

# Managing and Measuring Intangibles: A Multi-Disciplinary Challenge

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“Accounting accuracy is important to the capitalist mechanism because it measures the extent to which our continuous bargain between the present and the future is being kept in practice. Doubts about accounting integrity have a chilling impact on the economic mood”.<sup>1</sup>

Economic measurement may not be sexy, but it seems many people are suddenly very interested in it. The collapse of market confidence in accountancy’s ability to provide a true and meaningful view of corporate performance has reminded us that accounts are more a collection of interpretations and judgements than a statement of hard facts. Enron, WorldCom and a host of other names have heightened the interest in figures and statistics – and indeed in how they are actually compiled.

Investors, for example, seem to have rediscovered an appetite for the finer details of corporate accounts. Are they a true reflection of corporate performance? What are they telling us about what is going on and, more importantly, about what might happen in the future? Corporate executives are also under scrutiny: they need to imbue their stakeholders with confidence that they have a clear grasp on their companies, their performance and their strategic direction. It is noteworthy that in a recent survey of the multi-national members of the European Knowledge Management Forum, measurement issues have risen to the top of members’ agenda having languished low-down during the height of the bull market.

Financiers’ confidence has been rocked. The United States has witnessed market failure at its most extreme but it would be too easy to dismiss this merely as an American corporate governance failure. Underneath the headlines lies a deeper, longer-term and more international problem: we are running today’s knowledge-based economies with measurement tools inherited from 19th century industrialism.

Knowledge is the basic generator of value, but we do not have a common understanding as to how to measure that knowledge and the value it generates. The free flow of financial capital is reliant on a complimentary flow of the most up-to-date and relevant information set between users and providers of financial capital. Today’s information set is severely lacking in the insights it provides into knowledge-intensive intangibles and how they do or do not create value. Management, analysts and investors alike are left to make judgements based on a mixture of guesswork and intuition, using history, experience and accounting-based measures as their compasses, unreliable and irrelevant as they may be.

Leif Edvinsson, the former director of Intellectual capital at Skandia, has likened this issue in his recently published book to the longitude problem which existed in navigation 300 years ago.<sup>2</sup> At that time, the British Navy was able to navigate with precision only in a north-south direction, not an east –west one (the longitude) The precision in contemporary management is mostly to be found in the vertical balance sheet perspectives of cost accounting and tangible assets. Future earnings, however, rely on intangible values embodied in people and their skills and ideas, networks and relationships, alliances, culture, and knowledge “recipes” (such as artistic and scientific originals), all of which reside in the longitudinal dimension.

The current economic malaise, accompanied as it is by a wholesale breakdown in systemic trust, is an ideal opportunity to revisit an old problem – namely, how adequately accounting-based measurement systems are actually set up to represent the economic realities of corporate performance in the 21<sup>st</sup> century economy. And what is true of corporate accounting is equally true of national accounting. As Greenspan recently put it, “over time, and particularly during the last decade or two, an ever-increasing share of GDP has reflected the value of ideas more than material substance or manual labour input. This ongoing development is imposing significant stress on our statistical systems”.<sup>3</sup> Trillions of dollars are shifted on judgement calls made on the output of these statistical systems, for example, corporate earnings, GDP, inflation. Market confidence may only return when there is widespread confidence that these systems tell the “true” and real-time stories of the economic production processes of firms and national economies.

A great deal has been written about the emergence of a “new”, “knowledge”, “digital”, “intangible” economy – call it what you will. However, few of the opinions espoused have been supported by empirical measurement. Fewer still have highlighted the inadequacy of measurement tools or our understanding of how exactly economic value is created (and indeed destroyed) and why it matters.

The multi-disciplinary research group, PRISM,<sup>4</sup> believes this needs urgent attention. Lord Kelvin famously described why so:

“When you can measure what you are speaking about and express it in numbers, you know something about it; but when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meagre and unsatisfactory kind: it may be the beginning of knowledge, but you have scarcely, in your thoughts, advanced to the stage of science”.

