

Understanding corporate value:
managing and reporting intellectual capital

1	Introduction	4
2	Definitions of intellectual capital	6
2.1	Classifications of intellectual capital	
2.2	Why is intellectual capital so difficult to measure?	
3	IC measurement	8
	<i>Generic models</i>	
3.1	Balanced scorecard	
3.2	Performance prism	
3.3	Knowledge assets map approach	
	<i>Individual company models</i>	
3.4	The Skandia navigator	
3.5	Ericsson's cockpit communicator	
3.6	Celemi's intangible assets monitor	
3.7	Ramboll's holistic company model	
3.8	Bates Gruppen CompanyIQ measurement system	
	IC valuation	14
3.9	The value-added approach	
3.10	The value creation index	
3.11	Market or value-based approach	
3.12	Tobin's q	
3.13	Calculated intangible value	
3.14	Matching assets to earnings – the Baruch Lev method	
3.15	Human resource accounting	
3.16	Value-added intellectual capital coefficient	
4	Knowledge management	19
4.1	Knowledge process wheel	
4.2	Knowledge management and the accounting profession	
5	Reporting intellectual capital	23
5.1	Accounting standards	
5.2	Operating and financial review	
5.3	Intellectual capital reports	
6	Conclusion	26

Writers: Danka Starovic, project manager, technical issues, CIMA, and Bernard Marr, research fellow in the Centre for Business Performance at Cranfield School of Management
 Production editor: Sarah Vaux
 Designer: Adrian Taylor
 Publisher: Chartered Institute of Management Accountants
 Inquiries: technical.services@cimaglobal.com (tel: 020 8849 2275)

1 Introduction

Knowledge being the new engine of corporate development has become one of the great clichés of recent years, but there is no doubt that successful companies tend to be those that continually innovate, relying on new technologies and the skills and knowledge of their employees rather than assets such as plants or machinery.

Value can be generated by intangibles not always reflected in financial statements and forward-looking companies have realised that these are an integral part of fully understanding the performance of their business.

At the height of the dotcom boom, companies with almost no assets in the traditional sense of the word were having their stocks more highly rated than many of the stalwarts of British and global industry. Much of the discussion about intangibles thus grew out of early attempts to account for the sometimes staggering difference between the so-called book and market values of companies.

Since then we have had the US company collapses, followed by a bear market that continues to shrink the value of equities around the world. Intangibles still matter, but the key driver for measuring and reporting them has become transparency. Investors – understandably wary about the possibility of inflated earnings after Enron or WorldCom – are putting pressure on companies to report all the value drivers of their performance and that unavoidably includes non-financial ones.

But it is not only investor pressure that is forcing companies to accept that managing intangibles is no longer an optional extra. Forthcoming legislation on issues such as the operating and financial review, due to be included in the Companies Act 2003, requires large public and very large private companies to provide a “qualitative as well as financial evaluation of performance, trends and intentions”. In other words, companies will have to produce an account of how their intangible assets contribute to overall value generation.

This briefing is an attempt to raise awareness of the need for companies of all sizes to manage and communicate the value of their business beyond that captured by numbers alone. Some companies, usually large, have already implemented various intellectual capital (IC) measurement tools and techniques. The rest see themselves as being too busy simply surviving to worry about what seems like an unnecessary luxury.

Also included is a summary of some of the current approaches and models used for valuation and measurement. All have limitations and many suffer from a lack of practical testing. But this is still a developing field, with contributions from many disciplines, so the lack of consensus is not surprising. More experimentation and convergence in terminology and tools will eventually be

necessary if the concept of intellectual capital is to become widely accepted and put into practice.

This is not an attempt to criticise or devalue the traditional model of financial reporting. Some intangibles are already included on balance sheets; others are not, for a reason. Traditional reporting has served its purpose well, but now forms only a part of the jigsaw of how value is created and communicated.

Intellectual capital and accountants in business

In a recent KPMG survey of non-executive directors (Neds), more than 60 per cent of the sample said they didn't consider themselves to be very knowledgeable about non-financial performance indicators. In fact, it came last on the list of suggested topics. Not surprisingly, financial performance was at the top, with 94 per cent saying this was an area where they were most knowledgeable. As many Neds are senior managers or executives elsewhere, it is safe to assume this is fairly representative.

It is not simply that directors are not up to speed on intangibles, although some of them may well not know much about the subject. The main reason cited for this worrying shortfall is that “information provided by executives is mainly financial”. Comments like this clearly spell out the challenge ahead for accountants. As the main custodians of performance data in companies, they need to ensure that the right information is communicated to the

right people. Effective strategic and operational decision-making hinges on that information being relevant, timely and robust – and that means it has to consist of more than just numbers.

This briefing is therefore primarily aimed at finance professionals and accountants in business who would like to implement or improve the measurement and management of intellectual capital in their own organisations. It will also be useful to anyone looking for a general introduction and an overview of the key concepts of intellectual capital and knowledge management.

Why should you manage intellectual capital?

Traditionally, the only intangible assets recognised in financial reporting statements were intellectual property, such as patents and trademarks, and acquired items such as goodwill. Although it is still not possible to assign monetary values to most internally generated intangible assets, they nevertheless need to be considered if the process of value creation is to be properly understood.

Failure to do so can have damaging consequences at all levels. For an

individual firm, not understanding how value is generated can lead to inefficient resource allocation. It means the company does not fully understand its business model and may therefore be unable to assess the value of future business opportunities. On a wider scale, it can lead to anomalous market behaviour: if the markets don't get the information they need through "official" channels they may resort to rumours and speculation, which could lead to volatility. There may also be a misallocation of resources on a macro level in terms of market investments.

Some go as far as to say that the lack of understanding of intellectual capital by market participants contributed to some of the spectacular market failures in the past few years (Holland, 2002). Marconi in the UK and Enron in the US are both examples of how rapid change in the company value-creation processes created systemic problems in the market for information. In both cases, the company value-creation processes switched out of heavy use of tangibles (Enron in physical energy production, Marconi in electrical goods and defence)

into a perceived increased use of intangibles (energy-trading skills, provision of high-tech services). This sudden switch may have contributed to confusion among analysts and investors.

Companies that measure and report intangibles may experience substantial gains. For example, Leif Edvinsson, former corporate director for intellectual capital at Swedish financial services company Skandia AFS, claims that a reduction in the cost of capital of 1 per cent was directly attributable to the company's ability to measure and report its intangibles.

As long as it is relevant and timely, additional information helps investors to assess a company's potential for future earnings, so helping to keep share prices stable. This in turn reduces the risks associated with a company and results in a lower cost of capital.

There can be little doubt that looking beyond the assets reported in financial statements should be a critical exercise for every organisation wholly or partly dependent on intangibles for its value creation. Finance professionals should be at the forefront of this process, using their skills and expertise in measurement and control to develop systems capable of accommodating intellectual capital. ■

2 Definitions of intellectual capital

While there are plenty of generic definitions of intellectual capital, many organisations develop their own idiosyncratic definitions. For example, Skandia defines it as “the possession of knowledge, applied experience, organisational technology, customer relationships and professional skills that provide Skandia with a competitive edge in the market”.

There is some confusion over how intellectual capital differs from intangibles, intangible assets or intellectual property. This briefing will follow the approach adopted by the Meritum guidelines for managing and reporting on intangibles and will use intangibles and intellectual capital interchangeably. There is no commonly agreed definition of intangibles – the word is often used as a noun to mean broadly the same as intellectual capital. Intangible assets, on the other hand, are only those that financial standards would recognise as assets and allow on balance sheets.

Intellectual property can be defined as intangible assets, such as patents, trademarks and copyrights, that can be included in traditional financial statements. Measuring intellectual property is important so an organisation knows what it owns but it does not

capture the processes required to reach that stage. Intellectual capital can be both the end result of a knowledge transformation process or the knowledge that is transformed into intellectual property.

1 Classifications of intellectual capital

IC is a broad concept which is often split into different categories – most commonly human, relational and structural capital.

According to guidelines produced by researchers from universities across Europe, collectively known as the Meritum Project, **human capital** is defined as the knowledge, skills and experience that employees take with them when they leave. Some of this knowledge is unique to the individual; some may be generic. Examples are innovation capacity, creativity, know-how and previous experience, teamwork capacity, employee flexibility, tolerance for ambiguity, motivation, satisfaction, learning capacity, loyalty, formal training and education.

Relational capital is defined as all resources linked to the external relationships of the firm – with customers, suppliers or partners in research and development. It comprises that part of human and structural capital involved with the company's relations with stakeholders (investors, creditors, customers, suppliers), plus the perceptions that they hold about the company. Examples of this are image, customer loyalty, customer satisfaction, links with suppliers, commercial power, negotiating capacity with financial entities and environmental activities.

Structural capital is defined as the knowledge that stays within the firm. It comprises organisational routines, procedures, systems, cultures and databases. Examples are organisational flexibility, a documentation service, the existence of a knowledge centre, the general use of information technologies and organisational learning capacity. Some of them may be legally protected and become intellectual property rights, legally owned by the firm under separate title. The International Federation of Accountants (IFAC) offers a slightly different classification (see *table opposite*).

‘Intellectual capital is the group of knowledge assets that are attributed to an organisation and most significantly contribute to an improved competitive position of this organisation by adding value to defined key stakeholders’

Marr and Schiuma (2001)

2 Why is intellectual capital so hard to measure?

The first reason is historical. Accounting rules, although revised on a regular basis, were initially designed for assets such as plant or machinery – tangible things that represented a source of wealth during the industrial age. Second, some intangibles are hard to measure. Creativity, for example, is at the heart of a knowledge-generation process yet is essentially an unpredictable process with unpredictable outcomes. It can manifest itself in many ways. For companies such as Sony and 3M, product and process innovation play a key role in market differentiation.

