

The Emerald Research Register for this journal is available at
www.emeraldinsight.com/researchregister



The current issue and full text archive of this journal is available at
www.emeraldinsight.com/1469-1930.htm

Demonstrating knowledge value: a broader perspective on metrics

Demonstrating knowledge value

77

William John Martin

School of Business IT, RMIT University, Melbourne, Australia

Keywords Intellectual capital, Intangible assets, Management accounting, Knowledge management

Abstract This paper focuses on current efforts to demonstrate the value of knowledge in organisations with reference to activities and systems for the measurement of intangibles. These efforts stem largely from widespread dissatisfaction with the manner in which traditional accounting methods treat intangibles. The wider context is that of national and international governments and organisations striving to master the drivers of knowledge-based change by involvement in research projects, in conferences, in attempts to find new means of representing intangibles in standard industrial classifications and national accounts and in standards setting for knowledge management. Organisationally this is manifest in proprietary systems for measuring intangibles, many of which suffer the handicap of being overly-focused on single organisations, with the metrics process continuing to lack critical mass. Although such efforts are necessary and will continue, they are most likely to succeed where they relate to mainstream business activities and operate not so much as metrics as indicators.

Introduction

It can be tempting on occasion to speculate that if only there were reliable and accepted metrics in place then knowledge management would have come of age. Indeed the practice of management as a whole could stand to gain from genuine advances in the understanding of knowledge metrics and their application in appropriate circumstances. However such understanding in all likelihood would entail appreciation of the fact that there is much more to demonstrating the value of knowledge than measurement or indeed, the ability to apply some form of metrics to the intellectual capital (IC) of organisations. In reviewing the current position as regards metrics for knowledge, the case is made for a much broader approach to demonstrating knowledge value.

Where the value lies

Interest in demonstrating the value of knowledge is widespread today and is manifest not only in the activities of public and private organisations, but also in those of governments and international governments. These activities range from attempts by organisations to measure return on investment (ROI) or return on assets (ROA) in knowledge to revisions of standard industrial classifications at national and international level. Interwoven among such efforts are attempts to apply the disciplines of management to knowledge in all its aspects including those of resource and asset, entity and process. In the



Journal of Intellectual Capital

Vol. 5 No. 1, 2004

pp. 77-91

© Emerald Group Publishing Limited

1469-1930

DOI 10.1108/14691930410512932

traditional context of managing and measuring it is not surprising that much of the effort in demonstrating value has been directed to the devising of systems that purport to account for and in some way measure the value of IC. In this paper the terms “intellectual capital” and “intangibles” are treated as being synonymous while at the same time there is recognition both of the increasing significance and diverse nature of IC. It is also recognised that to focus too much on metrics for IC at the expense of other concerns of management, could mean losing sight of the wider significance of organisational knowledge and its implications for creativity and flexibility, for learning and enhanced decision making and the attainment of core business objectives.

The recognition of these and similar benefits of knowledge management has contributed to the current level of interest in measuring and accounting for IC. That this is no insignificant undertaking can be demonstrated by the difficulties of separating tangible from intangible within the stock of IC and then being able to demonstrate cause and effect relationships between intangible assets and value outcomes. Most authorities on the subject would agree that nothing near to a consensus on what should be measured exists let alone agreement on a common system of measurement. Indeed, the measurement of intangibles is just as open to criticism on grounds of being an oxymoron as is knowledge management. However, as with knowledge management, once the proposed activities are put in context they make much more sense. In this case, the notion of metrics becomes much more plausible when both the rationale and indeed the nature of the proposed measurement are made clear.

The measurement of IC

Much of the impetus towards measurement of IC has stemmed from dissatisfaction with traditional accounting practices. Thomas Stewart is among the more persistent critics of what he regards as the inadequacies of industrial age accounting, which he has described as long-dead but not yet buried (Stewart, 2001a, p. 268) From within the accounting profession itself people of the eminence of Baruch Lev, Professor of Accounting and Finance at New York University, Stern School of Business, have questioned the usefulness of financial reports as indicators of future earnings and pointed out that conventional accounting performs poorly with internally generated intangibles such as R&D, brands and employee talent – the very items considered the engine of modern economic growth (Osterland, 2001, p. 1).