This article is concerned with the fact that our measurement methodologies – be they ones used by market institutions or ones used inside of organisations – are inadequately aligned to the underlying functioning of the economy. If, as Drucker observed, we manage what we measure, this is worrying. It is particularly concerned with this problem so far as it relates to the capital markets. It offers little in the way of firm solutions, but is written as a rallying-call for more will and more brainpower to be engaged in the learning required to address the problems.

The article has three sections. The first lays out our views on today’s economy. The second discusses how inadequately our measurement systems are aligned to this economy. The third looks at the implications of this misalignment, in particular from the perspective of the financial community.

## I. The “New-Look” Economy

Without wishing to add to the vast stock of literature which has attempted to describe the emergence of a “new” economy, it is, however, necessary to make some comments as to PRISM’s views on what we describe as a “new-look” economy.

The distinction is important. Today’s economy is not “new”. It retains many features which have been present throughout history. It might be said, however, to have gradually evolved; in most recent years, change has been propelled by well-documented forces such as globalisation, deregulation and technological development.

There has been a gradual shift in both the processes by which economic value is produced and the sources of competitive advantage. As Rivett and Kline put it, a new ecology of competition has arisen in which “intellectual assets ... are the principal wellsprings of shareholder wealth and competitive advantage”.<sup>5</sup> The sources of competitive advantage are no longer exclusively tied-up in physical capital. On the contrary they are entangled within the organisation and within the individual people. The Economist described it thus:

“Economies are increasingly based on knowledge ... what is new is that a growing chunk of production in the modern economy is in the form of intangibles, based on the exploitation of ideas, rather than material things ...”<sup>6</sup>

The work of Alfred Chandler has well documented how it was that the giant corporations of the late nineteenth century tended to be still dominating their respective industries up until the 1960’s and 1970’s. He argued that they had a unique stability about them based on the efficiencies derived from the economies of scale of mass producing physical goods. There was very little innovation during this period as there were no incentives for it. All this has now irrevocably changed and we have entered a phase where volatility and uncertainty are the order of the day, and where innovation and adaptability are essential for survival. This is what Nobel Laureate Douglas North described as “adaptive efficiency”, the ability to innovate, to continuously learn and to productively change.

In today’s economy, innovation, human and organisational capital are more important than ever. Knowledge has become central to the production of value. Knowledge is embodied in people who effectively lease intellectual services as an input into companies’ production processes. It is interesting to note that Marx’s conjecture that workers would ultimately own the production factors may come true in an unexpected way.

Such a gradual shift is evident both anecdotally and intuitively, but also is detected in a range of empirical data:

■ OECD countries are annually investing in the acquisition of knowledge somewhere between 50-100 percent of the amounts they are spending on the acquisition of physical assets. And the trend for this ratio is upwards.<sup>7</sup>

■ Knowledge workers are the fastest growing segment of the OECD’s labour force, growing at an annual average of 3 percent.<sup>8</sup>

■ Elizabeth Webster has estimated that the proportion of the Australian labour force engaged in the direct production of intangible capital rose from 16.9 percent in 1971 to 31.0 percent in 1996.<sup>9</sup>

■ A 1998 report by the Progressive Policy Institute of the United States reckoned that federally financed intangible capital increased from 60 percent of the value of federally financed physical capital in 1970 to 93 percent in 1998.<sup>10</sup>