This leads us to the third problem: the idiosyncratic nature of IC. What is valuable for one company may be worthless for another. This has resulted in diverse measuring systems that make comparability across companies and sectors difficult.

Finally, intellectual capital can have two dimensions. The Meritum guidelines distinguish between intangible resources and intangible activities as a way of highlighting IC's static or dynamic character:

“The intangible resources of a company, a static notion, can be measured at any given time. Thus worker competencies (human capital), intellectual property rights (structural capital), customer satisfaction or agreements with suppliers (relational capital) would be considered under this category.

Intangible resources can also be analysed in a dynamic sense. Companies

Classification of intellectual capital, IFAC (1998)

Human capital

- know-how
- education
- vocational qualification
- work-related knowledge
- occupational assessments
- psychometric assessments
- work-related competencies
- entrepreneurial elan, innovativeness, proactive and reactive abilities, changeability

Relational (customer) capital

- brands
- customers
- customer loyalty
- company names
- backlog orders
- distribution channels
- business collaborations
- licensing agreements
- favourable contracts
- franchising agreements

Organisational (structural) capital

Intellectual property

- patents
- copyrights
- design rights
- trade secrets
- trademarks
- service marks

Infrastructure assets

- management philosophy
- corporate culture
- management processes
- information systems
- networking systems
- financial relations

are undertaking activities to acquire or internally produce intangible resources, to sustain and improve existing ones and to measure and monitor them. These dynamic activities thus imply an allocation and use of resources that are sometimes not expressed in financial terms and, consequently, may or may not appear in the corporate financial reports.”

This dynamic nature of IC means that its individual components are often not

valuable by themselves but work only as a system. In other words, it is the intellectual capital elements interacting that generates value for companies. For example, a company may have good programming skills that enable it to build software. However, they might be worth little unless accompanied by a strong distribution network, loyalty and commitment from its employees and a powerful brand name. This dynamic combination of intangibles is often the recipe for success in companies such as Microsoft, where the value of its intellectual capital is more than the sum of its individual parts. ■

3 IC measurement and valuation

Performance management and valuation frameworks have traditionally paid little attention to assessing knowledge, concentrating almost exclusively on financial results.

When influential authors such as Kaplan and Johnson argued during the 1980s that the finance-dominated performance-management systems were failing to meet the needs of modern companies, a number of seemingly more comprehensive approaches, such as the Smart pyramid or performance measurement matrix, were proposed. Although these represented a step in the right direction, they fell short of explicitly addressing the issue of IC.

The total quality management (TQM) movement with its associated initiatives, such as the EQFM excellence model or the Malcolm Baldrige award, encouraged organisations to examine the “softer” dimensions of their performance such as leadership, employees and impact on society. Business results – expressed in financial terms – still mattered but were to be considered in a wider context of interaction with various stakeholders. However, TQM was primarily developed as a philosophy of business behaviour and has limited use in performance measurement.

Since then there has been a proliferation of models, none of which has been put into widespread use except the balanced scorecard.

Measurement approaches (outlined below) are mainly about how companies measure and report performance internally in order to gain management insights that can help them to run their business. Valuation approaches, on the other hand, are primarily concerned with placing an economic value on firms and their intangibles. They generally take an external view and are designed to help analysts or investors assess the financial value of an organisation.

IC measurement *Generic models*

1 Balanced scorecard

In 1992, Robert Kaplan and David Norton pioneered their balanced scorecard (BSC). Since then, it has become a model for many of the reporting systems that include non-financial measures.

Over the past decade, the balanced scorecard has evolved from being a measurement framework to being a strategy implementation tool. It represents a set of cause-and-effect relationships among output measures and performance drivers in the four perspectives:

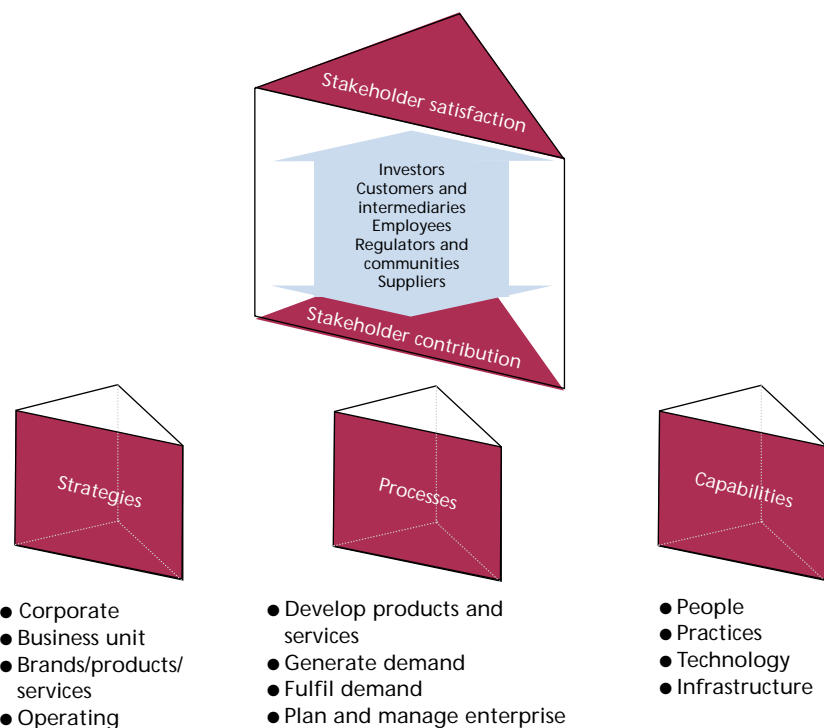
- financial measures: how do we look to shareholders, for example, cash flow and profitability;

- customer measures: how do our customers see us, for example, price as compared with competitors and product ratings;
- internal process measures: what must we excel at, for example, length of cycle times and level of waste;
- learning and growth measures: can we improve and create value, for example, percentage of sales derived from new products.

Today, Kaplan and Norton stress the importance of visualising causal relationships of measures and objectives in so-called strategy maps. These are essentially communication tools that visualise an organisation’s strategy and the processes and systems needed to implement it.

Although Kaplan and Norton insisted that companies should select their own measures, many have criticised the BSC model for being too limited. For

Figure 1: performance prism



example, the perspectives fail to address the needs of all an organisation's stakeholders and the execution may be too driven from the top for it to be effective. It has also been said that some of the relationships between the four perspectives are more logical than causal. PricewaterhouseCoopers, in the recent book *Building Public Trust*, has disclosed the findings of an unpublished survey in which 69 per cent of executives reported "that they had attempted to demonstrate empirical cause-and-effect relationship between different categories of value drivers and both value creation and future financial results. Less than one-third of these felt they had truly completed the task; this suggests its difficulty".

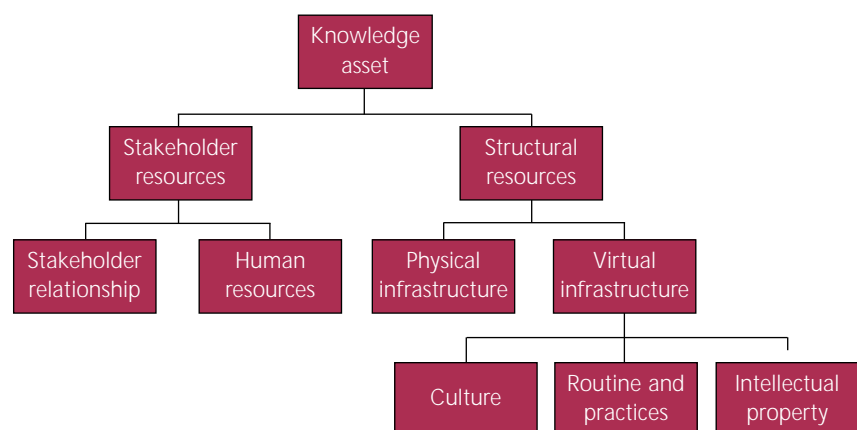
2 Performance prism

The performance prism (see figure 1) is a second-generation performance measurement and management approach developed by Cranfield School of Management in collaboration with consultancy Accenture.

It recognises the importance of companies taking a holistic approach to stakeholder management in today's culture of involvement. Its advantages are that it addresses all stakeholders – not only investors but customers and intermediaries, employees, suppliers, regulators and communities. It does this in two ways: by considering the requirements of those stakeholders and, uniquely, what the organisation wants and needs from its stakeholders. In this way, the reciprocal relationship and the exchange process with each stakeholder is examined. The performance prism addresses the strategies, processes and, importantly, the capabilities that are needed to satisfy these two critical sets of wants and needs.

The flexibility of the performance prism allows it to be applied to any organisation or organisational component. The focus on intangible performance drivers makes the

Figure 2: hierarchy of knowledge assets



framework useful for companies attempting to measure their intellectual capital. Also, it creates a visual map of how the different areas of performance interrelate. It explicitly acknowledges that all five facets of the performance prism should be covered in a so-called success map. This way, it avoids the often-criticised narrowness of the balanced scorecard.

A more detailed description of the performance prism model can be found in CIMA's technical briefing, "Latest trends in corporate performance measurement" at www.cimaglobal.com/downloads/tech_brief_perf_man_160702.pdf. CIMA will soon publish an executive guide on performance reporting to boards which will include a case study showing how Shell implemented the performance prism.

3 Knowledge assets map approach

The knowledge assets approach takes a knowledge-based view of a firm. It was specifically designed to help companies identify and measure their knowledge-

based assets and their contribution to value. Having identified the critical knowledge assets, they can easily be integrated into broader frameworks such as the performance prism.