Driven by and in some cases pre-dating such observations, has been a movement to supplement traditional financial measures with a broad range of non-financial measures for purposes of corporate reporting and accounting. Nonetheless criticism continues over for example, the perceived lack of detail in such statements, which often focus more on the classification of intellectual resources than on either the numbers or the relationships they represent.

Hence it has been claimed, these statements are not so much set calculations of the worth of a firm's IC than models bolstered with additional non-financial detail to be applied to the specific conditions of individual firms (Larsen *et al.*, 1999, p. 18) Another familiar complaint refers to problems of defining and classifying intangibles. Thus whereas accounting standards bodies in the USA, UK and Europe have all adopted methods for classifying intangibles, these assets tend to be defined very narrowly in the form of patents, licences, trademarks and the like. They do not include such aspects as human capital, company reputation, customer loyalty or similar softer dimensions (Brennan and Connell, 2000, p. 2).

This said there already exists a plethora of methods, for measuring the value of IC, many of which demonstrate a broadening perspective on what they seek to measure. Useful overviews of such systems are to be found in Edvinsson and Malone (1997), Brennan and Connell (2000), Liebowitz and Suen (2000), Petty and Guthrie (2000) and Stewart (2001a, b) and as such these need not be revisited here. Instead the paper draws on two standard sources to provide a broad overview of the measurement phenomenon. The first, a categorisation of key approaches to measurement conducted by Sveiby (2002), the second a list of ten leading models compiled by Bontis (2000).

Sveiby (2002, p. 1) explains that there are four categories of approaches to the measurement of intangibles:

- (1) Direct intellectual capital methods (DIC): used to estimate the dollar value of intangible assets.
- (2) Market capitalisation methods (MCM): used to calculate the difference between a company's market capitalisation and its stockholder equity as the value of its IC.
- (3) ROA: used to compare the relative ROAs of different companies.
- (4) Scorecard methods (SC): report various indicators for the components of IC in scorecards.

Matching these categories to actual systems, the picture is as depicted in Table I.

The last of these systems Baruch Lev's Value Chain Scoreboard, a method for computing knowledge earnings and knowledge capital deserves brief mention both for its relative newness and its provenance. This approach uses comparisons between a company's normalised earnings (comprising three years historical core earning and three years of consensus analyst estimates) and the expected rates of return on the company's physical and financial assets as recorded on its balance sheet, to ascertain that portion of normalised earnings for any given year that exceeds the expected returns on book assets. This represents knowledge earnings – the performance contribution attributable to the intangible assets of a company. Knowledge capital is then computed as the present discounted value of all future knowledge earnings. In

Table I.
Metrics systems by
category

Name of system	Main proponent	Category
Skandia Navigator	Edvinsson	SC
IC-Index	Roos	SC
Technology Broker	Brooking	DIC
Intangible Asset Monitor	Sveiby	SC
Investor Assigned Market Value	Standfield	MCM
Tobin's Q	Tobin	MCM
Economic Value Added	Stern Stewart	ROA
Citation-Weighted Patents	Scherer	DIC
Balanced Scorecard	Kaplan and Norton	SC
Human Resource Accounting	Hermanson	ROA
Value Chain Scoreboard	Baruch Lev	ROA/SC

the absence of widely accepted expected rate of return for knowledge assets, the average 10.5 per cent historical after tax return of three knowledge-rich industries (software, biotechnology, and pharmaceuticals) is used as the discount rate (Stewart, 2001b, p. 2).

The nature of measurement

It is interesting that even those people at the forefront of developments in knowledge metrics concede that the practice is still at an experimental phase and that much more needs to be done to implement these metrics outside of the originating organisations. Critical problems of complexity and in all likelihood inaccuracy in terms of unreliable weightings and combinations of quantitative and qualitative approaches remain to be addressed (Bontis, 2000, p. 2). It is important also to recognise differences between measurement and valuation whereby, measurement monitors activity by quantifying its inputs and outputs, and valuation places a monetary value on the expected cash flow from an asset or a group of assets that either currently exists or which is expected to exist with some degree of probability (Bukowitz and Williams, 1999, p. 236).