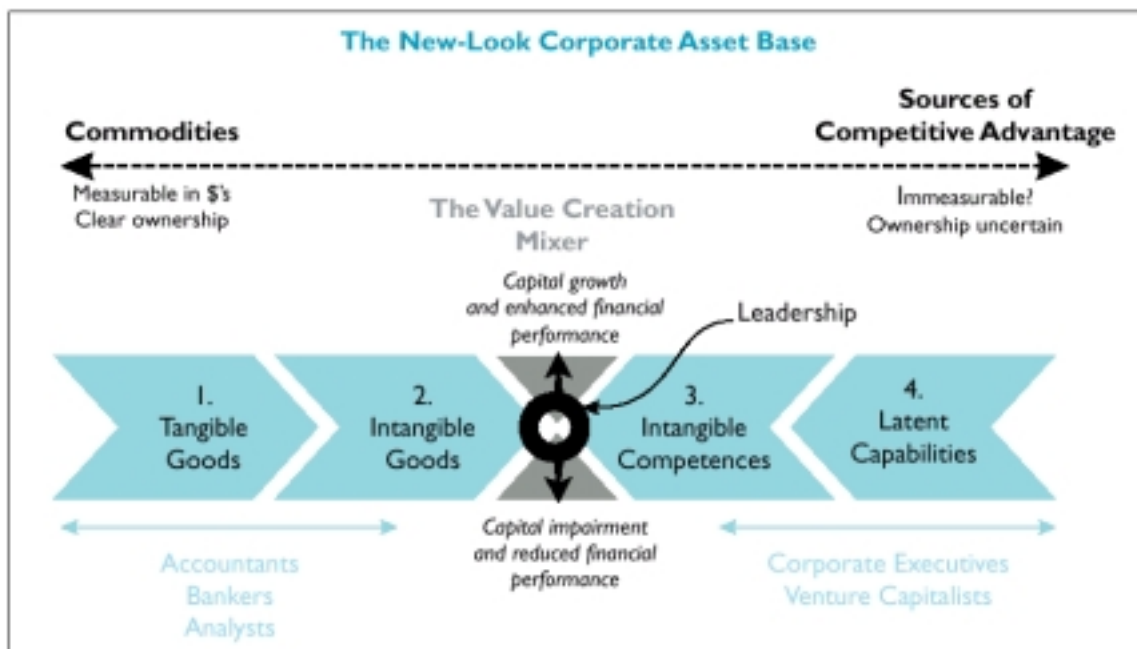
■ According to Nakamura, U.S. firms invest at least \$1trillion annually in intangibles.<sup>11</sup>

■ By 1998 only 15 percent of the S&P500’s market value was attributed to tangible assets, compared to 62 percent in 1982.<sup>12</sup>

Emphasis on commodity and the rapid move towards this characterises the “new-look” economy. The growing importance of context, the pace of change toward a commodity-oriented economy and the imperfections of the IPR regime all contribute to making value highly uncertain and subject to rapid change. This could be viewed as a particular problem for providers of financial capital who are quite reliant on “snap-shot” institutionalised views on individual asset values.

Organisational forms are changing to cope with this changing environment. The strategic and legal boundaries of the modern firm are very different. Networks have become more important because organisational strategy needs to change faster than rigid organisational forms possibly can and because the complexity of the projects undertaken are beyond one firm’s capabilities. The loose ties of networks, the available resources and the dynamics of power are very different from a traditional, hierarchical, and vertically integrated industrial firm. We are relatively inexperienced in managing and measuring networks’ performance. We are particularly poor at managing and measuring resources and contingent values where ownership is not clear and where they are entangled or embodied with something else. These resources are not well suited to current measurement methodologies and hence why extending the current accounting and reporting framework to include intangibles is so fraught with difficulties.

While acknowledging there are a number of dimensions to a firm’s asset base and to the determinants of superior corporate performance, we reason that the key value-drivers can be conceptualised in broad terms in four asset groups as illustrated below:



The four segments taken in combination represent a holistic view of the various capabilities, competences, legal rights and accounting “book” assets that we reason constitute the resource base of the modern business enterprise. They are laid out horizontally to represent the fact that such assets or capital are not necessarily owned by the corporation and can be accessed from both inside and outside the firm’s legal boundaries. They are laid out on a continuum, ranging from the physical to the conceptual, from commodities to potential sources of competitive advantage, from the monetised to the non-monetised, and from where ownership is clear to where it is blurred and uncertain.

At the centre of our schema lies the “value creation mixer” where leadership faces the challenge of organising these longitudinal resources with the requisite efficiency required to achieve capital growth and create economic value. This view is in line with the thinking of Don Tapscott who argues that “the key to strategy now is architecting capability”. It should be recognised that this process will involve both ups and downs; at times, impairments and value destruction will occur. The question is how well leadership can ride the wave over the cycle, and how capital growth and superior performance can be achieved.

