

A Guideline on Intellectual Capital Codification and Measurement

Dr.Pattanant Petchchedchoo, CPA

Dean, Lecturer of Faculty of Accountancy, Dhurakij Pundit University

ABSTRACT

In the resource-based theory, knowledge is regarded as one of the most significant strategic resources for the organization's success. Knowledge and intellectual capital can be used interchangeably in a number of disciplines. In the last decade, intellectual capital is widely studied in Western countries. Noteworthy is that there have been a number of European companies developing intellectual capital reporting to disclose information regarding the development and management of intellectual capital in the organization. Recently, the study of intellectual capital has gained much attention in Thailand as a framework for integrated reporting is proposed by the International Integrated Reporting Council. Moreover, integrated reporting framework indicates the ways in which intellectual capital is managed to advocate the organization's vision, mission and strategy. As a consequence, this paper supplements the three generally accepted concepts on intellectual capital codification and measurement to provide an approach on integrated reporting in the context of intellectual capital.

Keywords: Intellectual Capital, Intellectual Capital Measurement, Intellectual Capital Codification, Integrated Reporting

แนวทางในการวัดและจัดประเภททุนทางปัญญา

ดร.พัทธนันท์ เพชรเชิดชู

คณบดีและอาจารย์ประจำคณะการบัญชี มหาวิทยาลัยธุรกิจบัณฑิตย์

บทคัดย่อ

ในทฤษฎีด้านทรัพยากร องค์ความรู้ถือว่าเป็นทรัพยากรทางกลยุทธ์ที่สำคัญที่สุด ซึ่งยิ่งต่อความสำเร็จขององค์กร องค์ความรู้และทุนทางปัญญาเป็นคำที่สามารถใช้แทนกันในหลายศาสตร์ เทคโนโลยีที่ผ่านมามูลค่าของปัญญาได้รับการศึกษาอย่างแพร่หลายในประเทศแถบตะวันตก เป็นที่น่าสังเกตว่ามีบริษัทจำนวนมากแถบยุโรปจัดทำรายงานทุนทางปัญญาเพื่อเปิดเผยข้อมูลที่เกี่ยวข้องกับการพัฒนาและจัดการทุนทางปัญญาขององค์กร เมื่อไม่นานมานี้ การศึกษาเรื่องทุนทางปัญญาได้รับความสนใจมากขึ้นในประเทศไทย เนื่องจากมีการนำเสนอกรอบแนวคิดของรายงานเชิงบูรณาการโดยคณะกรรมการรายงานเชิงบูรณาการระหว่างประเทศ ทั้งนี้ กรอบแนวคิดของรายงานเชิงบูรณาการได้ระบุถึงวิธีการจัดการทุนทางปัญญาเพื่อให้สนับสนุนวิสัยทัศน์ พันธกิจและกลยุทธ์ขององค์กร ดังนั้นบทความนี้จึงได้เสนอแนวคิดอันเป็นที่ยอมรับกันทั่วไปในการวัดและจัดประเภทของทุนทางปัญญา เพื่อให้แนวทางในการจัดทำรายงานเชิงบูรณาการในบริบทของทุนทางปัญญา

คำสำคัญ: ทุนทางปัญญา การวัดทุนทางปัญญา การจัดประเภททุนทางปัญญา รายงานเชิงบูรณาการ

Introduction

An inspiration for the paper stems from the increasing importance of the knowledge economy, which is an economy based on the production, distribution and use of knowledge and information (OECD, 1996: 7). According to the knowledge-based theory of the firm, knowledge can be viewed as a strategic resource of the organization (Grant, 1996; Penrose, 1959; Brooking, 1996). An organization's capability to create and utilize knowledge to help accomplish its goals is seen as its most significant source of competitive advantage. In most of management literature, knowledge and intellectual capital are used interchangeably. It is argued that knowledge has two dimensions: a static dimension and a dynamic dimension. As a dynamic dimension, knowledge can be referred to as a flow, sometimes called knowledge management processes; however, as a static dimension, knowledge can be referred to as intellectual capital (Roberts, 2003). As a consequence, in this paper, intellectual capital will be regarded as a stock of knowledge. The implications of accounting for intellectual capital as a stock are portrayed throughout the paper.

