explanation of this is easy in that sales is clearly the 'front line' and is therefore where any shortfalls are most rapidly exposed. This perhaps makes it easier to understand why, when offered a 'conventional' knowledge management solution, sales people are unlikely to be hugely enthusiastic. The spread of their issues, and the range of 'knowledge' needed to provide a response, are not amenable to any single solution. The processes and technology support needed to capture contact information and sales performance data is very much in the space of sales force automation (SFA). On the other hand, there is a real appetite to know about past sales successes (references) and the subjective factors that made all the difference – sales 'war stories' – and the process for capturing these anecdotes is very clearly in the knowledge management space. Sales people also want to know about colleagues in other areas (dealing with global customers) and who the technical experts in a particular field are: neither set of data is likely to be available in a culture which does not encourage a degree of knowledge sharing.

In the majority of organisations, the visibility of a successful knowledge management programme for sales will have an impact far exceeding any other area – and will pave the way for wider acceptance.

For knowledge management professionals, the sales audience is therefore potentially both the most challenging and the most rewarding. In the majority of organisations, the visibility of a successful knowledge management programme for sales will have an impact far exceeding any other area – and will pave the way for wider acceptance.

The sales function provides an ideal example of the real-world expectations of knowledge management and the demands that will be placed on the function. In fact, the sheer diversity of these demands, and the subtle interplay between disciplines needed to achieve them, offers the first clue as to why a pure knowledge-led solution will not succeed: in practice, it can never be broadly based enough. Yet if we reverse the proposition and place the sales function's requirement first, we can more easily highlight where demand-driven knowledge management can really add its value, in concert with the support of other functions.

HELPING SALES GET TO KNOW THEIR CUSTOMERS

To illustrate this, we can review knowledge which sales may typically require in order to plan their activities around a customer.[1] Firstly, there will be an internal view of the customer, in terms of which colleagues are operating in this account, who from our company knows who in the client, and a historical record of our company's recent activity both with this client and within the client's sector as a whole. Crucial information will be previous business won (and lost) with the customer, and a view of current deals and opportunities. Sales will also require a view of their competitors for this customer's business. Much of this information should be held within the SFA, yet looking at the pure facts it is unlikely to be enough. In areas such as relationship mapping, successful leverage of contacts will take far more than simply knowing who knows who and a list of telephone numbers. A willingness to discuss and personalise the detail will make such information infinitely more effective – and this is the domain of knowledge management. Other information, such as sales' point of view of their client's industry, will need to be synthesised by experts from marketing, production, delivery or services (depending on sector) in a form which sales can articulate.

Secondly, there is a need for information about the client themselves. Have they been in the news and why? What major structural changes (mergers, acquisitions, divestitures) have they been involved in recently? What are the major trends in their sector, both business and technology, and what is currently hot in the industry? In order to understand their customer's problems, sales need to know who the other key players in the client's sector are and their relative strengths and weaknesses. And, of course, sales will want to know likely budgets and organisational structures for the client, information which can sometimes be pieced together only from client interactions with a number of different sales people. In other words, not everything can be reduced to structured SFA data – there is also a wealth of information which needs to be researched, particularly for new clients or when a new sector is entered.

HELPING SALES TO WIN

And this is just in preparing to engage with the client. Having created a business opportunity, sales people are looking for even more knowledge. Again, from an internal point of view, they will want to know who in the company can help them win (experts in different areas), information on

competitors in this particular sector or offering, plus their own company's track record in terms of sector, product or technology references. Particularly for global engagements, there will be a requirement to portray the full extent of company capabilities (turnover, people, facilities), key staff (who has done it before in our company) and the training available to bring in additional resources if needed. To win, sales will also need to show specific differences (strengths and weaknesses) between themselves and the competition on this offering, as well as re-using appropriate past (winning) proposals and presentations, plus of course information about potential suppliers and partners for the opportunity, and reasons for previous wins or losses in this offering against the competition.

Where is such knowledge available today, if at all? Increasingly, much of the 'bare bones' data will indeed be in the SFA system, but the piecing together of ad hoc anecdotes to create a consistent background against which the actions of a client can be understood requires an ability to access rich tacit information held by those involved *and to keep updating this on a regular basis*. Deep background industry research and the preparation of background briefings are not things which sales functions are set up to perform, and it is questionable whether they would provide the necessary completeness of perspective, even if such abilities did reside solely in sales.

There is a clear requirement for independent 'knowledge services' which support this whole range of requirements, the stress being on *services* rather than simply technology. But in responding to the need for such services, the knowledge management professional needs to understand that this is what the 'real world' looks like for sales: equally rich requirements will exist for any of the other major functions mentioned earlier, particularly where the commercial relationship is based on delivery of complex services. Whilst the themes of tacit knowledge sharing, re-use and content management can be seen throughout the above, *that is not how the 'client' for knowledge management services sees the issue*. They have a problem of their own to solve – to win business, to deliver it profitably, to grow the relationship with the client – and what knowledge management has to offer must be expressed in these terms.

A STARTING POINT FOR KNOWLEDGE MANAGEMENT

The above provides a realistic example of how the 'front line' sees knowledge – very much an untidy, inconsistent mix of hard and soft information, structured and unstructured data, tacit and explicit

knowledge. It becomes clear they are interested in *applying* this material, not in its (supposed) intrinsic value or the processes by which it is obtained (although they may indeed need to be part of that process). What emerges from this is very much a service-provision viewpoint, and this is the key to answering the question: 'Where should knowledge management start?'

Returning to the example of sales, it is not difficult to propose a series of knowledge management services which go to the heart of the needs outlined above, for example, in providing start-up information which brings new sales staff up to speed in the area, or in providing industry benchmarks for clients or competitors. It is obvious that sales will require a range of tools to provide global connectivity through networks and beyond the reach of networks (e.g. offline packs) plus tools for communication and collaboration when online (such as conferencing and shared document areas). Finally, in anticipation of standing in front of clients, sales will need support in preparing (and re-using) the best possible presentation materials with appropriate background research and back-up in-depth material where appropriate.

We will revisit these ideas in more detail, but they serve to illustrate an approach which is very different to that of building an intranet or a document management system and waiting for people to use it. It certainly employs a degree of technology, but it does not start from this: it starts from the real needs of the business. It certainly must employ specialised people, but these are most definitely *not* an administrative overhead: they become *partners* in the selling process, without being part of sales. Indeed, it would be unhelpful if they were placed in such a position, since it could compromise the knowledge management organisation's ability to connect *across* the enterprise.

Furthermore, this approach both carefully sets expectations and creates the means to measure whether they are being achieved or not. Each of the above examples can be attached to a series of measures which can be used to monitor progress of the knowledge management function. These *process* measures should not be confused with the business measures which they also support. The key is not to attempt to justify knowledge management return on investment (ROI) through increasing value of intellectual capital or similar questionable measures: it is to link the achievement of major business goals *inextricably* with the knowledge management services that are seen as vital to achieving them.

Note that in many cases what is required is actually surprisingly straightforward. The problem seems to be that in many cases people have simply got used to the *status quo*. They accept the frustrations of not having access to quite simple information just because it has always been difficult to obtain. This is 'the way things are done around here' and becomes the blanket excuse that smothers attempts to make a breakthrough change in performance. People employ their initiative to get answers, not to interpret them.

DRIVING KNOWLEDGE TO MAXIMISE VALUE EXTRACTION

Does intellectual capital continue to serve a useful purpose? In terms of what the internal *user of knowledge management services is interested in, the answer appears clearly to be no.*

Having taken a services-based view of knowledge management, where then is the value of knowledge? Does intellectual capital continue to serve a useful purpose? In terms of what the *internal* user of knowledge management services is interested in, the answer appears clearly to be no. Firstly, knowledge is realising value only when it is applied in some way to generate external revenues (either directly or indirectly). Whilst it sits unused in a knowledge base, it cannot be said to be generating anything – indeed it probably is in fact losing (potential) value as the information becomes less current or more widely known. With a services-based view of knowledge management, it becomes clearer that maximising potential value of knowledge means distributing it as rapidly as possible, both in terms of responding to requests and in ensuring that time-critical insights reach those who can make use of them in time to make a difference. This is very much the principle of 'right person, right time, right place', but is more a 'mission statement' for knowledge management services providers, who become *proactive drivers* of the use of knowledge around the organisation rather than mere reactive hygienists attempting to clear up the untidy knowledge situation created by others, or worse still, passive librarians. The knowledge management function needs to gain a (positive) reputation for being 'in your face' to make an impact. It must have the courage to *show people how to manage knowledge*, not just provide it.

Just as importantly as speed of distribution, the knowledge management services provider must ensure *reach* out into the organisation. Again, it is not enough to provide the infrastructure (e-mail, intranet) and run it efficiently. We all know that the knowledge management infrastructure is

necessary but not sufficient to make an impact – this is the 'build it and they will come' argument.[2] The knowledge management service provider should see the infrastructure as a tool to help fulfil their objectives, which must be to ensure that information and knowledge *get to every part of the organisation that can create value from them*. This does not simply imply smoothing the way in terms of access to systems and people, availability of helpdesks and so forth. The knowledge management organisation should be actively looking at the parts of the business which have information which is relevant to others, identifying an audience, making the parties aware of what they have and how it could be useful, who to talk to and what other mechanisms are available for sharing what they have, even making business units aware of the knowledge resources they have that are perhaps not being exploited. As Robert Buckman has said: 'It is far better and cheaper to move ideas around than people.'[3]

GETTING A RETURN FROM KNOWLEDGE MANAGEMENT

Although it was reported in the 2000 survey that 47 per cent of firms undertake a cost-benefit analysis prior to investment in exploiting knowledge, there is little evidence of any consensus on how to do this. A review of some of the available studies indicates that intranets are typical of the problems encountered. For example, the 1999 Cranfield *Intranet Benchmarking and Business Value* study showed that only three out of 18 organisations actually had an identifiable business case; it was also noted that some had tried and failed to separate out intangible benefits.[4] A similar picture emerges from The Intranet Group's 1999 study, which suggests that 48 per cent of the organisations surveyed concentrated on non-financial benefits only.[5] The real value of business benefits is almost impossible to separate out: the same study[6] even suggests setting the contribution at an entirely arbitrary level in order to quantify it – which seems to be begging the question. In any case the ROI can be dramatically affected by take-up, as noted in the Cranfield study. If a cost-per-seat view is taken, investments in knowledge systems can look very poor indeed if nobody uses them[7] – and as we point out elsewhere (*see* Chapter 6), knowledge management systems are effectively optional. So what is the right approach to the business case?

In another insightful response to the question regarding how 'internal' customers viewed the cost-effectiveness of knowledge management, Robert Buckman pointed out that 'there is only one customer, and he's the one

who pays the bill'.[8] In other words, the impact on the *end* customer is what really counts. The view that knowledge only delivers value at the point where it is being exploited for customer benefit suggests a different approach to justifying and measuring investments in knowledge management. Measurements of the knowledge management process are certainly useful in monitoring and improving such processes,[9] but the means should not be confused with the ends, which is *business* value. If we combine this notion with those earlier in this chapter, namely identifying knowledge management as an *inseparable part* of the core activities of the business, we come to the conclusion that the contribution that knowledge management makes should equally be indivisible.

In other words, if a business case is put forward for an initiative which proposes a range of activities (including some which fall under the heading of knowledge management), there seems little point in attempting to separately justify the knowledge management component, any more than one would separate out other vital components. The key here is to achieve a level of buy-in that has people saying, 'These are things we cannot do without!' And hence the need, as described earlier, to totally identify with the needs of the business user. As an analogy, if one is considering the purchase of a new car, one might well be inclined to separately justify the cost of a CD player or air conditioning versus the benefits – but one is not going to attempt to economise by not having wheels. In the same way that a car without wheels is not a useable vehicle, a business initiative that clearly needs a strong knowledge management contribution is not going to make sense without it. The challenge is to approach the issue from the perspective of the business manager, creating an indispensable part of the solution to his or her problem through knowledge management techniques, and not create a diversion by asking them to take on board a series of abstract concepts which do not seem to relate to the problem at hand.

Summary

We have examined in some detail the real-world needs of one particularly important function, sales, as an example of the kind of results that a business-oriented knowledge analysis would throw up. We suggested that a *service-oriented* response to these needs is the best approach, and put forward some of the characteristics of this service and how to present and justify it in a way which will attract both management support and the necessary resources. This approach will be expanded in more detail in Chapter 7, where we will outline organisational

structures, roles and responsibilities to deliver the required services. Before this, in Chapter 5 we examine ways in which knowledge-inspired improvements can be made to the business organisation and processes, and in Chapter 6 we look at key technology issues which can be expected to deliver significant visible benefits.

NOTES

1 For the purposes of this illustration, the sales function is considered as part of a professional services organisation.

2 For those who have never seen it, this quote comes from the film *Field of Dreams*.

3 Smith, 2001.

4 Newman and Smith, 1999, page 18, 'Building a business case for an intranet'.

5 Momentus Ltd, 1999, Figure 7.

6 Ibid, page 54. This is a proposed methodology – the estimation step is subjective.

7 Newman and Smith, 1999.

8 Smith, 2001.

9 Fulmer, W.E. (1999) 'Buckman Laboratories', *Harvard Business Review Case Study*, No. 800160. Buckman's primary measures are quoted as improvements in percentage of staff engaged in customer contact, percentage of graduates on the staff, and percentage of product sold less than five years old.

5

Putting people in the picture: the importance of knowledge communities

CREATING A KNOWLEDGE-SHARING CULTURE[1]

'People will not share unless they are rewarded' seems to be the received wisdom; 'knowledge is power'; yet organisations seem strangely reluctant to put such policies into action. Certainly the evidence in the 2000 survey is that the respondent's view of the importance of rewarding knowledge sharing was not matched in their view by the performance of their organisations (Figure 2.1). Perhaps this is a tacit admission that rewards do not work? This seems to confirm that nothing much has changed from the 1998 picture, where over 64 per cent of respondents rated their organisation as not explicitly rewarding sharing, whilst just over 80 per cent claimed their firms encouraged people to share and bring forward new ideas (*see* Figure 5.1). The 1999 survey was equally lukewarm, with 48 per cent of the 128 companies reporting that individual employees were overtly rewarded 'to some extent' for sharing knowledge.[2] In any case, the breadth of interpretation of 'rewards' is enormous: they can range from complying with a mandatory requirement to make a contribution to a knowledge base ('congratulations – you keep your job!') through to financial or some form of peer recognition, for example participation in a special event based on an outstanding contribution.

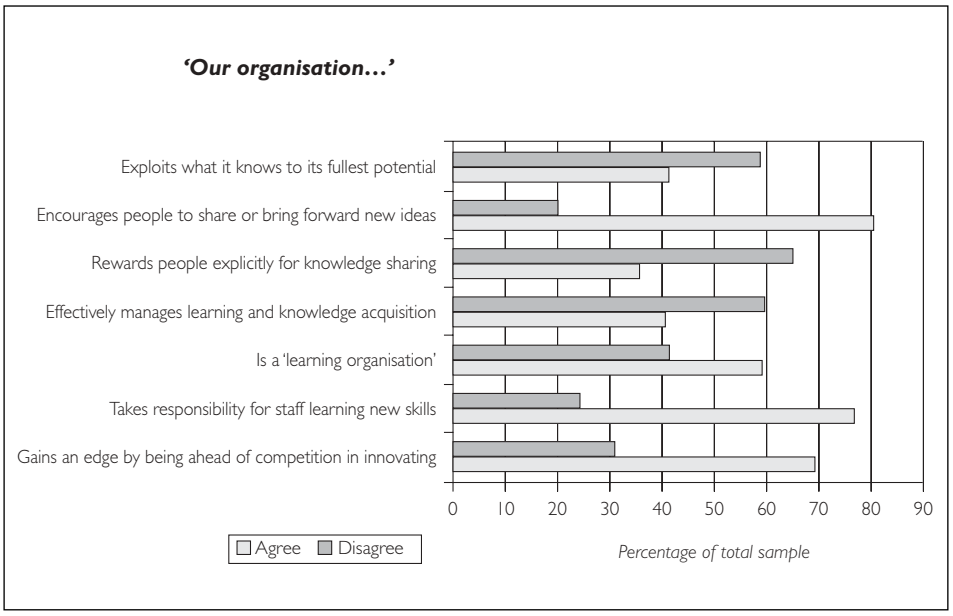


FIGURE 5.1
Organisational attitude to knowledge management (n=260)

How can we combine all these factors into an effective approach to knowledge sharing? The answer lies in the concept of *communities*.

THE KNOWLEDGE ENVIRONMENT: NATURE VERSUS NURTURE?

In reality people are probably not as intrinsically reluctant to share as we are led to believe. Ask someone who works with engineers whether technologists are generally keen to share their knowledge with anyone who shows an interest. Just try stopping them.

It is more instructive to look at some of the subtle *disincentives* to sharing. People may not be aware that they have valuable insights, or may lack confidence to share them. They may not be aware of others with similar interests. What generally prevents sharing (for example of the lessons learned in a project) is not an unwillingness to talk but the pressures of getting on to the next assignment or project: lack of time and place to share, plus a process to do the sharing. Time pressure on key personnel was quoted as the biggest constraint to knowledge capture and management in the 1999 survey.[3] Processes and policies can be built to create this opportunity to share (for example through methodologies and quality systems) and technology can be put in place to help make it happen. But as part of the sharing process, the quality and value of what is being shared has to be considered. Not every document, e-mail or conversation that takes place has value: real value lies in what is new, unique and relevant to current business issues. Who decides? There are also the questions of security and confidentiality to consider: are there commercial constraints on what can be shared?

The environment forms the context and driver for the pattern of actions, and if that environment is changed in the right ways, then patterns of behaviour can change.

The stock response to issues of sharing being blocked by attitudes such as the 'knowledge is power' and 'not invented here' syndromes[4] is to 'change the culture', yet few have articulated how this is to be achieved in practice. A pragmatic response is to reverse the cause and effect and see that the 'culture' is the general pattern of thousands of daily actions (or non-actions) and responses, largely forced on people by the realities of what is easy versus hard, safe versus risky, difficult versus straightforward or enriching versus demotivating. The environment forms the context and driver for the pattern of actions, and if that environment is changed in the right ways, then patterns of behaviour can change. The key to this is in creating *communities* of various types, as they *become* this environment.

THE KEY COMPONENTS OF COMMUNITY

Today, it is possible to describe the attributes of good communities and how to build them fairly easily. We all have experience of communities, they are all around us and we are part of them, whether they are task oriented (as in project teams or business units), knowledge oriented (as for a particular technology area) or socially oriented (as for example a group participating in charity work) (*see* Figure 5.2).

