

Intellectual Capital Disclosure in Canadian Corporations

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Acknowledgement:

The author would like to acknowledge the contribution of Research Associate Greg DeLazzari who searched through the database for the purposes of this study.

Keywords: intellectual capital disclosure, Canadian corporations, measurement

Abstract:

There has been increased attention and focus on the importance of intellectual capital disclosure. Several Scandinavian companies have ventured forward by publishing intellectual capital statements. However, despite the global appeal and changing beliefs surrounding the value of intellectual capital, it continues to be excluded from Canadian corporate annual reports. This paper outlines a study in which content analysis was conducted on the annual reports of 10,000 Canadian corporations. A list of intellectual capital related terms was searched within the annual reports yielding a significantly small number of instances in which intellectual capital disclosure took place. A major recommendation for corporations that are concerned with their relationship with the capital markets is to develop strategic and tactical initiatives that provide for voluntary disclosure of intellectual capital. These initiatives may initially be used for internal management purposes only; however, an external stakeholder-focus report will more than likely be the ultimate goal.

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INTRODUCTION

As the dynamics of the Canadian economy shift towards a knowledge-based orientation and away from its natural resource roots, the importance and value of intellectual capital increases. Waterhouse (1999) argues that intellectual capital assets are strategically now more important to wealth creation than they ever were in the past. The increased emphasis on intellectual capital is also reflected in the opinions of Canadian CEOs. A questionnaire developed and administered by Waterhouse (1999) identified intellectual capital and corporate learning as very important strategically to CEOs. However, is this senior management support evident in codified disclosure? The purpose of this paper is to understand whether this *strategic importance* has been translated into the financial statements of Canadian corporations.

In 1995, the Conference Board of Canada also identified the failure of traditional accounting to adequately consider the recognition of intellectual capital assets. The discrepancy between reporting practices and CEOs' beliefs combined with the recognition challenge associated with traditional accounting is a burgeoning area of examination in the intellectual capital literature. In 1996, McMaster University hosted the first ever World Congress on Intellectual Capital (see <http://worldcongress.mcmaster.ca> for further info). There have since been well over 2,000 delegates who have visited Hamilton, Ontario, Canada to attend this annual event. One would assume that the prevalence of intellectual capital disclosure has followed suit.

There has been a rapidly growing realization of the importance of disclosure of intellectual capital as a whole in the operation of organisations. Several Scandinavian companies have taken the global lead in this regard, including Skandia, Carl-Bro and Celemi who have all publicly disclosed intellectual capital statements. Sveiby (1997) argues that these companies are a sharp illustration of the differences in the managerial attitudes of the industrial and post-industrial ages. Olsson (1999) reports on measurement initiatives that have occurred in the Scandinavian hospital sector and has uncovered a method to introduce and spread the practice of reporting and disclosure and its relationship with learning. Such initiatives illustrate clearly that people can no longer be considered to be costs on the profit and loss statement but are, in fact, assets to be invested in, developed and deployed carefully.

Pike, Rylander and Roos (2002) argue that the dominating factor in enterprise valuation for most companies now and especially the hi-techs and professional service firms is intellectual capital. It is obvious that managers must be able to manage companies with these characteristics effectively. It is equally obvious that the characteristics of the underlying business and its long-term prospects have to be communicated to the investing community. Failure to do this effectively has led to the well-known problems of CEOs feeling that their market valuation is understated, the volatility factor that applies to them is too high and that, consequently, finance is harder to raise when needed than it should be.

There has been little evidence of the clarity that should be present when disclosing intellectual capital constructs. This is not just a problem for those concerned with intellectual capital management and disclosure, but it also appears and is debated vociferously in the subsidiary area of knowledge management (Pike et al., 2002). For example, there are at least eight categories for knowledge in common use. An explanation of many of them is found in

(Von Krogh, Roos & Kleine, 1998). Efforts for intellectual capital measurement have been voluminous through the seminal works of Bontis (1996, 1998, 1999, 2000, 2001, 2002), Edvinsson (Edvinsson & Malone, 1997; 2002), Roos (Roos, Roos, Dragonetti & Edvinsson, 1997; Bontis, Dragonetti, Jacobsen & Roos, 1999), Brooking (Brooking, 1996), Sveiby (1997) and Stewart (1997, 2001). Happily, in recent years there has been a steady convergence in categorization and language into a common framework (see Bontis, 1999 for a comprehensive literature review).