Much value lies in intellectual capital, which is what accounting discipline refers to as intangible assets. But the study on intellectual capital has not been extensively addressed in both financial and management accounting disciplines. In an accounting arena, the emerging study of intellectual capital has been evident for a decade. Much of traditional accounting literature, intellectual

capital is generally referred to as intangible assets (Roberts, 2003; Bhimani and Roberts, 2004). It has long been argued that traditional accounting information concentrate mostly on tangible assets, thus guiding past value creation. It is unlikely to signal future value creation. It is also arguable that accounting information need to be more oriented to intellectual capital (Blaug and Lekhi, 2009; Bontis, 2003).

Until recently, the issues on intellectual capital have received much attention from accounting researchers and practitioners (Roberts, 2003; Mouritser and Larsen, 2005); however, there is still a lack of consensus on its components and definitions developed pertaining to the discipline. The reason might be that there is still a lack of a dominant theoretical paradigm to address the issues of what can be defined as intellectual capital in the accounting dimensions. As a consequence, this paper attempts to provide a guidance to help bridge a gap between accounting literature and intellectual capital literature. This includes the ways in which intellectual capital can be codified and measured (Bhimani and Roberts, 2004).

The paper is organized into three main parts. The paper will firstly set out a basic understanding of intellectual capital based on accounting viewpoints. The second section will also include a number of approaches to measuring intellectual capital. The last section will summarize an important issue that are presented in the paper and provide a suggestion for further research.

Part I:**Intellectual capital in accounting perspectives**

Research conducted by Arthur Anderson in 1998 and by Waterhouse and Svendsen in 1998 assert that intellectual capital disclosure is a key issue and should be included as a supplementary report to the financial statements in order to supply information for stakeholders (Arthur Anderson, 1998; Waterhouse and Svendsen, 1998). Financial statements are traditionally designed for capturing and reporting on corporate assets according to standard accounting principles and practices. As indicated in Waterhouse and Svendsen (1998), a limitation of financial statements on representing intellectual capital can be described as follows:

Financial performance measures derived from information in financial statements or other financial sources have been used by publicly listed companies for many years. They highlight specific aspects of a company's profitability, solvency, liquidity, productivity or market strength. Such performance measures, are however based on historical and transaction based information that does not take into account changes in values or internally generated intangibles. There is the growing view that financial performance measures by themselves are inadequate for strategic decision making. They need to be supplemented or even to some extent, replaced [italics the author] by non-financial measures that cover such matters

as, for example, customer satisfaction (Waterhouse and Svendsen, 1998: v)

The term "intellectual capital" has been found in various IC-related accounting literature (See for example, Roberts, 2003; Bhramani and Roberts, 2004; Chang & Birko, 2004). Generally, intellectual capital can be referred to as intangible assets. It is composed of patents, goodwill, software and trademarks. Hulten and Sichel (2005, 2006) extensively classify intangible assets into three main groups, which are software, R&D and organizational competencies. In some aspects, intellectual capital includes human resources, organizational competencies and business processes oriented to innovation (Roberts, 2003; Blaug & Lekhi, 2009).

Generally, intellectual capital is a non-financial asset. It is hidden in the organization and needs to be visualized to manage it strategically to achieve organizational ends. provide a contextual explanation of the important roles of intellectual capital as a solid ground of the organization as follows:

"... If we imagine a firm as a living organism; for example, a tree, ...organizational plans, annual and quarterly reports, firm brochures, and other documents are the trunk, branches and leaves. The wise investor will examine the tree whether he can harvest ripe fruit. But to assume that we have now seen the whole tree because we have seen the visible is a grave mistake.

