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Reporting intangible assets: drawing generic conclusions from enterprise-specific measures of intellectual capital

A paper by

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<u>Abstract</u>

This paper reviews the difficulties that reporting of intangible assets causes for investors, analysts and regulators. It proposes a set of criteria by which any proposed system of intangibles reporting should be assessed. It suggests that company information on intangibles will need to include measures peculiar to itself, but shows how cross-company performance comparisons can nevertheless be made. This is illustrated with data from a three-year case study of intellectual capital in an innovative technology business. The approach could help bridge the information gap between business management and the investor community about the drivers of future value.

Keywords

intangible intellectual value driver comparison regulator

Biography

Based in London, Richard McLaughlin has worked as an independent business consultant for ten years. His fields include business transformation, strategy and intellectual capital appraisal. Earlier in his 38-year career, he worked for consulting engineers on hydro-electric projects, with BP International on oilfield developments in the North Sea, and later as an executive board director of an international construction contractor. He is a chartered engineer, with master's degrees from Cambridge and Leeds Universities, and has created and delivered electives on MBA programmes in the UK. He can be contacted at richard@rich-dividends.co.uk.

<u>Reporting intangible assets: drawing generic conclusions from</u> <u>enterprise-specific measures of intellectual capital</u>

The intangible reporting problem

Intangible assets represent a large and increasing proportion of enterprise value, yet there is no widely accepted way for businesses to report them. From the viewpoint of an investor, regulator, analyst and auditor, this situation is unsatisfactory. It can lead to market distortions, price volatility, higher cost of capital, and unethical temptations for managers. Models of intellectual capital have been offered as solutions, but none has yet been universally accepted.

The power of competition has not yet created a virtuous circle of helpful information flowing from management to the wider business community. This paper offers a possible solution, based on established methods, which would meet several of the known obstacles, and help bridge the information gap between management and investors. The approach is illustrated with 'real-world' data from a three-year appraisal of intellectual capital in a technology business. Following the distinguished precedent of Baruch Lev (2001, p.5), this paper makes no distinction between the terms 'integible' and 'intellectual' assets or capital.

Intellectual capital comprises a company's reputation and customer relationships; human knowledge and the expertise of its workforce; its technology, brands, patents and propensity to innovate; and the internal processes, procedures and systems of the business. In simple terms, 'if you can't kick it or spend it, it's intangible'.

The proportion of the economy represented by service industries is increasing. Leadbeater (2000) reports that in the UK, by 2005, manufacturing and agriculture will account for only 15% of output and employment. The contribution of intangibles to shareholder value is rising, not just in service industries, but in all sectors including manufacture. This relationship is frequently reported as the ratio of market-to-book value of the business: the mean value for the Standard and Poor's top 500 companies in the US is about 6, having increased substantially over the previous twenty years (Lev, 2001). This means that the conventional balance sheet will have nothing to say about five-sixths of the value of the average enterprise. Such inability to define,

measure or even describe 83% of the shareholders' wealth might (but apparently doesn't) embarrass some CFOs and finance directors.

Even in capital-intensive industries, the importance of intangibles is increasing: the skills of managing the supply chain and creating customer dependencies are often more important drivers of future cash flow than conventional 'balance sheet' assets. A spectacular illustration of this was American Airlines, where their Sabre airline reservation system - an intangible asset - earned more profit than the aircraft on the balance sheet (Stewart, 1998). When the airline sold a proportion of the system, the transaction placed a market value on Sabre equal to the rest of the entire airline, including 650 aircraft and many landing rights (Lev, 2001).

In the UK, when the free internet service provider, Freeserve, was first listed in August 1999, it was valued at £1,510 million. Three months earlier, its parent Dixons had reported net assets for the whole group, including Freeserve, of £765 million. At that time, Freeserve had a staff of sixteen people, while the parent group had over five million square feet of prime retail space.

This disparity between reported assets and market value has begun to disturb regulators of the equity markets.

Intellectual capital models

The growing literature describing models of intellectual capital appraisal has advanced the analysis of intangibles, and may offer a range of solutions to the reporting problem. In his trail-blazing work at Skandia, Leif Edvinsson (1997) proposed the classification of intellectual capital into four main groups:

- Human capital
- Customer capital
- Innovation capital
- Process capital.