Measurement has tended to attract most attention not least owing to lack of understanding of the links between key aspects of IC, including the workforce, company culture or business process know-how and value as expressed in terms of business performance. This is changing as senior management faces up to the challenge of justifying expenditures on IC. However, at the moment there are not enough historical data, collected by organisations on a consistent basis, to enable the kind of rigorous analysis that would demonstrate which measures link to value creation (Bukowitz and Williams, 1999, p. 237).

Arguably, the fact that such criticisms exist represents progress inasmuch as there are actually systems to criticise. Even more encouraging is the fact that the perspective is broadening both as regards what should be measured and the manner in which value might be ascribed. This is exemplified by the proliferation of knowledge measurement and valuation activities under the

under the aegis of bodies such as the Organization for Economic Cooperation and Development (OECD) and the European Union (EU).

Demonstrating
knowledge value

OECD initiatives

In June 1999, an OECD Symposium addressed the technical feasibility of improving the quality and comparability of information on IC along with possible strategies for increasing transparency and improving the quality of information available. This led to a number of follow-up activities including the setting up of a Public/Private Forum on Value Creation in the Knowledge Economy. This task force of representatives from both the public and private sectors was formed as a means of exploring the potential for better communication of how companies generate value. It aimed to:

- Review existing methods for assessing intangible assets at company level.
- Promote more in-depth attention to the influence of intangible assets on capacity for economic performance (at micro, meso and macroeconomic level).
- Evaluate how a more open external reporting method could contribute to improved valuation mechanisms in the private sector.
- Consider the policy implications, notably regarding respective relationships between tangible and intangible investments and any implications for capital markets (OECD, 2000, p. 5).

The OECD also compiles a Science, Technology and Industry Scoreboard which collates the internationally comparable data on trends in the knowledge-based economy. It uses an improved and updated classification of technology and knowledge-intensive industries that takes into account the important role of services, skills and information and communication technologies. In 1999 for the first time this included a range of new indicators on intangible investments (OECD, 2000, p. 7) Similar exercises are being undertaken elsewhere for example in Australia where a recent report has emerged on measuring the knowledge-based economy and society (Australian Bureau of Statistics, 2002) In the EU liaison between Eurostat (the Directorate-General for statistics) and national statistics institutes, particularly SDS Statistics, The Netherlands has resulted in the Statistical Indicators for the New Economy (SINE) Project. This is a response to the challenges posed by the fact that for all the growth in intangibles, economic and social activity is still heavily dependent on physical, tangible goods. Eurostat has proposed that new sets of indicators need to be developed for the domains of technology, industry, economy and society (European Commission, 2000, p. 9).

EU initiatives

As with the OECD, the EU is taking a comprehensive approach to the challenges of putting values and measures on knowledge. Three recent initiatives that demonstrate the breadth of the European approach are the PRISM, MERITUM and MAGIC projects.

PRISM. The acronym encapsulates the main themes of this multi-disciplinary European initiative aimed at gaining deeper understanding of the issues surrounding the management and measurement of intangibles. These are policy-making, reporting and measurement, intangibles, skills development and management. In addition to conducting research into emerging conceptual business models, market practices and regulatory systems, the aim is to build an integrated community of practice made up of those who share these views to stimulate much-needed change in practices. These practices relate both to government activities in measurement and reporting at macro level and to the management challenges posed by operating in a context increasingly dominated by weightless and knowledge-related assets. These issues are central to the EU's objective of becoming the most competitive and knowledge-intensive economy in the world by 2010. The publication of research findings is expected in 2003, to be followed by a special conference in London (PRISM, 2002, p. 1).

Measuring intangibles to understand and improve innovation management (MERITUM). This project involves comparative research in six European countries (Denmark, Finland, France, Norway, Spain and Sweden) and its general aims are:

- To provide insights into the process of transforming intangibles as sources of increased wealth, growth and employment, including research into managing and accounting for intangibles.
- To develop guidelines for the measurement and disclosure of intangibles.