Knowledge assets are identified as the sum of two organisational resources: stakeholder and structural. This distinction reflects the two key components of any enterprise: its actors, who can be internal or external, and its constituent parts, or the elements at the basis of an organisation's processes (see figure 2).

Stakeholder resources are divided into stakeholder relationships and human resources – the external and internal actors of a company. Structural resources are split into physical and virtual infrastructure, which refers to their tangible and intangible nature. Finally, the virtual infrastructure is further divided into culture, routines and practices, and intellectual property.

Stakeholder relationships include all forms of relationships established by the company with its stakeholders. These relationships could be licensing agreements, financial relationships, or contracts and arrangements about distribution channels. It could also be

customer loyalty, which represents a fundamental link between the company and one of its key stakeholders.

Human resources contains knowledge provided by employees in forms of competencies, commitment, motivation and loyalty as well as advice. Key components are also know-how, technical expertise, problem-solving capacity, creativity, education and attitude.

Physical infrastructure comprises all infrastructure assets, such as structural layout and IT equipment such as computers, servers and physical networks. This category is often overlooked as a knowledge asset but plays a key role in how knowledge is shared.

Culture embraces corporate culture and management philosophies. Some important components are the organisation's values, mission and vision. Culture is of fundamental importance for organisational effectiveness and efficiency, since it provides a framework, sometimes implied, through which to interpret events.

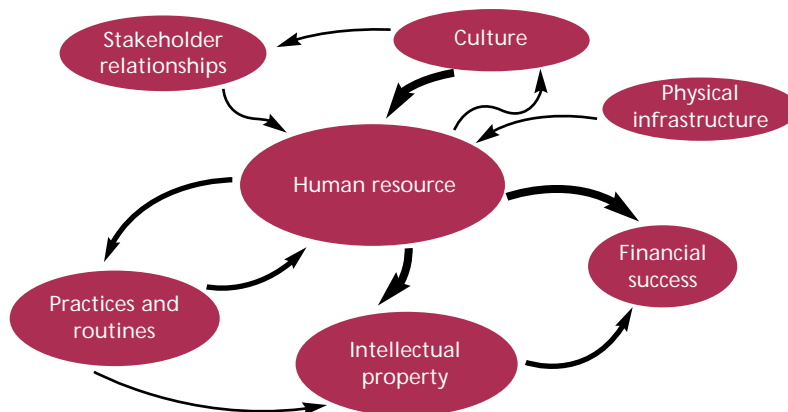
Routines and practices cover internal practices and virtual networks and routines. These routines could include tacit rules and procedures, such as manuals with codified procedures and rules, databases and tacit rules of behaviour or management style. They determine how processes are handled and how work flows through the organisation.

Intellectual property is the sum of patents, copyrights, trademarks, brands, registered designs, trade secrets and processes whose ownership is granted to the company by law. These are the tools and enablers that allow the company to perform its daily processes to produce results.

This framework can be used to help identify knowledge assets, which can

Figure 3: value creation map

(source: Marr 2003)



then be the basis for visualisation of how these assets are interrelated and transformed to satisfy stakeholder needs. Such a visualisation is called a value creation map (see figure 3) and it shows the pathways of how value is created in organisations. Knowledge assets are represented in bubbles linked with arrows. The size of individual bubbles represents stocks of particular knowledge assets in terms of strategic importance and arrows of different thickness show the transformations and relationships between knowledge assets and stakeholder needs (based on a concept by G Roos (1997)). A map can be used to visualise the static and dynamic nature of IC and how it adds value to different stakeholders.

It is possible to provide a wide range of indicators for each of the categories listed: it is up to the management team to identify the most meaningful ones.

Care needs to be taken when selecting the metrics. Many of those proposed in accounting literature tend

to be general and fail to address the types of knowledge that play a critical role in value delivery for individual companies. Managers need to start by recognising that knowledge assets are unique to each company and the metrics selected should therefore reflect this (see figure 4).

Individual company models

Some companies, notably from Scandinavia, have developed their own measurement models. It should be pointed out that all those mentioned derive at least a part of their income from consultancy and therefore have a commercial interest in promoting their models. Elsewhere the development and use of IC models is patchy. Mainland Europe is probably the least advanced, with the UK and US a little further ahead. Pacific Rim countries such as Australia and Japan, on the other hand, have recently made strong advances.

4 Skandia navigator

Of all the systems for measuring IC Skandia's navigator model, developed in 1994, is probably the best known, even though it is only implemented in the Swedish part of the organisation.

Figure 4: knowledge assets indicators

Stakeholder relationships	<ul style="list-style-type: none"> ● Number/quality of partnering agreements; number/quality of distribution agreements; number/quality of licensing agreements; public opinion survey; market share; length of relationship; partner satisfaction index; customer retention.
Human resources	<ul style="list-style-type: none"> ● Demographics indicators, for example, number of employees; number of employees in alliances; average years of service with company; average age of employees; full-time permanent employees as percentage of total employment; employees working at home/total employees; number of women managers. ● Competence indicators, for example, employees with high qualifications; people with PhD and/or masters degree/total employees; average years of service with the company; number of years in specific professions; definition of a competence map. ● Attitude indicators, for example, average level of happiness (measured with Likert-type scale); savings from implemented suggestions from employees; number of new solutions, products and processes suggested; qualitative descriptions of employees (commitment, loyalty, entrepreneurial spirit, enthusiasm); motivation and behaviour indicators. ● Human resource management practices indicators, for example, training expenses/employees; employee turnover; time in training; expenses for employee-development activities (social and personal); indicators about activities to motivate employees; indicators about recruitment practices.
Physical infrastructure	<ul style="list-style-type: none"> ● Scalability/capacity measures; facilities/equipment versus plan; time to execute server updates; system integration; use of knowledge-sharing facilities.
Culture	<ul style="list-style-type: none"> ● Management philosophy; number of internal disputes and complaints; qualitative measures about employee satisfaction; feedback; values; behaviour; motivation; commitment; loyalty; opinion survey.
Practices and routines	<ul style="list-style-type: none"> ● Process quality; number of codified processes; networking practices; norms; database availability; intranet use.
Intellectual property	<ul style="list-style-type: none"> ● Revenues from patents; number of patents and registered designs; value of copyrights; value of patents versus R&D spend; trademarks; brand recognition survey.

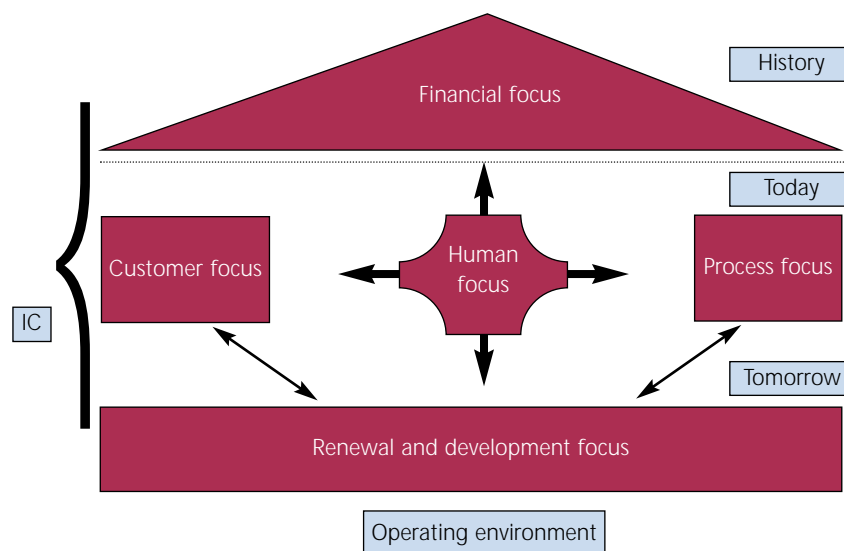
It reflects four key dimensions of its business: financial focus; customer focus; process focus; and renewal and development focus. At the heart of these is human focus, which drives the whole model.

The similarity with the balanced scorecard is immediately apparent. Indeed, Sveiby (1998) sees the navigator as a combination of the BSC and Celemi's intangible assets monitor.

Edvinsson says that navigator can be "viewed as a house. The financial focus is the roof. The customer focus and process focus are the walls. The human focus is the soul of the house. The renewal and development focus is the platform. With such a metaphor, renewal and development become the critical bottom line for sustainability." (See figure 5.)

Figure 5: Skandia navigator

(source: L Edvinsson and M S Malone, 1997)



Each of the five focuses has critical success factors that are quantified to measure change. The indicators used for the financial focus are largely represented in monetary terms. Customer focus concentrates on assessing the value of customer capital to the organisation and makes use of both financial and non-financial indicators. The measures used for the process focus emphasise the effective use of technology within the organisation. They tend to monitor quality processes and quality management systems but also include some financial ratios.

The renewal and development focus attempts to capture the innovative capabilities of the organisation, measuring the effectiveness of its investment in training and its expenditure on R&D. Finally, the human focus includes measurements that reflect the human capital of the organisation and how the resources are being enhanced and developed. Measurements from the five focuses can then be recorded and compared from year to year.