This classification, and variants of it, has become widely adopted in the intellectual capital literature. Quantitative measures are needed for each sub-element of these categories, and Edvinsson presented a list of over 100 indicators for wider use. These included items such as ratio of contacts to sales closed, number of repeat customers,

average age of patents, time to establish a new office and measures of computer literacy of staff.

The challenge of combining such disparate indicators into coherent composite measures, which could be aggregated, was elegantly solved by Roos, Edvinsson *et al* (Roos, 1997) who introduced the concept on an Intellectual Capital Index. At the same time, significant parallel contributions were made by Sveiby (1997) and Brooking (1996), and later through the Value Chain Scoreboard of Lev (2001). Recently, the whole field has been comprehensively surveyed by Bontis (2001).

Regulators, accountants, analysts and corporates

Do these approaches, or derivatives of them, provide a methodology for the consistent reporting of intangible assets? Will companies report on such bases without compulsion from the regulators? The challenge was summarised by the SEC's then Chairman, Arthur Levitt:

As intangible assets continue to grow in both size and scope, more and more people are questioning whether the true value – and the drivers of that value – is being reflected in a timely manner in publicly available disclosure (quoted in Upton, 2001).

This debate has been usefully advanced by some authoritative sources in the financial community. Some radical proposals seek to render a company's value-creating plans and activities into money flows, to create in effect a balance sheet including or comprising intangible values. In the US, a recent review by the Federal Accounting Standards Board concluded that these approaches suffer from problems of cost, complexity, and uncertainties about completeness (Upton, 2001). In the UK business community too, there was resistance to accounting recognition of intangibles valuation (Vance, 2000).

By contrast, most intangible drivers of shareholder value are likely to be non-financial, and therefore hard to express in purely financial terms. But some measurement of intangible drivers would certainly help inform investors and analysts. This would be particularly informative if accompanied by a commentary explaining how the chosen measures reflected the drivers of future cashflow in that business. Such approaches do not usually attempt to attach a money value to each measurement or indicator. The 'metrics' approach provides a dashboard rather than a balance sheet.

The most important and relevant metrics will often be peculiar to particular industry sectors, or even to the individual business. This argues against imposing or adopting standard sets of measures, which may not be appropriate to the operating context of the business in question. It does not argue against standards in form, terminology, consistency and transparency (Upton, 2001).

If such information is useful to the wider world of investors, analysts and commentators, one may wonder why company managers do not voluntarily disclose such data, even though almost certainly they will be collecting it for their own good management purposes. Baruch Lev has shown that theoretically such disclosure will reduce investor uncertainty and thereby upgrade the stock prices of the disclosing company. He then proceeds elegantly to show how the incentives of the real world act to confound the theory, and discourage disclosure. He reveals how (intangible) goodwill write-offs at acquisition can be used boost future reported profits; how well-connected analysts like to protect their privileged private understanding of the drivers of a company's future performance; and how auditors are more comfortable with rules that exclude risky valuation of intangibles (Lev, 2001).

Research undertaken for the Institute of Chartered Accountants of England and Wales (ICAEW) has surveyed corporate and institutional opinion in the UK. It reports almost universal antipathy to any form of standardised reporting, yet there was some enthusiasm for better reporting of intangibles, with guidelines to encourage consistency. This entertaining study (Vance 2000) reports some trenchant expressions of doubt, cynicism, and outright opposition to reporting intangibles: 'Once you start, you can't stop if it gets bad'. There were misgivings about possible lack of rigour in such measurements. The conventional balance sheet was held in low regard by both corporate and City respondents, with both groups recognising cashflow, clarity of strategy, and competence of the management team as stronger determinants of value. The same work recognised that many intangibles are sector-specific, and further that some are context-specific, contributing more in one business than another. It also noted that reporting methods for intangibles should provide a 'dynamic path over time', a point made also by Roos (1997) and Upton (2001).

Financial valuation of intangibles is problematic because, as Roos (1997) points out, intellectual capital is not a zero sum game. This view is in line with Lev's description of the non-rival nature of intangible assets (Lev, 2001). New users of non-rival assets

can deploy them without denying their use to existing users. A machine tool is a rival asset; useful knowledge is a non-rival asset. If intangible value cannot yet be reliably measured, the **drivers** of intangibles **can** be identified and measured.

