

COMPETING WITH KNOWLEDGE

Intellectual Assets as Business Capital

Sam Berner

May 1, 2002

1. Prelude

What is Intellectual Capital? There are literally tens of definitions, some similar in nature, some differing widely. This in itself is not strange, since the term implies “intellect” and therefore “knowledge” and “information”. Academics, educators, scientists and management specialists have been stumbling and wrestling with a concrete definition of what the last two terms are, hence the uncertainty of what exactly represents “intellectual capital”. It may well be that what would be perceived as such in one setting, would not be in a different one. However, an attempt will be made in this paper to at least show how different writers on the subject see the term being defined.

The same can be said of the term “competitive advantage”. When Michael Porter was appointed to Reagan’s CIC in mid 1980s, he found out that the business and labour leaders, academics and government officials could not agree on a definition of “competitive advantage”. There was also no generally acceptable theory to explain the phenomenon ([Porter](#), 1990). Although now acclaimed as an authority on competitiveness, and despite the fact that his definition is accepted by most academics writing on the subject, Porter’s is still not the only one that counts. In the research leading to the writing of this paper, different definitions were found, and even statements that argued there was no standard definition. What has to be taken into account is that when Porter wrote his book, *The Competitive Advantage of Nations*, knowledge management was not as yet born, and a few lone knowledge-work pioneers, such as [Drucker](#), [Handy](#), [Fletcher](#) and [Sadler](#) were envisioning a world where knowledge would be the main asset.

For Intellectual Capital to satisfy the criteria of a competitive advantage component, it must be measurable. The current accounting system seems nervous about quantifying “intangibles”, although there is no question that intellectual assets are extremely valuable. The fact that what a firm knows may be more valuable than what the firm owns in real and tangible assets seems to lead to a situation where book value and market value of the firm diverge wildly. There is a perceived need to have these intangible assets managed and used to the best of their capacity to maximize value and profits – and yet, with knowledge management in its infancy and accounting profession incapable of coming up with a measuring tool that would be generally acceptable to the businesses and the legislative bodies, it seems that leveraging intellectual capital is all but fuzzy at the moment. Other issues include securing and protecting these intangible assets, as well as making sure that they “reproduce” and not stagnate within a firm.

2. Defining the Intangible: do we really know what we know?

Intellectual Capital of a firm is its possession of the knowledge, applied experience, organizational technology, customer relationships and professional skills that provides it with a competitive edge in the market. It is a major contributor of revenues and profit. It is the intellectual material – knowledge, information, intellectual property, and experience – that can be put to use to create wealth ([Stewart](#), 1997). This includes inventions, ideas, general know-how, design processes, software applications, communication design and publications, the individual capabilities, knowledge, skills, experience and problem solving abilities that reside in the people in an organization. Most researchers in their definition of “Intellectual Capital” include factors such as technology, leadership, ongoing employee training, brand names and trademarks, and even speed of response to client service calls. If we have a look at a contemporary balance sheet we would

invariably find an entry under the subheading of goodwill. Traditionally, goodwill emphasized unusual but real assets such as trademarks. By comparison, Intellectual Capital looks beyond to more ineffable assets such as the ability of a company to learn and adapt. Whatever definition is used, it is apparent that the value of IC in the world's business is immense. According to Morgan Stanley's World Index, the average value of companies on the world's stock exchanges is two times book value and this can be ascribed to the intellectual capital the companies possess.

According to [Edvinsson and Malone](#) (1997), Intellectual Capital is made up of:

- Structural capital consists of customer capital (customer base, relationships and potential) and organisational capital (process capital, culture and innovation capital). Skandia usefully describes organisational capital as "everything that remains when employees have gone home", such as information systems and customer database.
- Human capital can be broken down into competence, relationships and values. Human capital unleashes the value in structural capital but, unlike structural capital, it cannot be owned and in a sense is only rented. Companies need to attract the right people and provide them with learning opportunities so that they have the right skills to meet the needs of the business now and in the future. Value is embedded in the tacit knowledge of employees and so there will be an interaction between their knowledge, skills and physical assets in the organisation to create value. Successful companies tend to have a network of external relationships which build value into the business. Value may be financial (that is, money received from a relationship) but it might be the knowledge and expertise derived from a relationship with another entity that generates the value. There needs to be a mutual understanding in an organisation of the meaning of value and its generation. Therefore, a company needs an appropriate culture and values in order to be successful in achieving its goals.
- Customer capital is representative of such things as customer satisfaction and loyalty. Customer relationships is where the cash flow starts. Traditional 'goodwill' only measures part of the picture (and accountants have seemingly been a bit nervous about measuring even that!). Edvinsson is not sure how important it is to distinguish between structural and customer capital as separate heading, though both need to be measured.