At least half the tree is below surface in the roots. And while the taste of the fruits and the colour of the leaves make a good presentation of the present health of the tree, it is much more effective to look at what goes on in the roots if one wants to form an opinion about the health of the tree for the coming years... This is what makes intellectual capital - investigation of roots of a firm's value, measurement of the dynamic factors, *which are found below the visible surface of a firm's buildings and products - so important...*"

In management literature, intellectual capital is sometimes replaced with the term "knowledge", when knowledge is viewed as stock (Bontis, 1998). Intellectual capital can include people's know-how, information, hardware, software, IT systems, data, reputation, and organizational practices (Roberts, 2003; Bontis, 1999). Moreover, intellectual capital can be categorized into three components: human capital, structural (including organizational and customer capital (or relational capital) (Edvinsson & Malone, 1997; Bontis, 1998); or intellectual capital can also be separated into employee competences, internal structure and external structure (Sveiby, 1997).

In accounting literature, intellectual capital can be regarded as intangible assets. However, intellectual capital as intangible cannot be easily codified, abstracted and mobilized like such tangible assets as labour or land (Bhimani & Roberts, 2004). As a consequence, despite

of its widely acknowledged values, intellectual capital has been almost absent from traditional accounting perspectives.

International Accounting Standards (IAS) and International Financial Reporting Standards (IFRS) set out a guideline to define an intangible asset that it is an asset that is non-monetary and lacks physical substance (see IAS 38). According to IAS and IFRS, an intangible asset is controlled by an entity and expected to provide future economic benefits (see IAS 38). To meet its definition, an intangible asset is required to be identifiable and separable. That is, it can be sold, traded or arise from contractual rights or other legal rights (IAS 38: 12). From the recognition criteria, an intangible asset is expected to provide future economic benefits and its costs can be measured reliably (IAS 38: 21).

To recognize and to measure intellectual capital in the statement of financial positions, it is required to evaluate whether intellectual capital satisfy the recognition criteria, which are a probability that future economic benefit associated with the item will flow to the entity; and its cost or value that can be measured with reliability (IFRS 3). It can be implies that very little intellectual capital such criteria, especially when some intangible assets are internally developed. The assets that are internally created such as reputation cannot be recognized in the firm's financial statements as IAS 38 states clearly that internally generated goodwill shall not be recognized as an asset. More precisely, under IFRS 3, goodwill can be recognized only in a business combination. Moreover, internal

costs related to the research phase of research and development cannot be recognized as intangible assets; the costs are expensed as incurred. Intellectual capital in terms of people's know-how, information, data, reputation, and organizational practices cannot be identifiable. As a consequence, most of intellectual capital has been absent from financial statements and this leaves investors with doubts about sufficient information provided in the firm's financial statements (Lev, 2001).

It is apparent that measuring and reporting intellectual capital in accounting literature are problematic. Most of the corporate assets are highly tangible, quantifiable and measurable; there is a small amount of intangible value recorded in financial statements. As stated by Bontis (2001), it is challenging for accounting standard setters to set standards for intellectual capital disclosure as no indicators are considered suitable a variety of international and industry settings.

Part 2:

Intellectual capital codification and measurement

"What get measured, get managed", a well-known and dominant quote made by Peter Drucker (Drucker, 1993) implies that to enable the firms to manage its intellectual capital, intellectual capital has to be measurable. To measure intellectual capital within the firm, there are currently reporting practices initiated in the European Union (EU). Many leading European firms have reported intangible assets in their supplementary reports to financial statements (Ordonez de Pablos, 2005). The contents are mostly presented in a

narrative style. In Germany, narrative reporting is mandatory for all companies, while in the UK narrative reporting is voluntary for listed companies (Blaug & Lekhi, 2009). Under the new practices, the classifications of intellectual capital have broadened to include more elements of businesses such as human capital, organizational capital and customer capital (Roberts, 2003). When intellectual capital is classified as human capital, organizational capital and customer capital, there are emerging tools applied to measure and report such capital to be discussed in the next section.