5 Ericsson's cockpit communicator

Ericsson, the Swedish telecommunications company, has developed a commercial product called the cockpit communicator, again based on the balanced scorecard and with five very similar perspectives: innovation, employee, process, customer and financial. Each is represented as the dials in an aircraft cockpit and each has its own indicators. Following inputs relevant to each indicator, the communicator suggests the actions that will match the organisation's strategies. The dials will subsequently show if the company is on target in each perspective. According to Ericsson, the aims of this product are:

- a vision-driven organisation, where priority is given to actions

Figure 6: Celemi's intangible assets monitor

(Karl-Erik Sveiby)

Our customers (external structure)	Our structure (internal structure)	Our people (competence)
Growth/renewal Revenue growth	Growth/renewal Organisation-enhancing customers	Growth/renewal Average professional competence years
Image-enhancing customers	Revenues from new products R&D revenues Intangible investments (% value added)	Competence-enhancing customers Growth in professional competence Experts with post-secondary degree
Efficiency Revenues per customer	Efficiency Proportion of admin staff Revenues per admin staff	Efficiency Value added per expert Value added per employee
Stability Customer satisfaction index	Stability Admin staff turnover	Stability People satisfaction index
Repeat orders	Admin staff seniority (years)	Median age of all employees (years)
Five largest customers	Rookie ratio	Expert seniority (years) Expert turnover

(source: "Uncovering Hidden Assets", Celemi Annual Report, 1999)

that are compatible with the company's strategies;

- a communicated strategy linked to indicators and actions;
- a balanced focus on past, present and future performance;
- a balance between short-term results and long-term strategy;
- the ability to evaluate and change organisational strategy rapidly in line with performance and changing business conditions;
- the ability to manage, measure and communicate future values.

6 Celemi's intangible assets monitor

International training consultancy Celemi monitors three overall categories: customers (external structure); people (competence); and organisation (internal structure). Under each of these interdependent categories, the three key areas of growth/renewal, efficiency and stability are tracked, each with its own performance indicators (see figure 6).

Celemi also produces a management training game called Tango which uses intangible assets monitor thinking and accounting.

7 Ramboll's holistic company model

As with other Nordic models, Ramboll's holistic company model (see figure 7) consists of key areas within which certain performance indicators are managed.

These key areas lead to three sets of results – customer, employee and societal – and all three combine to produce the financial results. The key areas are values and management, strategic processes, human resources, structural resources and consulting services.

For example, the performance indicators for human resources are staff composition, staff turnover and competence building.

These key performance indicators (KPIs) are then further subdivided. The ones for competence building, for example, are supplementary training expenses excluding salary, the amount spent per course participant and the hours off contributed by employees.

The table (see figure 8) provides a list of possible human, organisational and customer capital indicators, but measurements will always be company-specific.

8 Bates Gruppen CompanyIQ measurement system

Bates Gruppen is the Norwegian arm of Bates Worldwide and part of the Cordiant Communications Group. It has recently proposed a method that consists entirely of non-financial measures. The CompanyIQ allows a company to score its knowledge assets against those of a similar organisation.

- Stage one

Identify why customers buy from your company as opposed to a rival. This is best done in a day workshop in which management select between eight and 12 attributes – for example, rapid response or good design. The final list is sent to customers and employees who rate each attribute twice, once for its value to customers and then for its uniqueness. A scale of one to seven is used. The results are plotted on to a two-by-two matrix. Any attributes that make it into the top upper-right quadrant – ie are high on value and uniqueness – will be explored further.

- Stage two

Identify the intellectual assets that produce star attributes – Bates Gruppen has identified 100. Ideally,

these should be divided as equally as possible between human, customer and structural IC assets. All of these assets must either be measurable in absolute terms, for example, training expenses, or capable of measurement using scales, for example, customer satisfaction. At least 60 per cent of the assets identified should be comparable to data from reputable benchmarking studies or from the PIMS database – a huge repository containing data on items such as quality for thousands of companies.

- Stage three

It is now possible to calculate your CompanyIQ. Scores on the 100 selected assets must first be weighted for relative impact on profitability (available from PIMS) then compared with similar companies on the chosen database. Bates Gruppen has selected a median score of 100.

The process does not stop at stage three. As with any measurement system some form of feedback has to be built into the system for a company to remain competitive. The strength of assets within the 100 can be identified and weaker ones improved.

This method is more than just a measurement system. It requires an organisation to identify its highly valuable, unique capabilities and the intellectual capital assets behind them.

While calculating its IQ, a company may find it is producing goods or providing services that are similar to those of a competitor or contain features that add little value to customers. This will leave the company with a ready-made list of indicators, so allowing it to take action that has a direct impact on its profit-maximising capabilities.

This system requires a great deal of work initially, including gathering data from employees and customers who may be unwilling to participate or who may provide hastily compiled information of

Figure 7: Ramboll's holistic company model

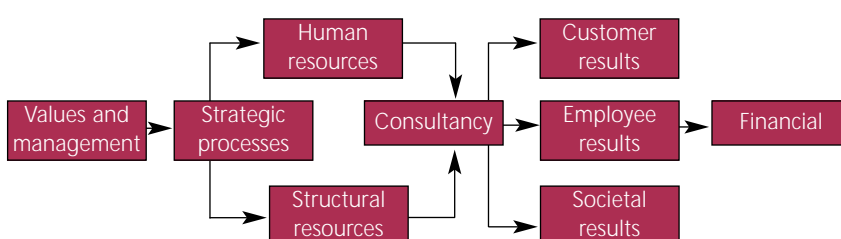


Figure 8: Ramboll's holistic company model list of indicators

Human capital indicators	Organisational capital indicators	Customer capital indicators
Revenue generated per employee	Income per R&D expense	Growth in sales volume
Number of senior positions filled by junior staff	Individual computer links to database	Revenues per customer
Recruitment, development and training spend per employee	Number of times database has been consulted	Proportion of sales to repeat customers
Employee satisfaction	Upgrades of database	Customer satisfaction
Average length of service of staff	Contributions to database	Effectiveness of ad campaign
Staff turnover	Upgrades of SOPs	Brand loyalty
Educational level of staff	Value of new ideas	Brand image
Staff with professional qualifications	Ratio of new ideas generated to new ideas implemented	Product returns as a proportion of sales
New ideas generated by staff	Number of new product introductions	Customer complaints
Value added per employee	New product introductions per employee	Reputation of company
Post-training evaluation exercise – benefits accrued	Proportion of income from new product introductions	Proportion of customer's business that your product or service represents
Proportion of revenue-generating staff to other	Number of patents	
Image of company from employee's perspective	Average length of time for product design and development	
	Changes implemented due to employee or customer satisfaction surveys	
	IT expenditure as a percentage of administration spend	

All of the above indicators are either numerical or can be represented numerically, for example, company image can be rated from 1, for poor, to 10, for excellent. Therefore indicators provide figures that can be compared from year to year. Where the indicators give a financial figure they represent a link between the non-financial and financial dimensions. For example, the innovative capabilities of staff (new ideas) can be measured by assessing the value of new ideas to the organisation (money saved or money earned). Skandia Banken (part of the Skandia Group) makes an interesting measure – an expense ratio that compares the cost of knowledge transfer to overall operating expense (Lynn, 1998). The key is in identifying appropriate measurement techniques and indicators that show how value has been created.

little use. It may also be difficult for a company to divide its knowledge assets equally between the three types of intellectual capital, meaning that some are incorporated to make up the numbers while others are excluded. The suggestion that at least 60 per cent of the indicators are comparable to those from other companies still leaves a lot open to subjectivity.

Valuation of IC

Valuation approaches were developed to allow external parties or stakeholders to put an economic value on an

organisation. They are usually based on publicly available data and are mostly used by finance professionals.

It is a challenging area and it is difficult to see how some of the models can be meaningfully applied in practice in their current state.

9 Value added approach

This measurement and valuation technique was proposed by Robinson and Kleiner (1996) and comprises a framework of two parts.

The first part uses Porter's value chain concept. The basic premise, from an

industrial perspective, is that raw materials enter from one end of the chain and, as they go through the processes that will eventually convert them into finished goods, value is added to them. Production is not the only function involved as the raw materials have to be procured and the finished goods marketed and sold.

The whole procedure also has to be administered and managed. The key point is that all of these internal functions should serve the overall purpose of the organisation, which is to create value for its customers.

The second part of the framework is borrowed from the economic value added (EVA) theory, which has its roots in corporate finance and was developed by Stern Stewart, a New York-based consultancy. If the return on capital for any project is greater than the cost of capital then the company should proceed with it. The basic objective of EVA is to develop a performance measure that accounts for all the ways in which organisational value can be added or lost.

Robinson and Kleiner proposed combining Porter's concept and EVA so that the "financial project evaluation approach, which relies on value creation, should be applied to all of the internal processes of the value chain. The unfortunate difficulty is that many of the internal processes are in the form of intellectual capital and are not readily measurable." To overcome this barrier Robinson and Kleiner have come up with several suggestions, including:

- measuring intellectual property (patents, licences) at their current market value;
- using the Hay method (named after the Hay Group, a global personnel consultancy) to measure human capital, whereby job categories and their related salaries are evaluated by measuring know-how, problem-solving and accountability;
- the use of ratios such as training per employee, number of ideas per employee and other productivity/employee ratios;
- measuring the ability of an organisation to learn and adapt to changes in the environment.

Porter's value chain concept and EVA are both well established and combining

them to assess how key activities create value within an organisation has clear benefits. It should eliminate any wasteful activities and lead to the maximum amount of value being added to a product or service.

The difficulty arises when it comes to the measurement of value, especially when the activity is "soft". Clearly the prompt answering of a customer query adds value, but it would be difficult to put a monetary value on it. Robinson's and Kleiner's suggestions to overcome this fall short of providing clear valuations for all "soft" assets, so their proposal should be seen as more of a framework to be used if and when a reliable method of measuring intellectual capital is agreed.

10 Value creation index

The value creation index attempts to measure the importance of different non-financial metrics in explaining the market value of companies.

It followed a survey of readers of *Forbes ASAP*, the technology supplement of US business journal *Forbes*, in which they were asked to rank the key drivers of corporate value in their industries. Publicly available information was then used to develop a series of metrics associated with those value drivers and the correlation between the metrics and share prices was tested. The aim was to discover what factors the market considers important rather than just what managers say is important.