In the two left-hand segments we group those assets over which ownership rights can be more or less appropriated and values assigned by reference to open market transactions or the NPV of future cash flows. The category “tangible assets” embraces physical assets (such as land and buildings, plant, machinery and equipment) and the asset class “intangible goods” includes both artistic and scientific “originals” (e.g., original formula of a drug, design of a machine or software code) and legally protected exploitation rights, such as annuity contracts, trademarks, licences, and franchises. These can be bought, sold, stocked, licenced and otherwise traded in the same manner as physical goods, and in certain circumstances may also be used as security.

The traditional reporting model represents the tangible goods sector and has begun to encroach on the second segment, based on emerging requirements from among others, the International Accounting Standard Board (IASB). FASB is moving forward with a project whose goals include “improving the quality of information displayed in financial statements so that investors, creditors, and others can better evaluate an enterprise’s financial performance”. In the meantime, the traditional financial reporting model continues to provide the essential material basis for allocating capital and credit, and collateral for a range of conventional debt security instruments. Accordingly, we reason that this is the area of the corporate “asset” base where accountants, analysts and bankers are trained to focus.

The right-hand segments provide an analytical framework for the latent capabilities and competences of the enterprise. The first of these – latent capabilities – represent a reservoir of potential talent, knowledge and know-how, and is the organisation’s main source of future growth, revenues and earnings. They include concepts such as reputation, workforce calibre, and corporate renewal capability. Collectively, such attributes provide a leading indicator of its ability to respond to market threats and opportunities that are as yet unknown, and often unknowable. Latent capabilities are what investors, in particular venture capitalists, are interested in. Flushing out, exploiting and renewing these is what distinguishes exceptional from indifferent corporate leadership.

Competences, the third category, are more-or-less codified capabilities. They often rely heavily on the organisation’s ICT infrastructure and, as such, can be migrated rapidly around the world *via* digitally-enabled networks. We divide these into distinctive, core and routine competences, which Tom Vollman defined as follows:

- Distinctive competences: Key factors of differentiation that are difficult or costly to replicate;
- Core competences: Competitive necessities – what you must have to compete;
- Routine competences: Routine activities you must do, or outsource, in order to “stay in the game”.

Latent capabilities and intangible competences are examples of entangled resources. They co-exist and interact in bundles of assets. They have to be understood in their totality, which means they have to be understood in their particular setting rather than in the context of externally-imposed accounting rules. Valuation of “individual” assets is near to impossible, as so many inter-dependencies exist.

This may be a crude map of the modern firm’s resource base. However, it serves to illustrate that the sources of competitive advantage and future earnings are not captured (if at all) by current measurement and reporting frameworks. We are largely left in the dark so far as insights go into the “engine” of the company (the business model); its competences and capabilities, its intellectual capital as some have described it.

## **II. “New-Look” Economy is Inadequately Aligned with our Measurement Tools.**

Let us consider this misalignment in further detail.

The capital market has four important roles in the smooth functioning of a free market economy. One is to mobilise savings, another is to facilitate risk reduction; a third is to monitor managerial behaviour; and the fourth is to process information.

A market economy, Hayek reasoned, is continuously in flux; understanding these continual changes is a daunting information-processing task.<sup>13</sup> However, this information-processing capability is critical to allowing resources to be continually re-allocated to activities with the highest pay-off prospects. Events of the last three to five years, in particular the spectacular rises and falls in corporate valuations, are partially testament to the fact that the capital markets have not managed to, or have not been provided with the necessary data, to process these changes.

Until sailors could measure longitude, they were frequently lost at sea. The same might be said for the principal economic actors today. The difference between knowledge economics and physical product-based economics demands a seismic shift in the way we view the corporation and track its value creating progress. We have to take a lateral perspective regarding alliances, networks, cultural context, knowledge “recipes” and other intangibles, all of which reside outside the traditional balance sheet perspective.

Most attention, however, is still devoted to the financial map, despite the fact that modern corporations’ tangible assets only account for less than 50 percent on average of a company’s market value, much less in many individual cases. We are not yet able to represent the full potential of the networked intangible business model of the 21<sup>st</sup> century based on intellectual capital. Accounting, in large part, is restricted by the concept of ownership and is confined to reporting on elements it can reliably identify within a firm’s legal boundaries. This is not something which is lost on accountants themselves. This is inadequate in the knowledge economy and it is incumbent upon all the interested parties to seize this moment, this environment of economic malaise, to start addressing the issues. Resistance to change will surely only work in the short-term.