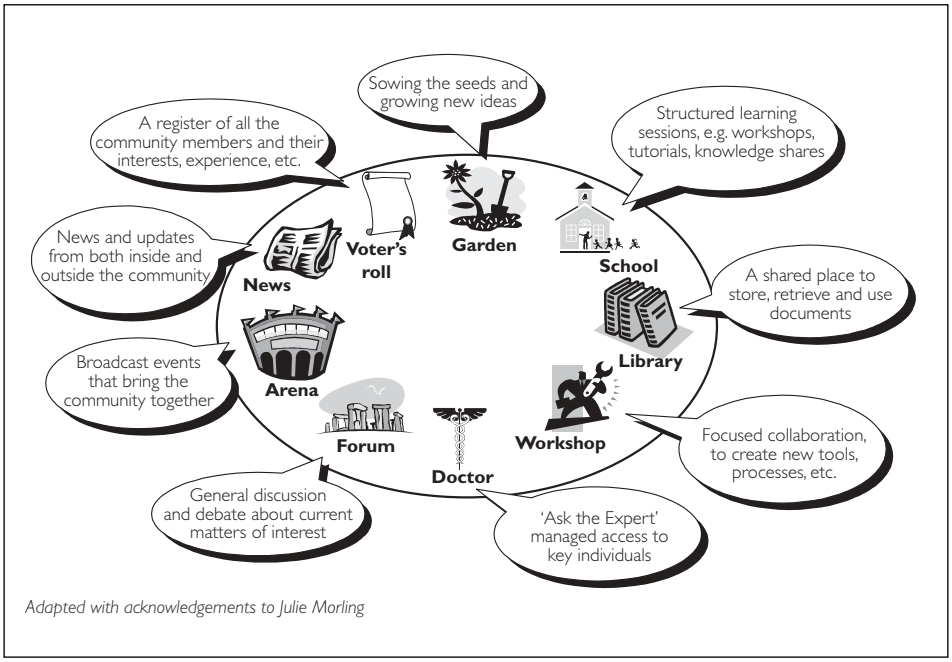


FIGURE 5.2
Elements of knowledge communities

The communities we interact with may be formally recognised, or they may be informal and almost invisible to management. The community provides the context for knowledge sharing in many different ways: *any* community is by its very nature a 'knowledge-sharing' space. This is the means by which the right environment (and hence culture) can be created, maintained and optimised, and the patterns of action and behaviour modified to become more knowledge friendly:

- **Setting the standard** – a community defined in terms of a knowledge area becomes the arbiter of what is current, relevant, important, valuable and useful to that knowledge area. It is where experts who can judge the quality of contributions reside and can provide a place

to get answers to questions. The community is also a repository for preserving 'tacit' knowledge, on the principle that the loss of any one individual can be compensated by others. The interactions within the community also serve to improve and advance that knowledge area and to reinforce a sense of trust, both in the knowledge and advice shared and in the behaviours expected.

- **Providing incentive and motivation** – for most people the mechanism that really works to incentivise knowledge sharing is not financial but the respect and acknowledgement of one's peers, plus the expectation that having helped others to save time and effort by sharing one's knowledge, they will do the same in return. This reciprocity can happen more easily in a community environment precisely because there is a convergence of interests and therefore a far higher chance of a positive response than if one submits a request to an undifferentiated audience. Again, the abstract notion of 'trust' translates into a pattern of behaviour.
- **Creating the focus for sharing** – both of the above considerations complement the notion of the community as the focal point for sharing: in other words, the mechanisms must be intimately woven into the community set-up. If the community is the place to find experts, is the judge of value and also the source of motivation, it is obvious that it should own and operate the process by which knowledge is shared, both in cyberspace and face to face. The community can define and enforce the rules necessary to maintain the right levels of contribution and interaction, including levels of confidentiality and security. It can also prevent overload of key people, by sharing out the burden of questions and responses.

Communities are highly organic things – they will spring up as a natural response to shared difficulties, but can equally easily be destroyed by neglect or over-zealous management.

MANAGING COMMUNITIES: NOT TOO LITTLE, NOT TOO MUCH

Having recognised the value of communities in supporting knowledge sharing, we need to reflect on the right way to create and nurture them – if that is what is needed. For communities are highly organic things – they will spring up as a natural response to shared difficulties, but can equally easily be destroyed by neglect or over-zealous management.[5] Finding the right level for management support is important. In some cases the right level of management involvement is zero, particularly in new, emerging

areas where the community itself is uncertain of its scope and goals. At the very least, management need to be tolerant and patient: if the community needs a degree of legitimisation, this can be provided in the form of financial or other resources, perhaps to enable an effective knowledge-filtering process or to fund face-to-face meetings. The *quid pro quo* for this support should be a degree of regular reporting from the community on what it has achieved, as much to help the members reflect on what they are doing as to justify any investment.

We suggest that foremost amongst these reassurances should be a confirmation that the community has followed some basic ground rules for successful self-governance, which would include the following points:

- **Defined roles and responsibilities** – effective knowledge-sharing communities should have defined roles such as sponsor, leaders, subject matter experts, process administrators or knowledge stewards as well as basic membership. In many cases this will happen spontaneously, but a helping hand may accelerate the process of developing these roles, for example through template definitions of the functions that such roles can be expected to perform. A central knowledge function can act as guardian and implementer of such templates.
- **A definition of knowledge scope** – effective communities also have a notion of the scope of the area they wish to cover: too wide and the real experts lose interest, too narrow and there is no critical mass. As noted earlier, the closer members' interest areas are aligned, the higher the chance of effective responses to requests for help or information and the more this will itself reinforce knowledge-sharing behaviour. It is important not to equate organisational entities with knowledge-sharing communities. The boundaries may sometimes coincide – for example a sales team focused on a particular market sector – but in general organisational entities are too broad in scope. And where knowledge sharing relates to a common process (for example project management) there is a natural requirement for horizontal connections to be made, across a number of business areas.
- **Some basic ground rules** – allied to the definition of scope, there is also in some cases a need to define rules for membership and continued participation. There may be, for example, a minimum level of experience needed before an individual is admitted, or a special structure for pairing mentors and new members. Other rules may be applied on the level of contributions made, to ensure that this is equitable and that the knowledge

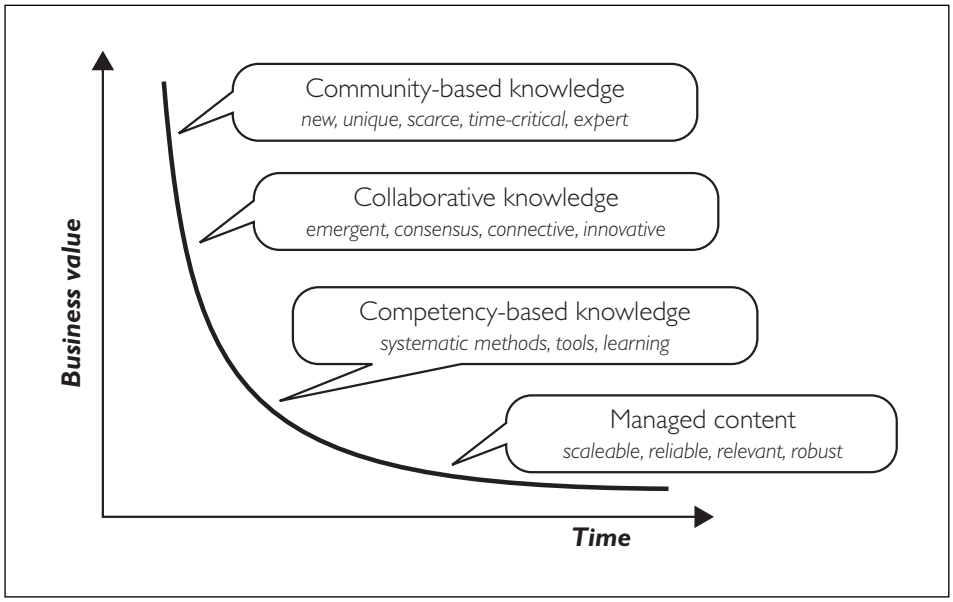
base associated with the community continues to evolve. Knowledge-sharing communities may also define rules around confidentiality, to ensure that members feel free to contribute 'off the wall' ideas which could turn into innovations but could equally fail. Confidentiality will also encourage people to contribute that most valuable resource – lessons learned from mistakes. In a community, the sense that 'we've all been there' encourages and legitimises these types of contributions.

The ultimate goal must be, as for Buckman Laboratories, to have sharing as such a natural part of the job that the regular performance review process picks up those who are not contributing.[6] It is clear that such people are uncomfortable in such a culture anyway – their peers soon discover non-sharing behaviours and react accordingly.

THE MANAGEMENT OF CONTENT VALUE

How then do we identify what knowledge is worth managing? Clearly in today's organisations, with documents of various types being created by the thousand every day, not everything is of equal importance and hence value. The shortcomings of seeing knowledge as a series of assets versus the impact of market dynamics on their 'value' has already been discussed. In short, there is no single answer to the question 'what is valuable?' – the answer is very much in the eye of the beholder. A useful concept is that of the *Knowledge Value Curve*,[7] which makes the simple assertion that the value of knowledge declines over time (*see* Figure 5.3).

FIGURE 5.3
The knowledge value curve



Whilst there are a few exceptions to this basic law of knowledge economics (for example with trade secrets or patented ideas), in general knowledge moves inexorably into the public domain, and when available through many channels, it is inevitable that it commands less of a premium. Another way to look at this is the extent of time available to exploit a piece of knowledge: as the opportunity passes, so does the potential for value from its exploitation. As Dr Victor Newman memorably put it: 'Knowledge is like fruit, its context and timing is the key to its potential and real value. Unless you can exploit it within that timing, someone else will come along and steal it, or you will have to throw it away.'[8] Whatever the scale (minutes, hours, days, weeks or months) the same will happen.

The concept of the community is particularly important with respect to the treatment of knowledge which is new, emergent or scarce, particularly where this is crucial to decisions which may make (or save) a company a great deal of money. A relatively small number of such transactions can have very high value, but they are essentially between *people*. It is crucial that an environment of trust and mutual respect already exists in such circumstances: this is the basis for one community member accepting the judgement of another, whatever the hard data may say. Taking the example of the sales community, would a decision to no-bid an opportunity be taken purely on the numbers? If figures do not stack up, that itself is an indication that there is perhaps some other reason why those who are proposing the opportunity want to proceed – a strategic opening, or a chance to prove capability. In a completely different field, military command is never driven purely by the 'hard' data: the best commanders will always seek the views of the man 'in the field' to get a real feel for the situation and hence make critical decisions that incorporate the 'tacit' dimension.

The community is also the basis for knowledge moving 'up' or 'down' the knowledge value curve. Ideas moving up are entering the language of a group of people; connections are being made, and a consensus is being formed: the ideas are being refined to the point where they may represent a unique differentiator for the firm hosting the discussion. This is the genesis of innovation. Making it easy to form new, transient communities that can change membership, intersect (and hence cross-fertilise) with other groups, is key to the creation of ideas.

On the other hand, insights which are taking hold in the firm (and are hence in a sense moving 'down' the knowledge value curve) may have first appeared on a knowledge base ('here is a better way of doing things') and

The power of a well-organised, robust intranet or document system becomes apparent when commonly used material is made easy to find.

eventually find their way into new, systematic, repeatable methods and tools (picked up, validated and extended by other members of the community), which in turn are ultimately incorporated in corporate learning ('this is now solid, robust and repeatable enough for everyone to use'). This 'multiplier effect' means the concept of 'corporate memory' really can become a reality – in the form of training resources that arise quickly from an idea. The form such training can take will be discussed further later.

At the 'bottom' of the knowledge value curve, where knowledge has become commoditised, the issue is scaleability handling many transactions as cost-effectively as possible, whilst ensuring the material remains reliable and relevant, i.e. it does not go past its 'use by' date. The power of a well-organised, robust intranet or document system becomes apparent when commonly used material is made easy to find. The value to the firm is not so much in any single application of the information, as in the savings in time for repeated accesses to be made efficiently.

THE VALUE OF CONTENT MANAGEMENT

The concept of the knowledge value curve should then be the basis for effective content management, and the first observation here is that one size definitely does not fit all. In their paper on knowledge strategy, Hansen, Nohria and Tierney (1999) differentiate the extremes of 'personalisation' versus 'codification', characterised by using relationships to seek knowledge as opposed to document libraries. The reasons for the relative effectiveness of the different approaches become more obvious when seen from this time-dependent viewpoint.

At the top of the value curve, speed is essential in order to locate information either to make a critical decision or to make use of new knowledge before it becomes commonplace. The problem is not communication – telephones, e-mail or desktop video can provide instantaneous links. The issue is that the more critical (and potentially valuable) the information, the more important it is that we *trust* it, which means trusting the *source*. Once again, communities provide the key. The community not only sets the parameters for what is valuable knowledge and owns the process of quality assurance but can also define the needs for *meta*-knowledge we all use to assess how useful something is. Knowing that material only appears in a particular place as a result of rigorous selection, or that the members of a special-interest

community are all the experts in their field, sets the 'gold standard' for value. Hence the background of personal relationships is the key to the implied value of content, whether it is transmitted explicitly or through personal exchange. It is the reverse of Groucho Marx's assertion that he wouldn't want to belong to any club that would have him as a member! Having access to a directory of members of a community, who does what, plus a view of the background of all members (the typical 'yellow pages' application), provides the infrastructure around which more personalised knowledge interactions can happen. The goal is less to manage content, more to connect people. Formalising aspects of this in the form of coaching and mentoring, plus deliberate attempts to build cross-functional teams, stand out as long-established techniques to build such relationships.[9]

For material moving 'up' the knowledge value curve the key is to provide fast-moving, flexible structures that can capture transient comments and contributions – conventionally e-mail and discussion forums have provided the typical mechanisms, but each has its shortcomings unless carefully managed and moderated. The ability to hold true 'e-meetings' is now becoming a reality, with participants able to brainstorm ideas, categorise and prioritise them in synchronous or asynchronous modes across time and geography, driving towards an agreed consensus and plans for action.

MAKING THE ORGANISATION LEARN

We noted in Chapter 1 the convergence of the notions of knowledge management and the learning organisation. The notion of ideas becoming locked into 'corporate memory' – or perhaps more appropriately 'community memory' – can be made reality with today's ability to hold remote presentations and conferences, combined with features of the e-meeting. If a group develops a new technique or approach that they want to distribute widely and quickly, there is now no reason they cannot create a short training presentation, refine it and then reach out literally to thousands of colleagues with an online e-learning event.

Such events can incorporate levels of feedback and interaction that help further test and validate the idea, or confirm the effectiveness of the training. This is not the same as conventional CBT (computer-based training): it is almost the concept of 'on-the-job' training made into a valid, effective tool, rather than the excuse for cost saving it has been in the past. Indeed,

informal on-the-job training (OJT) was identified as the most effective form of intuitive knowledge sharing in the 1999 survey,[10] with 'learning by doing' and *formal* OJT key paths for transmitting operational knowledge.[11] Which is not to say that CBT and conventional class teaching are redundant – it is simply clearer that they now reside at the bottom end of the curve, where standard training modules are the basic building blocks of corporate knowledge, alongside procedures, manuals, technical drawings and all the other manifestations of mature ideas and ways of doing things, plus historical data that may form the basis for trend research.

MANAGING THE KNOWLEDGE COMMUNITY

Many organisations have implemented document management systems, but without the backing of a structure of communities, such systems are unlikely to facilitate knowledge sharing. At the bottom of the knowledge value curve, we may not have the time to personally validate material either when storing or retrieving, but a community can provide the basis for reassurance and ease the operation of these processes. This can range from assignment of keywords and taxonomies (discussed further below) to development of synopses or rating criteria assigned by those who have used a knowledge object (What do others think about this? Is it tried and trusted?). The community also provides the context for other, more subtle clues we use to assess information, starting with 'Who contributed this? Do I know and respect them?' And the community can also set the policies by which rules for the life cycle of content is managed – ownership, what happens when authors leave, when material should be reviewed, archived or deleted. Such issues are vital for confidence – finding that out-of-date material that is still being promoted as current is the fastest way to destroy trust in a knowledge base. Yet simplistic global rules about 'everything more than six months old will be deleted' are equally unhelpful, as useful material (the author of which is perhaps no longer around) may simply need to be found a new owner.

Finally, for knowledge 'at the bottom of the curve' the key is cheap, easy retrieval on the widest possible scale. This way, we continue to exploit knowledge at every stage, with the volumes increasing as the value falls. The art lies in optimising the curve. For this reason, the 'personalisation–codification' duality rightly has its critics.

THE RELEVANCE OF TAXONOMY

Recently, the concept of the *taxonomy* has increased in prominence. Originally from the fields of biology and botany, the idea of classification applied to knowledge is not new of course – libraries have been doing this for years. What is new here is the realisation that the solution to many issues of organisational alignment and community ownership is locked up in differing language and terminology (*see* Figure 5.4).

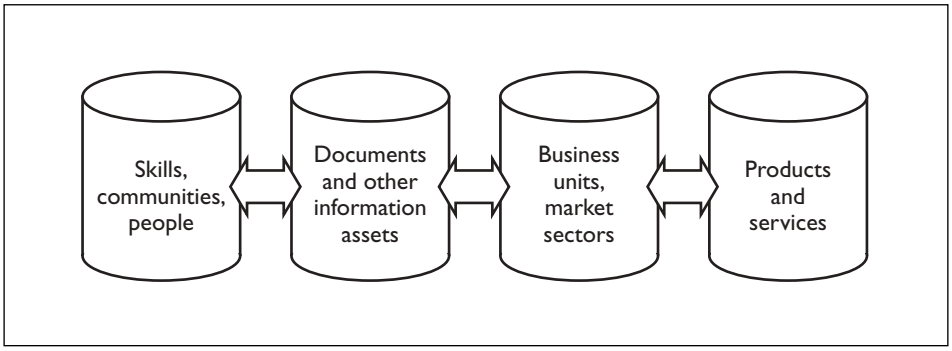


FIGURE 5.4
Creating an organisation-wide taxonomy

There are four distinct areas that implicitly represent knowledge structures in most organisations:

- **The skills of its people** – what people know (technology, industry) and the skills they have (e.g. languages, 'soft' processes) and the various communities of interest that form around these areas. This is principally the way that HR sees the world.
- **Documents and other knowledge objects** – the most visible form of knowledge, these may be organised in many different (usually sub-optimal) ways, ranging from date order to keywords. This is the resource that those in production and delivery turn to primarily.
- **Business units** – different again, this is focused on the world of the customer, with sales functions often structured around the markets the firm is chasing, instead of (or as well as) the products and services the company offers.
- **Its products and services** – knowledge around these areas is focused on what the firm sells and delivers, not necessarily the components that go to make up the end product. This is the perspective primarily of marketing.

The reality is that people are constantly seeking out knowledge *across* these boundaries. Sales people seek product information or skilled people to help

them win business. Technical people want to know about like-minded colleagues or new products they know nothing about. This multi-compartmented organisation of knowledge rarely matches the requirements of those seeking the information (to say nothing of different technical formats it can take!) so we see the rise of the *search engine*, which can trawl the whole landscape. The frustrations of the search engine are well known – thousands of hits, with only a few of any relevance.

The fact is that most people, most of the time, can describe perfectly well what they are looking for, and they have a reasonably sensible idea about where they would expect to find it.

Once again, the received wisdom – that what is needed is a better search engine – is probably not the way forward. The fact is that most people, most of the time, can describe perfectly well what they are looking for, and they have a reasonably sensible idea about where they would expect to find it. The problem is poor practices for storing information and the lack of an effective categorisation system – in other words the *taxonomy*. Would one imagine going into a library with the expectation of having to walk up and down all the shelves to find the book one sought? Worse still, if the desire was to research an *area* of knowledge, the task in such a library would be virtually impossible. Yet this is what we expect people to do in many organisations today.