The survey revealed the following key findings:

- Key drivers of corporate value (in rank order):
 - 1 Customer satisfaction.
 - 2 Ability to attract talented employees.
 - 3 Innovation.
 - 4 Brand investment.
 - 5 Technology.
 - 6 Alliances.
 - 7 Quality of major processes, products or services.
 - 8 Environmental performance.

The authors compared these findings with those of their own research.

- Key drivers of corporate value in durable manufacturing (in rank order):
 - 1 Innovation.
 - 2 Ability to attract talented employees.
 - 3 Alliances.
 - 4 Quality of major processes, products or services.
 - 5 Environmental performance.
 - 6 Brand investment.
 - 7 Technology.
 - 8 Customer satisfaction.

This kind of rigorous analysis, especially the attempt to correlate metrics with capital markets, is in stark contrast to simpler measurement techniques. However, the statistical and data-gathering techniques required are daunting and few corporate teams have the time, skill or inclination to incur the necessary costs. Nevertheless, it offers two important insights:

- What management (and perhaps users) consider important may not coincide with marketplace behaviour.

For example, customer satisfaction does not have the impact in the marketplace that managers tend to assume it has.

- The value creation index attempts to develop different indices for different industries. This is consistent with the view now widely held in IC circles that non-financial performance metrics must be company- or industry-specific.

Details of another market-driven reporting framework, developed by PricewaterhouseCoopers, can be found in CIMA's executive briefing "Business Transparency in a Post-Enron World". ValueReporting was developed specifically to try and close the gap between what companies currently report and what the markets want. It is based on extensive research in the capital markets and tailored to match the performance dimensions of specific industries. Go to www.cimaglobal.com/downloads/enron.pdf

11 Market or value-based approach

A simple way of calculating the value of an organisation's intellectual capital is to take the difference between its market value – the number of shares in issue multiplied by the market value of the share – and the net value of its assets. This can be done with a minimum of information and the gap between the two figures, the market-to-book ratio, is often used as an indication that a company has many intellectual capital assets that are not reflected in its financial statements.

There are several drawbacks to this method. The most obvious flaw is that this method values IC as one asset and makes no attempt to separate the items that might comprise it.

In addition, the market value of a company is subject to a number of external variables, including deregulation, media and political influences and rumours. You only have to look at the overvaluation of some of the earliest dotcoms to go public and the subsequent dramatic drop in their share values. In the case of lastminute.com, the share price fell by 90 per cent in less than 18 months, yet there was little change in the company's intellectual assets.

The current financial accounting model also does not attempt to value the firm in its entirety. Instead, it records each of its severable assets at an amount in accordance with current legislation and the financial accounting standards. The market, however, would value the company in its entirety as a going concern. This means the figure for intellectual capital would differ simply by the adoption of different accounting policies across national boundaries.

12 Tobin's q

The "q" developed by economist James Tobin stands for the ratio of the market value of the firm to the replacement cost of its assets. If the latter is lower than the former, then the company is making a higher than normal return on its investment. Technology and human capital assets were traditionally associated with high q values.

It could be argued that Tobin's q is more accurate than the market-to-book method because it uses replacement, rather than historic, costs. However, finding these replacement costs is more

difficult than simply referring to a balance sheet. The model is also subject to the same drawbacks as previous ones, since it uses the market value as one of its key measures.

Tobin's q cannot provide an accurate figure for individual intellectual assets. Its real value lies in trend analysis: if the q is falling, either the company is not managing its intellectual assets effectively or investor sentiment has moved against it.

13 Calculated intangible value

Calculated intangible value (CIV) is similar to the super-profits method of valuing a company – the difference between the maintainable profit and the expected return on the tangible assets employed. Stewart (1995) illustrates the method by using data from US pharmaceutical company Merck:

- Stage one
Calculate average pre-tax earnings for three years – \$3.694 billion.
- Stage two
Go to the balance sheet and get the average year-end tangible assets for three years – \$12.953 billion.
- Stage three
Divide earnings by assets to get the return on assets (ROA) – 29 per cent.
- Stage four
For the same three years, find the industry's average ROA. For pharmaceuticals the average is 10 per cent (this method will not work if the ROA is below average).

- Stage five
Calculate the “excess return”. Multiply the industry average ROA by the company's average tangible assets – 10 per cent x \$12.953 billion. This is what the average drug company would earn from that amount of tangible assets. Subtract that from the company's pre-tax earnings, which in the case of Merck would give an excess of \$2.39 billion. This is how much more that company earns from its assets than the average drug manufacturer.
- Stage six
Calculate the three-year-average income tax rate and multiply this by the excess return. Subtract the result from the excess return to get an after-tax figure. This is the premium attributable to intangible assets. For Merck, with an average tax rate of 31 per cent, this is \$1.65 billion.
- Stage seven
Calculate the net present value (NPV) of the premium. This is done by dividing the premium by an appropriate percentage, such as the company's cost of capital. Using an arbitrarily chosen 15 per cent rate, this yields Merck \$11 billion. This is the CIV of Merck's intangible assets.
This final figure is not the amount left were you to subtract the tangible assets from the market value of Merck, which at the time of calculation would have been \$45.6 billion. Rather, the \$11 billion reflects a measure of the company's ability to use its intangible assets to outperform other companies in its industry. A rising CIV indicates that a business is generating the capacity to

produce future wealth – even if the market hasn't recognised it yet. A weak or falling CIV may point to the fact that a company's investments in intangibles aren't paying off or that too much is still being spent on tangible fixed assets.

A major benefit of CIV is that it allows inter- and intra-industry comparisons on the basis of audited financial results. As with other methods that provide ratios, there is also the potential for setting benchmarks and spotting trends.

But there are problems. First, it adopts the industry ROA as a basis for determining excess returns and, as averages tend to suffer from outlier problems, there could be excessively high or low ROAs. Second, the company's cost of capital will determine the NPV of intangible assets. Calculating the industry average to counter this will result in the same problems as the adoption of an average industry ROA. It is also impossible to separate IC from goodwill using the resulting value, so the method fails to evaluate the individual components of IC.

14 Matching assets to earnings – the Baruch Lev method

Baruch Lev, professor at Stern School of Business, New York University, has proposed a method of matching earnings with assets that generate them. The calculation uses expected after-tax returns on assets – two are averages and one (for IC assets) is formulated using correlations between return on equity and cash flow, traditional earnings or knowledge earnings.

- Stage one
Take average annual earnings for a company. Lev suggests using three years of past earnings and three

years of earnings provided by the consensus forecasts of analysts. For the sake of this example, assume they are \$1 billion.

- Stage two
See what the balance sheet has in the way of financial assets. Assume they are \$5 billion. Then take the expected after-tax return on financial assets, which is approximately 4.5 per cent. Therefore the \$5 billion worth of financial assets explains \$225 million of the earnings.
- Stage three
Now turn to the physical assets of the company and again assume they are worth \$5 billion. Using the average after-tax return for physical assets, which is approximately 7 per cent, \$350 million of earnings can be credited to them.
- Stage four
This leaves a balance of \$425 million that must have been produced by assets not on the balance sheet, which Lev calls knowledge-capital earnings. These earnings are then divided by an expected rate of return on knowledge assets, which has been worked out at 10.5 per cent (see notes below).
- Stage five
Using the formula:
Knowledge capital earnings
Knowledge capital discount rate
it can now be assessed that, to produce \$425 million in earnings, this imaginary company would need \$4.06 billion of intangible assets.
In order to calculate the intellectual asset discount rate, Lev looked at

whether cash flow, traditional earnings or knowledge earnings most correlates with return on equity. He found only a 0.11 correlation between strong returns on equity and cash flows, a 0.29 correlation with traditional earnings and a strong 0.53 correlation with knowledge earnings. This would seem to justify a rate of 10.5 per cent that compares with 4.5 per cent for financial assets and 7 per cent for physical assets.

Like CIV, Baruch Lev's method uses both earnings and assets as data sources rather than relying purely on assets. By matching assets to earnings, organisations would be left with a figure they can use for comparisons with other companies, or for indicating that their own earnings from IC are going up or down. However, like some of the other methods, this one results in a single figure for IC while not attaching values to individual components. The figure of 10.5 per cent representing the expected rate of return on knowledge assets could be challenged. The method has also been criticised as being too complex.

15 Human resource accounting (HRA)

The aim of human resource accounting (HRA) is not simply to describe the financial accounting aspect of capitalising expenditure on recruitment,

training and development. It is also designed to quantify the economic value of people to the organisation in order to contribute to decision-making, planning and control processes.

As a result, various models have been proposed, all with the underlying rationale of attempting to calculate the contribution each employee makes to the organisation.

According to Bontis et al (1999), HRA can provide external information to accounts users but also has other associated benefits. It allows for internal feedback to the members of the organisation on the accomplishment of strategic goals. It also acts as a starting point to develop future plans and strategies by recognising the core competencies inherent in a company's unique IC.

However, HRA again relies on human capital alone and, although salaries, wages and the costs of recruitment and training are simple enough to measure, putting value on the growth and accumulation of employee knowledge can prove a lot more difficult.

16 Value-added intellectual capital coefficient

This method calculates the difference between sales and all inputs (except labour expenses), divided by intellectual capital, which is estimated by total labour expenses. The higher the ratio, the more efficient the company is at using IC assets.

The main advantage of this approach is simplicity. The figures are easy to obtain from any annual report and, once calculated for a year, can be used for inter- or intra-company comparisons. However, this straightforwardness has many disadvantages. Comparing an organisation's labour expenses to its IC would appear to undervalue IC when compared with other methods such as the market-based approach. Also, a company could be using its labour resources inefficiently, but this could be masked by a more efficient use of other inputs leading to a similar ratio.

