The management, measurement and the reporting of intellectual capital

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1. Introduction

The growth in interest surrounding knowledge management and intellectual capital has occurred commensurate with the rise of ‘virtual’ corporations and a flourishing service industry. Particularly for these companies, book values correlate poorly with market capitalisation. Consequently, two main knowledge management missions are evolving (Guthrie and Petty, 1999). First, there is the continuing quest to develop better systems for creating, capturing, and disseminating knowledge within organisations. Second, there is a growing awareness that know-how adds significantly to the value of a business and, in some cases, represents almost the entire value base.

Stemming from these is the emergence of Intellectual Capital discourse accompanied by the drive to establish new metrics that can be used to record and report the value attributable to intellectual capital. It is time for traditional financial and management accounting practice to adapt to the new terrain. My overview, and ensuring observations, is not intended to be exhaustive or definitive. As an academic accountant, my discussion no doubt exhibits a bias that favours work that comes from a quantitative/numerical/calculative framework. Perhaps my initial training has indelibly shaped my world-view.

This presentation will likely be of greatest interest, therefore, to those who share my worldview, but I hope others may also find some common threads that bind the Intellectual Capital movement and relate in some way to their own individual interests. In some respects, I explore a particular patch of the IC quilt, for some clues as to how it should be represented and managed. All the individual pieces are required to complete the puzzle. I hope that my piece will fill one small gap.

There are four main parts to this presentation. First, to explain the increased prominence of IC as a business and research topic which is located within the rise of the ‘New Economy’ – one principally driven by the management of knowledge. Second, I summarise a recent review of some of the most significant extant literature on Intellectual Capital and its developed path. The emphasis is on important theoretical and empirical contributions relating to the measurement and reporting of Intellectual Capital.

The third part summarises research into international IC reporting practices and also provides an overview of my Australian studies. Also this part identifies a number of issues regarding the nature, impact and value of Intellectual Capital management and reporting. The forth part provides several observations concerning future directions for research, debate and discussion, policy and developmental work before any significant changes are likely to be made to existing reporting systems by most organisations.
2. Background and context

The rise of the ‘New Economy’ – one principally driven by information and knowledge – is identified by the OECD (2000, forthcoming) as explaining the increased prominence of IC as a business and research topic. There is scant agreement as to what extent our current understanding of IC is new (Hornery, 1999). Yet, IC, in one form or another, is implicated in recent economic, managerial, technological, and sociological developments in a manner previously unknown and largely unforeseen.

Specifically, the importance of IC is emphasised in:
- the revolution in information technology and the information society;
- the rising importance of knowledge and the knowledge based economy;
- the changing patterns of interpersonal activities and the network society; and
- the emergence of innovation and creativity as the principal determinant of competitiveness.

The genesis of the modern organisation and the rise of an information economy created what we term the new ‘knowledge-based’ intangibles: organisational structures and processes, know-how, intellectual and problem-solving capacity (Guthrie and Petty, 1999). They are not new in the sense that they did not exist within organisations before, rather they have taken on a new and unprecedented importance in a business world defined by global competition, the need for constant strategic adaptation, ever-increasing customer demands, and an explosion of service-based industries. This is a world in which concerns with tangible assets, like factories and land, diminish in relative importance.

The management, measurement, and disclosure of IC has gained relevance as a topic commensurate with the decline of traditional industries and the concurrent growth in knowledge-based industries.

Internationally a number of firms, practitioners and consultants have begun experimenting with various ways of identifying, measuring and reporting IC within organisations. As part of this trend, a new breed of accounting statements within organisations have emerged, these include the ‘Intangible Asset Monitor’ (Sveiby, 1988; 1997) and the ‘Balanced Score Card’ (Kaplan and Norton, 1992; 1996).

3. Measuring and reporting of IC development path

Establishing some boundaries is essential. The term ‘Intellectual Capital’ is frequently used in an all-encompassing fashion with the risk that in time the identity of the object will become unclear.