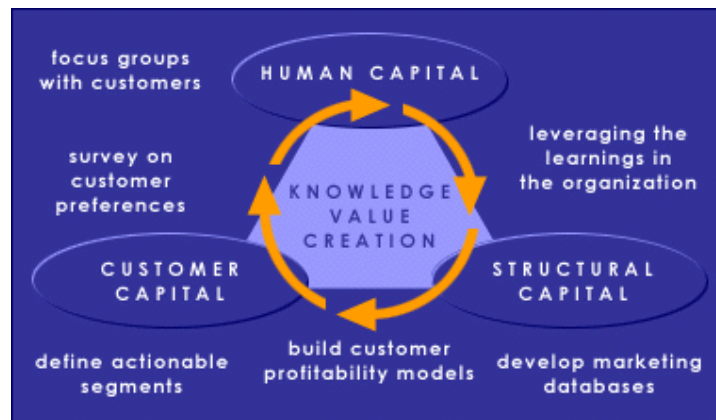


Fig. 1 Constituents of Intellectual Capital

The above definition has been used by the Canadian Imperial Bank of Commerce ([Saint Onge, 1996](#)). According to their understanding of Intellectual Capital, there are two levels of knowledge held within these areas: explicit and tacit knowledge. Tacit knowledge can be both good and bad for an individual or an organization. Holding commonly understood values and assumptions allows us to function quickly and reliably without debating each issue or forming a new process for each action. But when the environment changes or the process becomes inefficient, neither individuals nor organizational leaders may be able to recognize the need for change. Tacit knowledge takes a different form in each segment of a firm's intellectual capital: In human capital,

it is the mindsets of individuals - their assumptions, biases, values, and beliefs. In customer capital, it is the individual and collective mindsets of customers that shape their perceptions of value provided by any given products or services. In structural capital, it is the collective mindsets of the organization's members that shape the culture of that organization, including its norms and values.

While many people stress the importance of intellectual capital in information era, it is hard to quantify this intangible asset explicitly. [Ulrich](#) (1997) proposes a simple, yet measurable definition of intellectual capital as competence times commitment. This definition suggests that within a business unit, employees' overall competence should rise, but that competence alone does not secure intellectual capital. Firms with high competence but low commitment have talented employees who can't get things done, while firms with high commitment but low competence have less talented employees who get things done quickly. Both are not desirable. Intellectual capital requires both competence and commitment, and as the definition suggests, a low score on either competence or commitment significantly reduces overall intellectual capital. With this framework, individual intellectual capital indices can be derived and these personal assessments can then be accumulated into a collective assessment of the intellectual capital within a unit.

Arian Ward, Leader of Collaboration, Knowledge and Learning, Hughes Space and Communications, USA, refuses to define Intellectual Capital. Definitions, he argues, limit the representation. Instead, Ward attempts to describe what Intellectual Capital is and is not. In short, he states that it consists of:

- The sum of an enterprise's collective knowledge, experience, skills, competences, and ability to acquire more; its work outcomes, services and other intangible manifestations of the application of these to the strategic intent of the enterprise; its relationships and processes that facilitate this application, its delivery of value to the marketplace, and its delivery of strategic advantage back to the enterprise
- An enterprise's competences; the artefacts and measurements of its intangible resources; the capabilities and interactions of its formal organizations, informal communities, customers, and partners; and the knowledge, skills, and potential of its employees and other stakeholders
- Intangible material and relationships that have been or could be formalized, captured, and leveraged to produce a higher-valued asset
- the difference between book value and market value
- what investors really should care about, but have never had access to

Ward then goes on to describe what Intellectual Capital is not:

- what is shown on the balance sheet and other financial statements
- what an enterprise understands and manages as its most valuable asset ([Ward](#), 1998)

An important characteristic of Intellectual Capital is that it exists within the minds of the people who know something useful that will make the organization more productive. As such, it is often unusable unless it can be converted into explicit content. Yet few organizations know how exactly to manage content ([McGovern](#), 2001).