The approaches outlined give a good idea of the range of methods, disciplines and functional specialisms employed in measuring and valuing intellectual capital. Only one of these – the balanced scorecard – is in widespread use, while the rest remain too theoretical, too flawed or simply too undeveloped to be accepted universally.

Eventually, it may be a combination of these ideas that provides the most practical solution. ■

This section is based on two CIMA-sponsored research projects, "Measuring the immeasurable" by Wall, Kirk and Martin of the University of Ulster, and "Measuring and managing knowledge" by Marr, Neely and Schiuma of Cranfield School of Management.

4 Knowledge management

Intellectual capital and knowledge management (KM) should not be confused. It is essential for all companies to maintain and grow their IC stocks – rather than simply measure them – and knowledge management is one way of helping them to do this. But the two are quite distinct: KM is a process within a company, whereas IC covers its whole operations.

As with many of the concepts in this area, there is no universal definition of knowledge management. The Gartner Group defines it as “a discipline that promotes an integrated approach to identifying, managing and sharing all of an enterprise’s information assets. These information assets may include databases, documents, policies and procedures, as well as previously inarticulated expertise and experience resident in individual workers.

KPMG came up with a more commonly used definition in 2001: “Knowledge management is a collective phrase for a group of processes and practices used by organisations to increase their value by improving the effectiveness of the generation and application of intellectual capital.”

The term “knowledge worker” was first used by management guru Peter Drucker in the 1960s. He rightly predicted that knowledge would become the key economic resource and even called knowledge workers the new capitalists.

But it wasn’t until the late 1990s that the craze for all things knowledge management really began. Traditional competitive advantage based on economies of scale was eroded by smaller, nimbler and more ingenious competitors. As the market cap of start-ups soared, companies around the world suspected that their potential for success may reside in the knowledge, expertise and creativity of their employees.

Yet few knew how to use this knowledge in a systematic way in order to gain real business benefits. This created a huge demand for products and services about knowledge management – books, conferences and consultancies were suddenly everywhere.

After the boom came the bust and much of the market cap created in the late 1990s had been wiped out even before Enron and the geopolitical developments sent the world stock markets into turmoil. But knowledge management remains an important concept in an economy dominated by intangibles and there are now signs that it is becoming a part of everyday business infrastructure. Rescued from being a consultant-driven fad, it is no longer seen as an end in itself – something companies could implement

as a one-off initiative or purchase with an expensive piece of software.

The misconception that there was a finite stock of knowledge to be “managed”, almost always with an expensive IT system, meant that many companies initially overlooked the overall business purpose. In fact, many embarked on knowledge-management initiatives without a clear idea of what business benefits they could expect and what else might have to be changed to make them work.

Instead, companies should start off with a clear value proposition that is then driven through every part of the system, including organisational culture.

It has been said that you can’t manage knowledge; you can manage only the culture that leads to that knowledge being shared – and most would agree that managing culture isn’t easy. This is especially true for so-called tacit knowledge (*see table below*) which cannot be codified or stored. How that knowledge is used and shared will

Tacit explicit knowledge

Some knowledge can be codified through a set of management and technological procedures and put into repositories such as databases or presented on intranets. Some, on the other hand, exists only in the heads of the employees or in the relationships that exist between them.

Sidney Winter presents a classification of knowledge dimensions as a continuum between the two sides of the table below.

Tacit	Explicit
<ul style="list-style-type: none"> ● not teachable ● not articulated ● not observable in use ● complex ● an element of a system 	<ul style="list-style-type: none"> ● articulable ● teachable ● articulated ● observable in use ● simple/independent

(Dimensions of knowledge assets, based on Winter, 1987)

Managing tacit knowledge is usually seen as the more difficult part but many companies also struggle with explicit knowledge. A simple example is intranets, which so many have got wrong. As an internal knowledge-sharing tool, their potential is phenomenal, yet many intranets lie unused, with staff relying instead on traditional ways of obtaining information such as social networks or using the phone. This shows the importance of addressing cultural as well as structural issues surrounding knowledge management.

depend on the unspoken norms of behaviour that constitute organisational culture. It is these, rather than formal systems, that guide many employees' interactions with customers, colleagues and other stakeholders.

The way in which an organisation is structured – its myriad formal and informal relationships, the processes and systems used, and the resources at its disposal – will have a major influence on its culture. This can constrain strategy and goals and, consequently, the organisation's vision.

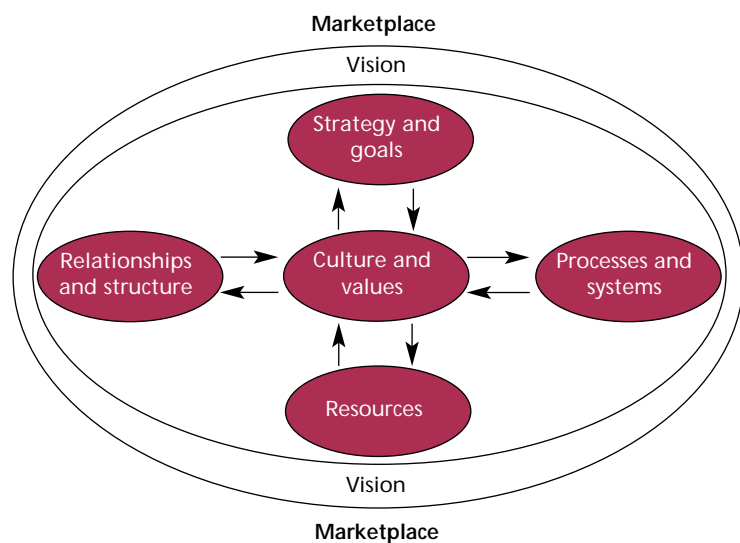
The elements of the globe expressed in figure 9 combine to create an organisation that is aligned to achieve its vision which is, in turn, appropriate for its marketplace and external environment. The interconnectedness serves to emphasise the importance of looking outside as well as inside. You may have a sophisticated knowledge-management system, but if your strategy is wide of the mark or you have failed to assess your risks properly, knowledge management by itself will not give you a competitive advantage.

1 Knowledge process wheel

The knowledge process wheel, (see figure 10) developed by Cranfield School of Management's Centre for Business Performance, summarises a set of knowledge management processes that can be used to grow and maintain IC.

Figure 9: KPMG organisation system model

(M Jeans, 1998)



Knowledge generation includes a set of processes executed in order to increase the stock of corporate knowledge assets. There are two main sub-processes of knowledge generation: knowledge acquisition and knowledge creation.

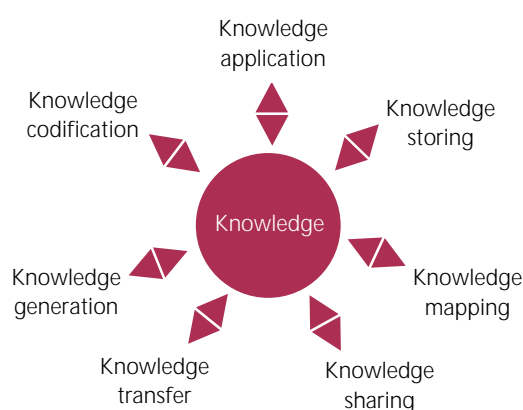
Knowledge acquisition is a process of capturing and bringing knowledge from the external environment into the company. The simplest way of doing this is to buy it, but knowledge assets can also be rented (for example, paying consultants to resolve specific problems or building relationships through alliances). Some companies, known as knowledge brokers, specialise in providing support for knowledge acquisition.

Knowledge creation is the process of developing new knowledge assets within the company. As it's linked to individual learning processes, it can be

the result of either fortuitous individual activity or planned organisational policy. The most effective way of creating knowledge internally is to encourage employees to be creative and keen to learn by devoting specific resources to these processes. A common way of doing this is to establish units designed for this purpose, such as R&D departments.

Knowledge mapping is the process of identifying knowledge assets within an organisation and defining ways of accessing them. Enabling everyone to access existing knowledge makes it easier to create new knowledge assets. Knowledge mapping

Figure 10: Knowledge process wheel



is usually supported by knowledge-storing technologies.

Knowledge sharing is a process that allows knowledge to be disseminated across an organisation. Many companies admit that “if they knew what they knew” the benefits would be considerable. There would be less duplication of effort and information used for decision-making would be more accurate. The main obstacle to knowledge sharing is that knowledge often represents a source of power to be guarded jealously. This is especially true in economic downturns, when having unique knowledge can make you indispensable.

Knowledge sharing can be done through either formal or informal processes. The former includes meetings, seminars and workshops, knowledge databases or internal documents. Informal processes include casual discussions between individuals. Companies should encourage such knowledge sharing by providing time, space and social activities for this purpose.

Sharing can also be supported by the right IT infrastructure, such as on-line databases, data warehouses/knowledge repositories, intranets, decision-support tools and shared drives. Companies that have implemented these should remember that their success depends on people actually using them and that IT can only ever be a facilitator or a tool that brings scalability to the process.

Knowledge transferring is the process of passing on knowledge between cognitive systems. A distinction is often made between intra- and inter-organisational knowledge transfer. When it takes place within a firm, among different units, groups or individuals, it overlaps with knowledge sharing. When it involves several companies, it shares characteristics with

many knowledge-acquisition processes. The main difference is the disparity of use. The former is intended to turn individual/team knowledge into organisational knowledge. The latter works towards creating a channel and a context that enables an organisation to acquire the knowledge from the outside.

Knowledge codification is the process aimed at formalising knowledge into appropriate codes such as words, pictures or film. It involves:

- capturing knowledge – identifying knowledge related to an activity needed to achieve a specific business goal;
- externalisation – changing the nature of knowledge from a tacit to a more explicit one;
- representation – a description of the explicit knowledge with an appropriate set of information codes.