Whilst value is created in the interaction between people as human capital and the organisational structural capital such as R&D processes, the 500-year-old accounting system is focused on historical costs and transactions reporting. This backward looking metrics approach leads to growing inaccuracies and surely results in the misallocation of resources by investment institutions. It is analogous to asking what is the cost of good or bad weather, instead of asking for the weather forecast.

Where do we go from here? If Italian managers are in any way representative of the international community, then it is clear that the answer to these issues does not lie in expanded financial reporting. Consider some of the headline results from a recent survey of Italian executives:<sup>14</sup>

- 80 percent do not trust financial reporting as it can lead to erroneous valuations, especially in “predicting” the future;
- Only 18 percent said that financial statements have anything useful to say about the future;
- 85 percent agree with the idea of seeing more non-financial information published;
- 79 percent said that such information should be presented in a separate report, with numbers to be accompanied by narrative.

A number of commentators have put forward various ideas about improving corporate disclosure and non-financial reporting on so-called intangibles. And a number of guidelines have been produced to facilitate intellectual capital reporting as a complement and addition to the traditional financial statements. Indeed, a number of companies, particularly in the Nordic countries, have been routinely producing intellectual capital statements for a few years.

Broadly speaking, these statements have included two types of indicators. The first type encompasses the historically-based data points whose position and “momentum” may provide a basis for predicting the future. Examples would include more comprehensive breakout of investment spend on such areas as R&D, ICT or workforce development and training. Alternatively, it might be profit per customer, the regularity of repeat orders, the load factor or customer and employee turnover rates. However, simplistic projections based solely on historical data must be treated with circumspection since past events are a notoriously poor predictor of future performance. The second group of indicators is made up of asset-like indicators. Examples include annuity contracts, patents and other income-generating licences, and the profile of workforce qualifications. The problem with these measurements is that they are relational: they only have context and meaning in relation to one’s competitors. In absolute terms, management cannot decide saturation levels. For example, is an investment of 5 percent of turnover in research and product development enough, about right or too much? What are the expected returns on these investments?

First and foremost, we believe the measurement problem outlined in the article is about managing better: it is about improving internal processes and systems, not about investor relations. Enhanced external

communication is a secondary benefit and leads naturally from the first. It would be unreasonable to expect management to report externally on what they may not feel wholly comfortable with internally.

This has been well illustrated by the four-year experience of the Danish project into Intellectual Capital sponsored by the government. At the outset, it was considered that the point of developing companies' intellectual capital measurement was to inform outsiders, particularly investors. However, it has become apparent that a far more immediate and valuable aspect to the exercise has been the internal learning. From the continuing dialogue between companies and researchers, and between companies and companies, management has learnt a great deal about how to manage knowledge better, how to develop their organisations and enhance their culture in line with their strategic and knowledge-based aspirations. Measurement is a powerful tool in shaping organisations, in emphasising learning and innovation at one end of the spectrum, or in keeping tight control at the other.

Devising alternative measurement techniques and indicators to take into account the missing longitudinal dimension is primarily about reviewing one's own asset/resource base (through IP/Knowledge audits): it is about understanding the dynamics of one's own business, how one creates value and generates cash, what the risks are and how they might be mitigated. Of course, this is also what outsiders, such as the financial community, want an insight into, as well.

However, it is important to recognise at the outset that each company will be different and will, therefore by definition, develop their own means of tracking performance. The idiosyncrasy of knowledge-centric value drivers does not lend itself to an externally imposed "one size fits all" solution. The array of resources at the disposal of any firm are varied and complex, and are found both inside and outside the firm. Different "rules" exist in as much as assets which are disentangled can be institutionalised and taken and valued out of context. Those resources which are entangled within the corporation are guided by corporate norms and practices, and therefore are "resistant" to the imposition of external rules and guidelines.