From the accounting point of view ([Dzinkowski](#), 1999), Intellectual Capital is a term/concept that applies to the missing value between book value and market value of the firm. This "missing value" can represent up to 75% of the market price of the company vis-à-vis its hard assets. This phenomenon is due to the increasing role of knowledge (both tacit and explicit) in creating shareholder value and a broad recognition that corporate knowledge is power in industry, particularly when it comes to competing on the basis of speed to market.

3. Competitive Advantage: an attempt at a definition

“Competitive advantage is the need and capacity to innovate and upgrade continuously. This process of innovation and upgrading is the source of a nation's, region's or community's wealth,” wrote [Porter](#) (1998). Innovation rings loud on Porter's definition. [Stalk and Hout](#) (1990) argued in their writings that time management and compression in all corporate activities are the most powerful sources of competitive advantage. Fast innovation can enable management to change the whole nature of a business in order to adapt to changing market conditions. It is easy to see how organisational knowledge, learning and knowledge management can have a major impact on this aspect of competition.

The basic tool Porter offers managers is his Five Forces Rule (see Fig. 2): rivalry among existing competitors, the entry into markets of new competitors, the threat of substitutes, the bargaining power of buyers and the bargaining power of suppliers. The first is the central element, around which the other four revolve. “The significance of any strength or weakness a firm possesses is ultimately a function of its impact on relative cost or differentiation [which] in turn stem from industry structure. They result from a firm's ability to cope with the five forces better than its rivals,” ([Porter](#), 1998: 11).

Arising from these two basic types of competitive advantage (cost or differentiation), Porter gives three alternative strategies which a firm can follow:

- Cost Leadership (where it sets out to become the low-cost leader in its industry);
- Differentiation (where it seeks to be unique in some way that customers value); and
- Focus (where it targets niche markets within its industry)

Correct use of organisational intellectual capital can enhance any and all of these strategies, as is shown in the examples [below](#). However, majority of businesses and corporations are far from managing their knowledge effectively, and thus are not using their intellectual assets to the best of their advantage. Why this is so, and how the issue can be addressed and improved, is discussed in [Section 5](#) of this paper.

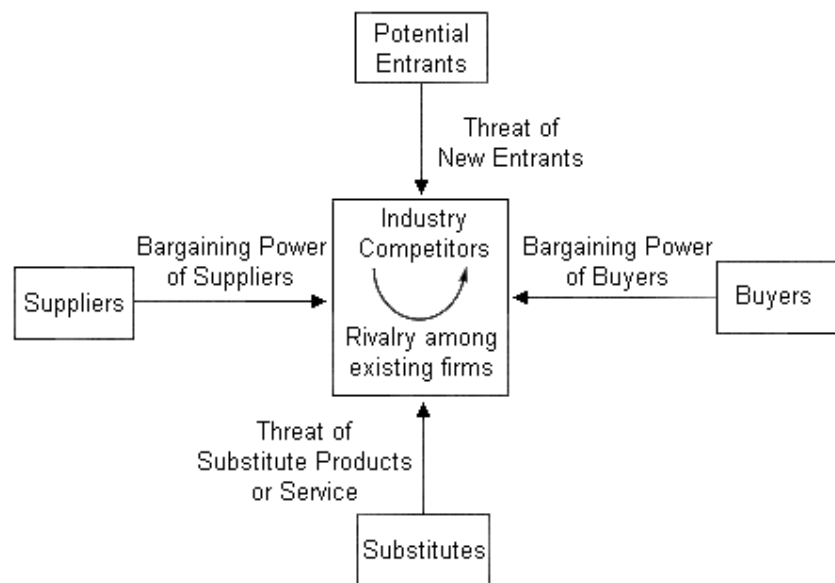


Fig. 2 The Five Competitive Forces

As a mechanism for analyzing the competitive position of a firm's internal operations, Porter introduced the concept of value chains. Here, every single activity within the firm's cycle of

production, marketing, delivery, and support can be analysed to show how it interacts with the rest of the cycle. The value chain should reveal the potential for improving both cost and differentiation at an early stage of planning of the product/service. Looking at the firm's link in the chain (see Fig. 3) it again becomes obvious how a good knowledge strategy could enhance both the planning and the execution parts of the process.