With an attempt to manage and measure intellectual capital, literature on intellectual capital and its management is broadly developed in European countries. Several research papers written by European researchers addressed the issues on the development of intellectual capital report (Roberts, 2003, 2006, 2007; Bhimani & Roberts, 2004; Chang & Birkett, 2004; Mouritsen & Larsen, 2005; Bontis, 1998). Intellectual capital report is produced as a part of the annual report for a number of large European companies (see, for example, Skandia, Dow Chemicals). The report explicitly addresses vision, mission, values and issues on Intellectual capital management (Mouritsen & Larsen, 2005; Chang & Birkett, 2004).

To monitor intellectual capital management and an investment on intellectual capital, the measuring approaches for intellectual capital can be classified into two main measurement approaches: one focuses on both a monetary and a non-monetary dimension, while another one focuses only on a monetary dimension. The

former approach falls into scorecard methods. The latter approach consists of 1) market capitalization method (MCM) and 2) return on assets method (ROA) (Luthy, 1998; Williams, 2000; Malhotra, 2003). The ROA and MCM are established based on accounting rules; as a consequence, the approaches are likely to be used for stock valuation and do not provide a better understanding of the precise contexts of intellectual capital (Luthy, 1998; Williams, 2000).

The scorecard methods are prominent tools to measure each sub-item of intellectual capital are Edvinsson & Malone's (1997) Skandia approach, Sveiby's (1997) Intangible asset Monitor (IAM) approach and Kaplan and Norton's (1996) Balanced scorecard. Such approaches are recognized as the useful measurement and codification tools, forming the basis for the universal intellectual capital report in Western countries (Bontis, 1998; Mouritsen & Larsen, 2005; Blaug & Lekhi, 2009).

Skandia does not focus on dollar value of intellectual capital, but on its proxy measures (Lynn, 1998). Intellectual capital equals the sum of human and structural capital. According to Edvinsson and Malone (1997), human capital is defined as people knowledge, people skills, the company's values, culture, and philosophy. Structural capital includes customer capital. Structural capital is the hardware, software, database, organizational structure, patents, trademarks, and the like that supports employees' productivity. Edvinsson and Malone (1997) set out more than 200 measures to help analyze investment in intellectual capital, which is categorized into human capital and structure

capital (i.e., organizational capital and customer capital).

Sveiby's (1997) Intangible asset Monitor (IAM) approach is based on assumptions that employees are profit generators, so it focuses more on human capital and is likely to neglect structural capital, which can be separated into internal structure and external structure (Kaes, 1999). Sveiby (1997) details more than 150 measures, which focus on visualizing three components of intellectual capital, which comprises people competences, internal structure and external structure. Sveiby's (1997) measures focus on five areas, which are financial view, customer view, process view, renewal and development view, and human view. Although it is claimed that IAM is somewhat similar to Kaplan and Norton's (1996) balanced scorecard, the two methods are different in that the balanced scorecard lies mostly in strategy, while intangible asset monitor concentrates on human capital. As a consequence intangible asset monitor tends to ignore a notion of value creation (Kaes, 1999).

Kaplan and Norton's (1996) balanced scorecard is a framework that can be applied to measure the firm's intellectual capital. The conceptual framework of the balanced scorecard lies in four sets of indicators for measuring the firm's financial and non-financial performance. The four sets of indicators, which are linked to the firm's vision and strategy, can be separated into a financial set of indicators, an internal process set of indicators, a customer set of indicators, and learning and growth set of indicators. Noteworthy is that to deploy the balanced scorecard, a cultural concern

is critical (Mooraj, Oyon & Hostettler, 1999: 487–488). The types of culture include national culture, professional culture and organizational culture (Mooraj, Oyon & Hostettler, 1999).

To measure and manage intellectual capital, the scorecard methods (SC) is likely to be more prominent. A linkage of the indicators developed under the three scorecard approaches (SC) is presented in Table 1. It should be taken into consideration that no single approach is suitable for every single circumstance (Bontis, 1999). The choice of codification and measurement depends on the firm's strategy. To provide a comprehensive picture of the indicators used for codification

and measurement, a comparison of the Skandia approach, the IAM approach and the balanced scorecard approach will be presented in Table 2. It should be noted that the indicators of the balanced scorecard approach is not patterned in the same ways as Skandia approach and IAM approach do.