In the UK, another ICAEW report found that too few of the measures for intangibles are focused on the way companies create cash and shareholder value. It concluded that any global standard for measuring intangibles would be cumbersome; it recommended instead that measurement of intangibles should be developed on an incremental basis (Leadbeater, 2000).

In the US the Garten Task Force, set up by the SEC, found deficiencies in current company reporting, with its focus on historic financial transactions. Other major findings were:

- Useful supplementary information confers competitive advantage in attracting capital
- While companies will be reluctant to disclose unfavourable information, the market will penalise the more secretive organisations
- Enhanced disclosure should not be compulsory
- Much of the relevant missing information is company-specific
- A framework should be developed for reporting intangibles, which would encourage best practice to evolve gradually
- Regulators should encourage innovation in disclosing intangibles and related measures of performance. (Garten, 2001).

Measurement systems: criteria to be satisfied

In proposing any solution, there are obstacles of theory and opinion to overcome. Nevertheless, the intellectual capital and financial communities should agree at least on the criteria by which any system for intangibles measurement should be assessed. Bearing in mind all the foregoing, it now appears possible to propose such criteria with a reasonable chance of consensus support. Any practical measurement system should be voluntary and should include the following attributes:

- Supplementary to, not replacing, traditional financial reports
- Linked to value creation

- Quantitative
- Illustrative of corporate strategy
- Not competitively damaging
- Objective, or at least repeatable, measures
- Subjective items, such as weightings, to be explicitly disclosed
- Consistent from period to period
- Relevant
- Useful
- Simple
- Comprehensible to outsiders (investors, analysts, regulators)
- Sector- or company-specific, but allowing cross-company comparison
- Adaptable to any kind of enterprise
- Cheap to collect
- Applicable incrementally
- Auditable.

It is likely that this list of desirable characteristics could be extended. But if a system possessed at least the above features, it would probably satisfy most of the zealots - and some of the sceptics too. To illustrate some of these features, the next section describes a measurement system used in earnest.

Case study: three years of intellectual capital measurement

Over the last three years, this author has developed and applied an intellectual capital model in a specialised engineering consultancy in the UK. The subject company, Bomel, has built an international reputation over the last decade in offshore engineering for the oil and gas industry. It has specialist expertise in advanced structural analysis, damaged strength assessment, and design of repairs to offshore production platforms. Whilst Bomel has sustained its reputation and core business in these specialisms, the firm's original technology is becoming somewhat commoditised through technical publication and growing client and competitor

knowledge. The company has therefore extended its portfolio into port and marine operations; safety, risk and reliability assessment; and the evaluation of human error. The original staff resource of structural engineers has been leavened by naval architects, mariners and occupational psychologists.

The author and his client shared a belief that the measurement system should be informed by Bomel's strategic objectives and the primacy of future cashflow. They used a system based broadly on the Intellectual Capital Index of Roos, Edvinsson *et al* (1997). It is a system which focuses on the measurement of the drivers; it does not rely on or produce a valuation of intangibles in money terms (though it can been extended to accomplish this). It was agreed that the drivers should be chosen by those with the best understanding of the business, namely the senior management, rather than by adopting general or even sector-specific prescriptions from outside.

Given that the measures sought were those which drive the strategy and future cashflows, the work began by seeking to articulate the firm's purpose and strategic objectives – which had not hitherto been explicitly stated. Bomel's business purpose was defined as aiming 'to be the leading, independent UK engineering consultancy, specialising in offshore, marine and high technology onshore projects'.

The strategic objectives were stated as:

Increase the number of long-term relationships with clients and partners Broaden services to and contacts within existing client organisations Widen the client base from offshore and marine to other industrial sectors Sustain Bomel's technical and market leadership in offshore integrity services Replenish Bomel's technology base and develop new combinations of technologies aimed at the company's chosen markets

Improve staff accountability, ownership, motivation and development

Achieve progressive improvements in profit, cash management and financial control. Essential to the successful delivery of these strategic objectives were more tangible factors; they were the 'must do' or 'must happen' issues, which usually only the directors could deliver. These critical success factors (CSFs) were high priorities; unless they were articulated and managed, it was likely that the strategic objectives would remain - as often happens elsewhere - mere aspirations. The CSFs were numerous, arguably too numerous, and were non-quantitative; they were chosen to satisfy the test that their achievement or otherwise would be unambiguous. To give a flavour of the CSFs, two are given below:

Change the directors' workload pattern to release more time for marketing, selling and developing alliances

Appoint a financial controller who will take ownership of presenting timely and reliable financial and management information, and not just 'count the beans'.