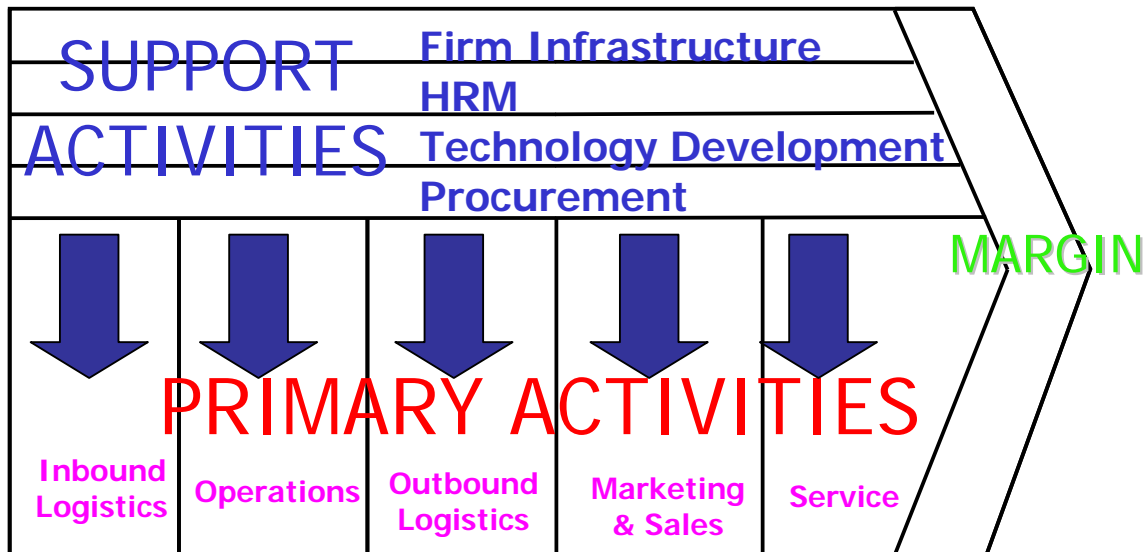


Fig. 3 Firm's link within the Value Chain

4. Competing With Knowledge (1): Examples

Harvard University accounting professor Robert Kaplan stated: "Today, the long-term success of organizations comes from their knowledge-based assets-- customer relationships; innovative products and services; operationally excellent processes; the skills, capabilities, and motivation of their people; and their databases and information systems. Physical assets may be important, but they are unlikely to be as effective a competitive weapon as knowledge assets." (quoted in [Mintz, 2001](#))

The classic example of the use of a company's intellectual assets for competitive edge is Skandia. This Swedish multinational insurance and financial services firm is knowledge intensive, employs approximately 11,000 people and has 5 major divisions. Skandia uses, in addition to the standard book value of the official balance sheet, a new systematised approach to make tangible these hidden values. Factors such as competence base and well managed performance procedures contribute to the total value of a company. Competence base is defined as employees' professional insights, applied experience, and organisational learning. Performance procedures are defined as how customers are handled, and how the operations, processes, business development and logistics are conducted. The more knowledge intensive a company is, the more important are these soft dimensions ([Backleu and Edvinsson, 1999](#)).

While most companies appoint directors of finance and operations and focus company valuation on finance and operations, they lack a function to deal with hidden values. To address this, Skandia created a position that focuses on developing and applying a systematic approach to hidden values. It has a director of intellectual capital. The mission of this function is to identify and improve the visibility of intangible and non material items, to capture and package these items for transfer to users, to cultivate and develop these items through training and knowledge networking, and to capitalize and economize on these items through rapid recycling of knowledge and increased commercialization. The Director of Intellectual Capital at Skandia, is charged with

enhancing and systematically developing the intellectual capital of the division. With this approach, Skandia is trying to build more than a "learning organization." AFS strives for an "intelligent organization." This is a dynamic learning and teaching organization that continuously renews its performance. Critical for this development is a federated global organization with competencies and alliances built on intellectual capital, information technology, and leadership around core cultural values.