With a taxonomy, knowledge and information can be categorised and co-located on the basis of content, which still allows search for specific items, but also makes it possible to easily discover related material which the searcher was not aware existed. It is the equivalent of browsing the shelves of the library, finding not just the book one came looking for but also other material that can be the basis of a new insight or approach – the key competitive edge of 'new' knowledge at the 'top of the curve'. Furthermore, the automatic generation of taxonomies by software opens up the possibility of an almost infinitely rich index – all the books where the concepts I seek occur, all the concepts in each book, and all related concepts, all able to be updated daily. This software equivalent of an extremely well-read (and helpful) librarian was only poorly approached in the past by use of keywords which constantly went out of date or were incomplete. This is not to say that the search engine is redundant: there will always be occasions when we are not sure where to look or the concept is so new that it is not yet built into the taxonomy. But in general, a taxonomy-based approach satisfies the majority of needs most of the time.

Apart from this convenience, there is another reason why the taxonomy is an effective tool for organisational alignment. The importance of communities for 'owning' knowledge has already been discussed, as has the need for

defining a scope for the interests of a community. The taxonomy, with its implicit 'pigeon-holing' of knowledge, provides precisely this scoping, whilst at the same time ensuring each knowledge community has visibility of neighbouring areas which may have relevance. Ultimately, it becomes possible to create a taxonomy for the *whole organisation* in which the disconnects between people's skills, the documents that reflect those skills, the products and services built on them and the market areas that consume these products can all be aligned. In a situation of merger or acquisition (which almost every large enterprise is undertaking somewhere in the world at any point in time), the power of the taxonomy is even greater in ensuring everyone moves towards speaking the same business language as rapidly as possible.

Summary

We have recognised that to make a real breakthrough in attitudes towards knowledge management, it must totally identify with and articulate its solutions in the language of its business 'customers', and create services that can satisfy their needs. However, the business itself cannot be immune from change precisely because *it must set the standards* for the value and relevance of knowledge, and must adopt behaviours and processes that enable content to be continually assessed and reassessed. In other words the business must show *ownership*. This also implies that new, business-critical information must be input and shared by those who create it. Both sets of issues, including the 'cultural' implications (such as the myth that people will not share knowledge), can be addressed by development of strong knowledge communities, and the understanding of how to do this, plus help with setting up and nurturing communities, is itself one of the 'knowledge services' that needs to be provided. Another is the provision of virtual meeting places and homes for knowledge communities and their outputs. In the next chapter, we look at how this requirement, along with the needs of the individual and the enterprise, can coexist in the technical environment of intranets and portals.

NOTES

1 Some of the ideas in this section appeared in a different form in an article in *Knowledge Management*, Ark Group Publications, February 2001.

2 Rajan *et al*., 1999, Figure 4.2.

3 Ibid., Figure 4.3.

4 Rajan *et al*., 1999, Figure 4.3. These 'syndromes' were identified as joint second in the ranking of answers by 33 per cent of the respondents, with lack of an information-sharing culture coming in some way further down the list.

5 For a discussion of the life cycle of communities, *see* Botkin and Seeley, 2001, or McDermott, 2000.

6 Fulmer, W.E. (1999) 'Buckman Laboratories', *Harvard Business Review Case Study*, No. 800160.

7 This notion owes its inspiration to Powell and Jones, 1999, plus discussions with Victor Newman relating to the economics of knowledge transactions.

8 V. Newman, 'Joining knowledge to the real world', joint presentations with Microsoft and CGEY, July 1999.

9 Rajan *et al*., 1999, Figure 3.2.

10 Ibid., Figure 3.1.

11 Ibid., Figure 3.3.

6

The virtual workplace: structuring a knowledge portal

INTEGRATING PEOPLE, SYSTEMS AND KNOWLEDGE

Why have knowledge and information moved to the forefront of discussion today? Anyone familiar with Maslow's hierarchy of needs[1] will be familiar with the ascending order of issues that humanity feels it has to deal with, each having to be fully satisfied before we have the comfort and space to move up a level. There are clear parallels with what has happened in information technology over the past 50 years or so.

At the outset, the primary concern with computers was to keep them running long enough to complete a computation – quite apart from the legendary origins of the term 'bug',[2] the reliability of components meant a time between failure of hours rather than days or weeks. As the solid-state revolution happened, making the machines much more reliable, the next evolutionary step was in delivering solutions quicker, cheaper and on a larger scale – hence the rise of operating systems and programming languages which allowed the development of software to move out of the laboratory and into the mainstream of industry. Then, as the wider exposure to business of locally developed computer applications came about, we saw the change in perception that business had to drive the technology, not the other way round – and hence the concept of business as well as systems analysis. With the ever-increasing uptake of computing and networks came the need for systems integration and integrated suites of applications – the Enterprise Resource Planning (ERP) platform, plus the ubiquitous office desktop applications.

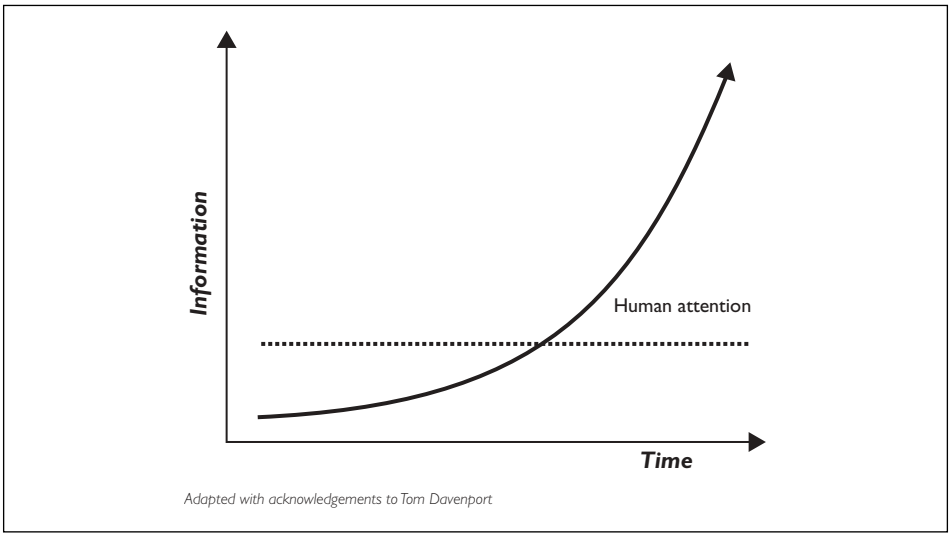
Today, reliability of platforms is no longer an issue and people *expect* integration of applications. The common user interface and protocol for exchanging data that was sought for years has arrived by default in the form of the web browser and Internet protocol. Business functions routinely expect to drive their IT requirements. And yet we still see reports that applications fail to meet requirements, are difficult to use, and do not have the expected impact on business performance.[3] There is a sense in which knowledge management is dealing with the 'final frontier' of systems integration – that between the behaviour of real-world business processes and systems versus the modelled approximations of the IT world. This is much more than simple ergonomics, where the universal windows metaphor seems for the moment to have solved the common look-and-feel problem. The issue is that real business processes rarely work as documented,[4] whether in the form of IT models or quality manuals.

The fact is that conventional process models necessarily simplify and deal with the routine, failing to acknowledge and deal with the unusual, the complex and the ambiguous. Which is not to say that software cannot deal with some of these issues, rather that it is too expensive and unreliable to do it that way: *people* can deal with these situations far more effectively. In essence, IT and business systems are a series of process islands which are imperfectly connected, and *people* provide the integration, close the gaps and cover the cracks (the 'human glue'). Although software will undoubtedly continue to make progress, there will always remain a gap between reality and the model, which provides a continuing *raison d'être* for knowledge management, in providing support for people trying to bridge this gap. Unfortunately, as the complexity of this challenge has grown, so has the sense that people are being overwhelmed: there is too much data 'coming at them'. Help is needed to integrate and prioritise the *presentation* of information if people are to perform their key role of making sense of it all.

INFORMATION: FEAST OR FAMINE?

We frequently hear of the information explosion and the concept of 'infoglut'. The multiplicative effect of easily accessible enabling technologies and networking simply makes it easier and easier for more and more people to publish written material. Increasing automation and deployment of back-office systems makes massive volumes of numeric data available. Yet the ability of the human side of the exchange to process all this input has remained pretty constant for thousands of years[5] (*see* Figure 6.1).

FIGURE 6.1
The information explosion



We are all drowning in a sea of information, yet at the same time the problem of having too much means we cannot find the stuff we actually *want* – the signal is being lost in the noise. The concept of the *portal* has arisen in response to this need to filter out the irrelevancy and focus on the information that actually helps us do our jobs.

The portal as an idea is not new – the problem of a single point of access to multiple sources of information has been with us from ancient times. Technology simply made the problem more visible: many early integration projects were justified by the need to physically remove multiple video terminals from people's desks (it was not unknown in the 1970s and 1980s to have two or three different monitors on one desk). Software approaches achieved some success, but it was not until the advent of the web browser and the concept of a URL (uniform resource locator) that in the mid-1990s it became possible to conceive of one interface through which all information could be delivered, regardless of the provenance of the underlying platform. Today we refer to this concept as a portal,[6] with numerous variants – the enterprise portal, the corporate portal, the knowledge portal, the vortal (vertical portal) and so on. Here we will focus on the value of portals in knowledge management as a tool to provide one point of access to sources of knowledge and communication and collaboration channels. We will return to the issue of portal *structure* later.

We are all drowning in a sea of information, yet at the same time the problem of having too much means we cannot find the stuff we actually* want – *the signal is being lost in the noise.

PERSONALISED PORTALS, IMPERSONAL INTRANETS?[7]

Essentially, a knowledge portal must allow a non-technical user to *personalise* their view of information and services. This is the key difference from a corporate intranet, which essentially provides a centrally driven view of what it is thought people 'need' to know – which is generally either too much or too little. The knowledge professional is in the best position to define what information he or she needs, and this can change from day to day. They know which communities they need to interact with, which they want to be a part of, and which they are no longer interested in.

Portals should provide facilities to search, browse, view and filter the content the individual decides that they need. It should also be a simple matter to set up links to services and applications that are relevant to the individual's role, responsibilities and interests – many of these may be predefined to simplify the task, with the user needing only to switch sources 'on' or 'off' as required. As an extension of this principle, the portal needs to be very easy to use,

intuitive and requiring minimal training. It should also be able to learn from interaction with the user and use this profile to proactively deliver content – another departure from the conventional search-driven view. The distinction is sometimes memorably characterised as letting the content find its users versus letting the user find the content he or she requires. As well as providing sources of information, the portal should provide a place for the individual to collaborate, learn, share and leverage knowledge or manage tasks in a community of mutual interest. In other words it is a convenient gateway to the virtual meeting places and processes we will examine in more detail later in this chapter, which in turn support the community concepts we discussed in Chapter 5.

On a technical and operational front, the portal should also control access with a single sign-on, simplifying security and matching of audiences to content. This includes the access of *external* experts, partners and suppliers, something which is difficult to do within a conventional intranet framework, plus access to parts of mission-critical back-office systems (such as ERP) which are too complex and hard to use for the occasional user to get much benefit out of them. And of course the portal needs to be scaleable, flexible, extensible, robust, cheap to deploy and support.

This is not to say that a well-structured intranet cannot provide some of the facilities of a portal (it can) or that it is desirable to give users total control over what they do or do not see (it is not). For example, some advanced intranets provide areas focused on the needs of key groups of employees, although generally this approach will not suit more than half a dozen categories of people. As for allowing people the ability to suppress all and any channel of communication (for example corporate news), this is hardly a recipe for corporate alignment or rapid dissemination of changes in direction. The bottom line is that most organisations today should be able to get far more out of their intranets than they are achieving,[8] and they would do well to address these issues before considering applying a layer of portal technology in an attempt to patch up the underlying content issues. At the end of the day, the portal is a window into content, and if the content is poor, the portal will do nothing to improve it.

MY PORTAL IS MY ENVIRONMENT

Put simply, the challenge with a knowledge portal is to reflect the way people work – if it doesn't, they will opt out. This is the key difference

between knowledge systems and other business systems: their use is in many respects 'optional'. Firms hire smart people who are extremely adaptable and resourceful: they want to use these skills to apply this information effectively to better sell or deliver services or products to clients. If the system does not provide the right information at the right time, these smart people – who are also generally pretty impatient – will use these same skills to dig out what they need in other ways, which is perceived as the downfall of many failed intranet and portal implementations. So what is it that knowledge workers actually want and need? Putting the knowledge professional at the centre of the information world gives a comprehensive, powerful and very relevant model (*see* Figure 6.2).

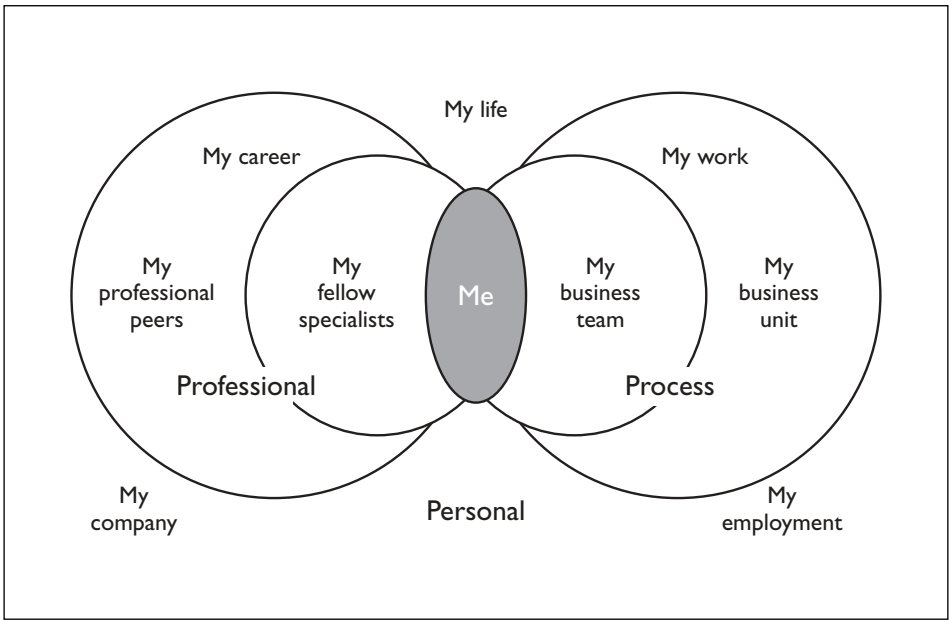


FIGURE 6.2
Putting the knowledge worker at the centre

The model shows a concept of knowledge and content that goes beyond just the core work requirements into the wider career and personal issues, reflecting the reality of today's workplace. These areas can be classified into three broad categories: *personal*, *professional* and *process*. Within each is a different class of content and applications, with very different volatility, content management and presentation requirements.

The *personal* aspect relates to the individual as an employee and social being. It consists of the most basic administration – 'how things get done around here' – plus information that relates to the social context they work in. Generally, knowledge workers don't really want to spend more than a small percentage of their time dealing with this: it is routine. The *professional* aspects are about the individual, his or her immediate peers and the extended knowledge community that they are part of. They are the manifestation to

the individual of the learning organisation. Knowledge workers might spend a significantly higher percentage of their time in this area. The *process* view is about working with immediate colleagues – whether a sales unit or a project team – in direct revenue-earning or customer-facing activity. It is the 'day job' that the individual is primarily paid to do, and do well, for the majority of their time. The make-up of these groupings, which should form major components in any portal implementation, is examined below.

With companies engaged in 'talent wars' there is an expectation of personal support and lifestyle balance in order to retain and get the most out of people in their job.

Personal

With companies engaged in 'talent wars' there is an expectation of personal support and lifestyle balance in order to retain and get the most out of people in their job. Easing things like travel booking or expense payments all contribute to lightening the burden, as does support of outside interests and family.[9] The sorts of content and applications touched on would typically relate to the following categories:

- **My company** – internal directories, internal marketing, corporate communications, company news, company performance.
- **My employment** – employee self-services (ESS) applications, time reporting and expenses, travel booking, guides, hotel accommodation, payroll, pensions, company cars, other benefits.
- **My (social) life** – social events, charitable activities, lifestyle benefits, personal advertising, general news.

This space is sometimes known as 'workforce optimisation'. It both supports business value creation and promotes core cost reductions. Although not directly knowledge management, it provides a key foundation for it in terms of participation, best practice and establishment of trust in the online environment, plus some important enablers for communities such as reliable directory services. The 1999 study of intranet benchmarking and business value emphasised the importance to intranet success of what was characterised as *critical mass* – in audiences, in content and in utilisation.[10] If people are used to entering their time online, or getting telephone details from an intranet directory rather than paper, this not only saves time and money but also changes people's pattern of work habits. They move from looking at the intranet once per day to check the share price to it being the place where the majority of work gets done. And these benefits transfer directly to a portal implementation, both at the level of individuals and in creating a sense of business ownership of content. If

the organisation cannot keep a telephone directory up to date, it is unlikely to perform well in terms of maintaining more complex information.

Professional

The next area to be represented is about creating tomorrow's value, whether for the individual or the firm. It is about enhancing personal expertise and contributing to the growth of others, whether through online learning or the tacit knowledge exchanges managed through coaching and mentoring. Fundamentally, from the individual's point of view, it is about advancing their career. It is also about the community which fosters creation and development of new ideas for products and services, or improved methods. This community has two levels of relevance to the individual: those peers whose knowledge domains are closely aligned (which may or may not include those with whom one directly works) and the 'extended' community potentially offering support in the wider (but related) knowledge domain. One needs to be connected to both – the former for support of current needs and the latter to allow growth and exploration on new areas. These areas might typically be characterised as follows:

- **My career** – online learning, mentoring and coaching, personal networking, performance objectives, performance evaluation, professional journals.
- **My communities** – both professional peers and fellow specialists, offering access to experts, community shared space, communities of interest or expertise, skills searching, developing new ideas, ad hoc learning, discussion groups, industry/sector news.

It is in the professional area that we see the true knowledge processes and applications starting to appear – it is about creating and maintaining relationships as much as content. This is the classic territory of communities of interest or experts, where electronic support can be invaluable in pulling the community together and enabling efficient discussion and sharing of documents.

Process

Finally, we come to the area that might be regarded as the most important in day-to-day business terms: creating today's value. Important, but necessarily building on the other two layers. The process area is about how people work.

It is the mechanism for putting the knowledge and information they need at their fingertips, whether from documents, web pages or links to business applications:

- **My work** – both in terms of immediate co-workers (business team) and the wider business unit, offering work flow systems, current tasks or projects, project team shared work areas, current methods, standards, templates, collaboration and communication areas, client/competitor news, market intelligence, business applications and decision support.

Here we have the key information structured around the way the individual actually works. The more complex and diverse the range of knowledge roles and information sources, the more the balance tilts in favour of the portal, particularly if the sources extend outside the organisation in the form of extranet or Internet links, or if it is anticipated that a variety of devices such as mobile telephones or handheld computers are to be used in the field, as is increasingly the case.

The portal is also favoured in its ability to mix hard and soft information types and juxtapose them seamlessly. As well as telling the decision maker *what* is happening, it can also tell them something about *why*. To satisfy such highly specialised needs, particularly for senior business decision makers and key knowledge professionals, it is necessary to start from the requirements of these individuals and build the portal environment to suit the role, top-down. Currently, the best way to satisfy demanding specialist audiences is to use best-of-breed components and exemplar templates to illustrate how this new way of working would look and feel.[11] For a more general corporate audience, the enterprise information portal product is more suitable. Many different flavours are available to suit various platforms and to match content management requirements in a 'bottom-up' approach.