Technology map

In parallel with this, a way was sought to map the technologies that sustained the business. This provided a market and technical context as a foundation for what followed, and also contributed directly to two of the quantitative measures chosen later. Initially, the task was de-personalised, in the sense that the technologies were identified as corporate assets, without - at this stage - being associated with particular individual human capital; that came later. The author adopted the concept of 'distinctive technology'. This was defined as a degree of specialism and advanced knowledge in which Bomel was a national authority or centre of expertise, and acknowledged as such by leading external practitioners in the subject. Examples included:

Offshore structural strengthening and repair

Behaviour, design and installation of underwater grouted connections

Structural performance of frames and tubular joints

Non-linear structural behaviour and analysis

Formal safety assessment (maritime and offshore)

Accident influence analysis and human error.

To give a market context to the technology map, the industrial sectors in which the firm was active were identified as:

Offshore oil and gas production: structural integrity, safety management and new capital projects

Marine: port and ship safety

Renewable energy: tidal, wave and wind

Defence: military bridging and infantry protection.

The full technology map was later used as a framework for evaluating the expertise and knowledge of individual staff.

Key performance indicators

The strategic objectives, the map and the critical success factors were then reviewed together. The aim was to find numerical measures which would chart the accomplishment of the strategic objectives and the critical success factors. Where these could not be measured directly, a proxy measure was sought. At this stage, it did not matter than these numerical key performance indicators, or KPIs, were expressed in a disparate mix of units: for example, money values, percentages, years and pure numbers. They were rationalised in the next step of the process.

Aggregating them to generate a single value or index required normalisation or some other treatment to get them on a common basis. The problem was well recognised and resolved by Roos:

Remember that intellectual capital is by definition intangible and that the only possible measurements are proxy variables, or indicators. These will be expressed in diverse units of measurement ... At first glance it seems a nightmare ... (Roos, 1997).

Data for over forty KPIs were collected every six months over the three-year period up to the present. To make the task more tractable, the KPIs were prioritised to limit their numbers. It was thought likely that the great majority of intellectual capital would be determined by around a dozen dominant KPIs, and each would give a strong indication of progress (or otherwise) towards future cashflow generation. A small number of KPIs were selected for each of the four main categories of intellectual capital: human, client, innovation and process capital.

Intellectual Capital Index

To consolidate the KPIs into a single index of Intellectual Capital, the KPIs must all be made dimensionally consistent. This was done by choosing a maximum possible value for each. This was used as denominator: dividing it into each KPI would render a dimensionless quotient, and ensure that all values so treated would lie between zero and unity. These modified KPIs were not all of equal importance. So, in the next step, a relative weighting was assigned to each.

Some might remark that the Intellectual Capital Index depends on value judgements, both in the choice of weights and, sometimes, in the assessment of the value of a given indicator. This is true, but all the same this puts it in exactly the same position as regular accounting data (Roos, 1997).

That was written five years ago, and *a fortiori* has greater resonance now after the accounting scandals of recent times.

So much for the methodology. What follows is a summary of the results.

Table I. Key performance indicators and IC Index: June 2001 values

Key performance indicator (KPI)	Weighted KPI score	Percentage contribution to IC Index
Human Capital		
Staff accountability, ownership and reliability	0.055	10%
Aggregate of individual technical expertise and competence	0.052	9%
Aggregate of individual business expertise and competence	0.029	5%
Staff retention	0.040	7%
Client Capital		
Long-term contracts and alliances in place	0.136	25%
Key relationships with specialist sub-consultants	0.023	4%
Satisfaction rating from post-project client surveys	0.039	7%
Innovation Capital		
Distinctive technologies	0.085	15%
Business value of R&D	0.037	7%
Papers published in last five years	0.013	2%
Process Capital		
Projects delivered on time	0.028	5%
Performance in quality audits	0.019	3%
Value of Intellectual Capital Index	0.56	100%