Other examples of using Intellectual Capital to remain competitive abound. At Hughes Space and Communications (HSC), a subsidiary of Hughes Electronics, one of the key competitive factors has been its ability to bring technological innovation to market while reducing design and development costs to a level that would allow it to expand its customer base. HSC does that by managing its intellectual capital. The main concept was the creation of Communities of Practice. By developing Communities of Practices, HSC enabled business units, projects, and functions to share practices, standards, and sometimes people. HSC supports the Communities of Practices by promoting knowledge-sharing processes such as collaborative conversations, providing collaborative technologies such as groupware and desktop video conferencing, and developing new support roles such as knowledge stewards, Communities of Practice facilitators, and boundary spanners. This led to the ability to create non-standard and highly specialised products on demand quickly and cost-effectively. HSC has improved the exchange of information and has facilitated establishing an inventory of best practices. By utilizing best practice information and removing communication barriers that existed between groups, HSC eliminated some of the repetition involved in project development and design and thereby reduced costs and cycle times. As a result, customers that were once excluded from purchasing satellites due to high telecommunications market entry costs and long payback periods are now able to seek HSC solutions ([Bryan, 1997](#)).

Another example of how Intellectual Chemical can be utilised for competitive advantage is Dow Chemical ([Manasco, 1997](#)). Here, the focus was largely on improving productivity through process innovations and significant cost reductions. Historically, Dow has been slower in bringing products to market than its competitors. In order to address this problem, it reengineered processes; eliminated layers of bureaucracy; and invested in communications, training, and education tools that would help eliminate knowledge silos. Dow also made significant investments in information technology that integrates customer-based information with the organization's financial accounting systems and its Value-Based Management system. This system has enabled them to segment their markets in detail, giving them access to profitability figures by customer and providing them with information on customer value gain by product. Dow also maintains an elaborate customer technical service system. Finally, it has created a business intelligence group to scan the environment, to observe or predict changes in the applications of their products, to learn about the trends in the technologies surrounding these applications, and to understand where the market is headed.

The third example is General Electric. Before Jack Welch became the CEO in 1981, GE was an insular company. Today, GE has exhaustive processes for identifying best practices from outside the organization because of one of Welch's legacies (Chase, 2001). For example, at the GE training center every class is challenged to go into companies around the world to uncover best practices and apply them to GE. In order to provide greater value to customers while minimizing the company's exposure to risk, GE has become a prolific producer of customer information. In addition to customer insight tools such as surveys, focus groups, and interviews, many formal mechanisms have been implemented to enable GE to respond to individual customer demands as well as changing market conditions. GE also is committed to total quality management systems such as Six Sigma and has created corporate performance systems such as Dashboards and Scorecards for each of its major clients to ensure that quality and service are maintained.

5. Competing With Knowledge (2): Musings

The foundations of all of the economies of the West have now shifted from an industrial base to a service and knowledge base. This shift is nearly complete, and it is irreversible. Economic theories have begun to reflect this, but theory has been slow to be translated into practice. There is currently a lack of consensus around intellectual capital definitions, management practices and accounting. The globalisation of marketplace means that instead of a limited number of locally based competitors, a business is now facing countless others all over the world. What used to be exclusive niches is no longer so isolated or exclusive. More focus is needed to create uniqueness.

When Netscape went public in 1995, it was a \$17 million company with fifty employees. Yet after only the first day of trading, the stock market valued Netscape at \$3 billion. What investors “bought” were the people who had built Netscape – their knowledge, skills, ideas and talent. They were also investing in the company’s demonstrated ability to innovate, create, and bring to market a product that makes the Internet accessible to the public at large. In short, they were paying an enormous premium for Netscape’s *intellectual capital*. A company’s “brains” – the know-how, relationships, secrets and collective knowledge of its employees – define its competitive advantage today. As we move into the next millennium, “brainpower” will continue to become far more valuable than muscle, mechanical power, or even technical power. Lester [Thurow](#) (1996) goes so far as to say that the era of brainpower industries is causing a fundamental shakeup in classical capitalism, because strategic assets are now the brains of employees.