It involves four main activities:

- (1) Developing a set of classification schemes for intangibles.
- (2) Investigating the management control implications of intangibles.
- (3) Investigating implications for capital markets such as respective levels of return on human and other intangible assets.
- (4) Developing guidelines for measurement and disclosure of intangibles (Hill and Youngman, 2002, p. 2).

Measuring and accounting intellectual capital (MAGIC). This project emerged from recognition of the widespread industrial importance of IC and specifically that what would be of interest to the industry partners engaged in the project would be widely applicable to most industry sectors in Europe. The overall objective was the development of a low-cost and pragmatic IT-solution for the measuring and accounting of IC in engineering and manufacturing

environments. The project sought to develop holistic methods and tools which would facilitate the quantitative as well as the qualitative evaluation of IC. The main deliverables anticipated were: a benchmarking study of best practice in measuring IC, a knowledge management handbook and IT support tools. These objectives resulted in both a practical methodology for the measurement of IC and software to support the implementation of metrics programmes (QPR Intellectual Capital Online, 2002, p. 2).

Framing a consistent approach

Taken together these activities on the part of major international organisations not only signal their recognition of the value of IC and the need to take steps to realise this value, but also their recognition of the wider organisational and governmental implications of any subsequent actions. To an extent moreover, they reflect additional movement in the direction of standards setting in the field of IC. In 1998, Sveiby proposed that as a basis for the standard reporting of intangible assets, organisations adopt a scorecard approach with three categories of intangibles and a fourth financial category. The data in these indicators would be presented in a separate with the traditional accounting system and the rest of the Annual Report remaining unchanged (Sveiby, 1998, p. 7).

Since then the search for some form of standardisation has widened to embrace the field of knowledge management itself. In Australia this has resulted in publication of a knowledge management framework by Standards Australia (2001) with the ultimate intention of arriving at an Australian standard for knowledge management. Standards Australia have since issued what they term an interim draft standard for knowledge management (Standards Australia, 2003) Intended to be descriptive rather than prescriptive this is more of a road map to knowledge management than a formal standard and the intention is to give interested parties one year to comment before an actual Standard is released. In the UK, the British Standards Institution in co-operation with PriceWaterhouse Coopers has produced a framework entitled *Knowledge Management – A Guide to Good Practice* (BSI, 2001). The main driver behind publication of the framework was the perceived absence of a commonly agreed method of identifying, gathering, codifying, storing and sharing knowledge. Moreover it was reasoned, standardisation could contribute to the effective sharing of knowledge across organisational borders, because sharing by definition required a common context. The similarity in purpose to the framework issued by Standards Australia is evident in the stated belief that standardisation could help businesses to replicate positive outcomes from successful knowledge management initiatives, thus enabling them to identify and reproduce knowledge-driven behaviours. It is also evident in the identified mix of knowledge management-related activities and processes including:

- setting direction for a knowledge management programme;
- capturing, sharing and maintaining knowledge;
- evolving competence in knowledge management;
- using knowledge management to drive production and innovation;
- using knowledge management to understand and serve clients better; and
- building the resource levels entailed by investments in knowledge management creating an organisational culture favourable to knowledge management (McNeillis, 2001, p. 1).

The UK approach is based on the perception of knowledge management not as a likely object of standard setting, but rather as a phenomenon that could benefit from a set of guiding principles. In the USA, the American Productivity and Quality Centre (APQC) has been extremely active in identifying and sharing best practices and processes in knowledge management, in benchmarking and in disseminating state-of-the-art developments in the field. One particularly relevant initiative from APQC (2000) has been its framework entitled *Road Map to Knowledge Management Results: Stages of Implementation*, which spells out the essential steps to implementation.

Despite an apparent push towards standardisation these initiatives are more representative of a search for consistency in knowledge management practices than of the compilation of sets of standardised recipes for success. This one suggests, will be most effective when based on frameworks reflecting good practice as opposed to best practice. In this case organisations could aspire to a certain standard of attainment rather than seek to conform to a knowledge management standard. However, to move beyond the boundaries of frameworks for practices and processes to prescribing a standard for desired behaviours and cultures would raise issues of viability and practicality, not least where self-assessment and reporting were involved. Hence as with knowledge metrics, the search for standards may be a good idea so long as it is clear just what is meant by standardisation.