Knowledge storing is the process of saving knowledge within the organisation, thus making it available anywhere at any time. This process is at the heart of knowledge mapping and can take the form of either knowledge databases or directories. In the former, codified knowledge is stored in appropriate information codes. This method is used by many consultancies, such as Accenture and Ernst & Young, which have developed best-practice databases to support their consultants throughout the world.

Directories, on the other hand, provide links to people with specific know-how and the only information stored is that required for identifying people and places where knowledge resides. For example, pharmaceutical company Hoffman-LaRoche, as a part of its overall drug approval process knowledge map, has a catalogue of

relevant experts, arranged according to know-how, questions and issues.

Knowledge application is the process of applying knowledge within the organisation. Knowledge becomes a value-added resource only if it is applied to improve business performance. Translating knowledge into action can mean a difference in organisational performance.

Combining the classification of knowledge assets within a company with the analysis of appropriate knowledge processes allows managers to identify and understand the levers they need to pull in order to manage their companies' capabilities.

Even if they are reluctant to instigate a comprehensive knowledge-management system, companies should still consider how individual elements may be applied. The knowledge process wheel could be used to identify any obvious gaps in their systems.

2 KM and the accounting profession

The move to a knowledge-based economy has had a direct effect on the accountancy profession. Information once represented power and accountants had access to data that few others understood or knew how to get hold of.

Advances in technology mean that information is more widely available and accessible, and much of routine processing and analysis can now be left to IT. There are also more people, such as those with MBAs, who are trained to

understand and use financial information. The importance of non-financial information has also increased.

As for accountants' skills, a recent publication by FMAC (the Financial and Management Accounting Committee of the International Federation of Accountants) says: "Local knowledge and technical competence will be insufficient; instead a premium will be placed on value-adding contributions to management."

If they are to add value, in other words, accountants will have to combine the knowledge and understanding of "traditional" financial information within their control with more sophisticated interpretation techniques. This means ensuring they develop greater commercial awareness, including fostering better links with other departments and appreciating how their role contributes to the strategic direction of their companies. Accountants in business will increasingly have to position themselves not as number crunchers but as strategic advisers who can help companies to understand and evaluate their financial and competitive position.

A recent CIMA-sponsored report, "Management accounting and knowledge management", based on workshops in 10 companies, concluded that, while they were getting pretty good at acquiring and sharing information about competitors, customers and suppliers, they often did nothing with it. In each of the workshops, participants found it much harder to identify processes for retaining and using knowledge than those for acquiring and sharing it.

The report concluded that management accountants should contract rather than expand their view of strategic management accounting and that the onus should shift to managing the knowledge resources already held within the organisation. Because their skills are based on measurement and control, management accountants are also best placed to become the champions of cross-functional knowledge-management activities in organisations, possibly in partnership with HR professionals.

The research also found that the business case for knowledge management tends to be obscured because of a lack of understanding of links between knowledge management and financial results. Accountants' involvement in this area could make the interdependencies much more visible by developing appropriate performance management and reward systems. ■

5 Reporting intellectual capital

1 Accounting standards

Some intangibles are already included in traditional financial statements. In fact, the accounting rules for reporting intangible assets have been evolving over the past 20 years or so.

By the early 1990s, SSAP22 (Accounting for goodwill) and SSAP13 (Accounting for R&D) were well established, but there were no specific guidelines for dealing with items such as brands, despite the fact that they accounted for much of the market value of some companies.

As a consequence, the Accounting Standards Board introduced FRS10, the main standard for reporting intangibles and goodwill. It came into force for accounting periods ending on or after 23 December 1998 and replaced SSAP22. Intangibles are defined as “non-financial fixed assets that do not have physical substance but are identifiable and controlled by the entity through custody and legal rights”. According to UK Gaap the objectives of FRS10 are to ensure that:

- capitalised goodwill and intangible assets are charged in the profit and loss account in the periods in which they are depleted;
- sufficient information is disclosed in the financial statements to enable users to determine the potential impact of goodwill and intangible assets on the financial position and performance of the reporting entity.

In 2005, when the international reporting standards are due to replace national rules for companies listed on regulated markets within the EU, IAS38 will supersede FRS10.

IAS38 grew out of an early attempt to devise an accounting treatment for R&D costs and was finalised in July 1999. Its definition of intangible assets is similar to that in FRS10, except it adds that intangible assets are held for use “in the production or supply of goods and services, for rental to others or for administrative purposes”.

IAS38 specifies that a company can only recognise an asset if:

- it is identifiable;
- it is controlled;
- it is probable that future benefits specifically attributable to the asset will flow to the enterprise;
- its cost can be reliably measured.

These criteria apply to both purchased and self-created assets. In fact, IAS38 does not specify that internally generated intangibles can never be recognised as assets. It is laid out in such a way, however, that it is difficult to imagine items meeting the recognition criteria (see UK and international Gaap, Tolley/Ernst & Young).

If the item does not meet the above criteria, IAS38 requires the expenditure on it to be recognised as expense when it is incurred. This also applies to the following items at all times:

- internally generated goodwill;
- start-up, pre-opening and pre-operating costs;
- training costs;
- advertising costs;
- relocation costs.

According to the International Accounting Standards website, www.iasplus.com, examples of possible assets as defined by IAS38 include:

- Computer software.
- Patents.
- Copyrights.
- Movies.
- Customer lists.
- Mortgage servicing rights.
- Licences.
- Import quotas.
- Franchises.
- Customer and supplier relationships.
- Marketing rights.

It is clear from this list that much of what is commonly regarded as intellectual capital would not in fact pass the recognition test. The main reason for this is that many intangibles cannot be controlled. Both FRS10 and IAS38 mention control as being central to the definition of an asset. As the UK and international Gaap says: “The notion of maintaining custody over something that has no physical substance may seem rather strange but FRS10 explains that it means such things as keeping technical or intellectual knowledge secret. The requirement for this to be through custody or legal rights means that pseudo-assets, such as portfolios of clients or a team of skilled staff, could not be recognised as assets, as there is insufficient control.”

IAS38 defines control as the ability to obtain future economic benefits

generated by the resource and the ability to deny those benefits to others. This normally means legal rights, as in FRS10, but control can also be demonstrated "in the absence of legal enforceability by factors such as market and technical knowledge. However, skilled staff, customer portfolios or market share are unlikely to be controlled in such a way to meet the definition of intangible assets."

Customer satisfaction is a case in point. As Wayne Upton says in his 2001 Financial Accounting Standards Board (FASB) paper, *Business and Financial Reporting, Challenges for the New Economy*: "While the entity may reap economic benefits from happy customers and workers, it cannot deny others the ability to entice away customers and employees. The control criterion allows accountants and others to draw boundaries around particular things that may be recognised as assets."

He goes on to say that we should consider the possibility that certain items *shouldn't* be included in financial statements because they lack the essential characteristics of assets, rather than because the financial statements *cannot* accommodate them. This is the

opposite of the now almost universal view that financial reporting is out of date and unable to cope with the demands of the new economy.

Upton quotes a merchant banker who says: "Balance sheets are for stuff, not people or ideas. People aren't assets because you can't own them, at least not in this country (I'm neglecting alimony here); you can only rent them. Ideas are not assets because, partly due to the fact that people who generate them can't be owned, you can't keep them bottled up for very long. If you want to measure the value of people and their ideas, you need to look at cash flows, not assets. Balance sheets measure the value of stuff you own, cash flows measure the value of things you rent."

A similar argument is put forward in Andrew Lennard's essay for the Accounting Standards Board (ASB), *Liabilities and how to account for them*. He says that it is impossible to imagine how the true value of a company could be calculated with a reasonable degree of credibility and objectivity. Also, the desire to approximate the total of the balance sheet with the market value of the company belies a misunderstanding of the information needs of investors. Analysts, for example, do not want to be told what the value of a company is – it is their job to work it out from the financial statements and other sources.

In other words, information provided in financial reporting is only the starting

point, a part of the bigger picture. Investment decisions, as Lennard says, are about what is going to happen in the future, and financial statements can only contribute to that understanding.

2 Operating and financial review

Although it seems unlikely that many intangibles will soon appear on financial statements, the operating and financial review (OFR) could be a suitable form of narrative reporting for identifying their importance.

The recent company law review, likely to be included in the updated Companies Act 2003, requires all public and large private companies to produce an OFR. Besides traditional financial measures, the OFR requires companies to include an account of how intangible assets contribute to its overall value generation and how the conflicting stakeholder interests are balanced.

The key area to be covered from the IC reporting point of view is the "dynamics of the business" – in other words, known trends, events, uncertainties and other factors that may substantially affect future performance, including investment programmes. The report specifies some of the areas that companies may be required to address – for example, risks and opportunities and related responses in connection with:

- competition and changes in market conditions;
- customer/supplier dependencies;
- technological change;
- financial risks;
- health and safety;

- environmental costs and liabilities;
- projects and programmes to maintain and enhance tangible and intellectual capital, brands, R&D and training.

The ASB guidance on OFR published in January this year says that it should give a commentary on the strengths and resources of the business that will help it in the pursuit of its objectives and, in particular, on those items that are not reflected in the balance sheet. Such items might include:

- corporate reputation and brand equity;
- intellectual capital;
- licences, patents, copyrights and trademarks;
- R&D;
- customer/supplier relationships;
- proprietary business processes;
- websites and databases;
- market position/dominance.

The ASB adds: "The use of relevant financial and non-financial measures will often assist the user's understanding of the potential value of such items. However, it is not intended that an overall valuation of the business must be given, nor, in the case of listed companies, for net asset value to be reconciled to market capitalisation."

Some of the areas mentioned correspond loosely to IC components. It is questionable, however, how many companies will complete their OFRs in the spirit of the ASB guidance. A recent report shows that the more innovative disclosures in the ASB proposal – such as

the dynamics of the business, forward-looking disclosures, revenue investment and soft assets – are generally being resisted by companies, including some of the biggest ("Half the story", Association of Chartered Certified Accountants, 2003).