Summary

The demands of serving communities, the individual and the corporate viewpoint, each of which has its own subdivisions of content, services, applications and linkages, mean that it is becoming increasingly vital to have *one* interface that pulls all this together. For a number of years, the intranet has attempted to deliver this promise, with the newer technology of the portal now promising a significant move forward in terms of flexibility and functionality. It also offers some innovative solutions to the problems of individuals coping with information overload and the ever-expanding range of new sources of knowledge. However,

for the foreseeable future, the intranet and portal paradigms will continue to co-exist, augmented by a range of other technology options. As bandwidth increases, this diversity will continue to grow and the distinctions between intranet, extranet and Internet – and by extension the portal or content management system which ties them all together – will disappear.

However, technology only takes away some of the pain. We still need to propagate good knowledge practices, encourage communities and ensure the continuing involvement and support of business leaders at every level. It is to the creation and nurturing of a core structure to maintain the visibility of these objectives, to continually educate people about knowledge management and drive it forward whilst maintaining a clear relationship with bottom-line business goals that we turn to in the next chapter.

NOTES

1 Maslow, 1954.

2 The story is that 'bugs' (i.e. causes of program failure) were quite literally insects caught in the relay contacts of early computers, causing malfunctions.

3 Cf. Ciborra, 1998.

4 Cf. Orr, 1987; Wenger, 1998.

5 A concept memorably put by Tom Davenport. The illustration is a variant on one of his given at a presentation in London in 2000.

6 First recorded use of the term, according to *Hobbes' Internet Timeline*, was in 1998.

7 The ideas in this section appeared in a different form in an article in *Knowledge Management*, Ark Group Publications, October 2000.

8 Newman and Smith, 1999, page 6, *General Trends*.

9 This concept was recognised long ago by Buckman Laboratories, which went as far as providing Internet access to employees' families back in 1995.

10 Newman and Smith, 1999, page 6, *General Trends*.

11 Gartner Group, 'DIY is not dead yet', Research Note.

7

Sustaining knowledge management: building for the long haul

GETTING THE MESSAGE ACROSS

In the previous chapter, a number of key cultural and technical starting points were identified; we now turn to the issue of sustaining the momentum that has been created. First amongst these issues is *communication*. It is important to consider how to put across these key propositions and above all to communicate clearly and simply. Easily remembered themes, such as 'connecting people and experts', 'communication and access' or 'consolidating our knowledge', are the key and will serve as 'branding' tools around which the message can be built. The broad community are not knowledge management experts (and do not want to become such) and must be communicated to in language that is meaningful to the audience. Above all, people at every level must understand 'what's in it for them'.

If strong knowledge communities are established and tight links formed between collaboration and learning – is this enough to ensure success?

Another point to bear in mind is that in any large organisation there are probably many useful knowledge management initiatives already happening, but they are not integrated and are probably duplicated and incompatible. Even finding out about them is hard, although techniques exist to map such initiatives and identify their potential synergies, dependencies, overlaps and inconsistencies.[1] We will discuss later how to bring together functions such as HR, IT, training, communications, marketing, quality and research and development (R&D) as well as the business units: there is huge synergy to be gained once knowledge management establishes the common ground. But there is another pre-requisite needed to establish this platform – some form of organisational centre of gravity.

PROACTIVE KNOWLEDGE MANAGEMENT: DRIVING KNOWLEDGE EXPLOITATION FROM THE CENTRE

If knowledge management is presented to business sponsors in terms of solutions to their problems and the success of business initiatives is closely tied to the success of knowledge management; if strong knowledge communities are established and tight links formed between collaboration and learning – is this enough to ensure success? The answer is no, because the vital ingredient of continuing *leadership* is missing. This cannot be expected to arise from the business units being reactively supported: the vision of what is needed has after all been developed externally, and at the current stage in evolution of knowledge management acceptance, this is not enough to sustain it unsupported.

Firms such as Buckman Laboratories have been 'living' knowledge management for more than 20 years (with a high level of personal leadership) and have succeeded in making it part of people's way of thinking and working. Whilst organisations starting out today will have the benefit of others' learnings and can expect to truncate the timescale, changing attitudes to knowledge is certainly a multi-year programme, which requires continued proactive support and pressure to move forward. In other words, it is not sufficient to create the conditions for knowledge communities to prosper, or provide a knowledge-sharing infrastructure and expect it to manage itself organically. A framework organisation is needed, encompassing a series of dedicated roles which drive, support and coach the *whole* organisation in terms of both defining the pattern for development, rolling out knowledge management, promoting shared services and core processes and constantly 'raising the game'.

Such a specialist knowledge centre organisation becomes the basis for:

- **knowledge navigation** – providing a first (or last) port of call for people having difficulty finding information. This central 'helpdesk' function has a *global* view of all the knowledge sources and processes in the organisation;
- **external content** – real savings can be made in consolidation of acquisition and supply contracts which have a tendency to proliferate when no central co-ordination is available; there are also copyright and syndication issues that need to be addressed centrally;
- **research services** – centralising such specialist services provides a level of critical mass and an ability to attract the best people which is difficult with scattered local centres;
- **competitive intelligence** – as a particularly important form of external knowledge, central co-ordination of competitive intelligence not only improves economies of scale but can also ensure that information is proactively passed to functions which may not have seen everything relevant to them previously;
- **analyst relations** – as an extension of this, the relationships with analysts and market trend setters could be owned by such a group, ensuring that future trends can be quickly transmitted around the organisation with a consequent advantage in accelerating innovation;
- **information and knowledge architecture** – such a group can define a robust, easy-to-use logical knowledge architecture, including storage and access models, which can be implemented across a variety of physical

architectures. Note this is *not* the same as defining the organisation's IT architecture;

- **operating core knowledge services** – the role of a central knowledge group may even extend to operation of core knowledge infrastructure services, for example the intranet, making it possible for this to attain a more 'mission critical' status than it would perhaps have had under the conventional IT umbrella;
- **templates for local knowledge services** – providing a definition of roles needed, plus recruitment, induction and training of local personnel into the operational knowledge environment, ensuring a consistency of quality of delivered service and the ability to scale up the available expertise;
- **company-wide taxonomy maintenance** – a central knowledge group is an obvious owner of this vital resource, which needs to be monitored constantly and updated as new concepts emerge;
- **core re-use materials packaging** – provision of high-quality editorial and content packaging, generally core material which is relevant throughout the enterprise rather than locally relevant content or 'hot' information. Particularly important for field staff with little online contact;
- **library and archives** – stewardship of historic material which is no longer in operational use – content which is at the very bottom of the value curve – but which may still be relevant in deep research or in substantiating track record;
- **co-ordination of relationships** – between local knowledge services and the centre, both in terms of providing leadership, coaching and encouragement, and in definition of template deliverables for local knowledge management support, ensuring consistency of services and image presented to the rest of the firm. This is key to the concept of proactive knowledge management;
- **benchmarking services** – as an extension of this idea, a central group can provide benchmarking services covering many aspects of client (and host organisation) performance: again the central function provides a high degree of year-on-year consistency.

THE KNOWLEDGE MANAGEMENT TEAM

Such a knowledge support organisation requires people to drive from the centre, to work within the business units being served, and to liaise between the two. There is necessarily a split between 'core' roles sponsored (and

funded) from the centre and local business roles, with the core element being more important at start-up (establishing practices) than for ongoing maintenance. The roles need to be shaped to fit the firm, but as a general template four types of job are needed:

- **Chief knowledge officer (CKO)** – works with the heads of a strategic business unit to define knowledge policies and understand needs in their area of responsibility. Creates the local knowledge organisation on the basis of firm-wide templates, but closely integrated into business units: defines appropriate service levels and is accountable for their achievement. This is a core role that can be seen as a kind of 'head coach'.
- **Knowledge manager** – works within an individual business unit or function to operate the agreed knowledge process and deliver the required service levels. Will have general skills in content management, including editorial, and be close to the needs of the unit's front-line knowledge needs. This is very much a local business role.
- **Knowledge co-ordinator** – is the key link between central knowledge support and the local business units. This core role is about projecting the aggressive take-up of good knowledge practice around the firm, both in terms of start-up (coaching and education in setting up systems and processes), continuous improvement, (e.g. knowledge benchmarks, audits and healthchecks) and change management. They are also a key part of networking the knowledge professional community itself. Note that although a core coaching team is key, they should be encouraged to replicate their skills around the business areas, allowing operations to scale, accelerating deployment and avoiding the 'guru bottleneck'.
- **Knowledge or information specialist** – acts as a librarian, researcher, analyst or in-depth content editor on behalf of front-line experts. May also operate helpdesk services. Well qualified in their own field, but used to operating in other areas, able to analyse and synthesise issues to provide useful business information. May exist both as a core and local role if business needs justify it.

We should also acknowledge the role of **subject matter specialists** – front-line experts who act as a reference point for the knowledge professionals, without being part of the knowledge services team. Normally they will also have a recognised role within the community of interest to which they belong and participate in the community's internal knowledge processes.

These roles are not funded as part of the formal knowledge organisation but are a key point of contact for it.

These roles are by no means definitive, and the titles are certainly not set in stone.[2] Existing professionals, such as librarians or researchers, may well adapt into these jobs. Many elements of the roles could be combined in single individuals, particularly the knowledge manager, co-ordinator and specialist. The key point is to create a *dedicated* community of information professionals, working to deliver an agreed level of service and striving to find ways to extend the leverage of the firm's knowledge wherever possible. Exactly what form these services should take, and how they should be packaged and presented, is a consideration to which we now turn.

CREATING AND SUSTAINING THE BUSINESS CASE

We have already discussed the principle that knowledge management is not about making everything available to everyone: it is important to be *focused* and apply the 80–20 principle, particularly in the early stages. Creating a grand vision of the 'knowledge-driven business' or similar evangelistic exhortations simply does not work as a mass-mobilisation tool: people want to know how knowledge management is going to make their jobs easier, not to be drawn into a plan to change the world. This is not to say that the knowledge management team should not be working to an overall framework and vision of what it wants to achieve, but they must always remember that in reality the rest of the organisation probably does not share this vision and is certainly not motivated by it. Even if people buy into and enthusiastically support the vision at first, they still have their 'real' jobs to do and support falls away.

What are needed are value *propositions*, consisting of packages of service tuned to the needs of each business unit or function. Indeed, services should be defined around the key knowledge that provides the *defining characteristics* of each business unit – what they uniquely can do. By agreeing knowledge management services with user customers, this then also defines measures of success and ensures the programme is 'grounded' rather than creating a knowledge management organisation perceived as separate from the business. It goes without saying that if it helps to avoid using the term 'knowledge management' when describing such services, that is not a problem: it is the service delivered that counts, not what it is

It goes without saying that if it helps to avoid using the term 'knowledge management' when describing such services, that is not a problem: it is the service delivered that counts, not what it is called.

called. Titles such as 'intelligent business' have found favour in some organisations. In a sense this is making a case to the business, rather than making a business case. The key is, as suggested earlier, to make these services so basic to the effective running of the unit – 'things we cannot do without' that the issue is whether the unit *as a whole* can perform to its maximum potential without knowledge management rather than what incremental improvements might arise from incremental spending on knowledge management. And of course the benefit of a central driving group is that it is able to accumulate the best success stories, ensuring that thinking of knowledge management as an integral part of the way people work becomes the accepted norm. This learning loop also allows the organisation to coach its own people in successful techniques, thus further accelerating progress and opening the possibility of creating a *self-sustaining* knowledge support environment.

There is another point here that must be borne in mind: the concept of constantly 'raising the game' is not simply an inspirational slogan but a practical necessity with knowledge management services. If knowledge services are newly provided to a group, their level of awareness, working practices and network structure *changes*: people get to know things and other people, and they actually become *less* dependent on the services. Their level of expectation rises inexorably. This is the crucial point at which the services *must be enriched*, to keep pace with the growth of the community they serve. If they do not, they will become irrelevant and fail to deliver value. This is also a further reason for putting the knowledge management 'drivers' outside the front-line business organisation, sustaining the stimulus that ensures services move forward rather than becoming stable and stagnant. The whole company has an opportunity to improve its knowledge practices by shadowing the most progressive group(s) rather than moving at the pace of the slowest.

ALIGNING KNOWLEDGE MANAGEMENT SERVICES WITH BUSINESS DEMANDS

At a local level, these services can be packaged into offerings and propositions which are exactly in line with business needs, typically in the areas of:

- **customer relationships** – for example, supporting account managers in the development of relationships and mapping the organisation's activities on a global scale, ensuring all team members know what

their colleagues are doing, plus industry background and start-up information as needed for new team members;

- **business winning** – for sales teams, support in preparing proposals, providing background information on the client and their industry, plus other tactical competitive information needed to help win;
- **strategic planning** – for management, briefings on the general marketplace in which the firm operates, including early warning of trends and opportunities; connection into best practices elsewhere in the firm and in competitor organisations; support in change management through measurement and benchmarking;
- **product and services** – market and competitive analysis of the space where the firm operates, including insights and predictions, particularly about new areas. Here the loop can be closed with market intelligence and those charged with future scenario planning;
- **focus for local content filtering and publishing, plus re-use** – within a business unit, making re-use as simple, easy and pain-free as possible *will* make a difference in building the elusive knowledge-sharing culture;
- **knowledge communities** – for expert communities of interest or practice, help in creating the community and supporting its growth and linking into other communities with which it may have an affinity.

These propositions then form the basis for expectations amongst the user community. The focus shifts from vague and undifferentiated assertions about improved access to knowledge to specific improvements which are identified with the business measures and budgets they will impact. Typically, proposals based on 'saving ten minutes per person per day' are met with only lukewarm enthusiasm and the 'so what' response – 'so what will they do with the ten minutes extra?' But if the knowledge management proposition is grounded in, for example, increasing the throughput of sales proposals by 40 per cent, or increasing win rates by 10 per cent, accompanied by a menu of services that will make this happen, then management attention is assured.

As an important extension of the long-established management principle that *you get what you measure*, it is important to beware of the temptation to believe that senior executives have become enthusiastic converts for knowledge exploitation. They may well support knowledge management in principle as 'a good thing' – it sounds great but *they will only make happen what they are measured on* – so systematic knowledge management must be

clearly linked to their measured priorities. Focusing on rewarding and recognising knowledge contribution and sharing from the 'bottom up' will not produce a pervasive culture change, and will ultimately be ineffective unless managers see good reasons for supporting the knowledge management programme. If a single, compelling proposition engages the attention of the most senior executives and becomes the key message about knowledge management, so much the better. This might be, for example, a goal to dramatically increase earnings per employee above the industry benchmark, or to protect the firm's interests in a major investment, acquisition or disposal, or perhaps enabling a fundamental change programme. Note that none of these is as such a *vision* for knowledge management; they are simply a close alignment of knowledge and business goals, with objective outcome measures.

PICKING UP THE BILL FOR KNOWLEDGE MANAGEMENT

It is important to get local business units to show commitment by funding the roles closest to them.

Too often, the issue of budgeting for knowledge management is an afterthought, relegated to administrative overhead rather than aggressively promoted as a key part of the cost of doing business. These kinds of basics get forgotten, whereas world-class knowledge management is a complex investment that must be properly instituted and managed to ensure it has a chance of delivering to expectation. There must be focus on routine governance issues such as budget, headcount, organisation, management and reporting structures, roles and responsibility definitions and service level agreements. Creating a solid network of committed knowledge management champions, leaders and facilitators is the key resource in maintaining the momentum of the programme, extending its reach and growing its effectiveness: this also helps build the perception of knowledge management as an essential part of the cost of doing business. However, it is important to be aware of the status implications for many people in being associated with 'internal' work: the knowledge management team must feel their direct contribution to the bottom line is respected. It is also important to get the right balance between central and local funding. Much wastage of energy can be avoided if key parts of the team can be funded centrally to avoid local fights over cutbacks[3] and to rationalise common expenditure on infrastructure management, content acquisition, analysis and delivery. Equally, it is important to get local business units to show

commitment by funding the roles closest to them. The profile of central versus local roles and the possibilities for combining roles and the change in mix over time can of course be optimised to encourage acceptance.

As for the cost itself, a successful approach has been to work to a *cost per employee* to put knowledge management in context. Benchmark levels will vary from industry to industry, and also within the firm, but this is the single most powerful figure that can put what knowledge management is doing in context. Firms such as Buckman Labs have quoted figures of 3–4 per cent of revenues to support knowledge management; consultancies in some cases are higher. It is interesting to compare this figure with those typically quoted for managing the *financial* assets of a company, which typically run at 1–2 per cent of revenues.[4] Which is more likely to have a profound impact on the ability to reshape the firm's business model? When such figures are set against, for example, the potential to increase earnings per employee dramatically, the argument is not so difficult. Once the point has been made that what the firm is primarily engaged in is *selling knowledge*, and that knowledge management will have a profound effect on both customer relationships and the 'supply chain', the traditional objections to knowledge management disappear. Managers can identify with the proposition that the share price is going to be driven up by an improved ability to sell and deliver, whilst remaining unmoved by assertions about increasing the firm's intellectual capital. We move on to look at ways of establishing these touch points with other business areas in the next chapter.

Summary

Establishing knowledge management practices in the business units is not enough: continuous improvement and growth are required. This needs to come from a dedicated, energetic knowledge function which can be justified not just in terms of the need for reinforcement but also by taking everyone forward at best practice speed. There is also the benefit that a number of existing functions can achieve economies of scale. The roles needed to operate the knowledge function can be identified from current best practice: some are best owned by a central group, others by the local business units.

The key to gaining acceptance for this function lies in defining indispensable *knowledge services* which not only meet business needs but go beyond this in proactively driving the uptake and continuous improvement of these services.

These 'value propositions' are vital to establishing proper funding. If they are articulated in a pragmatic, tangible way that identifies with the business rather than in terms that imply an external overhead of dubious relevance and usefulness, then the necessary support and resources can be obtained.

NOTES

1 'The journey of a thousand miles', *Knowledge Management*, Learned Information, December 2000/January 2001.

2 For a survey of how organisations have implemented these types of roles, see Sasson *et al*., 2000.

3 See interview by Geoff Smith with Robert Buckman in 'Great Minds Think Differently', *Knowledge Management* magazine, volume 4, issue 8.

4 Figures of this order have been quoted in association with Cisco.

8

Linking knowledge management to the rest of the business

THE BIG PICTURE: TALKING THE SAME LANGUAGE

A key aspect of knowledge management which is not often discussed is its strength as an *integrating perspective* within an organisation. The very ambiguity of the term knowledge is also its greatest strength. It allows us to gather all the major business functions around the same table and to leverage benefits across the board through knowledge as the *lingua franca* in which a range of synergies can be identified. As a first step, the formation of some type of *knowledge steering group* can provide a forum where the different functions can exchange information about what they are doing and map it into a common framework. Why might this be necessary? Because in almost every organisation, unconnected initiatives are sure to be under way already.