Seldom has the question, ‘What is Intellectual Capital?’, been adequately addressed. One of the most workable definitions is that offered by the Organisation for Economic Co-operation and Development (OECD, 1999) which describes Intellectual Capital as ‘the economic value of two categories of intangible assets of a company: (a) organisational (‘structural’) capital; and (b) human capital.'
More precisely, structural capital refers to things like proprietary software systems, distribution networks, and supply chains. Human Capital includes human resources within the organisation (i.e. staff resources), and resources external to the organisation (namely, customers and suppliers). Often, the term ‘Intelectual Capital’ is treated as being synonymous with ‘intangible assets’. The definition offered by the OECD, however, makes an appropriate distinction by locating IC as a subset of, rather than the same as, the overall intangible asset base of a business.

Historically, the distinction between intangible assets and Intellectual Capital has been vague at best (Davies and Waddington, 1999). Intangibles have been referred to as ‘goodwill’ (APC, 1970; ASB, 1997; IASC, 1998; Booth, 1998), and IC as part of this goodwill.

A hurdle associated with this increased complexity of classification is that traditional accounting practice does not provide for the identification and measurement of these ‘new’ intangibles in organisations, especially knowledge-based organisations. ‘New’ intangibles such as staff competencies, customer relationships, models, and computer and administrative systems receive no recognition in the traditional financial and management reporting model. Interestingly, even traditional intangibles like brand equity, patents, and goodwill are reported in the financial statements only when they meet stringent recognition criteria, otherwise they have, until recently, also been omitted from the financial statements (see, IFAC, 1998; IASC, 1998).

The limitations of the existing financial reporting system for capital markets and other stakeholders have motivated an evolving dialogue on finding new ways to measure and report on a company’s Intellectual Capital. The product of this dialogue is a plethora of new measurement approaches that all have the aim, to a greater or lesser extent, of synthesising the financial and non-financial value-generating aspects of the company into one external report. Principal among the new reporting models is the Intangible Asset Monitor (Sveiby, 1988; 1997; Celemi, 1999); the Balanced Scorecard (Kaplan and Norton, 1992; 1996); the Skandia Value Scheme (Edvinsson & Malone, 1997; Edvinsson, 1997); and the Intellectual Capital Accounts (DATI, 1998; 1999).

The following table (Table 1) provides a useful/helpful framework for comparing several of the main classification schemas. The framework shows that a number of contemporary classification schemes have refined the distinction by specifically dividing Intellectual Capital into three categories: external (customer-related) capital, internal (structural) capital, and human capital (e.g., Sveiby, 1997; Stewart, 1997; Edvinsson and Malone, 1997). From a utilitarian point of view, the distinction has proved a winner by facilitating the preparation of ‘Intellectual Capital accounts’ (typically included in the traditional annual report) (Petty and Guthrie, 2000a; Sveiby, 1998).
Table 1: Frameworks for Classifying Intellectual Capital Reporting Models

<table>
<thead>
<tr>
<th>Developed by</th>
<th>Framework</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sveiby (1988;1997)</td>
<td>The Intangible Asset Monitor</td>
<td>• Internal structure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• External structure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Competence of personnel</td>
</tr>
<tr>
<td>Kaplan and Norton (1992)</td>
<td>The Balanced Scorecard</td>
<td>• Internal processes perspective</td>
</tr>
<tr>
<td></td>
<td>Classification of Resources</td>
<td>• Customer perspective</td>
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<tr>
<td></td>
<td>Classification of Resources</td>
<td>• Learning &amp; growth perspective</td>
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<td></td>
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<td>• Financial perspective</td>
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<tr>
<td></td>
<td></td>
<td>• Competence Rational</td>
</tr>
<tr>
<td>Edvinsson and Malone (1997)</td>
<td>Skandia Value Scheme</td>
<td>• Human Capital</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Structural capital</td>
</tr>
</tbody>
</table>

Plenty of convincing arguments have been forwarded in support of the need to better understand Intellectual Capital (e.g., Brooking, 1996; DATI, 1998; 1999; Petty and Guthrie, 2000b; SMAC, 1998; Sveiby, 1998). These range from an intuitive understanding that it ‘matters’ (Stewart, 1997) to evidence that recognising Intellectual Capital has the potential to improve the efficiency of both capital and labour markets (Bukh, Larsen and Mouritsen, 2000; OECD, 2000). Few authors (Brennan and Connell, 2000 and Petty and Guthrie, 2000b, being the exception), however, have traced the sequence of events involved in its development.