Table I shows how the Intellectual Capital index is made up. The index is the sum of the twelve contributing weighted KPIs. The values shown are those for June 2001. The right-hand column shows the percentage contribution of each to the IC index, and reflects the relative importance attached to each. This table is summarised from a worksheet which enables management (and potentially analysts too) to decide, debate or evaluate the effect of the weightings given to each KPI. To a close observer of the

company, it is not surprising that the greatest contributors are the long-term alliances, the 'distinctive technologies' and the staff expertise: in this business, these are indeed the dominant drivers of future sales and cashflow.

Results over three years

The trend of such measurements over time is more revealing than the absolute values looked at in isolation. Figure 1 shows the movement over time of three of the KPIs driving intellectual capital in Bomel.





A presentation such as Figure 1 provides a graphical illustration which is helpful in several ways. Most obviously, it shows the trends in the KPIs displayed. Any sudden shift in a KPI is immediately obvious and can be investigated. Figure 1 also illuminates the relative importance attached to different indicators. In Bomel, the number and importance of long-term alliances and contracts is the bedrock of future cashflow: Some of them are call-off contracts of indefinite value initially, but providing eventual volume sales at attractive margins. The 'distinctive technologies' are important in positioning the firm in its chosen markets, and in the operational delivery of some of its services, but the connection with future cashflow is considered less immediate than that of the long-term alliances. Making a smaller contribution is the KPI for staff retention. In the literature of intellectual capital, staff continuity is frequently put forward as a useful KPI. In Bomel, this is offset by the need to resource

the business with skills for the new activities, for example, by replacing some structural engineers with occupational psychologists. Staff retention is therefore considered a weaker driver of future cashflow than the other two KPIs illustrated in Figure 1. A similar commentary could be provided for each of the twelve KPIs which contribute to IC index.

Table I shows the absolute value of the IC index at a point in time. This value is peculiar to this company; it is of no value for purposes of comparison with other businesses. More significant and useful is the trend of the index over time, which is shown in Figure 2, together with the earnings of the business.

Figure 2. Trends of Intellectual Capital Index and profit



The IC index is made up of the twelve KPIs listed in Table I, not just the three plotted in Figure 1. The profit figures have been factored to render them dimensionless, at the request of the company. At this stage, Figure 2 suggests that the IC index and profit are following similar trends. More data has been collected recently, and will be validated shortly, to extend the plot of the IC Index. It is anticipated that this further data will be available (included at Appendix A) at the McMaster World Congress in January 2003; preliminary indications are that the trend will continue. A correlation between the index and profit should be expected, given that the KPI components of the index were chosen as those which drive cashflow and profit. A numerical model of the correlation and timing effects has not yet been attempted. However, one would expect the IC Index - if sensibly formulated - to be a leading indicator of future financial performance. By contrast, traditional financial accounts are an unreliable indicator of future performance.

Comfort for the sceptics?

Some in the business community are naturally wary of the competitive dangers of disclosure. They will note that the selection and values of the KPIs in Table I reveal little that is commercially sensitive. This is also true of most of the KPIs in their raw state, before unitisation and weighting.

Others may doubt whether management can be trusted to calculate the index objectively and consistently. With the raw KPIs to hand, analysts could select different weightings, and arrive at their own alternative values of the IC Index and its sensitivity to variations of input data. Shareholders and analysts could also interrogate management on the matter, as illustrated in the following section.

Scrutiny by the investment community

independently checked?"

If the type of information described here was presented routinely to shareholders and analysts, it would enhance their understanding of the business and confidence in the management, and possibly reduce volatility and the cost of capital. One might imagine a meeting between a group of analysts and the chief executive, and the questions that would be asked:

"Chief Executive, in your Figure 2, can you convince us of the link between the trend of the index and the growth of profits?

If the index is a leading indicator of shareholder value, what is the lead time? How did you choose the individual KPIs that make up your Intellectual Capital index? How did you decide the weighting you applied to the KPIs? Can you explain to us how each of these KPIs relates to future financial performance? Do your chosen KPIs differ markedly from those in other professional service firms? How have you scored your indicator for technical expertise? How do we know you have measured your KPIs consistently? Have they been For the company in question, there are good and robust answers to these questions. Imagine the confidence and wealth of insight that such an interchange would generate in the investment community. With this information, analysts and investors would understand the business better. They would appraise how well the management team understood and controlled the drivers of the business; they would see more clearly how management priorities related to strategy and future shareholder value. They would have more confidence in - and a more robust basis for - their own valuations of the business.