Models like the ones proposed by GRI (the Global Reporting Initiative) and by PwC's ValueReporting framework, therefore look increasingly sensible as a point for convergence. PwC's research with industry and investor groups in the United States and Europe has led them to proposing a three-tier corporate reporting model as follows:

- Tier 1: Privileged company-specific information, to illustrate their own unique DNA;
- Tier 2: Scoreboard of industry-specific performance indicators, to assist comparability;
- Tier 3: An expanded financial reporting layer, which will be better able to represent the production of economic value.

### **III. Implications and Considerations**

The need for measurement techniques to be aligned to the realities of economic production is about rebuilding trust in the functioning of the markets. This is about achieving enhanced productivity and profitability through bringing together a number of initiatives and perspectives which already exist, for example, Knowledge Management, Intellectual Property Management, Human Resource Accounting, Traditional Financial Statements, *etc.*, and creating a holistic picture of businesses and what is going on within their strategic (as opposed to their legal) boundaries.

The issues go well beyond accounting and economics. We believe this is ultimately about survival in the 21<sup>st</sup> century economy. We believe there will be big winners and losers as these dynamics play out and the early and successful adopters gain prominence. And so we argue that it is vital for all members of the business community to enter the debate – act now or be left behind. Change is coming regardless, whether it be from economic and market forces or from external regulation. History suggests it is best to be at the forefront of such change, influencing it, not following it.

Most of us have been trained to think and act with a financial capital perspective. Creating a new type of dialogue around knowledge creation and its circulation is going to be challenging and time-consuming. However, it is necessary to embark on this learning process by first recognising the problem exists (the point of this article) and then experimenting with possible ways to address it. In this final section, to stimulate thought and debate, I muse on these issues with particular regard to members of the financial community.

#### **IV. Considerations for Investment Analysts**

Surveys of investors have shown a growing demand for high quality data on a wide range of indicators. Indeed, such surveys have found that investors are only receiving about 30 percent of what they want from traditional financial reporting. These are not brand new revelations or surveys. However, fundamentally little seems to have changed.

On the one side, you have corporate executives who may view the requirement to amend and upgrade their information machine as both complex and expensive. On the other, you have a market dominated by institutions and skills based on analysing, interpreting and comparing companies' traditional financial statements. Institutions have developed which appear to be very number-centric and comfortable with disentangled resources. Capital market participants have shown little interest in intellectual capital statements. When it comes to non-financial indicators, to entangled resources, to valuing knowledge, financial institutions are arguably back in the 18<sup>th</sup> century ocean. This may well be because the value of intellectual capital is a process which is always "in construction", whose trajectory into the future is far from linear. Knowledge and value are interconnected, and as it is impossible to predict the growth of knowledge, as Karl Popper told us, it is impossible to arrive at a "one-time" value for intellectual capital.

As the financial institutions are not *au courant* with reading and interpreting intellectual capital statements, and as there is no consensus as to their relevance, these statements tend not to be part of the flow of interpretations and dialogues which carry on within the capital markets. Resistance is therefore abundant and objections can be heard based on the rules created by accounting principles.

If the direction of financial reporting does indeed end up leading to the development of a more idiosyncratic and holistic information set, this provides challenges to the current business model of the analyst industry. This would require analysts to formulate "ecologies" of these individual and idiosyncratic measurements into an overall picture from which to take some value judgements as to how well managed the resources of the business are, for example, how the resources are produced, maintained, and exploited.

Given the potential for change in the analysts' business model – in particular how they get rewarded – which is under legal attack in the United States, such developments pose problems.

If they are not going to get paid for research, they will likely want information in a "ready-to-go" format, not in an idiosyncratic format which requires time-consuming interpretation. This in turn leads to some interesting questions about such traditional professional intermediaries as the investment analyst and their future role. Are all these forces at work going to lead to the emergence of new kinds of info-mediaries who are willing and trained to package such information together? Are investors going to be willing to pay for such research? Or do the potential of technologies such as XML/XBRL hold out the prospect of raw data supplied by companies being able to be cost efficiently re-worked into different ways and formats to suit the different needs and perspectives of the analysts?