The historical perspective is an essential component in fostering an understanding of the context within which IC came to be viewed as the essential business element that it is today. Petty and Guthrie (2000b) provide a timeline of major intellectual capital practice and research milestones which is reproduced in Table 2.

Table 2. Milestones - a chronological review of significant contributions to the identification, measurement and reporting of Intellectual Capital.

<table>
<thead>
<tr>
<th>Period</th>
<th>Progress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early 1980s</td>
<td>General notion of intangible value (often generically labelled ‘goodwill’).</td>
</tr>
<tr>
<td>Mid 1980s</td>
<td>The ‘information age’ takes hold and the gap between book value and market value widens noticeably for many companies.</td>
</tr>
<tr>
<td>Late 1980s</td>
<td>Early attempts by practitioner consultants to construct statements/accounts that measure Intellectual Capital (Sveiby, 1988).</td>
</tr>
<tr>
<td>Early 1990s</td>
<td>• Initiatives to systematically measure and report on company stocks of Intellectual Capital to external parties (e.g. Celemi and Skandia; SCSI, 1995).</td>
</tr>
<tr>
<td></td>
<td>• In 1990, Skandia AFS appoints Leif Edvinsson ‘Director of Intellectual Capital’. This is the first time that the role of managing Intellectual Capital is elevated to a position of formal status and given an air of corporate legitimacy.</td>
</tr>
</tbody>
</table>
|                | • Kaplan and Norton introduce the concept of a Balanced Scorecard (1992). The Scorecard evolved around the premise that ‘what you
measure is what you get’.

| Mid 1990s       | • Nonaka and Takeuchi (1995) present their highly influential work on ‘the knowledge creating company’. Although the book concentrates on ‘knowledge’, the distinction between knowledge and Intellectual Capital is sufficiently fine as to make it relevant to those with a pure focus on Intellectual Capital.
• Celemi’s *Tango* simulation tool is launched in 1994. *Tango* is the first widely marketed product to enable executive education on the importance of intangibles.
• Also in 1994, a supplement to Skandia’s annual report is produced which focuses on presenting an evaluation of the company’s stock of Intellectual Capital. ‘Visualizing Intellectual Capital’ generates a great deal of interest from other companies seeking to follow Skandia’s lead (Edvinsson, 1997).
• Another sensation is caused in 1995 when Celemi uses a ‘knowledge audit’ to offer a detailed assessment of the state of its Intellectual Capital.
• Pioneers of the Intellectual Capital movement publish bestselling books on the topic (Kaplan and Norton, 1996; Edvinsson and Malone, 1997; Sveiby 1997). Edvinsson and Malone’s work, in particular, is very much about the process and the ‘how’ of measuring Intellectual Capital. |

| Late 1990s      | • Intellectual Capital becomes a popular topic with researchers and academic conferences, working papers, and other publications find an audience.
• An increasing number of large scale projects (eg. the MERITUM project; Danish; Stockholm) commence which aim, in part, to introduce some academic rigour into research on Intellectual Capital.
• In 1999, the OECD convenes an international symposium in Amsterdam on Intellectual Capital (OECD, 1999; 2000). |

Also Table 2 communicates a general sense of the extent to which theory and research have been guided by practice.

### 4. An international symposium and the results of the Australian study

The Intellectual Capital movement is undeniably grounded in practice (Roos *et al.*, 1997; Mouritsen, 1999). The development of Intellectual Capital reports, for instance, can be traced back to the desire for individuals working with or within businesses to improve their understanding of what comprised the value of the business so as to manage better those things that generate value (Sveiby, 1997, Edvinsson and Malone, 1997; Edvinsson and Stenfelt, 1999; Johanson, Martensson, Skoog, 1999).