INTELLECTUAL CAPITAL MEASUREMENT

Intellectual capital measurement is an extension of the human resource cost accounting literature popularized in the 1960s (Paton, 1962; Odiorne, 1963; Hermanson, 1964; Likert, 1967). Morse (1973) highlights the distinction between human resource measurement that has both an internal and external focus:

Human resource accounting has two components: human asset accounting and human capital accounting. Human asset accounting is concerned with determining the value of the human resources employed in an organization *to the organization*. Human capital accounting is concerned with the determining the value of the human resources employed in an organization *to the employees* of that organization (Morse, 1973: 593).

According to Morse (1973), most accountants are interested in human asset accounting with its emphasis on organisational reporting. The intellectual capital research has extended this line of thinking to embody both an external and internal focus. Much of the initial intellectual capital reporting that most firms engage in is for internal purposes with the ultimate goal of publishing an external document for stakeholders.

While accountants report numbers in the common language of monetary value, there is no logical reason why decision makers (or accountants) should restrict themselves to such an information set (Rees & Sutcliffe, 1994). There are a number of reasons why decision makers may be interested in receiving intellectual capital reports, including (1) the pursuit of quantification of intangible assets, (2) the timeliness of human behaviour as a proxy of performance, and (3) defence against the distortion of GAAP-related financial calculations. Kaplan (1983) has also suggested the incorporation of intellectual capital measures in external reports. It is apparent from the voluminous number of edited publications (Bontis, 2002; Choo & Bontis, 2002) that there is an influential body of opinion which advocates increased intellectual capital disclosure.

The amount of information disclosed in an organisation's annual report can provide substantial financial benefits to an organisation (see Bontis, 2001 for a comprehensive literature review of measurement models). Increased disclosure is positively correlated with the number of analysts following a company (Lang & Lundholm, 1996) and ultimately results in lower effective interest costs. Lang and Lundholm (1996) also conclude that the lower effective interest costs are the result of a larger pool of potential investors. Lower risk created from the greater disclosure of information combined with the larger investor pool effectively lower the cost of borrowing. The lower borrowing costs provide organisations with an incentive to disclose greater amounts of information. Organisations interested in issuing debt would view increased disclosure as a benefit while other organisations may view the costs of increased disclosure too great.

Published annual reports function as an important source of information for many external stakeholders looking to assess an organisation's financial health. Efficient market theory suggests that the current price of a stock already reflects the value of any publicly available information. Despite the statistical evidence supporting this theory, annual reports continue to be a desired source of information for individuals wishing to assess an organisation's financial status. Hawkins and Hawkins (1986) identified financial analysts' top three sources of information as components of the annual report. These findings were also corroborated by Brown (1997) who concluded that annual reports were among the most important sources of information for financial analysis. These studies focus on the importance of various annual report disclosures and generally find that the narrative sections and the income statement are most widely read. Furthermore, the 10-K filings were a "moderately useful" source of information for financial analysts. Analysts also report that private contacts and analyst meetings are two more primary sources of information. The analysts' major complaint was that very little information was received on the strategies of the functional areas of a company from any of these three sources, and that the key risks they expected to be included in the annual report were seldom disclosed.

In assessing the relative effectiveness of differing approaches to measurement for disclosure purposes, Pike et al. (2002) note that it is necessary to have four basic criteria for the measurement of intellectual capital:

1. It is auditable and reliable.
2. It does not impose a large measurement overhead.
3. It facilitates strategic and tactical management.
4. It generates the information needed by shareholders and investors.

Auditable and Reliable

Pike et al. (2002) argue that the first criterion of "auditability and reliability" is critical because senior managers need confidence that the information they are reporting is a valid and true measure of the company under consideration. Even if the interpretation of that information may differ from one manager to another, the source must be unimpeachable.