Uncertainties remain. If economic theory applied, this might result in a less volatile share price, and a lower cost of capital, but as Lev (2001) pointed out, it may not do so in practice. The SEC-inspired task force believed that 'market forces will penalize companies that provide inadequate information', but added that volatility is determined more by genuine uncertainty about technology or performance than by the extent of disclosure (Garten, 2001).

Cross-enterprise comparisons: a simple measure

A one-off measure of intellectual capital in any business may be subjective, peculiar, and of no use for comparing one business with the next. Even looking at a business in isolation, it is not the absolute values but the **changes** in IC that are revealing, as many writers have pointed out (Edvinsson 1997, Roos 1997, Joia 2000, Vance 2000, Upton 2001). The changes also provide the tool for comparison with other enterprises: the trend in the IC index itself and its components. In mathematical terms, the increase, or rate of change of IC, is the first derivative:

Rate of change of IC,
$$\rho = \frac{\Delta \text{ IC}}{\text{IC} \cdot \Delta t}$$

This could be considered analogous to the conventional measure, Return on Capital Employed. Both measures incorporate a return, or growth in value, normally over one year. Both are conventionally expressed as a percentage, but in reality have the dimensions of $(time)^{-1}$.

For Bomel, the average annual compound growth in IC over the period 1999-2001 was 12 %. Such figures can be compared with the corresponding return in other businesses, even though the latter might measure IC entirely differently. The use of the first derivative illuminates performance over time, and makes

cross-company comparison both possible and rational. Comparison using this approach eliminates the differences in basic method and any systematic bias in application. This formulation is simpler than some offered elsewhere, but its very simplicity makes it more comprehensible and transparent.

Sub-categories of IC can be treated in the same way. Human capital is likely to be evaluated differently from company to company. But if the constituent metrics are soundly chosen and quantified, the proportionate change over a year can legitimately be compared with that of another business. For example, the average annual compound growth of human capital for Bomel over the period 1999-2001 was 22 %.

It may be argued that the quantum of IC at any time is a more significant driver of future value than the change in IC over a period; and that using change rather than quantum for comparison could be misleading. Comparison of quantum requires agreement on universal measures for IC, and there is little prospect of that; even if there were, it is likely that local differences in interpretation and subjectivity would bedevil the comparisons. A business with a large IC, but showing no change in its total or constituents, would signify a static business: one unlikely to prosper in a market driven by knowledge. Change is the essence of intangible assets. Or, as one expert has pithily expressed it, 'the future is intangible' (Brooking 1996).

Some sceptics are understandably concerned about the impact of reporting an adverse trend (Vance 2000). A business in that position might be able to explain that its market was maturing and it was moving from an investment phase into generating higher cash returns: converting intellectual capital into financial capital. If the financial figures justified this, or if the forward order book confirmed it, the shareholders would have a basis for deciding whether or not to hold their investment. If, on the other hand, the outlook for cashflow was adverse while investment and intangible drivers were declining, the business would be unlikely to prosper. The sooner this was apparent, the better for investors and the wider market. In a third scenario, the financial accounts might report continuing 'cashburn', while the management was asserting that a franchise was being built to exploit an innovation: that innovation capital was large, and in turn was building up the customer capital. This, of course, is a beguiling story often heard before the burst of the dotcom bubble. To raise the credibility of intangible asset reports, some form of independent review may be helpful.

Integrity and audit

The integrity of any measuring system depends on consistency of measurement. This applies equally to measures of IC and to conventional accounting. Furthermore, any switches in the choice of KPIs will introduce inconsistencies and errors. The choice of KPIs will not be immutable; some change may become desirable, as the shape of the business develops. In this event, any changes in KPIs should always be carried back to the start, and the earlier years explicitly re-stated on the new basis. Just as with changes in traditional accounting treatment, for example in depreciation policy, excessive or frequent adjustments in treatment will destroy confidence in the reported figures.