**The OECD Symposium**

How to deal with measuring and reporting companies’ Intellectual Capital was the topic of discussion at an international symposium hosted by the OECD (1999). The general aim of the symposium was to begin considering how international guidelines and standards of practice for the measurement and reporting of intellectual capital might be drawn up. The research reports tabled at the symposium (see, Brennan and O’Connell, 2000; OECD, 2000) which were the results of surveys of more than 1,800 companies, and case studies and experimentation in 125 companies in several OECD member countries. It is clear from these reports that companies in Europe are way ahead of their counterparts elsewhere when it comes to the measurement, reporting and management of their Intellectual Capital.
The discussion at the symposium indicated that the focus of reported research was on four issues:

i. assessing what motivates firms to want to measure their Intellectual Capital;
ii. examining who within an organisation is best positioned to measure and manage Intellectual Capital;
iii. determining the potential effects that the reporting of Intellectual Capital is expected to have; and
iv. improving methods of measuring Intellectual Capital.

The findings of the almost 20 national research studies reflect the exploratory nature of the work and the fact that we are at an embryonic stage of investigation. Though the current research does not present a consensus view on all points, some common ground can be found with reference to the four focus issues identified above, as follows:

[i] Organisations are motivated to measure their Intellectual Capital to assist with competitive benchmarking exercises, create a consciousness within the organisation that Intellectual Capital (and human resources in particular) does matter, and, to provide structured information to the capital and labour markets that may enhance perceptions of the company.

[ii] There is agreement that everyone in an organisation needs to be committed to the task of measuring and managing Intellectual Capital if a company is to do so successfully. Evidence suggests that this will usually happen when a senior and respected member of the organisation sponsors the measurement initiative. The practical job of creating a measurement system and deciding upon appropriate metrics seems to be the responsibility, most commonly, of the financial controller or another senior executive in the financial function.

[iii] The effects of reporting Intellectual Capital included improved employee morale, lower staff turnover, increased investment in developing intellectual capital, a higher value being attributed to a company’s Intellectual Capital by senior corporate officers than previously, and an improved understanding of what specific factors are crucial to continued growth and development.

[iv] Techniques commonly used by public and private sector organisations to measure their Intellectual Capital included Kaplan and Norton’s Balanced Scorecard and Karl-Erik Sveiby’s Intangible Asset Monitor. Some work on modifying these measurement frameworks has been done but at present there are no serious contenders.

The Australian experience

To date, little work has been done to provide an understanding of where Australian organisations are situated in relative international terms when it comes to the measurement, reporting and management of their Intellectual Capital. The Australian research team focussed primarily on filling this gap. (Guthrie et al, 1999).

The research strategy for the study involved, firstly, a review of the literature on government policy and other policy pronouncements on Intellectual Capital. Secondly, a content analysis of the annual reports of the top nineteen Australian listed companies (by market capitalisation) was undertaken to determine the extent to which these companies report their Intellectual Capital. Thirdly, seven case studies investigating the internal development of Intellectual Capital were conducted in order to provide a richer and deeper understanding of how organisations are managing the identification, management, measurement and reporting of their Intellectual Capital.
A brief summary of the Australian research findings is as follows:

a) The key components of Intellectual Capital are poorly understood, inadequately identified, inefficiently managed, and are not reported within a consistent framework.

b) The extent of reporting is generally minimal but the types of intellectual capital that tend to be most often reported include human resources, technology and intellectual property rights, and organisational and workplace structure.

c) A review of industry clusters within the study suggests that no individual industry is significantly ahead of any other in its Intellectual Capital reporting practices.

d) All company representatives believe that the management of Intellectual Capital is an important factor in determining future company success and competitiveness. However, few executives are able to identify initiatives within their organisation that are designed to assist in managing Intellectual Capital.

While there is some evidence that Australian enterprises are engaging in the process of identifying their stock of Intellectual Capital, overall Australian companies do not compare favourably with their overseas counterparts in their ability to manage, develop, support, measure, and report their Intellectual Capital (Guthrie and Petty, 2000).

5. Intellectual Capital reporting practices

As indicated above, endeavours to reconstruct corporate annual reporting to include IC indicators were spearheaded in the early 1990s by a small number of corporations which took a particular interest in the subject. Among the pioneers were corporations like the Swedish insurance company Skandia, the Danish company Rambøll, and the Dow Chemical Company. Skandia and Rambøll in 1994 included various aspects of their Intellectual Capital in their annual reporting. In the same year, Dow Chemical Company prepared and published a conceptual framework for assessing the contribution of Intellectual Capital to the overall value of the company (see, Edvinsson and Malone, 1997; Sveiby, 1997; Petty and Guthrie, 2000a).