Let us look at a typical real-life example. Arising out of the need to develop an organisational information taxonomy, it may be discovered that the HR function already has under way a project to define skills and competencies, both for recruitment and performance management purposes. The business units want access to similar information but from a resourcing perspective: they want to be able to put project teams together quickly, hence need access to people with the right skills who are available to work on the project. Naturally, they also have a project under way, but using a different set of skills to match to. Meanwhile, the R&D function, playing host to many communities of experts, wants to provide its researchers with the ability to identify others who are working in areas similar to their own, or who can provide answers to questions. They too have created a system of 'yellow pages' intended to map skills and experience. And finally, the training function wants to understand the gap between the current skill base and what is required for the future: its requirements seem to map approximately onto the gap between what HR and the R&D systems have. This requirement also points to a need for a learning management system, linked back to HR's performance monitoring.

All these functions have an incomplete view and have created maintenance problems. Perhaps most importantly, they have created four separate demands on employees, four separate sets of language and terminology, and four separate services to interface with, at least three of which have no immediate benefit to the workforce (and hence will constantly fall out of date). Such scenarios are painfully common in the real world, and efforts to reconcile and align such projects usually degenerate into political battles, with an outcome

that at best serves the interest of one of the functions involved, or at worst represents an ineffective compromise that satisfies no one.

Taking a knowledge management perspective, starting from a knowledge services ownership of the taxonomy, each function can perhaps be more easily persuaded to modify its own version of the taxonomy to align with the core system – the heat has been taken out of the politics. Once this first step has been taken, the synergies start to emerge in that employees, updating their 'yellow pages' profiles to ensure they are presenting the best information to peers in their community, have also now created the accurate data that HR and the business units have been asking for. Links to training achievements can happen automatically, and of course the employees have less updating to do and less confusion due to differences in terminology.

The sources of trend information for future planning and scenario building are the same as for the core business research services: only the timeline is different.

Every function has a part to play in both supporting and benefiting from knowledge management: whilst there may well be a dedicated team focused on delivery of knowledge services, it is important to recognise that any knowledge management organisation will be just one half of a series of symbiotic relationships. We examine more of these potential synergies below.

STRATEGY AND PLANNING: MANAGING CHANGE

The links between strategy and planning functions and organisational knowledge management are profound: changing business models means fundamentally changing the knowledge bases that underpin them. This is more than simple re-skilling: it is a root and branch change to processes, support systems and the information that they use. The sources of trend information for future planning and scenario building (professional analysts, academic institutions, research organisations and specialist publications) are the same as for the core business research services: only the timeline is different. And as new strategies for the future are built, so preparations can be made to change the corporate knowledge and learning base, ultimately feeding through into changes in the day-to-day operational use of knowledge (*see* Figure 8.1). We see from this model how the concepts of the learning organisation and the adaptive enterprise converge, but we have to ensure that knowledge passes *between* the three dimensions systematically. Knowledge services can help ensure this flow happens.

If long-term thinking includes mergers and acquisitions, or restructuring through disposal or downsizing, knowledge also becomes a key strategic issue

and its proactive *management* vital to success. Retaining an organisation's knowledge through the course of a merger or acquisition may be critical in retaining the value of the assets that have been acquired, both in terms of keeping the people and in integrating the new knowledge bases with the old (an issue where taxonomy proves its power). There are just as many instances of people being let go when it turns out that their knowledge was in fact key to running parts of the business. Either way, having knowledge, and its effective management, as an integral part of business strategy and thinking equips the organisation in advance for these kinds of changes. It may not eliminate the pain, but it can certainly reduce it.

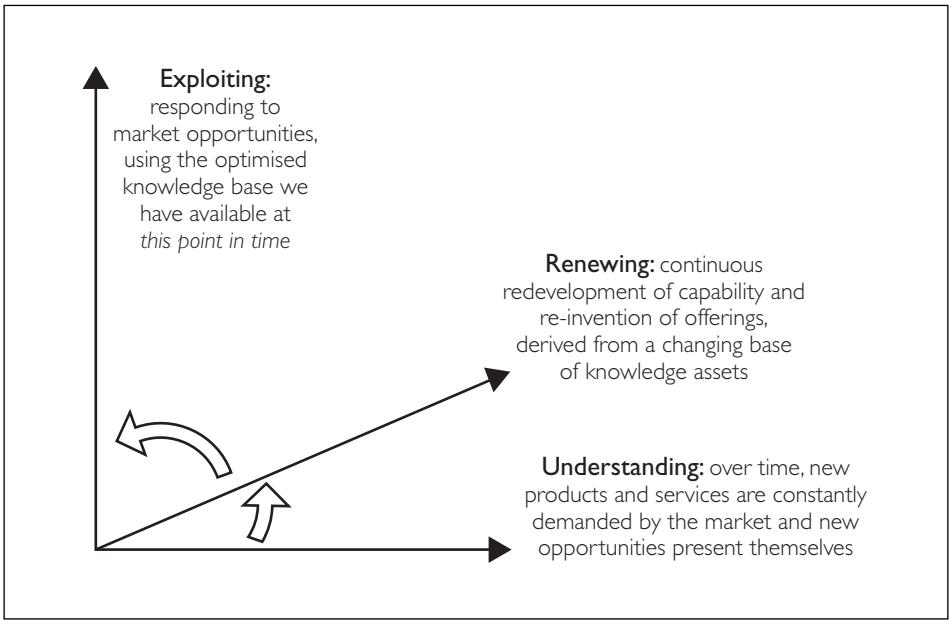


FIGURE 8.1
The three dimensions of knowledge management

THE RELEVANCE TO MARKETING AND COMMUNICATION

Marketeers need to understand the products and services which are succeeding or failing in their organisation's sector. There is also a strong link with projecting the firm into the market through communication and branding. As for strategic planning, acquisition of data is vital, and again the source for research will be common. Both require strong communication into the field, and knowledge systems (particularly e-mail, intranets and portals) provide unprecedented reach and speed of access to global corporate audiences. As the firm announces new products and services or new businesses, the internal marketing of these needs to proceed

in synchronisation with access to the new knowledge that is implied – the fact sheets, the training, the points of view.

But this is not just a one-way relationship: there is real symbiosis in that knowledge management needs to call upon the expertise of marketing and communications functions to get its message about services and capabilities around the organisation, reinforcing those simple messages about 'what knowledge management is going to do for you' in the form of new services and applications for targeted communities. A picture may be worth a thousand words, but a short, well-executed video can be worth a lot more when it comes to promoting new services and showing people how to use them.

HUMAN RESOURCES

We have already discussed the relevance of knowledge management to the HR function in terms of mapping of skills across the organisation and how knowledge management can help HR fulfil its mission of creating and retaining the workforce the business needs. Again there is a relationship of mutual benefit, as HR can help drive through changes to job objectives and performance evaluation which can reinforce knowledge sharing, carrying this through into the values sought in new recruitment. Employee satisfaction surveys run by HR are also an important source of real feedback on how knowledge management is being experienced in the field – or not.

Increasingly, companies are turning to employee self-services (ESS) for HR support and administration of many basic functions. As noted elsewhere, this has an important part to play in changing attitudes to accessing the online environment, something which will increasingly extend its reach and effectiveness as new mobile technologies are rolled out. As people become used to viewing their pay slip online, or confirming their pension details, so they will become more inclined to consult online knowledge systems as the first port of call in navigating organisational knowledge.

TRAINING, DEVELOPMENT AND QUALITY FUNCTIONS

The increasing demand for just-in-time (rather than just-in-case) training placed on training functions has driven a move from the classroom onto the desktop. This has meant a complete rethink of training time scales,

granularity of modules and delivery methods.[1] The difference between micro-course modules and elements of re-usable best practice arising from current activities becomes vanishingly small. This is the promise of e-learning: a degree of responsiveness and flexibility which has never been possible before. As well as the obvious reductions in direct and indirect costs of training, it becomes possible to see the renewal of skills continuously tracking the needs of the business. This is the convergence of business strategy, organisational learning and business operations within a framework of knowledge management.

By directly connecting *knowledge* and *learning*, the value of individual contributions can be multiplied hugely through *systematic* incorporation in training tools and quality methods. This has been an aspiration for many years, but with separate perspectives on training, methods and quality it has proved impossible. Knowledge management provides the unifying framework that makes a difference. For example, an individual insight, captured through a knowledge management system, makes this available to many others, who can in turn build on and reinforce the original learning, making it applicable in many more situations. It then becomes the basis of a new method to be added to the quality system. As such, this can then become part of the formal (or informal) training curriculum, available to everyone – and part of the organisation's 'memory'. This is the concept embedded in the knowledge value curve.

RESEARCH, DEVELOPMENT AND INNOVATION

Research and development has long been fertile ground for ideas on knowledge sharing and community: the close affinity of research functions to the academic world means that these collaborative behaviours are not as alien as they are in many other areas. Knowledge management can offer further benefits, in terms of collaboration *between* research communities (increasing potential for innovation through exposure to new ideas) and between research, sales and production functions.

It is these links that are potentially the most fruitful, in that they offer the potential to increase speed to market, overcoming traditional failures to exploit new discoveries and ideas in available market windows, and to speed up the traditional research and testing cycle. Ensuring that the sales team is fully prepared with knowledge about a new product is a vital step in minimising time to value. Seeing the R&D community as part of the

wider knowledge management ecosystem, rather than as a separate knowledge 'island', is vital to ending this isolation and driving benefits in both directions – ensuring that research is more relevant to the market and that continued growth of the business is assured.

SALES AND CUSTOMER SERVICE

The vital link between sales and knowledge has already been extensively explored in terms of the value that knowledge management can add to the sales function, both in terms of providing input and enhancing collaboration within the community. Much has also been written about 'knowing the customer' with the implication that customer relationship management has some major overlaps with knowledge management, and this is undoubtedly the case, particularly within the area of sales force automation. However, this discussion omits another major area of interface with the customer, namely the helpdesk.

Increasingly, customer (and internal) helpdesks are being seen as front-line manifestations of organisational knowledge.

Increasingly, customer (and internal) helpdesks are being seen as front-line manifestations of organisational knowledge. Whilst initially conceived as separate repositories of responses to frequently asked questions (FAQs), these responses can themselves form part of the wider organisational knowledge base. Conversely, connecting the helpdesk to the full range of other knowledge systems means potential for far richer responses, and more rapid incorporation of customer learning into the knowledge base. It is in its integrated response to this area that Buckman Laboratories has shown what is possible, perhaps more than any other case study in the knowledge management literature.[2]

INFORMATION TECHNOLOGY

There is great potential for synergy between the information technology and knowledge management functions. There is enormous scope for better knowledge sharing within IT itself – the pressures of preparing systems for the millennium showed IT professionals just how valuable sharing and exchanging information could be. IT also has an interest in raising the performance of its helpdesks. However, the general perception is that IT has a bigger influence over knowledge management than vice versa. In practice, the rate of advance of knowledge management today is constrained by

enhancement of network capacity and processing power: ensuring available bandwidth and MIPs[3] stay in step with ambitions for rich collaborative channels will prevent delivered services falling short of expectations. There is also much under-utilised knowledge management-friendly functionality in today's front-office systems, and IT should seek ways of improving roll-out so that such existing investment is better utilised.

Historically, there has been a tendency for the IT function to be identified by default with knowledge management initiatives, generally driven by intranets or similar technologies. Whilst the *support* of IT in growing the effectiveness of knowledge management is vital, it is important to differentiate the knowledge processes from the IT infrastructure. The knowledge management function should define requirements, but not attempt to define the choice of platforms and technologies: there are too many other stakeholders for knowledge management to carry this responsibility as well.

Having said this, conventional approaches to defining systems requirements are rarely suited to the needs of knowledge management. As we have observed before, knowledge management solutions have to respect many subtle preferences, likes, dislikes and other subjective issues of taste to ensure that the system 'feels' right. Hence piloting techniques are extremely relevant when it comes to selecting knowledge management technologies. It is also advisable to be aware of broad trends in an area that is still maturing. In the next chapter, we look at the direction knowledge management technology is taking, and identify key requirements and characteristics that will ensure a reasonable degree of consistency.

Summary

Having proposed the creation of a dedicated knowledge management service function, it is important to understand that this is more than just another support group. There are identifiable knowledge needs for every other business function to be able to perform its role effectively, and knowledge also provides a unique integrating perspective that unlocks synergy and can ensure the whole is greater than the sum of the parts. These relationships are symbiotic: Knowledge management also needs the expertise of other functions in order to get its message across, and to work effectively.

The relationship between IT and knowledge management is particularly complex. There is a need to make IT better aware of its own needs for knowledge sharing, and to achieve a clear separation of responsibility for defining requirements for

knowledge management solutions versus choosing the technologies to deliver these solutions. The fact that meaningful interaction with knowledge systems is largely a *voluntary* choice should warn IT away from being over-prescriptive in this area. It is important that IT supports this separation, in order to get away from the implementation failures of so many first-generation knowledge systems. The knowledge function needs to be recognised as having this expertise and being accountable for exercising it on behalf of the *whole* of the organisation, freeing IT to build and run the systems infrastructure.

NOTES

1 See 'Tough lessons for business schools', *The Sunday Times*, 11 February 2001.

2 Fulmer, W.E. (1999) 'Buckman Laboratories', *Harvard Business Review Case Study*, No. 800160.

3 MIPs = millions of instructions per second. An informal measure of computing power.

9

Knowledge management technology: choosing the future

THE TECHNOLOGY DEBATE: CHICKEN OR EGG?

It is not the intention of this report to make specific comparisons or recommendations about choices of knowledge management technologies or products. Instead, we offer a reflection on what has been learned so far about the characteristics of technologies applied to knowledge exploitation and their perceived successes or otherwise. It comes as no surprise to observe that, as ever, an understanding of the real needs and measures of success that are meaningful to the user of the technology (both in terms of how well it delivers against needs and how easy it is to use) is what matters more than any detailed functional trade-offs. On the front line, simple, easy-to-use technology, solidly implemented in a way that makes it utterly reliable and compatible with how people actually work, will always be preferred to sophisticated, unreliable and hard-to-use technology.[1]

In many people's minds, progress on implementing knowledge management has been inextricably linked with technology. Even in 1998, most of the categories of relevant technologies were already forming (*see* Figure 9.1) and although respondents were perhaps not yet clear what they meant, several of the key future technology trends were already visible (*see* Figure 9.2). In the 1999 survey, the perceived reliance on information and communications technology to knowledge sharing was becoming clear.[2]

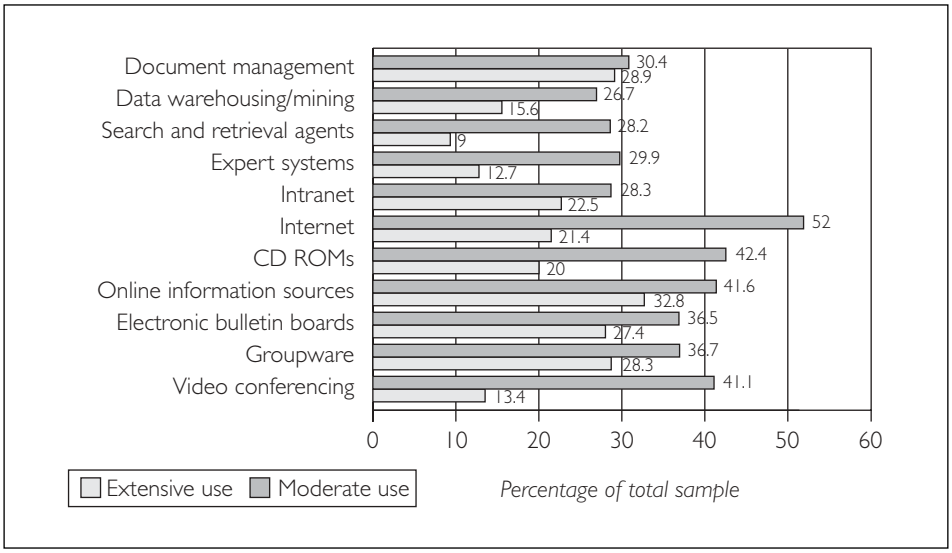


FIGURE 9.1

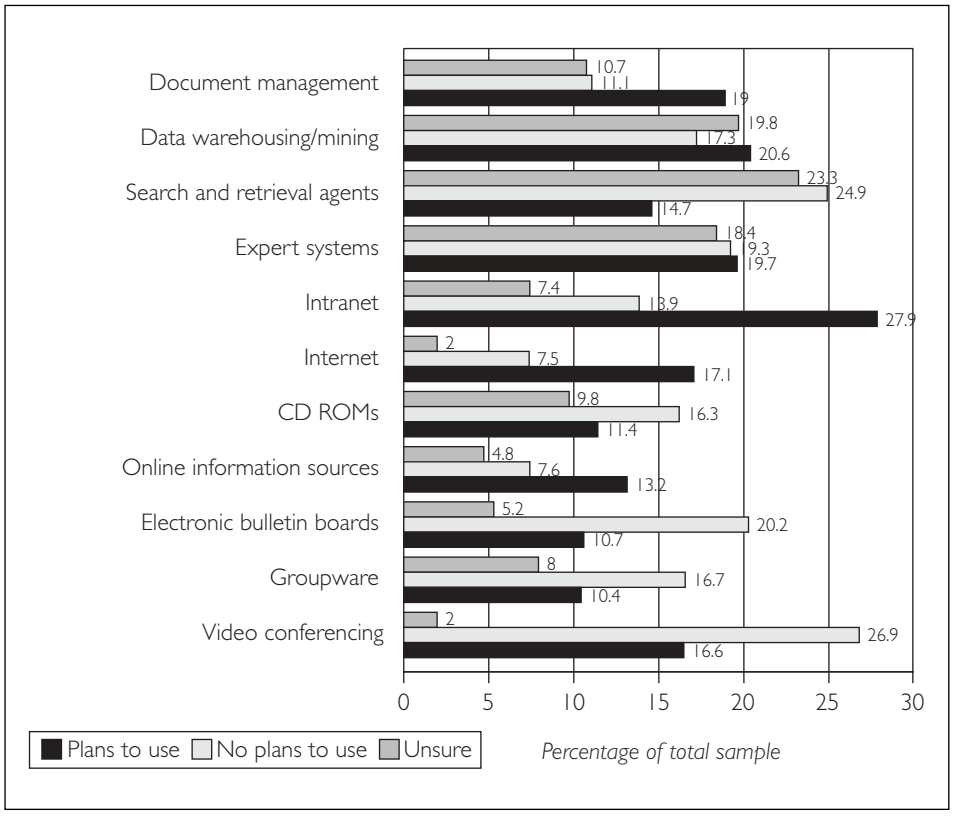
Knowledge management technologies – present use (n=260)

The 'culture versus technology' debate in knowledge management has swung back and forth over the past few years, with neither extreme producing a comprehensively useful recipe for action. It is clear that technology deployment on its own will achieve very little: if you build it, people will *not*

come. On the other hand, there is a continuing strong affinity with traditional methods for sharing knowledge – documents, face-to-face meetings, formal training and the humble telephone – which are still perceived as working acceptably well.[3] The view that 'knowledge is all about people' is admirable, but unless we can get all those people co-located at the same time and in the same place, manual knowledge-sharing processes are far too slow to meet today's requirements for responsiveness to change. We have to employ technology to get the new messages out *fast*. In addition, the exponentially expanding volumes of information available mean we need tools to help sift through it.

FIGURE 9.2

Knowledge management technologies – future use (n=260)



WHAT HAVE WE LEARNED?