Noteworthy is that a number of indicators suggested in Skandia approach and IAM approach (e.g., satisfied employee index, satisfied customer index) cannot be calculated directly from figures provided by financial statements. The indicators might be gathered from internal or external sources. As a result, it can be noted that spending

Table 1 A linkage of the three approaches

Sveiby (1997)	Edvinsson and Malone (1997)	Kaplan and Norton (1996)
<i>Intangible assets monitor (IAM)</i>	<i>Skandia Navigator</i>	<i>Balanced Scorecard</i>
Intellectual capital: Codification		
<ul style="list-style-type: none"> • People competences • Internal structure • External structure 	<ul style="list-style-type: none"> • Human capital • Organizational capital • Customer and relational capital 	<ul style="list-style-type: none"> • Financial perspective • Internal process perspective • Customer (Stakeholders) perspective • Learning and growth perspective
Intellectual capital: Congruence		
People competences	Human capital	Learning and growth perspective
Internal structure	Organizational capital	<ul style="list-style-type: none"> • Financial perspective • Internal process perspective
External structure	Customer and relational capital	Customer perspective

Note: Adapted from “The new organizational wealth: Managing and measuring knowledge-based assets”, by Sveiby, K.E., 1997, San Francisco: Berrett-Koehler; “Intellectual Capital”, Edvinsson, L. & Malone, M.S., 1997, London: Pitkus; “Translating strategy into action: The balanced scorecard”, Kaplan, R. S. & Norton, D., 1996, Boston: Harvard Business School Press

(time and budget) on measuring and reporting intellectual capital is likely to be high at the initial stage. One of the reasons is that most of current financial and accounting systems are not designed to collect and analyze all of the information needed for reporting. To enhance the effectiveness and efficiency of the financial and accounting systems, enterprise resources planning (ERP) software sounds useful, but it needs careful development. However, the benefits of visualizing intellectual capital could be higher than the expected costs because hidden values (intellectual capital) are disclosed to allow the organization to envisage the ways in which their Intellectual capital is managed and the ways in which the budget is utilized for the management of Intellectual capital in the organization. The indicators can help picture investment (i.e., time and budget allocate to develop each element of intellectual capital) on intellectual capital in some senses.

Part III: Summary

There is little management accounting research conducted on the implications of accounting for intellectual capital and its measurement. The dilemma of recognition of intellectual capital for a valuation purpose stems from its property, which is an intangible and highly mutable asset. In general, it has value but cannot be easily codified, for example, employees, patents, customers, brand names, reputation and the like. As a consequence,

it is argued that the current financial accounting standards and practices have not been extensively developed to capture the value of hidden values of intellectual capital and report the value of intellectual capital in financial statements.

This paper attempts to state the ways in which intellectual capital can be codified and measured. By making a discussion on to what extent intellectual capital can be categorized to facilitate intellectual capital management in the firms, the paper also provide frameworks to be applied for codifying and measuring intellectual capital. The three intellectual capital frameworks incorporate Edvinsson and Malone's (1997) Skandia approach, Sveiby's (1997) IAM approach and Kaplan and Norton's (1995) Balanced scorecard approach. The suggested approaches provide primary indicators addressing the development of each element of the firm's intellectual capital. However, as there is still a lack of a practical view of how such models can be applied and amalgamated. It is suggested that further studies should be conducted to suggest the ways in which the three frameworks can be integrated to provide a guideline to illuminate the firm's strategic intellectual capital management. It is likely that an integration of the proposed frameworks can provide an insightful direction on the ways in which the firms disclose their intellectual capital in the integrated reporting and on how to highlight the business strategy implementation by reporting on intellectual capital.