Measurement in the context of knowledge management

Whatever the reservations attached to current attempts at measuring intangibles it is clear that this particular element of the metrics movement has acquired a considerable degree of momentum.

There are sound business drivers for such developments including: provision of decision support for the management of knowledge assets; adoption of a resource-based view of business strategy; development of both organisational and individual competencies; and reporting to markets and shareholders (Truch, 2002, p. 20). Whereas it may be something of an exaggeration to claim that attempts at measuring knowledge are now a fact of corporate life, the topic seems to be well and truly established on the agenda of

top management. This is not to say that the “Why” question is entirely redundant as the case for measuring still needs to be more widely disseminated. However, much more obvious are those questions to do with the nature of measurement, of what should be measured and how it might be effected.

Despite the understandable desire to be able to represent knowledge and knowledge management resources, activities and processes in numeric, financial reporting formats, leaders in the field would argue that to do this is to miss the point. Not only is there an absence of objective measures but also, the long-established apparatus of financial and institutional definitions and standards are of extremely limited utility when it comes to valuing organisations whose assets are largely non-monetary and intangible (Sveiby, 1998, p. 3). It is also clear that for all their apparent precision, standard quantitative methods often do not really measure what they are supposed to measure. For instance, activities like system usage are easy to measure but there is no guarantee that this will actually result in improved performance either for individuals or the business. The measure is too indirect. In many cases, therefore, anecdotal evidence and case studies seem to be more useful. Recent research reinforces this perspective pointing to the role played by sketches and stories in lending meaning and wholeness to the alternative metrics and interpreting and supporting the identity of the firm (Larsen *et al.*, 1999, p. 19).

Feedback from a recent London conference on measuring knowledge serves to reinforce this perception. It was widely reported that successful evaluation of the impact of knowledge management initiatives was just as likely to occur through non-quantitative approaches as through those involving attempts at measurement. This included the use of anecdotal and case study evidence for the impact of knowledge projects, as well as feedback from users or participants. Not surprisingly the experience of Communities of Practice and knowledge networks was also invoked as emphasising the potential value of activities such as knowledge-creation and sharing as opposed to measurement (Perkmann, 2002, p. 2). None of this would be unexpected in that for people faced with the practical realities of improving their ability to exploit and create knowledge, such pragmatic tools are likely to prove more relevant than are complex systems for measuring knowledge value.

Notwithstanding the difficulties involved in trying to measure the impact or value of the soft approaches, the calls for an extension of such activities continue. As one commentator in the UK has observed, there is no meaningful measure of intangibles, although these account for at least 70 per cent of the value of the FTSE 350, and where intangibles are measured, their accounting lacks transparency and consistency (Simms, 2002, p. 1). Another problem can arise in that where new approaches have been adopted this has on occasion been interpreted as creative accounting with firms presenting expenses in the

guise of capital investments (Walsh, 2002) Nevertheless, in the late 1990s and early 2000s legitimate concerns were voiced over the common practice of expensing R&D costs owing to uncertainty over future earnings and hence by disregarding any likely rewards, risking serious distortions in reported earnings.

This led to calls for those intangible investments deemed likely to deliver identifiable and measurable benefits to be capitalised rather than expensed (Strassman, 2000; Osterland, 2001). Unfortunately this was just the kind of thing that came back to haunt the business community in the spectacular corporate fraud cases of 2001 and 2002. Indeed, testifying before the United States House of Representatives Committee on Energy and Commerce enquiry into the Enron collapse, Baruch Lev instanced the presence of such socially harmful activities as using intangibles for manipulation of financial information and insider trading. In reiterating the need to modify the GAAT (generally accepted accounting principles) significantly, he advocated that as a minimum, corporations should be required by law to routinely disclose information about investments in key intangibles and that investors should be in a position to assess the desirability and productivity of such investments (Lev, 2002, p. 2).