The 2000 survey presents a wealth of data regarding the relative effectiveness or ineffectiveness of a range of technologies with respect to knowledge exploitation and management. Looking at the past versus future perceived effectiveness scores (*see* Table 9.1) suggests strong rejection of standalone office suites, management information systems (MIS), e-mail and audio conferencing as knowledge exploitation technologies. There is weak support

for (or a slightly negative view of) workflow, shared databases, personal information management systems, interactive TV, handheld devices, GroupWare, EIS, ERP and document management. However, expectation of the future contribution of intranets, the Internet, extranets, desktop video conferencing and CRM software is relatively strong.

TABLE 9.1

Comparison of perceived past and future effectiveness of knowledge exploitation technologies (n=650)

Technology	Past effectiveness rating	Future effectiveness rating	Trend (+ = more effective)
Workflow management	11	11	0
Shared databases	30	28	–2
Personal information management systems	9	7	–2
Integrated office suites	22	3	–20
Management information systems (MIS)	35	18	–17
Intranet	23	37	+14
Internet	17	46	+29
Interactive TV	1	8	+7
Handheld devices	4	7	+3
GroupWare	4	4	0
Extranet	2	13	+11
Executive information systems (EIS)	7	8	+1
Enterprise resource planning (ERP) systems	11	15	+4
E-mail	75	29	–46
Document management	14	11	–3
Desktop video conferencing	6	25	+19
Customer relationship management (CRM) s/w	7	26	+19
Audio conferencing	23	4	–19

What can we make of this picture? There are both some strong positives and negatives which present no surprises, contrasting with some that might not have been anticipated. The negative view of office suites and MIS is perhaps not what would have been expected, particularly with respect to office applications (word processing, spreadsheets, etc.) given their ubiquity on almost every PC on the planet. But this can be understood in terms of the fact that it provides a free-standing rather than a collaborative environment. The same is true of MIS: as we observed earlier, we need to know what the numbers *mean*. Recent developments, particularly in the field of office platforms, suggest the realisation that individual productivity has been taken just about as far as it can go[4] and that any further improvements have to come from setting the individual's work in a collaborative social context

where higher quality deliverables can be produced faster by easier assimilation of inputs from colleagues and other knowledge sources.

The strong negative view of e-mail is not difficult to explain – just ask anyone who gets 20 or more messages per day their view of how much value this adds, and bear in mind that in some organisations, 200-plus mails per day are not uncommon. This is probably the manifestation of information overload experienced by most people, and is one of the reasons for the uptake of portals, which we discuss further below.

The negative view of audio conferencing is possibly slightly surprising, given its wide availability and low cost. This result probably reflects two factors – that audio conferencing is now seen as the 'poor relation' of full desktop video conferencing (which received a strong positive rating) and that many organisations have still to develop a consistent, structured approach to meeting management. New tools to facilitate e-meetings (discussed later) can help reinforce attempts to develop a more productive environment for meetings.

GroupWare is another technology that has its adherents but also many detractors in that it is difficult to prevent the proliferation of content databases that can so easily spiral out of control.

The positive view taken on intranets, extranets and the Internet, plus desktop video conferencing, is to be expected, given the ease of access to information and rich communication channels across organisational boundaries these media provide. The support for CRM (which also covers sales force automation software) is a clear manifestation of the need to enhance knowledge about customers and all aspects of interacting with them, which was discussed at length earlier.

The apparently confused pattern of responses to the remaining technologies is in fact exactly what we would expect, given the variety of potential stumbling blocks to successful application of technology in the exploitation and management of knowledge. Document management, whilst 'great in theory', is often perceived as demanding too much discipline and input from the casual knowledge contributor in terms of keywords, taxonomic categorisation and so forth. GroupWare is another technology that has its adherents but also many detractors in that it is difficult to prevent the proliferation of content databases that can so easily spiral out of control. There can also be performance problems when attempting to scale these technologies, a problem which afflicted early attempts to implement shared databases and workflow systems on the back of messaging systems. As network speeds continue to improve and the ability to grow such environments organically gets easier, so we should see

a steady improvement in ratings in this area. The usefulness of personal information management systems is also questionable when they are not integrated and easily synchronisable with back-office systems and infrastructures such as meta-directories. Lack of integration probably also explains the relatively low support for interactive TV in the business knowledge context. Again, as network bandwidth grows, the gap between what can be experienced as streaming video on an intranet and 'dedicated' interactive TV services has become so small as to make building a separate infrastructure unjustified: this medium is probably most relevant as a business to consumer (B2C) channel.

The lukewarm support for ERP and EIS in exploiting knowledge probably reflects in the case of the former the lack of access for general users, and in the case of the latter the difficulties in getting at the data that matter. The recent wider uptake of portal technologies can be seen as a response to both these issues. In many respects, delving into ERP and legacy systems presents the same problems of connectivity and ease of use. Portals not only address this in a flexible manner, they open up a number of new channels for presenting the data such as mobile and handheld devices. This in turn explains the relatively modest positive support for handheld technologies which are only now beginning to be fully exploited as serious channels (subsequent to gathering of the survey data) with the emergence of the new mobile protocols.

WHAT CHARACTERISES SUCCESSFUL KNOWLEDGE MANAGEMENT TECHNOLOGIES?

This analysis suggests a number of themes that need to be taken into account by knowledge management technology developers, and those who select and implement the products.

- **Collaboration at the core** – systems that are standalone islands of knowledge or data are now seen as less useful than those that support sharing, both of knowledge objects and relationships. Collaboration must be a design starting point, not a bolt-on.
- **Integration and interaction** – technologies must talk to each other and to an organisation's legacy systems and infrastructure in order to provide the critical mass of content that is required. Duplication, gaps, inconsistencies and conflicts of data are unacceptable.

- **Access and performance** – closely related to connectivity and speed of networks, these factors have a direct effect on perceptions of usability: people are not prepared to wait, and want to exploit all possible channels, including mobile and handheld.
- **Ease of use and flexibility** – ranging from unfamiliar applications being intuitively easy to use (and hence requiring zero training) to providing richness of exchange (such as desktop video conferencing). People expect to pick up technology quickly and be able to adapt it as necessary.
- **Content and context** – content must be relevant and deliver value, be easy for non-specialists to contribute to and managed to ensure that information overload does not result. Linking of hard and soft data in context is important for meaningful interpretation leading to action.
- **In tune with people** – successful technologies adapt to how people work and their sometimes contradictory requirements to on the one hand filter masses of information and on the other provide rich, tacit channels (audio, video) that build and sustain trust. Tools can encourage better work practices, but not mandate them or change them overnight.

The above analysis is exactly in line with the *characteristics* of technology that were perceived would significantly aid knowledge exploitation, as identified in the 2000 survey (*see* Figure 9.3). The highest-ranking items were (by some way) *ease of use*, *speed* and *reliability*, followed by *instant access* and *flexibility*. We see once again what might be termed a 'front-line profile' – in other words people value what helps them respond to today's issues effectively and with the minimum (additional) effort. Characteristics such as mobility, single point of access, being community-based and customisable are ranked lower because they contribute to the *means*, not the ends.

Bearing this in mind, we can see that current trends in knowledge management technology development reflect these priorities. The portal's use as the access layer for all other services and content has already been discussed in some detail. However, the 'pure' portal is giving way to the 'value add' portal, where either a strong element of content provision (from external sources) or internal content management (usually document management) is fully integrated into the service. We also see portals dedicated to collaboration, supporting the activities of communities, and offering close alignment with working practices (through, for example, tight integration with e-mail). Portal providers are also integrating their products with tools that delve into the semantics of content: developing

and accessing organisational taxonomies, providing comprehensive search and summarisation capabilities, the ability to sustain persistent searches or subscriptions to specified content, and the ability to identify experts.

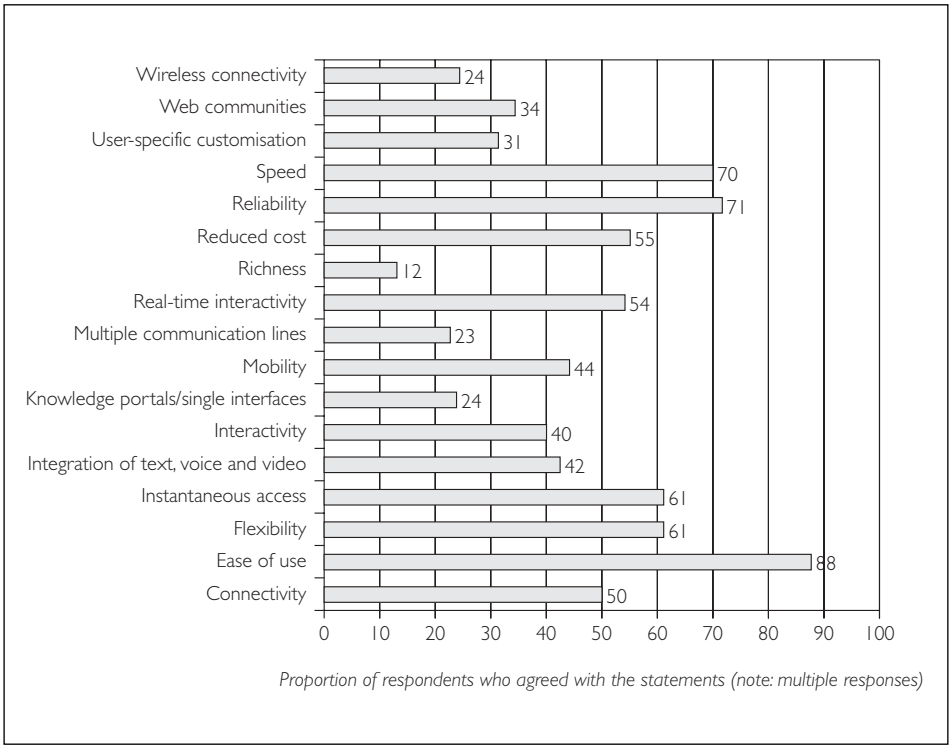


FIGURE 9.3

Technology characteristics that will significantly improve knowledge exploitation (n=650)

EMERGING TECHNOLOGIES

The list of technologies that have something to offer knowledge management grows almost daily. Currently we are undergoing the mobile revolution and only just beginning to see the possibilities for collaboration through cellphones[5] and personal digital assistants (PDAs). The capabilities of voice and picture recognition grow better all the time – certainly speech recognition for individuals is available with acceptable levels of accuracy for general document creation – and so yet more barriers to capturing ideas are falling. The performance levels of video services, both streaming broadcasts and real-time conferencing, are also advancing, due both to increased network capacity and improved compression algorithms. The next few years will see all these advances consolidated, made routine and (most importantly) accepted by the majority of connected knowledge workers – whose number will itself increase as the availability and flexibility of mobile devices grows.

The list of technologies that have something to offer knowledge management grows almost daily.

We are also seeing continuing advance in other areas of linguistic analysis, with concept-based searching and matching now rapidly replacing keywords as the preferred mode of search. In effect the ability of the computer to mimic to some extent all human forms of communication, interaction and reasoning will continue to expand, so that technology-assisted collaboration becomes as natural as talking to the person at the next desk is today. Only in future, the 'next desk' may be thousands of miles away.

Another of the barriers that holds back sharing today is the sheer inconvenience of turning on PCs and logging in. With tomorrow's wireless networks and high-speed lines offering the 'always on' network, where constant logging in is a thing of the past, again it will be as easy to refer to online knowledge sources as it is today to pick up a piece of paper. The concept of 'presence management' – knowing who is contactable online at any given time – should take a major step forward, and with it the popularity of the computer as the primary means of communication. After all, we already see mobile phones that are in effect computer terminals, and PCs that can be configured as telephones (or even video phones). Suddenly the concept of instant messaging as an emulation of face-to-face conversation becomes more realistic – and with it (perhaps) comes an end to the curse of e-mail overload.

THE EMERGENCE OF THE ENTERPRISE KNOWLEDGE SYSTEM

Today we see hundreds of vendors and products competing in what can be broadly referred to as the 'knowledge space'. Products overlap, vendor offerings are incomplete and in many respects incompatible. There is a high degree of local customisation and development. The situation is analogous to that of application systems before the rise of integrated ERP. But we are beginning to see change as the major platform providers announce the first generation of product suites which cover the *whole* space, including portals, collaboration, search, document management, taxonomy, personalisation, workflow, community management and so on. The consensus of the features needed is emerging, but developing an enterprise-wide knowledge infrastructure is still a major integration exercise, with no guarantee that the end result will meet expectations. As current products mature and the myriad niche players start to rationalise, merge and form new alliances and coalitions, so we will see the emergence of the functionally rich, integrated *enterprise*

knowledge system (EKS) having as prominent a position in organisations as ERP systems do today – the only difference being that (hopefully) they will be a great deal easier to use and hence achieve firm-wide take-up.

Summary

There has been enough exposure to knowledge management technologies now to both understand what is important in terms of the characteristics and to form a first impression of what the end result could look like. The key issues remain understanding the real needs, and weaving the technologies into the fabric of how people think and work. The way forward is to create techniques that *synchronise* the introduction of technology with the synthesis of social structures and values that will ensure its successful adoption. The new form that systems integration must take is not just about interfaces between applications, networks and databases; it must also understand their interactions with people, communities, relationships and experience. This is the 'final frontier' referred to earlier. Then the debate can finally move on from chickens and eggs to a mutually supportive synergy between unique human strengths and the power of technology to deliver on the promise of knowledge management.

NOTES

1 One is reminded of the comparisons US military personnel made about their sophisticated weaponry versus the simple, robust AK-47.

2 Rajan *et al*., 1999, Figure 2.5.

3 Ibid., Figure 3.4.

4 The rather derogatory term 'bloatware' was coined to reflect this feeling!

5 Indeed, the general public is probably ahead of the business world in this respect. See the report in *The Independent* (London), 23 January 2001, of the uprising in the Philippines, and the extraordinary part text messaging played in co-ordinating this action.

Postscript: knowledge in the virtual enterprise

The Internet has enabled a new form of economic network to emerge, the first manifestation of which is the online marketplace. As this concept is developed into whole ecosystems of entities collaborating via the Internet,[1] each of which performs part of the process in delivering a service to the end customer, one is prompted to ask: where is the concept of the company in all this, and where is the company's knowledge? The answer appears to be that the provision of knowledge services will itself move outside the enterprise, and we are already seeing this in the offer from application service providers (ASPs) of collaborative, communication and content management services on the Internet. Almost every type of knowledge application and service is available hosted by an external entity – the concerns are security, functionality and speed of access, not to mention legal issues of ownership and liability.

With this in prospect, it is perhaps more important than ever to bring the knowledge resource to the forefront of organisational thinking before it fragments dramatically. The nature of the opportunities afforded by knowledge – and the threats from not managing it effectively – will not change. The speed at which organisations will need to respond to these threats and opportunities will increase, but the difficulty of pulling together a response will also rise, and hence so will the strategic importance of knowledge management. The gradient of the knowledge value curve will get ever more precipitous – promising an exciting (but short) descent down the slippery slope and an ever tougher ascent. Knowledge management is the vehicle that will help us enjoy the ride.

NOTE

1 See, for example, Microsoft's announcements of its .Net vision.

Appendices

Appendix A

The Cranfield 2000 Knowledge Exploitation Survey

This survey investigated the importance of knowledge in realising value in organisations. For the purpose of this study, knowledge was defined as '*fluid mix of experiences, values, contextual understanding, and expert insight*' and knowledge management was conceptualised in terms of the '*realisation of business benefits from turning knowledge into action*'.

RESEARCH OBJECTIVES

The study sought to identify both the industries and the functional areas in UK based organisations where the exploitation of knowledge is seen to have the most significant impact on key performance indicators. This included the development of a view of the role of information technology in helping to maximise the effectiveness of organisations in leveraging their knowledge resources for value creation. Finally, the research sought to develop a benchmarking tool for organisations to assess their actual performance in value creation from knowledge and to identify those areas where an improvement in existing knowledge management practice was still needed.

RESEARCH METHODOLOGY

In order to capture as many views as possible, a postal survey was undertaken of senior-level business decision makers from a broad range of organisations throughout the UK. Their views of exploiting knowledge for business benefit were elicited by way of a structured questionnaire. The design of the questionnaire was informed by input from the academic literature and a series of semi-structured interviews with knowledge management professionals, chief information officers and chief knowledge officers in major organisations.

The questionnaire used 'tick box' type questions and 'rating' questions whereby respondents were asked to rate a particular issue on a 1 to 7 scale, ranging from negative to positive. The questionnaire was piloted amongst

a group of senior managers and directors to improve it by removing ambiguities and clarifying questions, concepts and response categories. The analysis of the data was based on percentage responses and statistical breakdowns. In-depth analysis was undertaken where appropriate to identify key themes, the purpose being to make the data more manageable and to use a more high-level analysis to interpret the data.

The data were analysed from two key perspectives: respondents' functional responsibility and four key industry sectors. The sectors chosen were manufacturing/engineering, financial services, retail/wholesale, and the public sector, that represent the greatest proportion of employment in the UK.

Analysis was also undertaken to elicit views of board-level versus non-board-level respondents and small to medium-sized organisations (less than 1,000 employees) versus large-sized organisations (1,000 or more employees). No significant variations overall were found between these groupings and hence these comparisons are not reported here.

SAMPLE CHARACTERISTICS

In total, 650 valid survey forms were returned, making this the largest empirical study of this nature undertaken in the UK to date. This figure was deemed robust enough to elicit statistically significant results.

In terms of industry sectors of the respondents' organisations, over one-third of the sample (35 per cent) were in the manufacturing/engineering sector. This share is broadly representative of the total UK population of this sector. The construction sector was represented by over 8 per cent, the professional services and consulting sector by just under 8 per cent, financial services and retail/wholesale with just under 7 per cent, IT/telecommunications and pharmaceuticals with around 5 per cent, the public sector with nearly 4 per cent, transport/distribution and energy/utility with just above 2 per cent, and other business services with around 15 per cent (*see* Figure A.1).

Organisational size as indicated by numbers of employees showed that more than half of the organisations represented by the respondents employed less than 1,000 staff. One-third of the sample organisations employed 1,000–4,999 staff, 6 per cent of the sample organisations 10,000 and more staff, and just under 5 per cent of the sample organisations were in the 5,000–9,999 staff category (*see* Figure A.2).