Table 2 Intellectual capital codification and measurement

Human Capital (people competences)	Sveiby (1997)	Edvinsson and Malone (1997)	Kaplan and Norton (1996)
<ul style="list-style-type: none"> IT literacy of employees Leadership index Motivation index Number of employees Number of managers Attrition rate of managers Annual turnover of full-time permanent employees Percentage of company managers with advanced degrees in business, science and engineering, and liberal arts Time in training each year 	<ul style="list-style-type: none"> Ratios of administrative costs Information technology use and spending per employee Efficiency measures based on time, workload, and error ratios Effectiveness measures designed to monitor quality and quality management systems Administrative expense per total revenues Cost for administrative error per management revenues Processing time, out-payments Business documents filed without error PCs and laptops per employee 	<ul style="list-style-type: none"> Reputation of company employees with headhunters Years of experience in profession Rookie ratio (percent of employees with less than two years experience) Satisfied employee index Proportion of employees making new idea suggestions (proportion implemented) Value added per employee Value added per salary dollar 	<ul style="list-style-type: none"> Learning and growth indicators such as employee satisfaction index, employee turnover rate, the number of suggestions per employee etc.
Organizational Capital (Internal structure)	<ul style="list-style-type: none"> Number of patents or innovation Income per R&D expense Cost of patent maintenance Project life-cycle cost per dollar of sales The number of dividend computer links to the data base The number of times the data base has been consulted Contributions to the data base Upgrades of the data base Volume of IS use and connections Cost of IS per sales dollar Income per dollar of IS expense 	<ul style="list-style-type: none"> Internal process indicators such as cycle time, industry quality survey, decrease in dealer, the number of new product introduction etc. Financial indicators to measure profitability such as economic value added (EVA), return on assets (ROE), market growths, increases in market share etc. 	<ul style="list-style-type: none"> Internal process indicators such as cycle time, industry quality survey, decrease in dealer, the number of new product introduction etc. Financial indicators to measure profitability such as economic value added (EVA), return on assets (ROE), market growths, increases in market share etc.

Table 2 Intellectual capital codification and measurement (Cont.)

IC Components	Sveiby (1997)	Edvinsson and Malone (1997)	Kaplan and Norton (1996)
Organizational Capital (Infrastructure) (Cont.)	<ul style="list-style-type: none"> • Network capability per employee • IT expense per employee • Change in IT inventory • IT capacity per employee • Corporate quality performance (i.e., ISO 9000) • Training expense per employee • Training expense per administrative expense • Competence development expense per employee • Share of training hours • Business development expense per administrative expense • R&D expense per administrative expense • R&D invested in basic research • R&D invested in product design • R&D resources per total resources • IT expenses on training per IT expense • Educational investment per customer • Value of EDI system (or IT systems) • Upgrades to EDI system • ROI and other common financial ratios • Returns to employees • Returns to customers (showing a picture of the profitability of the human resources) 	<ul style="list-style-type: none"> • Satisfaction with IS service • The ratio of new ideas generated to new ideas implemented • The number of new product introductions • New product introductions per employee • Number of multi-functional project teams • Proportion of income from new product • Five year trend of product life cycle • Average length of time product design and development • Value of new ideas (money saved, money earned) 	

Table 2 Intellectual capital codification and measurement (Cont.)

IC Components	Sveiby (1997)	Edvinsson and Malone (1997)	Kaplan and Norton (1996)
Customer and Relational Capital (External structure)	<ul style="list-style-type: none"> • Revenues per employee • Profits per employee • Revenue from new customers per total revenues • Value added per employee • Customer loyalty/IT employee 	<ul style="list-style-type: none"> • Growth in business volume • Proportion of sales by repeat customers • Brand loyalty • Customer satisfaction • Customer complaints • Product returns as a proportion of sales • Number of supplier per customer alliances and their value • Proportion of customer (supplier's) business that is in product (service) represented in dollars terms 	<p>Customer indicators such as customer satisfaction index, customer loyalty index, dealer satisfaction survey etc.</p>

Note: Adapted from “The new organizational wealth: Managing and measuring knowledge-based assets”, by Sveiby, 1997, San Francisco: Berrett-Koehler; “Intellectual Capital”, Edvinsson, L. & Malone, M.S., 1997, London: Piatkus; “Translating strategy into action: The balanced scorecard”, Kaplan, R. S. & Norton, D., 1996, Boston: Harvard Business School Press