Knowledge per se is not an asset. It only becomes so when it is acted upon, as in decision making, business processes, research or improved technology. It then becomes a resource for competitive advantage. As any other resource, to be of use as a competitive tool, knowledge needs to be sustained, managed and measured. Unfortunately, the business world lacks the management tools and strategies that will do this successfully. Despite the reams of books and articles on knowledge management, there is little perceived change in the way business courses are presented by the majority of tertiary institutions.

When I was in the process of searching for a post-graduate course that would specialize in Knowledge Management, I posted an email to KMIP, a University of Technology Sydney (UTS) based mailing list for Knowledge Management and Information professionals. In her reply to my query as to why there seem to be no such courses in Australia, Prof. Frada Burstein from Monash University”

“Here at Monash we have decided that it was not worthwhile to offer a narrow very specialized Masters degree in the area that is still at the stage of identifying its core body of knowledge..” (Burstein, 06/11/2000 – private correspondence)

And yet, these institutions are the ones that provide the corporate world with their future leadership. In the new economy, the knowledge worker will be the common species. It will not be enough to have a few CKOs learning their skills as they fly by the seat of their pants. Every manager, from finance to human resources, must become conversant with the aspects of managing this incredibly important asset: knowledge.

Traditional management paradigms are insufficient, to say the least, and even detrimental to knowledge management. We are producing more with fewer people, causing persistent high unemployment ([Handy](#), 1990). And we are not showing those who had to go how to evaluate their own knowledge capital and entrepreneurial skills, so that they can become independent of government handouts. We are in no way showing them that they have a competitive advantage in what they know. Banks seldom if ever offer business loans if your only collateral is in intangible assets ([Stewart](#), 1995), especially so after the dotcom catastrophe in 2001. The narrowly defined

tasks and command-and-control hierarchies may have worked fine in a stable industrial setting, but they are totally out of date in the knowledge economy. A culture of mistrust has been designed into the corporate life, where people do not feel valued for their knowledge or abilities.

There must be a shift to a new management paradigm, one that moves out of the industrial era and into the knowledge era. In a passionate article, [Bertels and Savage](#) (1998) even worry that because of the consulting firms' attitude to knowledge management as the next money making fad, the whole subject will be considered a sham in the next few years. Einstein said that "*problems that are created by our current level of thinking can't be solved by that same level of thinking.*" The same applies to managing intellectual assets - what we do now, if we do it right, is just laying a foundation for a transition that may take as little as ten years and as much as fifty to finalise.

Typically, assets are recognized items of worth, placed on the balance sheet. Businesses are able to place a value on physical assets and even time. They recognize that these assets depreciate in value. But in the knowledge economy assets are not always "things"; they are often fuzzy ideas residing in the brains of employees. Businesses find it difficult valuing these assets. We are beginning to understand that good ideas, processes and infrastructures can appreciate with usage and that individuals get better at recognizing and valuing the positive experiences and capabilities of our colleagues, thus generating value. It is not, however, enough to focus on what we -as individuals or businesses - know, but what we do with this knowledge, what drives us to innovate, create and excel.

However, such practices as downsizing and asset-stripping to improve financial ratios, often ignore the hidden value in business units and capabilities in terms of core knowledge. When downsizing or fund cutting, the first to go are the training departments and the corporate library. Organizations can realize even greater returns on their investments in training and documentation by seeking ways to reuse and re-market information, just as movie producers seek tie-ins with books and television shows to realize full investment in entertainment assets. They very seldom do.

If companies want to retain their market share, they have to become innovative and even unique. [Davenport and Beck](#) (2001) say that we are not in an "information economy" but an "attention economy" and that attention is limited and getting one's share of it is becoming harder and harder. But how can a company produce innovative and unique products/services that grab that attention of their customers, unless everyone's contribution to the value chain becomes acknowledged and a culture of valuing established? We need a management model that allows quick change based on firm values that encourage everyone to participate and contribute to the organisational knowledge capital.

[Adam Smith](#) (1994), despite his understanding of the division of labour, also saw the negative aspects of it. He made a remark that it could be potentially detrimental to the human spirit, literally making the workers stupid. [Bridges](#) (1994) documents the shift away from narrowly defined jobs into model organizations which begin to excel at teaming and reteaming capable people. We are moving to an approach which needs to use the whole person and all his talents. Real value can be obtained from building upon diversities in an organization, since diverse workforces offer a richer insight into problems.