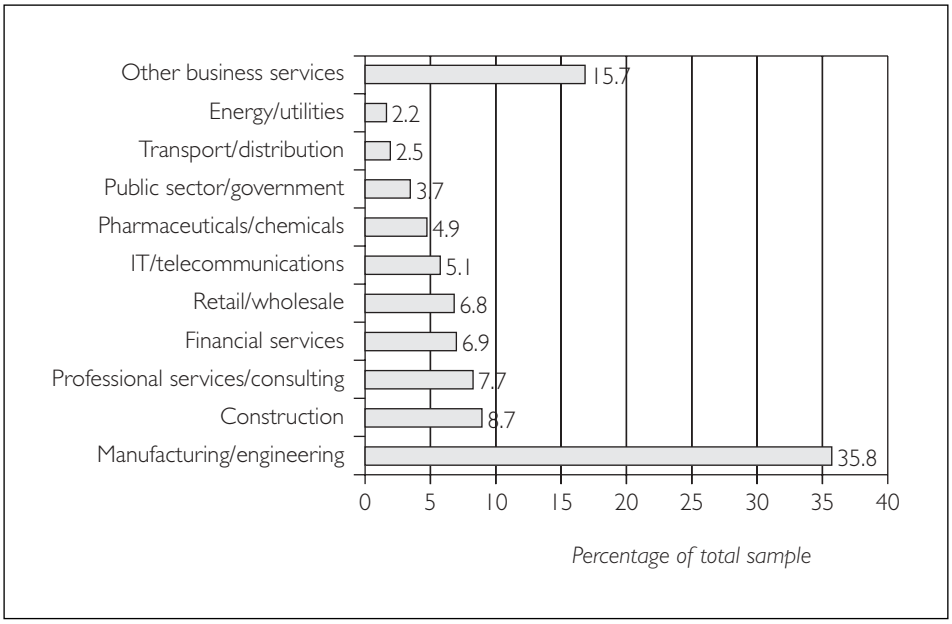


FIGURE A.1

Industry sectors of sample organisations (n=650)

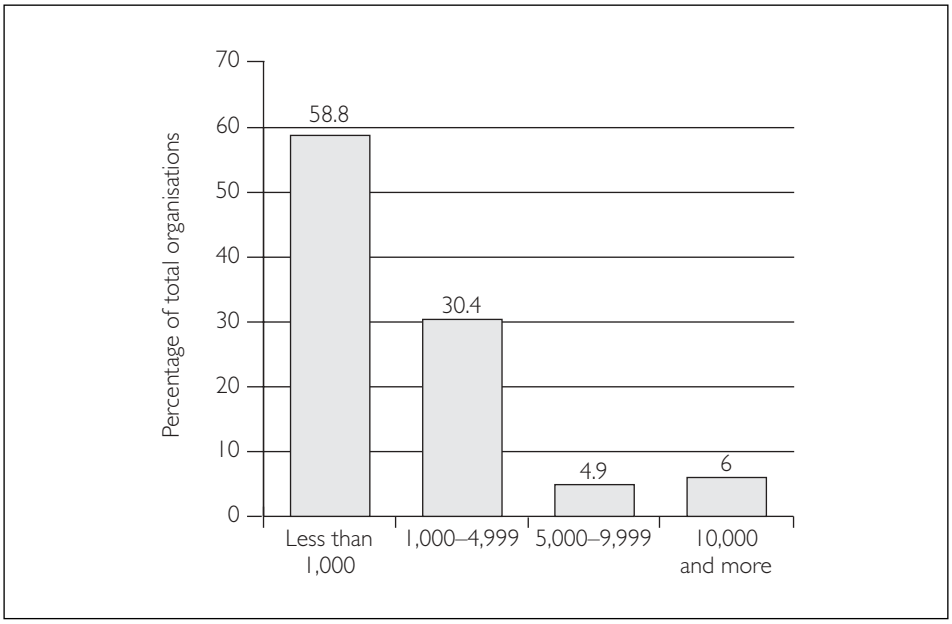


FIGURE A.2

Number of employees of sample organisations (n=650)

Just under one-third of the respondents (31 per cent) stated that they were on the board of the organisations they represented and the remaining share of just over two-thirds (69 per cent) indicated that they were non-board members (*see* Figure A.3).

Over half of the total sample (52 per cent) were in positions where they reported to the CEO/chairman/managing director, indicating a high level of seniority among the respondents (*see* Figure A.4).

FIGURE A.3
Hierarchical position of respondents (n=650)

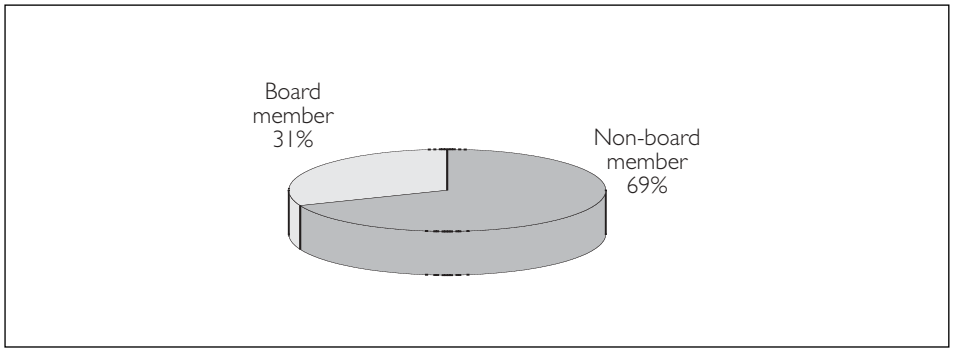
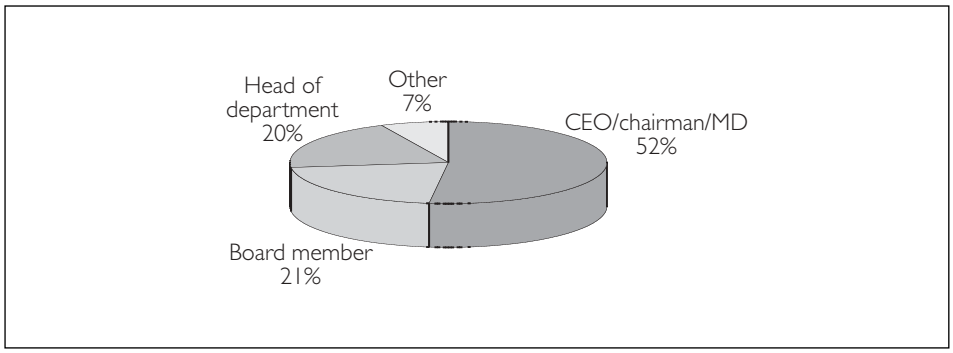
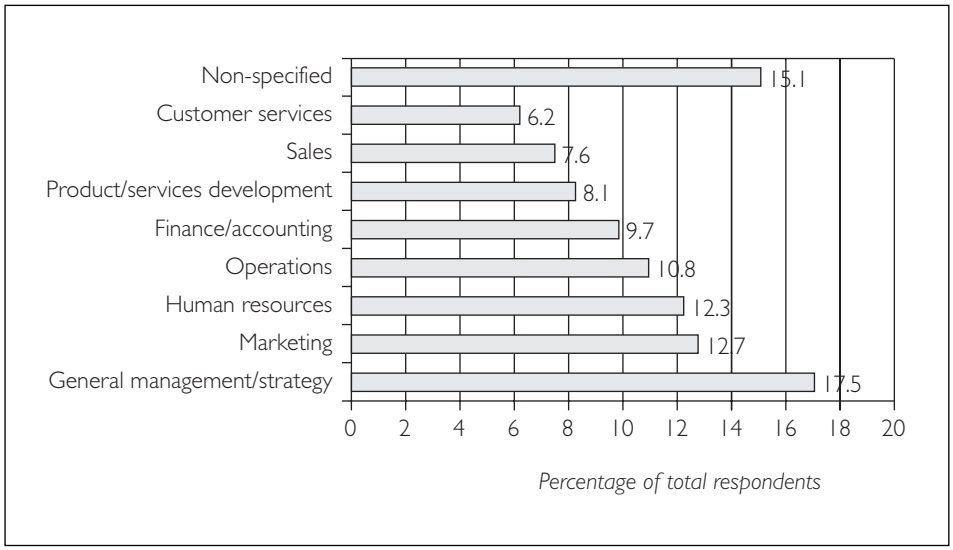


FIGURE A.4
Who do you report to? (n=650)



In terms of the functional responsibility of the respondents, the majority (17 per cent) indicated that they operated in general management/strategy. Other functions such as marketing, human resources, operations, finance/accounting, product/services development, sales, and customer services were fairly equally distributed across a range of 6 per cent to nearly 13 per cent (*see* Figure A.5).

FIGURE A.5
Functional responsibilities of respondents (n=650)



Appendix B

The Cranfield 1998 Knowledge Management Survey

The evidence of the 1998 knowledge management survey was collected in summer 1997, surveying 260 large and medium-sized European companies.

RESEARCH OBJECTIVES

The research sought to establish the degree to which the new knowledge paradigm had penetrated the awareness and practice of European business leaders. Next to an analysis of the meaning of knowledge and its importance to business organisations, the research included an assessment of corporate spending on knowledge management projects, the rise of knowledge workers, the cultural aspects of knowledge management, the role of information technology, and current knowledge management objectives.

RESEARCH METHODOLOGY

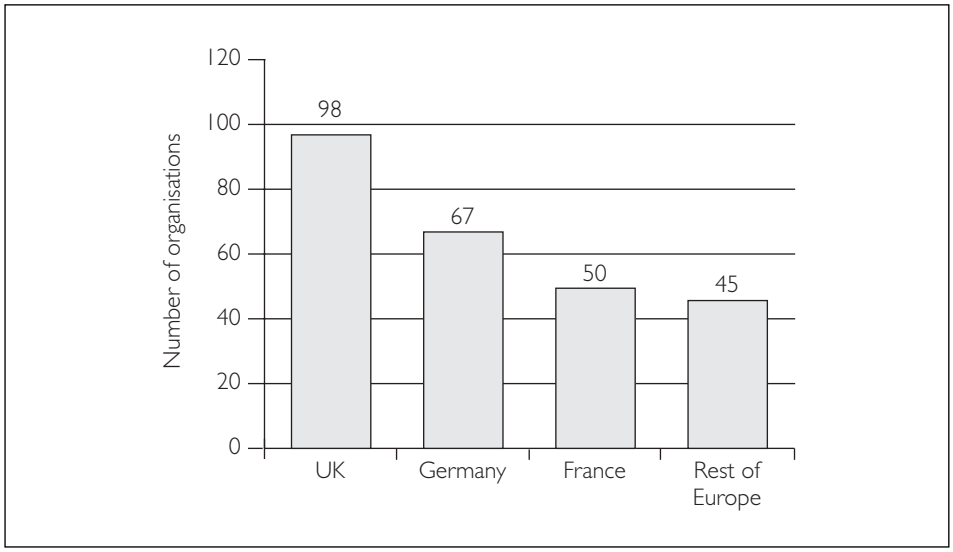
The design of the survey instrument was preceded by in-depth interviews with knowledge management professionals in European organisations and an extensive review of academic and specialist literature on knowledge management, thus combining both theoretical rigour and practical experience. The survey instrument was piloted with individuals from ten large multi-national organisations with the aim of ensuring that the question and response categories made sense to real-world managers and of capturing yet uncovered aspects. The final questionnaire was translated from English into French and German and finally translated back into English to ensure consistency of meaning and representation.

SAMPLE CHARACTERISTICS

Out of the 3,000 survey questionnaires mailed to companies across Europe, the 260 forms that were returned completed and valid form the evidence from this study.

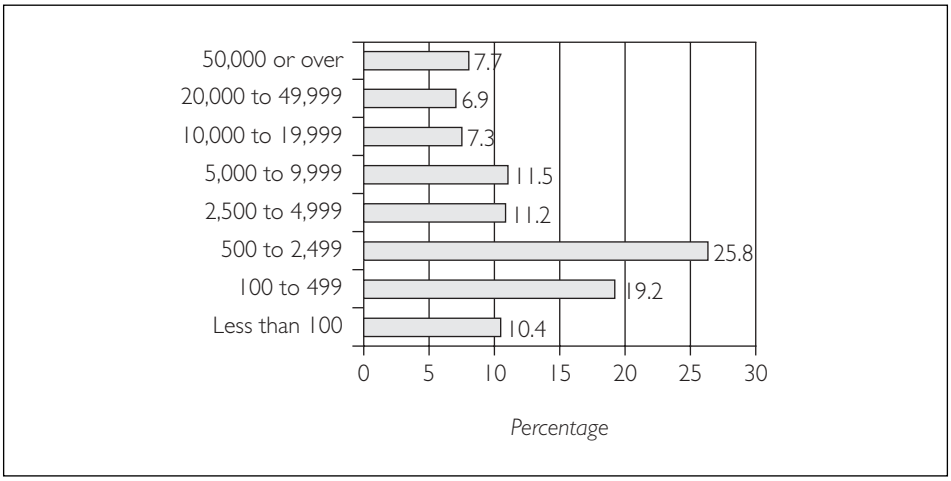
The 260 respondents in the 1998 survey represented 98 organisations in the UK, 67 in Germany, 50 in France and 45 from across the rest of Europe (*see* Figure B.1).

FIGURE B.1
Geographic distribution of sample organisations (n=260)



Expressed in terms of number of employees, over 70 per cent of the sample organisations were large-sized businesses, just under 20 per cent were medium-sized, and around 10 per cent represented small businesses (*see* Figure B.2).

FIGURE B.2
Number of employees of sample organisations (n=260)



In terms of representation of industry sectors, the sample reflects a fairly even distribution, with a share of over 27 per cent for the manufacturing/engineering sector, around 13 per cent for the finance/banking/insurance sector, just over 10 per cent for the pharmaceuticals/chemicals sector, around 8 per cent for the retail/wholesale sector, about 7 per cent for the

energy/utilities and the construction sectors, over 6 per cent for the transport/distribution sector, around 2 per cent for the telecommunications sector and 25 per cent for other business services (*see* Figure B.3).

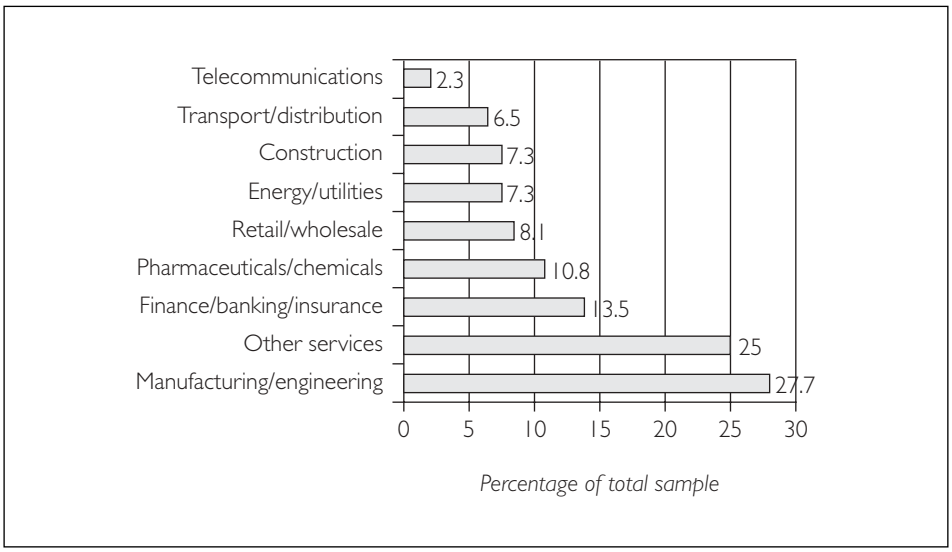


FIGURE B.3
Industry sectors of sample organisations (n=260)

The survey evidence has a strong bias towards the strategic management level, with half the respondents being CEOs, managing directors or chairmen of their organisations (*see* Figure B.4).

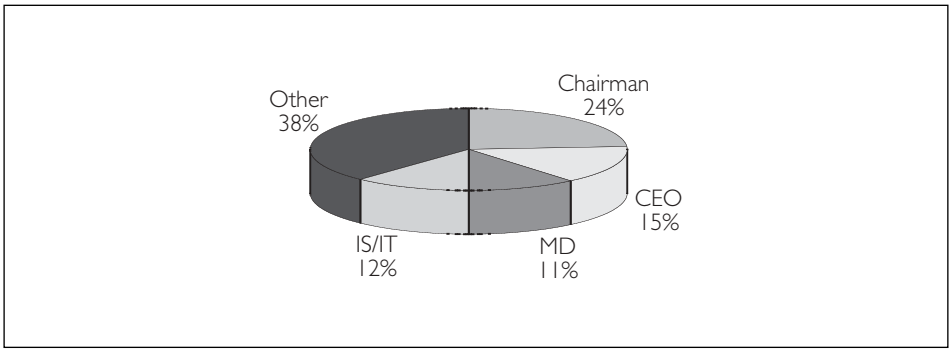


FIGURE B.4
Job positions of survey respondents (n=260)

In terms of a reflection of the level of experience of the responding managers, nearly half of them were aged 50 or above, one-third were 40 to 49 years old, a quarter were between 30 and 39 and the remaining small share of just over 1 per cent of respondents were under 30 years of age (*see* Figure B.5).

Forty-five per cent of respondents had been with their organisation for over ten years, over 18 per cent for six to ten years, 15 per cent for three to five years, and the remaining share of just over 21 per cent for less than three years (*see* Figure B.6).

FIGURE B.5

Professional experience of survey respondents (n=260)

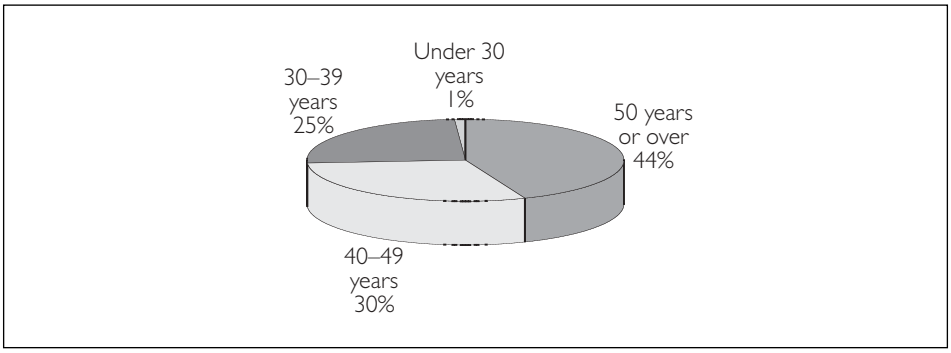
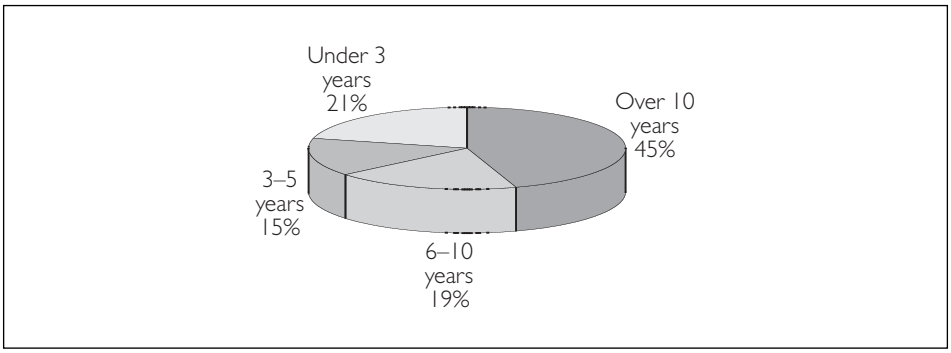


FIGURE B.6

Survey respondents' time in organisation (n=260)



Appendix C

Questionnaire for Knowledge Exploitation Survey 2000

EXPLOITING KNOWLEDGE FOR BUSINESS BENEFIT: A SURVEY

We are investigating the importance of knowledge in creating business benefit in organisations. The research does *not* address the concerns of knowledge *management*. For this survey, *knowledge* is defined as a 'fluid mix of experiences, values, contextual information and expert insight' and *knowledge exploitation* as 'deriving business benefits from turning knowledge into action'.

Benefits of participation

Please tick if you would like to receive a copy of the *research report* ❑

Please tick if you would like to attend a *free seminar* at Cranfield to discuss the results ❑

This offer is limited to the first 100 returns received!