References

English

- Arthur Andersen. (1998). Knowledge Measurement, Next Generation Research Group, 99–1029, Pittsburgh.
- Bhimani, A. & Roberts, H. (2004). Management accounting and knowledge management: In search of intelligibility. *Management Accounting Research* 15(1), 1–4.
- Blaug, R. & Lekhi, R. (2009). Accounting for intangibles: Financial reporting and value creation in the knowledge Economy. *A research report for the work foundation's knowledge economy programme*. Research Republic LLP.
- Bontis, N. (1998). Intellectual capital: an exploratory study that develops measures and models. *Management Decision* 36(2), 63–76.
- Bontis, N. (1999). Managing organizational knowledge by diagnosing intellectual capital: Framing and advancing the state of the field. *International Journal of Technology Management* 18(5/6/7/8), 433–462.
- Bontis, N. (2001). Assessing Knowledge Assets: A review of the models used to measure intellectual capital. *International Journal of Management Reviews* 3(1), 41–60.
- Bontis, N. (2003). Intellectual Capital disclosure in Canadian corporations. *Journal of Human Resource Costing and Accounting* 7(2), 9–20.
- Brooking, A. (1996). *Intellectual Capital: Core Assets for the Third Millennium Enterprise*. London: Thomson Business Press, London.
- Chang, L. & Birkett, B. (2004). Managing intellectual capital in a professional service firm: exploring the creativity–productivity paradox. *Management Accounting*
- Drucker, P.F. (1993). *Post-Capitalist Society*. HarperCollins, New York.
- Edvinsson, L. & Malone, M.S. (1997). *Intellectual Capital*. London: Piatkus.
- Grant, R.M. (1996). Toward a knowledge-based theory of the firm. *Strategic Management Journal* 17(Winter Special Issue), 109–122.
- IAS 38. Intangible Assets, International Accounting Standards Board, London.
- IFRS 3. Business Combinations, International Accounting Standards Board, London.
- Kaplan, R.S. & Norton, D. (1996). *Translating strategy into action: The balanced scorecard*. Boston: Harvard Business School Press.
- Lehner, K.H. & Warden, C. (2005). Managing and reporting knowledge-based resources and processes in research organizations: specifics, lessons learned and perspectives. *Management Accounting Research* 15(1), 33–52.
- Lev, B. (2001). *Intangibles: Management, measurement, and reporting*. Washington, DC: Brookings Institution Press.
- Luthy, D.H. (1998). Intellectual capital and its measurement. Paper presented at the Asian Pacific Interdisciplinary Research in Accounting (APIRA) Conference. Japan: Osaka.

- Lynn, L.E. (1998). The Management of Intellectual Capital: The issues and the practice. In *Management Accounting Practices Handbook*. Society of Management Accountants of Canada. Hamilton: Ontario.
- Malhotra, Y. (2003). *Measuring Knowledge Assets of a Nation: Knowledge Systems for Development*. UNDESA, UN.
- Mouritsen, J. & Larsen, H.T. (2005). The second wave of knowledge management: the management control of knowledge through intellectual capital information. *Management Accounting Research* 16(3), 371–394.
- OECD. (1996). *Measuring what people know*. Paris: Organization for Economic Co-operation and Development.
- Ordonez de Pablos, P. (2005). Intellectual capital reports in India: lessons from a case study. *Journal of Intellectual Capital* 6(1). 141–149.
- Penrose, E. T. (1959). *The theory of the growth of the firm*. New York: Wiley.
- Roberts, H. (2003). Management accounting and the knowledge production process. In: A. Bhimani, ed. *Management accounting in the digital economy*. Oxford: Oxford University Press. 260–283.
- Sveiby, K.E. (1997). *The new organizational wealth: Managing and measuring knowledge-based assets*. San Francisco: Berrett-Koehler.
- Waterhouse, J. & Swensen, A. (1998). *Strategic Performance Monitoring and Management*. Toronto: CICA.
- Williams, S. M. (2000). Is a Company's Intellectual Capital Performance and Intellectual Capital Disclosure Practices Related?: Evidence from Public Listed Companies from the FTSE 100.

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