The OFR is a "through the eyes of management" statement which relies on directors' judgment of materiality. It may therefore lack comparability, both between companies/sectors and year on year. There is also a danger that material disclosed will be too vague and difficult to understand. On the other hand, it is precisely this judgment of what is material for individual businesses that could accommodate the idiosyncratic nature of many intangibles. In any case, whichever method companies choose to adopt, it will need to have credibility with the stock market.

3 Intellectual capital reports

If we accept that, for the time being, intangibles are unlikely to appear in published balance sheets, we are still left with a problem of how to account for, measure and manage what are undoubtedly important value drivers in many of today's businesses. Investors need this information if they are to value companies with a greater degree of accuracy.

Some research (Holland, 2002) points to the fact that much of this information does in fact get communicated, albeit in private meetings between companies and investors. Although this can function relatively well, clearly it is not an ideal situation for the investment community as a whole, as it is biased towards the big institutional investors.

In Europe, there have been various initiatives to address the reporting of intellectual capital, most notably the Meritum guidelines and its follow-up project E*Know Net (both sponsored by the EU and the Organisation for Economic Co-operation and Development) and a Danish initiative on intellectual capital statements sponsored by the Danish government.

As a way of overcoming the information imbalance, these research projects suggest that companies start publishing a supplement to the annual report – a so-called intellectual capital statement.

Based on best practices observed in more than 100 European companies, the projects have resulted in guidelines on how to report intellectual capital. Although the guidelines vary slightly in content and terminology, the underlying ideas are the same. Organisations are encouraged to produce reports that contain the following three elements:

- narratives about the company vision;
- management challenges and actions;
- a set of indicators.

The narratives give organisations the space to explore their strategic objectives, the products they sell and their customer approach. It also identifies the critical intangibles and describes how they drive performance and deliver value to stakeholders.

With management challenges and actions, an organisation can explain which IC assets need to be strengthened or acquired in order to achieve its strategic objectives. It allows firms to report on activities, initiatives and

6 Conclusion

processes, either already in place or planned for the future. Activities and managerial actions can also be prioritised.

Organisations can create a set of indicators that visualise their performance in terms of intellectual capital management. Users of intellectual capital statements should be able to look at these and assess how well the company is fulfilling its objectives. There is no predefined set of measures and the set chosen can include indicators that measure effects, activities or the resource mix.

Many firms across Europe already publish IC statements on a voluntary basis. They see it as a way of increasing transparency and explaining their view of the company's business model to the market. But, while separate intellectual capital statements may be appealing to users of information, especially individual shareholders, they may place an unwelcome burden on companies already facing greater demands for transparency.

There is also a danger of information overload – many companies already produce corporate social responsibility reports. At this stage, it is not yet clear whether there will be a consensus about the advantages of producing these kinds of statements, or whether such reporting will one day become mandatory.

Intellectual capital is important to both society and organisations. It can be a source of competitive advantage for businesses and stimulate innovation that leads to wealth generation. Technological revolutions, the rise to pre-eminence of the knowledge-based economy and the networked society have all led to the realisation that successful companies excel at fostering creativity and perpetually creating new knowledge.

Companies depend on being able to measure, manage and develop this knowledge. Management efforts therefore have to focus on the knowledge resources and their use. Intangibles and how they contribute to value creation have to be appreciated so that the appropriate decisions can be made to protect and enhance them. There must also be a credible way of reporting those intangibles to the market to give the

investment community comprehensive information to assist in valuing the company more accurately

Huge investment flows in intangibles do not appear as positive asset values on financial statements, so the traditional accounting model does not represent them in a meaningful format. But financial statements should be seen as only a part of the jigsaw in how companies assess and communicate value. The finance function has a key role to play in managing knowledge assets and understanding and communicating sources of enterprise value. It may take a while to reach a consensus on what constitutes the best model for managing and reporting intangible value drivers. But experimentation is invaluable if we are to agree on best practice and arrive at a point of convergence between the disparate approaches. ■

References and further reading

- A Profession Transforming: From Accounting to Management*, IFAC, 2001
- "Assessing strategic knowledge assets in eBusiness", B Marr, G Schiuma and A Neely, *International Journal of Business Performance Management*, Vol 4 Nos 2-4, 2002
- "Bridging the S-curve gap", M Jeans, in *Success in Sight: Visioning*, A Kakabadse (ed), Thomson, 1998
- Building Public Trust*, S Dipiazza Jr and R Eccles, John Wiley & Sons, New York, 2002
- Business and Financial Reporting: Challenges for the New Economy*, W Upton, FASB, No 219-A, April 2001
- "Creating a knowledge culture", S Hauschild, T Licht and W Stein, *The McKinsey Quarterly*, No 1, 2001
- "Efficiency through knowledge", I Windle, *FT*, 21/02/01
- Financial Institutions and Corporate Governance*, J Holland, CIMA, 2002
- "From the ancient Greeks to the modern databases", R Newing, *FT* survey – Knowledge Management, 28/04/1999
- Guidelines for Managing and Reporting on Intangibles*, Project Meritum, January 2002
- Human Capital and Corporate Reputation*, ICAEW, June 2000
- "How to measure an organisation's intellectual capital", G Robinson and B Kleiner, *Managerial Auditing Journal*, Vol 11, No 8, 1996
- "Intellectual capital: defining key performance indicators for organisational knowledge assets", B Marr, G Schiuma and A Neely, *Business Process Management Journal*, Vol 10, No 4, 2003
- Intellectual Capital – Issues and Practice*, ICAEW, June 2001
- Intellectual Capital: Navigating the New Business Landscape*, G Roos et al, Macmillan, London, 1997
- "Knowledge and competence as a strategic asset", S Winter, *The Competitive Challenge*, D Teece, Ballinger, Cambridge, 1987
- Knowledge Management – A State of the Art Guide*, P Gamble and J Blackwell, Kogan Page, 2001
- "Known quantities", B Marr, *Financial Management*, CIMA, April 2003
- Liabilities and How to Account for Them*, A Lennard, ASB, 2002
- MA and Strategic Human Resource Management*, J Innes, R Kouhy and R Vedd, CIMA, 2001
- Management Accounting and Knowledge Management*, J Edwards, P Collier and D Shaw, CIMA research report
- Measurement and Management of Intellectual Capital*, IFAC, 1998
- "Measuring and managing intellectual capital and knowledge assets in new economy organisations", B Marr and G Schiuma, in *Handbook of Performance Measurement*, M Bourne (ed), Gee, London, 2001
- "Measuring intellectual capital – the internal and external drivers for measuring and reporting intellectual capital," B Marr, D Gray, paper presented at "The transparent enterprise, the value of intangibles" conference, November 2002
- Measuring the Immeasurable*, A Wall, R Kirk and G Martin, CIMA research report
- "Measuring the worth of human capital", R Donkin, *FT*, 07/11/02
- New Measures for the New Economy*, C Leadbetter, ICAEW, 2000
- Non-executive directors' survey 2002-03, KPMG, 2003
- "Performance evaluation in the new economy", *International Journal of Technology Management*, Vol 16, Nos 1-3
- "The knowledge tool box", N Bontis et al, *European Management Journal*, Vol 17, No 4, 1999
- "The metric system for performance", S Overell, *FT* report – *Understanding Human Capital*, 31/10/02
- "The next society", P Drucker, *The Economist*, 1/11/2001
- The New CFO of the Future: Finance Function in the 21st Century*, Institute of Chartered Accountants of Australia and KPMG Consulting, 2001
- The Performance Prism: The Scorecard for Measuring and Managing Business Success*, A Neely, C Adams and M Kennerley, *Financial Times* Prentice Hall, London 2002
- "Trying to grasp the intangible", T Stewart, *Fortune*, Vol 132, No 7, 1995
- UK and International Gaap*, Tolley/Ernst&Young, 2001
- "Value relevant information on corporate intangibles", J Holland, University of Glasgow, paper presented at "The transparent enterprise, the value of intangibles" conference, November 2002
- Valuing Intangibles*, C Vance, ICAEW, 2001
- Useful websites
CIMA
www.cimaglobal.com
Cranfield University Centre for Business Performance
www.cranfield.ac.uk/som/cbp/
E*KNOW-NET
www.eu-know.net
International accounting standards
www.iasplus.com
Skandia
www.skandia.se/hem/hem.jsp
Ericsson
www.ericsson.com/cockpit/
Celemi
www.celemi.com
Ramboll
www.ramboll.dk/dan/default.asp
Bates Gruppen
www.bates.no/flash.html
Baruch Lev
<http://pages.stern.nyu.edu/~blev/>
Company law review
www.dti.gov.uk/cld/review.htm

Understanding corporate value: managing and reporting intellectual capital

The Chartered Institute of Management Accountants (CIMA) represents financial managers and accountants working in industry, commerce, not-for-profit and public-sector organisations. Its key activities relate to business strategy, information strategy and financial strategy. CIMA is the voice of more than 77,000 students and 59,000 members in 154 countries. Its focus is to qualify students, to support both members and employers and to protect the public interest.

The Chartered Institute of Management Accountants, 26 Chapter Street, London SW1P 4NP

+44 (0)20 7663 5441

www.cimaglobal.com

Cranfield School of Management is a world-class university business school based in the UK. Renowned for its strong links with industry and business, it is committed to providing practical management solutions through a range of activities, including postgraduate degree programmes, management development, research and consultancy. The Centre for Business Performance is a research centre dedicated to performance measurement and management. The work of the centre revolves around the design, implementation, operation and evolution of performance measurement systems. Its website is www.cranfield.ac.uk/som/cbp