The attestation of a company's reported measurements of IC or intangibles could be provided by independent consultants. It would also provide a ready-made opportunity for the credit rating agencies, or for the accounting profession – as an add-on service to conventional audit. An audit of intangibles reporting might confirm, for example, that the index (or another aggregate measure) was based on indicators which were consistent, relevant and comprehensive; which were objectively - or at least consistently - evaluated; and which were linked to the creation of shareholder value.

Conclusion

This paper has recorded the widespread desire for a reliable way of reporting intangible assets. There is a strong preference, at least among the regulators, for a voluntary system and for a progressive evolution of credible methods. The intellectual capital community has provided a range of model structures, which can be harnessed to serve this need.

There remains widespread scepticism in the business and financial communities. This paper has supplied an example showing that disclosure need not be damaging competitively. The author has shown how management's rigour in reporting intangibles might be tested by questioning from analysts or investors; also that analysts can assess sensitivities by applying their own views and weightings to the framework of information supplied by a company. Auditors, consultants and credit-rating agencies could offer independent reviews of intangibles reporting.

There are misgivings about imposing general or even sector-specific indicators which may not adequately suit a particular business context. The paper has shown how

intellectual capital appraisal can and should be tailored to a specific business. Yet by measuring changes of intangible drivers over time, comparisons can still be made with other companies. It is suggested that this approach is simple enough to be widely accepted, and that it meets most of the criteria - laid out earlier in the paper - against which any proposed measurement system should be assessed. The task is not too daunting. And the tools are at hand.

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Appendix A

Extracts from poster presentation at conference

Summary of the Paper

What drives the value of a knowledge-based company? What do investors, analysts and regulators need to know? Can intangible assets be reported? Should they be?

Using a three-year Intellectual Capital case study, we show

- How to measure intangible assets
- How intangible assets can usefully be reported
- How to compare the management of intangibles between one company and another.

We propose an approach which reconciles the needs of investors with the apprehensions of management.

Chart A shows the movement of the Intellectual Capital Index over three years, and the trend in Profit. The KPIs contributing to the IC Index were chosen in 1999 as the main intangible drivers of future profit and cashflow for this business.

The relationship between the IC Index and Profit endorses the original choice of KPIs as the drivers of future profit.

Chart B breaks down the IC Index into its components. This helps investors and analysts better to understand the business drivers and management priorities – and to question management on them.

Further breakdown, exemplified by **Chart C**, illustrates how one component of IC, Human Capital, is built up from its four constituent drivers, and how these drivers have moved over three years.

Other charts (not included here) show corresponding data for Client, Innovation and Process Capital.

Many inferences can be made

See the full paper for an imaginary analyst's questioning of the CEO on this IC data.

The <u>absolute</u> value of Intellectual Capital Index is of no use for business performance comparisons. But <u>trend</u> of IC Index over time, specifically the first derivative,

does allow valid comparison with other businesses

Annual growth, or rate of change of IC,

$$\boldsymbol{\rho} = \frac{\Delta(\mathrm{IC})}{(\mathrm{IC})\Delta t}$$

This value can be compared with corresponding return in other businesses using different measures

For the case of Bomel, over the period 1999-2002, compound growth rate of IC, plotted on **Chart A** = 12% p.a.

Rates of growth of the main components of IC can also be measured in the same way. For the results on **Chart B** Compound average annual growth rates are:-

> Client Capital = 15% Human Capital = 18% Innovation Capital = 8% Process Capital = -4%

These growth rates can be compared with those of other businesses, using different <u>absolute</u> measures of IC.

Intangibles Reporting: the Conclusions

- The Intellectual Capital Index, and its components, reflect management's views of the intangible drivers of future cashflow. Trends in the Index and its components can provide leading indicators of future shareholder value.
- 2. Reporting intangible assets, as described here, gives valuable information to investors and analysts. This can be done without disclosing competitively-sensitive, proprietary information. The approach satisfies the criteria for reporting intangibles.
- 3. IC appraisal, even when bespoke to a particular business, can enable performance comparisons to be made with companies using different measures. This is done by comparing growth rates in intellectual capital and its components.





Chart B Components of IC Index



Chart C Breakdown of Human Capital



For further information or to comment, contact

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