Not surprisingly spectacular failures of the Enron and WorldCom variety serve only to retard the pace of change in methods of accounting for intangibles. Such extreme examples notwithstanding however, it is essential that any information found in financial statements should be reliable. Despite the fact that advocates of change would argue that this is precisely why new approaches are needed, there are good reasons for making haste slowly. However, even a slowdown to give more time to addressing core problems of definition and measurement, is unlikely to dispel completely those continuing concerns over the essential element of subjectivity in the valuation of intangibles (Gross, 2001, p. 2).

The potential damage accruing from subjective or even dishonest reporting of intangible values can be mitigated to some extent by acceptance of the argument that employing a range of *soft* approaches involves not so much measurement as evaluation. In any event the evident inability of ROI-type measures to reveal the true nature and sources of value is a problem that will not go away. This fact alone would seem to vindicate calls for a broader-based approach to measurement. In calling for a such an approach through a redefinition of value from a true intangibles perspective Allee (2000, p. 23) has projected a truly dynamic view of the enterprise as extending far beyond traditional boundaries to embrace business models that allow for social responsibility and environmental sustainability along with such matters as human competence, internal structure and business relationships.

Finally, as already indicated, the “Why” question is still by no means redundant. Despite the widely-acknowledged weaknesses of traditional accounting approaches to intangibles, there are still plenty of people who would oppose reform. Their reasons would include the view that reform would be more trouble or more expensive than it was worth and that the use of alternative or even hybrid accounting methods remains very much a minority activity carried out within unrepresentative types of organisations? The obvious answer for those who advocate reform is to present their case with such effect that legislators let alone regulators are convinced of the need to take action. Even were this to occur, the nature and form of any such action is by no means clear at this stage.

A report presented by the American Productivity and Quality Centre in 2000 argued that the need for metrics obtained largely when the practice of knowledge management was maturing. The report concluded that difficulties with metrics may not be long term, as specific measures for knowledge management were needed only in this transitional phase and that ultimately they might merge with standard measures of organisational performance (APQC, 2000, p. 10). This is not of course an argument against metrics, but rather one for consideration of the nature and purpose of approaches to measurement.

So far as knowledge measurement is concerned there is much to be said for its becoming part of the mainstream, of being integral to the way in which business is conducted. Although at one level this carries implications for change of the most potentially radical nature, amounting to the re-creation of many organisations, at another it demands little more than the ability to see things as they actually are. Hence it is claimed, IC and IC statements are not so much concerned with knowledge as with knowledge management. They exist largely to illuminate such knowledge management activities as are involved in changes to IT and human resources programs, to organisational review mechanisms and to systems for empowerment and decentralisation (Larsen *et al.*, 1999, p. 25).

This perspective aligns quite clearly with one’s earlier assertion of the need to adopt a broader approach to the demonstration of value in knowledge. In the meantime however, much work remains to be done, both as regards thinking through the nature and value of metrics for knowledge and in embedding knowledge management practice within the organisational environment.

Implications for managers

The implications of this burgeoning interest in metrics for IC are reasonably clear. If intangibles represent the clearest and most potent source of value for organisations then management must at least be able to identify and scope the nature of the challenges this poses. However any response is likely to be more effective when placed in a wider knowledge management and indeed

management context. As with metrics, knowledge management is neither an end in itself, nor a solution to all the problems encountered in managing organisations. Instead, knowledge management complements and enhances other organisational initiatives in for example, strategy and culture, product and service quality, learning and collaboration, community-building, mentoring and infrastructure creation. For such enhancement to take effect, however, knowledge management must relate directly to organisational value propositions and business strategies.

Clearly as with more traditional sources of value in organisations, it is important for management to be able to account for and represent the value inherent in intangible resources. However, this need not be the same thing as looking for explicit metrics for such activities or for direct indications of ROI. Nor is this something that applies only to the measurement of intangible resources. Much of the work of management remains resistant to the clear demonstration of cause and effect, as for example is the case with investments in information and communication technologies (ICTs) or in staff training. If, rather than seeking to measure outputs and outcomes in a narrow sense, managers instead look to understand the sources of value in their resource mix, then they can look to achieve improvements in terms of organisational efficiency and effectiveness. The standard business metrics will continue to be important but as the literature cited in this paper has shown, there is clear value in complementing these with alternative metrics that while intangible, address critical human and organisational concerns. Unfortunately there is no standard set of alternative metrics that is likely to be applicable to all firms. Hence the ability to adopt such hybrid approaches to valuation will require that managers have a clear understanding of the strategic objectives and business processes of their organisation. Not only are these likely to change in a turbulent business environment, but also the object of measurement may change.