#### **V. Consideration for Corporate Financiers**

The trend in accounting standards is heading towards the requirement that goodwill is broken out into separately identifiable asset classes. The imminent acceptance of new standards for Business Combinations under FASB guidelines will provide a rich learning experience for corporate executives, accountants, and investment bankers. Acquisitions will effectively be more closely scrutinised for what the goodwill paid is actually composed of. The exercise of trying to account for and justify a valuation by identifying those intangibles which can be disentangled should prove fertile ground for learning more about measuring and evaluating intellectual capital. It ought to be fertile ground for experimentation and innovation.

It would also seem sensible to reflect on the due diligence process which surrounds the M&A process. Given traditional financial statements do not provide a very good lens on the target, in particular with regard to its future prospects and its "adaptive efficiency", it might be argued that due diligence is key to a thorough assessment of what is being acquired. To that end, it is concerning to note the absence of IP experts from investment banks' due diligence teams. Whilst an IP audit is technically part of the due diligence process, it is given fairly short shrift – "a proforma component of the due diligence process in most M&A's" – as described by a senior Wall Street M&A executive.

#### **VI. Considerations for Providers of Capital**

In a knowledge-based economy, where business models and organisational forms are changing, providers of capital need to be provided access to the information which will allow them to allocate and

circulate the scarce resource of financial capital. They too will need to “re-skill” to be able to make good use of such information.

It is too easily assumed – often by the very people themselves – that providers of capital are not concerned with measuring and evaluating intangibles. The reality is that they have been doing so – however crudely and subjectively – for some time; they may simply not use the same language as intangibles or even recognise what it is they are doing. These examples illustrate the point.

In IPO prospectuses, many professionals write comments about the listing entity’s business plan and indeed sign it off. Some underwrite them with their own capital and reputations. They are doing so on the basis of judgements made on a number of loosely-collected reference points – financial information, track record, quality/experience of management, dynamics of the industry and market, assessment of the risks and opportunities.

The rating agencies consider a similar set of non-financial information in granting different entities’ different levels of default risk on their debt obligations. Financial information is the result of how many of these factors play out.

Venture capitalists tend to invest in a management team and its ability to extract economic value from a particular business model, or a particular market.

Bankers are also intuitively making judgements on intangible factors, particularly in their extension of credit to small medium enterprises on the basis of budgets and forecasts. However they will likely remain more interested in present value so long as their risk/reward model stays the same.

Some providers of capital are known to be developing their own methods. Calpers, for example, is developing a checklist of sustainable performance indicators. Some banks are known to use scoring methodologies to take into account intangible factors. How serious and widespread these learning strategies are is open to question.

What is not open to question, however, is the urgent need for capital providers to address the issues outlined in this article. They cannot do so, as discussed, without corporate management committing to the learning process first. Dialogue and the circulation of thoughts and experiences are required to nurture learning, solutions and re-skilling processes.

## VII. Conclusions

At the moment it seems there are insufficient pressure points to inject real momentum into changing the face of corporate reporting. There are large vested interests in place who are either resistant to change or not cognisant of why they need to change their practices or what is in it for them. I hope this article has helped somewhat in this regard.

This article has argued that a nexus of intangible assets, quasi-assets and competences in the form of unique or distinctive capabilities deriving from innovation and knowledge are now essential ingredients of the economic production process. The processes and causal links involved are complex and are still poorly understood.

It has pointed out that economic theory and measurement methodologies have not kept pace. This can be traced partly to our existing public macro and micro accounting-based systems, which are unable to produce routine, systematic information on the ongoing changes in the corporate and social asset base.

It has pointed out that these issues are (or should be) of concern to corporate executives and the capital market community. It has argued that they need to engage themselves more fully and obviously in a learning and experimentation process, with an understanding of the business model and its associated entangled and disentangled resources as its principal focus. Ideally, this engagement should be multi-disciplinary because, as Thomas Edison pointed out, “nobody ever came with a great idea all by themselves” and as Einstein put it, “you cannot solve a problem with the same thinking that created it”.

Finally it has argued that change is coming regardless, whether it be from economic and market forces or from external regulation. History suggests it is best to be at the forefront of such change, influencing it, not following it. Seize the agenda as an opportunity: as Keynes said, it is better to be approximately right than precisely wrong.

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