Please state your name and address if you wish to participate in either of the above offers:

Name

Job title

Organisation

Address

Postcode

Instructions

The questionnaire is divided into three sections and should take approximately 15 minutes to complete. In answering the questions/statements, please either tick the box or circle appropriate responses where required on the 1 to 7 scales.

Your responses will be treated in the strictest confidence and data will only be presented in an aggregated form. When you have completed the questionnaire, please return it in the reply-paid envelope provided within two weeks of receipt. Thank you for your participation!

If you prefer, you may complete this questionnaire on our web site:
http://www.cranfield.ac.uk/som/knowledge

1. Background information

1.1 What is your job title? _____

1.2 I am CEO/Chairman/Board member ❑ Non-board member ❑

1.3 Who do you report to?

CEO/Chairman/MD/GM	❑	Head of division/department	❑
Board member	❑	Other: _____	❑

1.4 Your industry sector?

Construction	❑	Public sector/Government	❑
Energy/Utilities	❑	Retail/Wholesale	❑
Financial services	❑	Transport/Distribution	❑
IT/Telecommunications	❑	Professional services,	❑
Manufacturing/Engineering	❑	incl. consulting	
Pharmaceuticals/Chemicals	❑	Other: _____	❑

1.5 Number of employees (UK)?

< 999 ❑ 1,000–4,999 ❑ 5,000–9,999 ❑ > 10,000 ❑

1.6 Number of PCs in your organisation (UK)?

< 250 ❑ 251–999 ❑ 1,000–2,499 ❑ > 2,500 ❑

1.7 Are your operations

UK only ❑ Multinational ❑

1.8 In your organisation, is knowledge management on the board agenda?

Yes ❑ No ❑

1.9 Have you got an organisation-wide knowledge management strategy?

Yes ❑ No ❑

1.10 Do you undertake a cost-benefit analysis prior to investments in knowledge management?

Yes ❑ No ❑

1.11 What are your functional responsibilities?

Please tick all appropriate and circle the function of your primary responsibility.

Customer service	❑	Operations	❑
Finance/Accounting	❑	Product/Services development	❑
General management	❑	Procurement/Purchasing	❑
Human resources/training	❑	Sales	❑
IS/IT	❑	Strategy/Business development	❑
Marketing	❑	Other: _____	❑

2. Knowledge-based business benefits

2.1 What are the business benefits of knowledge exploitation in the area of your primary responsibility?

Please tick all appropriate boxes alternatively.

Achieved = *realised* business benefits *Potential* = *future* business benefits

	Achieved	Potential		Achieved	Potential
Campaign effectiveness	❑	❑	Organisational responsiveness	❑	❑
Capability for change	❑	❑	Process innovation	❑	❑
Competitive advantage	❑	❑	Product/services management	❑	❑
Competitive market awareness	❑	❑	Product/services quality	❑	❑
Customer retention	❑	❑	Project management	❑	❑
Customer service	❑	❑	Quality of decision making	❑	❑
Developing new markets	❑	❑	Reducing geographical barriers	❑	❑
Financial planning and control	❑	❑	Research and development	❑	❑
Innovative capability	❑	❑	Sharing ideas	❑	❑
Integration of logistics	❑	❑	Speed of decision making	❑	❑
Meeting customer needs	❑	❑	Staff competencies	❑	❑
New business opportunities	❑	❑	Stronger meritocracy of ideas	❑	❑
Staff morale	❑	❑	Supplier relationships	❑	❑
New products/services	❑	❑	Supply chain efficiency	❑	❑
Operational efficiency	❑	❑	Sustaining existing market	❑	❑
Organisational integration	❑	❑	Time to market	❑	❑
Organisational learning	❑	❑	Other: _____	❑	❑

2.2 What are the key performance indicators of those benefits?

Please tick all appropriate.

Competencies	❑	Project delivery (time, cost, quality)	❑
Cost saving	❑	Project resourcing	❑
Customer satisfaction	❑	Public reputation	❑
Customer value	❑	Ratio of knowledge re-use	❑
Employee retention rate	❑	Revenue	❑
Employee satisfaction	❑	Share price	❑
Employee skills profile	❑	Shareholder value	❑
Market share	❑	Speed of response	❑
Patent/intellectual property rights	❑	Stakeholder perception	❑
Product/service quality	❑	Volume of project documentation	❑
Profit levels	❑	Other: _____	❑

2.3 For the following statements indicate:

Please circle the appropriate number.

(A) how **important** they have been in achieving the benefits you identified in Q2.1. Scale: 1=not at all important *to* 7=very important

(B) how well you feel your organisation has **performed** on each statement on the scale ranging from 1=very poor *to* 7=very good

In my experience, business benefits can be realised from knowledge exploitation by:	**(A) Importance** (Not at all important … Very important)	**(B) Performance** (Very poor … Very good)
Capturing and transferring knowledge across projects	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Incorporating insights and experiences into good practice	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Making flatter organisation structures effective	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Balancing the use of people, technology and processes	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Enabling intra-organisational collaboration	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Matching people, skills and tasks	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Introducing new ways of working	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Enabling new ways of doing business (e.g. e-commerce)	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Creating distributed teams	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Creating virtual teams	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Increasing speed of communication	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Improving content management	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Facilitating access to expertise	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Creating commitment to knowledge sharing	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Getting people to collaborate	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Rewarding knowledge sharing	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Promoting knowledge management as a corporate value	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Improving people creativity	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Improving customer/supplier relationships	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Improving quality and speed of decision making	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Enabling inter-organisational collaborations	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Increasing process efficiency	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Delivering products/services faster	1 2 3 4 5 6 7	1 2 3 4 5 6 7

3. Impact of information technology

3.1 What, in the past, was seen as effective/ineffective and what, in future, will be seen as effective/ineffective for supporting knowledge exploitation?

*Please tick **three** boxes per column only!*

	PAST		FUTURE	
	Effective	Ineffective	Effective	Ineffective
Audio conferencing	❑	❑	❑	❑
Customer relationship management (CRM) software	❑	❑	❑	❑
Desktop video conferencing	❑	❑	❑	❑
E-mail	❑	❑	❑	❑
Enterprise resource planning (ERP) system	❑	❑	❑	❑
Executive information systems (EIS)	❑	❑	❑	❑
Extranet	❑	❑	❑	❑
GroupWare	❑	❑	❑	❑
Handheld devices	❑	❑	❑	❑
Interactive TV	❑	❑	❑	❑
Internet	❑	❑	❑	❑
Intranet	❑	❑	❑	❑
Management information systems (MIS)	❑	❑	❑	❑
MS Office environment or equivalent	❑	❑	❑	❑
Personal information management systems	❑	❑	❑	❑
Shared databases	❑	❑	❑	❑
Workflow management	❑	❑	❑	❑
Other, please state: _____	❑	❑	❑	❑

3.2 What characteristics of technology applications, future or emerging, will significantly improve existing capabilities for knowledge exploitation?

Please tick all appropriate boxes.

Connectivity	❑	Real-time interactivity	❑
Ease of use	❑	Richness	❑
Flexibility	❑	Reduced cost	❑
Instantaneous access	❑	Reliability	❑
Integration of text, voice and video	❑	Speed	❑
Interactivity	❑	User-specific customisation	❑
Knowledge portals/single interfaces	❑	Web communities	❑
Mobility	❑	Wireless connectivity	❑
Multiple communication lines	❑	Other, please state: _____	❑

THANK YOU FOR YOUR CONTRIBUTION

Please tick if you do not wish to participate in other surveys ❑

Appendix D

Questionnaire for Knowledge Management Survey 1998

KNOWLEDGE MANAGEMENT: A EUROPEAN SURVEY INTO CURRENT PRACTICES

The *Information Systems Research Centre* at the Cranfield School of Management is conducting a survey into the state of knowledge management in European business. The aim is to find out what organisations' current views and plans are to deal with knowledge and its management as a means to gaining business benefit.

The questionnaire is divided into eight sections and should take approximately 20 minutes to complete. In answering the questions/statements, please tick appropriate responses and add text where required.

Your responses will be treated in the strictest confidence and data will only be presented in an aggregated form. When you have completed the questionnaire, please return it in the reply-paid envelope provided. Thank you for your contribution.

1. Background information

1.1 Briefly describe your role, please:

_____

_____

_____

_____

1.2 How old are you?

- Under 30 years of age ❑
- 30–39 years of age ❑
- 40–49 years of age ❑
- Aged 50 or over ❑

1.3 For how long have you been in the organisation?

- Less than 3 years ❑
- 3–5 years ❑
- 6–10 years ❑
- More than 10 years ❑

1.4 For how long have you been in your present position?

- Less than 3 years ❑
- 3–5 years ❑
- 6–10 years ❑
- More than 10 years ❑

1.5 In which industry sector does your organisation mainly operate?

- Manufacturing/Engineering ❑
- Pharmaceuticals/Chemicals ❑

1.6 What is the total number of employees in your organisation?

- Less than 100 ❑
- 100–499 ❑

Energy/Utilities	❑	500–2,499	❑
Construction	❑	2,500–4,999	❑
Transport/Distribution	❑	5,000–9,999	❑
Telecommunications	❑	10,000–19,999	❑
Retail/Wholesale	❑	20,000–49,999	❑
Finance/Banking/Insurance	❑	50,000 or over	❑
Other: _____	❑		

1.7 Will you be responding to the remainder of this questionnaire
On behalf of your organisation? ❑ Based on your personal opinion alone? ❑

2. Defining 'knowledge management'

2.1 There are a number of definitions of knowledge management. Please indicate the one that most accurately reflects your understanding.

Knowledge management is …

A technological concept – 'the use of information technology to capture data and information in order to manage knowledge' ❑

A business-focused approach – 'the collection of processes that govern the creation, dissemination and utilisation of knowledge to fulfil organisational objectives' ❑

A situation where no visible processes are used but it is – 'simply the ability to manage *knowledge*' ❑

About intellectual assets – 'taking the form of documents and information bases' ❑

Other, please state: _____ ❑

For the remainder of this questionnaire, please refer to knowledge management in terms of the definition you have indicated above.

3. Relevance of knowledge issues

3.1 Please rank the following (your top 5) in terms of how *important* knowledge is in the nature of your business and its markets.

1 = highest in importance – 5 = lowest in importance

Surviving	❑	Succeeding	❑
Gaining competitive advantage	❑	Growing revenue	❑
Increasing profits	❑	Improving market share	❑
Instigating change	❑	Identifying new markets	❑
Developing new products/services	❑	Improving efficiency	❑
Being more effective	❑	Other: _____	❑

3.2 Is the knowledge you need to address the above issues mainly found inside or outside the organisation?

Please ensure that the values add up to 100%.

Within the organisation ..... % Outside the organisation ..... %

4. Exploitation of knowledge

4.1 In the areas where you identify knowledge management as important, to what extent do you agree/disagree that it is an issue of:

	Strongly disagree	Disagree	Agree	Strongly agree	Unsure
Creating new knowledge	❑	❑	❑	❑	❑
Finding knowledge internally	❑	❑	❑	❑	❑
Acquiring knowledge externally	❑	❑	❑	❑	❑
Having the knowledge	❑	❑	❑	❑	❑
Processing the knowledge	❑	❑	❑	❑	❑
Re-using knowledge	❑	❑	❑	❑	❑
Applying knowledge to some benefits	❑	❑	❑	❑	❑
Updating knowledge	❑	❑	❑	❑	❑
Sharing knowledge internally	❑	❑	❑	❑	❑
Sharing knowledge outside the organisation	❑	❑	❑	❑	❑

4.2 In terms of achieving your business objectives over the next 3 to 5 years, how important are the following in terms of meeting those objectives in times of change?

Knowledge will be required about …

	Not at all important	Un-important	Important	Very important	Unsure
What the business needs to know	❑	❑	❑	❑	❑
Competitors	❑	❑	❑	❑	❑
External regulations	❑	❑	❑	❑	❑
Use of existing data/information	❑	❑	❑	❑	❑
Issues related to management	❑	❑	❑	❑	❑
Performance of market sectors	❑	❑	❑	❑	❑
Performance of the company	❑	❑	❑	❑	❑
Customer needs/preferences	❑	❑	❑	❑	❑
Applications of technology	❑	❑	❑	❑	❑
Other: _____	❑	❑	❑	❑	❑

4.3 Does your organisation …

	Yes	No	No idea
Plan to acquire and exploit knowledge that is required?	❑	❑	❑
Believe that a value can be attached to knowledge?	❑	❑	❑
Display awareness of the knowledge that already exists within the organisation?	❑	❑	❑
In many areas of its activity, just appear to be replicating what others have done before?	❑	❑	❑
Have any means of tracking the re-use of organisational know-how within a department/unit (e.g. re-use of designs or processes)?	❑	❑	❑
Have any recognised mechanisms or projects in place for sharing best practice based upon past experiences?	❑	❑	❑
Have methods of acquiring or developing skills in knowledge management?	❑	❑	❑
Track people who are knowledgeable about key processes, markets and technologies?	❑	❑	❑
Possess a unique body of confidential knowledge that gives it an edge?	❑	❑	❑

4.4 Please describe any other initiatives to explicitly manage knowledge that exists in your organisation that are not identified in Q4.3:

_____

_____

_____

_____

4.5 Who has responsibility for the management of knowledge in your organisation?

A chief executive officer	❑	A chief knowledge officer	❑
One director/senior manager	❑	Several directors/managers	❑
A department/function	❑	No formal role exists	❑
It is 'everyone's job'	❑	Other: _____	❑

4.6 If you have someone or a group of people responsible in the organisation for managing knowledge, what is their role?

To define a 'route map' as to how knowledge can be used	❑	To collect/gather knowledge	❑
To use the knowledge	❑	To learn from it	❑
To disseminate it effectively	❑	To follow up and ensure it is being used	❑

4.7 Within the organisation do you have formal mechanisms for explicitly:

	In all areas	In some areas	None at all	Don't know
Capturing knowledge	❑	❑	❑	❑
Protecting knowledge assets (e.g. patents)	❑	❑	❑	❑
Making knowledge available to relevant parts of the business	❑	❑	❑	❑
Licensing/selling knowledge to other businesses	❑	❑	❑	❑

5. Managing knowledge as an asset

5.1 How important – *at present* – is formal management of knowledge to each of the functions/departments below in your business?

	Not at all important	Un-important	Important	Very important	Unsure
Corporate planning	❑	❑	❑	❑	❑
Customer service	❑	❑	❑	❑	❑
Distribution/Logistics	❑	❑	❑	❑	❑
Finance/Accounting	❑	❑	❑	❑	❑
Human resources	❑	❑	❑	❑	❑
Information systems/Technology	❑	❑	❑	❑	❑
Manufacturing/Service operations	❑	❑	❑	❑	❑
Marketing	❑	❑	❑	❑	❑
Research and development	❑	❑	❑	❑	❑
Sales	❑	❑	❑	❑	❑
Other: _____	❑	❑	❑	❑	❑

5.2 How important – *in the next 3 years* – will the formal management of knowledge be to each of the functions/departments below in your business?

	Not at all important	Un-important	Important	Very important	Unsure
Corporate planning	❑	❑	❑	❑	❑
Customer service	❑	❑	❑	❑	❑
Distribution/Logistics	❑	❑	❑	❑	❑
Finance/Accounting	❑	❑	❑	❑	❑
Human resources	❑	❑	❑	❑	❑
Information systems/Technology	❑	❑	❑	❑	❑
Manufacturing/Service operations	❑	❑	❑	❑	❑
Marketing	❑	❑	❑	❑	❑
Research and development	❑	❑	❑	❑	❑
Sales	❑	❑	❑	❑	❑
Other: _____	❑	❑	❑	❑	❑

5.3 How important is the formal management of knowledge to the major processes in your business?

In terms of …

	Not at all important	Un-important	Important	Very important	Unsure
New product introduction	❑	❑	❑	❑	❑
Supplying products/services	❑	❑	❑	❑	❑
Identifying new markets	❑	❑	❑	❑	❑
Technological innovations	❑	❑	❑	❑	❑
Planning future strategy	❑	❑	❑	❑	❑
Customer service	❑	❑	❑	❑	❑
Handling public issues	❑	❑	❑	❑	❑
Other: _____	❑	❑	❑	❑	❑

5.4 Would you say that in the last 5–10 years the number of people in your organisation who you would class as *knowledge workers* has, relative to the total number of employees:

Decreased	❑	Remained about the same	❑
Grown	❑	Don't know	❑

5.5 With respect to your organisation, to what extent do you agree/disagree with the following statements?

	Strongly disagree	Disagree	Agree	Strongly agree	Unsure
Knowledge is purely an extension of information systems/technology	❑	❑	❑	❑	❑
Formal systems can enhance knowledge management a great deal	❑	❑	❑	❑	❑
Most of the knowledge lies in the heads of certain people	❑	❑	❑	❑	❑
Knowledge possessed by key people should be shared in the wider organisation	❑	❑	❑	❑	❑
Knowledge is a key power determinant	❑	❑	❑	❑	❑
People need only to be informed on a 'need-to-know' basis	❑	❑	❑	❑	❑
Acquiring knowledge is easy, using it effectively is the issue	❑	❑	❑	❑	❑

	Strongly disagree	Disagree	Agree	Strongly agree	Unsure
If we knew what we already know, then we could be far more productive	❑	❑	❑	❑	❑
Knowledge is 'hidden' and not easily identifiable	❑	❑	❑	❑	❑
'Knowledge management' is a fad and will be replaced with another term within a few years	❑	❑	❑	❑	❑

5.6 Does your organisation currently use or plan to use any of the following technologies to assist the management of knowledge?

	AT PRESENT		IN FUTURE		
	Extensive use	Moderate use	Plan to use	No plan to use	Unsure
Video conferencing	❑	❑	❑	❑	❑
GroupWare	❑	❑	❑	❑	❑
Electronic bulletin boards	❑	❑	❑	❑	❑
Online information sources	❑	❑	❑	❑	❑
CD ROMs	❑	❑	❑	❑	❑
Internet	❑	❑	❑	❑	❑
Intranet	❑	❑	❑	❑	❑
Expert systems	❑	❑	❑	❑	❑
Search and retrieval agents	❑	❑	❑	❑	❑
Data warehousing/mining	❑	❑	❑	❑	❑
Document repositories/ management	❑	❑	❑	❑	❑

5.7 How much investment do you estimate your organisation currently makes annually, as a percentage of revenue, in knowledge management? What is this percentage likely to be in 3 years?

	Now	3 years hence
As a percentage of revenue	..... %	..... %

6. Cultural aspects of knowledge management

6.1 With respect to your organisation, to what extent do you agree/disagree with the following statements?

The organisation …

	Agree	Disagree
Exploits what it knows to its fullest potential	❑	❑
Encourages people to share or bring forward new ideas	❑	❑
Rewards people explicitly for knowledge sharing	❑	❑
Effectively manages learning and knowledge acquisition	❑	❑

	Agree	Disagree
Is a 'learning organisation'	❑	❑
Takes responsibility for staff learning new skills	❑	❑
Gains an edge by being ahead of competition in innovating	❑	❑

6.2 Over the last 5 years, do you think the part of the organisation's budget aimed at learning activities has:

Decreased	❑	Remained about the same	❑
Grown	❑	Don't know	❑

THANK YOU FOR YOUR CO-OPERATION

To receive a copy of the research report, please provide:

Name: .....

Job title: .....

Organisation: .....

Address: .....

Postcode: .....

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