Once managers understand the scale and scope of the measurement challenge they can then put it into some form of perspective. The real point of efforts at measuring IC is not a matter of measurement or financial reporting but of management. The management of intangibles presents major challenges owing to the elusive and dynamic nature of the core concept. It can often be difficult in practice to differentiate clearly between tangibles and intangibles, with the former often embedded in the latter leading to considerable interaction between tangible and intangible assets in the creation of value. For management the response to such challenges will be spread across a range of activities to do with management of the people, systems and processes in whom intangible value frequently resides. However, the effort is likely to be well worth it in terms of organisational performance, strategic alignment, the enhancement and retention of strategic knowledge capital and to some extent the justification of knowledge management investments.

Conclusions

It is clear that interest in finding means by which to measure the value of IC in organisations continues to be strong and may well be increasing. This interest is manifest not just at organisational level, but also in the activities of governments and international agencies and of bodies responsible for such diverse activities as standard industrial classifications, financial accounting standards and corporate regulation. As a direct result of such activities there have been calls for standards for the management of intangible resources and indeed, the drafting of interim standards for the wider field of knowledge management. While understandable, these attempts to introduce standards into a field as complex and extensive as the management of knowledge and IC should be regarded with caution. Many observers will need convincing of the value of attempting to encapsulate the cultural and perceptual dimensions of these domains into a formal standard, even to the extent that this proves to be possible.

As for measuring intangibles, the plethora of proprietary methods now available for this purpose is eloquent testimony both to the unique circumstances of individual organisations and the variable and dynamic nature of those elements whose value they purport to represent. That there are moreover not just numerous methods, but also different categories of metrics for different circumstances suggests that when it comes to measuring IC it is very much a matter of "horses for courses". In the choice of methods moreover, it is clear that room must be left for the inclusion of other, non-quantitative approaches such as the use of anecdotal and case study evidence for the impact of initiatives employing intangible resources. Finally, it seems clear that whatever the decision on metrics or the ultimate mix of traditional and non-traditional approaches, the fundamental issues at stake here concern the overall management of the organisation. The resource balance may have shifted in the direction of intangibles and hence an ability to understand and exploit the range of measurement and valuation tools available will offer a definite advantage. However, this can only apply within that wider management context in which organisational mission and objectives, structure, culture, strategy and management styles all have major roles to play.

References

- Allee, V. (2000), "The value evolution: addressing larger implications of an intellectual capital and intangibles perspective", *Journal of Knowledge Management*, Vol. 1 No. 1, pp. 17-32.
- American Productivity and Quality Centre (APQC) (2000), *Successfully Implementing Knowledge Management*, Executive Summary of Report, APQC, Houston, TX.
- Australian Bureau of Statistics (2002), *Measuring a Knowledge-based Economy and Society: An Australian Framework*, ABS, Canberra.
- Bontis, N. (2000), *Assessing Knowledge Assets: A Review of the Models Used to Measure Intellectual Capital*, Queen's Management Research Centre for Knowledge-based Enterprises, Kingston.