*Intellectual capital indicators*

Recently, Guthrie and Petty (2000a; b) reported on research into a sample of Australian annual reports as to Intellectual Capital attributes reported (see Table 3).
Table 3: Framework of Intellectual Capital Indicators

<table>
<thead>
<tr>
<th>Internal: Organisational (Structural) Capital</th>
<th>Intellectual Property</th>
<th>Infrastructure Assets</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Patents</td>
<td>Management philosophy</td>
</tr>
<tr>
<td></td>
<td>Copyrights</td>
<td>Corporate culture</td>
</tr>
<tr>
<td></td>
<td>Trademarks</td>
<td>Management processes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Information systems</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Networking systems</td>
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<td></td>
<td></td>
<td>Financial relations</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>External: Customer (Relational) Capital</td>
<td>Brands</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Customers</td>
<td></td>
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<td></td>
<td>Customer loyalty</td>
<td></td>
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<tr>
<td></td>
<td>Company names</td>
<td></td>
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<td></td>
<td>Distribution channels</td>
<td></td>
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<td></td>
<td>Business collaborations</td>
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<td></td>
<td>Licensing agreements</td>
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<td></td>
<td>Favourable contracts</td>
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<td></td>
<td>Franchising agreements</td>
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<tr>
<td>Employee Competence: Human Capital</td>
<td>Know-how</td>
<td></td>
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<tr>
<td></td>
<td>Education</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vocational qualification</td>
<td></td>
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<tr>
<td></td>
<td>Work-related knowledge</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Work-related competencies</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Entrepreneurial spirit, innovativeness, proactive and reactive abilities, changeability</td>
<td></td>
</tr>
</tbody>
</table>

Human Capital

One aspect of IC that has received a significant amount of attention is the area of human capital. The money that enterprises spend on human resources has traditionally been reported in the accounts as a cost, rather than as an investment (Roselander, 1997; 2000; Johanson, 1998).

Substantial benefits might be gained from better information about human resources (Sackman et al., 1989; Levin, 2000). This information might allow human resources to be allocated more effectively within organisations and may further enable gaps in skills and abilities to be more easily identified. It might also facilitate the provision of more comprehensive information to investors or potential investors (Flamholtz and Main, 1999; Lank, 1997; Dalahoy, 1996).

In addition there may be public policy benefits. An important consequence of traditional managing and reporting practices is that, because human resource development appears as a cost rather than an investment, enterprises may be inclined to under-invest in training. This can contribute to recruitment and retention difficulties within the enterprise but, more broadly, can lead to an overreliance on the public sector to support the required levels of training. Better ways of measuring and reporting human resources might therefore encourage greater private investment in education and training (Olsson, 1999; Bourdreau and Ramstad, 1997; Lewis, 1997).
6. Future Directions and Summary

It is still rather early to be making predictions about whether or not a model or system for measuring know-how will be successfully articulated and integrated into the existing management and financial reporting system. It is a somewhat simpler task to identify some of the barriers and hurdles that must be overcome in the pursuit of an improved framework.

The biggest challenge by far is establishing a consensus about the need to report, what to report, and how to report it. Much of what has been done to date in the field of researching Intellectual Capital has intuitive appeal, but is this enough to attract and convince the critical mass of supporters, particularly within the accounting profession, that is needed for change? Assuming measurement is considered worthwhile, should the measurement systems currently being used by the likes of Skandia and Celemi be adopted or does an entirely new set of metrics and a different methodology need to be developed? Where and how should information regarding the value of the knowledge be reported? There are many questions to answer and there is a need for much more research, debate and discussion, policy and developmental work before any significant changes are likely to be made to existing reporting systems by most organisations.

This brief review of the knowledge management and Intellectual Capital terrain highlights the case for re-engineering the traditional accounting and management reporting process. If efforts are not made towards incorporating the value of intangibles like internal structures, external structures and employee competences into a formalised reporting framework then, for many public and private sector organisations, the management reporting and financial statements will become increasingly irrelevant as a tool supporting meaningful decision making. Granted, for most internally generated intangibles, we are not yet in a position to provide robust and entirely accurate measures and also assign a monetary value. However, we are able to assess whether the management of an organisation’s knowledge stock is headed in the right direction.

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