In the end, whether a company uses its intellectual assets wisely to remain competitive, rests on the culture it maintains. Intellectual capital is people, first and foremost. Although the organisational culture issue was raised in the 1980s and despite thousands of employee satisfaction studies, the challenge is still here, often relegated to the "too hard" basket. But the issue is becoming urgent. A few "holy cows" will have to be sacrificed: leadership roles, organisational language, command-and-control modes and notions of what constitutes structural capital. Maybe the whole notion of ownership and of competition, of where the loci of power in the organizations

reside, have to change before we can say that we have completed the transition into the knowledge economy.

6. References

- Backlew, M. and Edvinsson, L. (1999) Intellectual Capital at Skandia. [Online] Available WWW: <http://www.fpm.com/cases/el3.html>
- Bertels, T. and Savage, C. (1998) "Tough Questions on Knowledge Management". In G. Von Krogh, J. Ross and D. Kleine (eds) **Knowing in Firms: Understanding, Managing and Measuring Knowledge**. London: Sage Publications: pp.7 - 21
- Bridges, W. (1994) *Jobshift: How to prosper in a workplace without Jobs*. Reading, MA: Addison-Weasley.
- Bryan, L. (1997) "Stocks Overvalued? Not in the New Economy." In **The Wall Street Journal**, (November 3):A24.
- Chase, R. (2001) 2001 Most Admired Knowledge Enterprises. [Online] Available WWW: http://www.knowledgebusiness.com/uploads/2001_MAKE_Summary.pdf
- Davenport, T. and Beck, J. (2001) *The Attention Economy*. Boston, MA: Harvard Business School Press
- Drucker, P. (1969) *The Age of Discontinuity*. London: Heinemann
- Dzinkowski, R. (1999) "Mining Intellectual Capital". In **Strategic Finance** (October). [Online] Available WWW: <http://www.strategicfinancemag.com/1999/10i.htm>
- Edvinsson, L & Malone, M. (1997). *Intellectual Capital*. London: Piatkus.
- Fletcher, W. (1990) *Creative People*. London: Business Books
- Handy, C. (1984) *The Future of Work - a guide to a changing society*, NY: Random House
- Handy, C. (1990) *The Age of Unreason*. Boston, MA: Harvard Business School Press
- McGovern, G. (2001) Content: Can We Measure the Cost Versus the Benefits? [Online] Available WWW: http://www.clickz.com/design/site_design/article.php/838291
- Manasco, B. (1997) Dow Chemical Capitalizes on Intellectual Assets. [Online] Available WWW: <http://www.webcom.com/quantera/Dow.html>
- Mintz, S. (2000) "Grey Matters". In **CFO** (01/02/2000) [Online] Available WWW: <http://www.cfo.com/article/1,5309,856%7C17%7CA%7C14%7C1,00.html>
- Porter, M. (1998) *The Competitive Advantage of Nations*. London: Macmillan Press
- Sadler, P. (1993) *Managing Talent*. London: The Economist Books
- Saint-Onge, H. (1996) "Tacit knowledge: The key to the strategic alignment of intellectual capital" In **Strategy and Leadership** 24(2): 10-14
- Smith, Adam (1994) *The Wealth of Nations : An Inquiry into the Nature and Causes*. Boston, MA: Modern Library
- Stalk, G. and Hout, T. (1990) *Competing Against Time*. London: Collier Macmillan
- Stewart, T. (1995) "Trying to Grasp the Intangible". In **Fortune** (2/10)
- Stewart, T. (1997) *Intellectual Capital – The New Wealth of Organisations*. NY: Doubleday
- Thurow, L. (1996) *The Future of Capitalism : How Today's Economic Forces Shape Tomorrow's World*. New York: William Morrow & Co.
- Ulrich, D.(1998) "Intellectual Capital = Competence X Commitment", In **Sloan Management Review**, (Winter):15-26

Ward, A. (1998) "Definition" of Intellectual Capital. [Online] Available: <http://www.co-il.com/coil/knowledge-garden/ic/arianic.shtml> ↗