- Brennan, N. and Connell, B. (2000), "Intellectual capital: current issues and policy implications", *Journal of Intellectual Capital*, Vol. 1 No. 3, pp. 206-40.
- British Standards Institute (BSI) (2001), *Knowledge Management: A Guide to Good Practice*, BSI, London.
- Bukowitz, W.R. and Williams, R.L. (1999), *The Knowledge Management Fieldbook*, Pearson Education, London.
- Edvinsson, L. and Malone, M. (1997), *Intellectual Capital: Realising Your Company's True Value by Finding Its Hidden Brain Power*, HarperBusiness, New York, NY.
- European Commission (2000), "European Commission work on intangible assets", available at: www.11-afr/intangibles/ec_work.htm
- Gross, N. (2001), "Commentary: valuing intangibles is a tough job, but it has to be done", available at: www.businessweek.com/magazine/content/01_32/b3744008.htm (accessed November 2002).
- Hill, P. and Youngman, R. (2002), *The Measurement of Intangibles in Macroeconomic Statistics: Interim Report*, PRISM Workpackage 5: Macroeconomic Statistics, available at: www.euintangibles.net/research_results/MeasIn/MacrStats_intm_WPS_20204 (accessed October).
- Larsen, H.T., Bukh, P.N. and Mouritsen, J. (1999), "Intellectual capital statements and knowledge management: 'measuring', 'reporting', 'acting'", *Australian Accounting Review*, Vol. 9 No. 3, pp. 15-26.
- Lev, B. (2002), "Testimony to the United States House of Representatives Committee on Energy and Commerce", February, available at: <http://pages.stern.nyu.edu/~blev/congressionalquestions.htm> (accessed September).
- Liebowitz, J. and Suen, C.Y. (2000), "Developing knowledge management metrics for measuring intellectual capital", *Journal of Intellectual Capital*, Vol. 1 No. 1, pp. 54-67.
- McNeillis, P. (2001), "Sharing the KM approach", *Knowledge Management*, 12 November, available at: www.kmmag.co.uk/CURROCTOBER02/STDSoc2.htm (accessed October 2002).
- Organisation for Economic Cooperation and Development (OECD) (2000), "Organisation for Economic Cooperation and Development activities on intangibles", available at: www.11-afr/intangibles/oecd.htm (accessed September).
- Osterland, A. (2001), "Grey matters: CFO's Third Annual Knowledge Capital Scorecard", *CFO Magazine*, April, available at: www.cfo.com/Article?article=2514 (accessed October 2002).
- Perkmann, M. (2002), *Measuring Knowledge Value: Evaluating the Impact of Knowledge Projects*, KIN Brief No.7, available at: www.Ki-network.org (accessed September 2002).
- Petty, R. and Guthrie, J. (2000), "Intellectual capital literature review", *Journal of Intellectual Capital*, Vol. 1 No. 2, pp. 155-76.
- PRISM (2002), "About PRISM" available at: www.euintangibles.net/about/index_html (accessed September).
- QPR Intellectual Capital Online (2002), "About MAGIC (measuring and accounting intellectual capital)", available at: www.qpronline.com/Intellectual_Capital_MAGIC.html (accessed October).
- Simms, A. (2002), "Calling the accountants to account", *Guardian Unlimited*, available at: www.guardian.co.uk/Archive/Article/0,4273,4453349,00.html (accessed September).
- Standards Australia (2001), *Knowledge Management: A Framework for Succeeding in the Knowledge Era*, Standards Australia International, Sydney.

- Standards Australia (2003), "Knowledge management road-map released", available at: www.standards.com.au/STANDARDS/NEWSROOM/NEWS%20RELEASE/2003-03-19/2003-03-19-htm (accessed May).
- Stewart, T.A. (2001a), *The Wealth of Knowledge: Intellectual Capital and the Twenty-first Century Organization*, Nicholas Brealey Publishing, London.
- Stewart, T. (2001b), "Accounting gets radical", *Fortune*, April, available at: www.fortune.com/index.jhtml (accessed September 2002).
- Strassman, P. (2000), "When spending is investing", available at: <http://files.strassmann.com/pubs/km/2000-1.php> (accessed October 2002).
- Sveiby, K.-E. (1998), "Measuring intangibles and intellectual capital: an emerging first standard", available at: [www.sveiby.com/library/emerging standard.html](http://www.sveiby.com/library/emerging_standard.html) (accessed September 2002).
- Sveiby, K.-E. (2002), "Methods for measuring intangible assets", available at: www.sveiby.com/articles/IntangibleMethods.htm (accessed September).
- Truch, E. (2002), "EC examines reporting rules for intangibles", *Knowledge Management*, February, available at: www.kmmag.co.uk (accessed September).
- Walsh, C. (2002), "Now audit fears hit UK", *The Observer*, available at: www.observer.co.uk/business/story/0.6903,754639,00.html (accessed October).