Traditional accounting generally offers that quality for monetary capital and, to a considerable extent, physical capital because quantities are simple and additive. However, valuations of physical capital are problematic because their intrinsic value is calculated through a depreciation process and this is very hard to recoup at sale and the extrinsic value is inextricably bound up with companies' business processes. With either physical or monetary value, the danger for managers attempting to make business decisions is that the actions they may take are based on extrapolations beyond the zone of validity for the underlying data. A common example is to equate or make some other direct link between investments costs, such as for R&D with the value of that R&D.

Pike et al. (2002) suggest 13 requirements for measurement compliance including data that are complete in coverage; distinct and free from overlaps, independent with respect to one another and observable and measurable.

Measurement Overhead

There exist two dangers with regards to supporting intellectual capital disclosure practices that lead to measurement overload. The first and most common occurs when the cost of data collection far outweighs the benefits of having it. The second and more subtle danger is when over measurement leads to the justified accusation of micro-management and the tendency to instil unwanted behaviours because people tend to focus on trivial elements instead of the bigger and more importance picture (Pike et al., 2002).

Facilitates Strategic and Tactical Management

Boston Consulting Group (1999) reports that senior managers have only three effective levers in the creation of value: (1) margin, (2) asset productivity and (3) investment. Intellectual capital theorists Bontis (2002) and Edvinsson (2002) argue that this list should also include (1) attraction and retention of human capital, (2) technological innovation leveraged from structural capital and (3) customer satisfaction as realized by relational capital.

Clearly, senior managers can positively affect organisational performance by managing both strategic and tactical levers. Therein lies the promise of valid and reliable intellectual capital reporting. The challenge with adjusting traditional levers is that the measurements of them are based on generally accepted accounting principles (GAAP) which are generally backward looking. The promise of innovative intellectual capital measures is the predictive power they possess. One of the key drivers of increased effort and investment in intellectual capital disclosure is the resulting “crystal ball” effect.

Needs of Shareholders

Recent financial news on the Enron debacle and Andersen’s associated involvement, coupled with the dot-com bubble burst, has expedited the importance on focusing on shareholders’ needs. While there can never be a perfect delivery of “all available information” for financial analysis, governments and accounting agencies alike are pursuing the needs of shareholders with increased vigour.

Therefore, it is importance for senior managers to exercise careful scrutiny when examining which intellectual capital measures to report and which to keep for internal reporting purposes only. Shareholders are becoming increasingly vociferous in complaining about the reporting decisions that senior managers and their auditors have made in the past.

INTELLECTUAL CAPITAL DISCLOSURE

There is strong evidence concerning the declining relevance of earnings and financial data for readers of financial information in recent decades (Ely & Waymire, 1999). Rylander, Jacobsen and Roos (2000) argue that the goal of disclosure should be to provide relevant, reliable and timely information to those who need to know it so that they can make decisions concerning their relations with the company. At the same time, the information released by the company must not lead to the compromise of sensitive strategic information that would give unfair advantage to others. Rylander et al. (2000) reviewed the major issues of intellectual capital disclosure and summarised them as follows:

1. The information asymmetry gap is growing as the proportion of company value attributable to intangible assets increases.

2. Long-term information, particularly on strategic intent and execution, was lacking from company reporting but was considered to be of particular importance to external stakeholders, especially the investors.
3. Standards and comparability relating to the disclosure of intellectual capital would remain a major issue.
4. Value creation models could provide information to complement traditional reporting required by law.

Professional accounting bodies have also studied the issue. The Financial Accounting Standards Board (FASB) has published the following table depicting some of the key issues to consider (see Table 1).

Table 1: FASB issues of reporting.

Democratization	The privileges of being “in the know” will disappear due to the ability of the internet to disseminate information. The value is now provided by the addition of insight to this information.
Reporting models	Although companies will continue to be the prime source of information about themselves, outsiders may be able to supply supporting information which will necessarily be of lower quality. The company will therefore have to decide whether to provide more itself.
Completeness	Old-fashioned annual reports have a specified degree of completeness and guides to interpretation. Third party information may not have that degree of completeness and is therefore suspect.
Timeliness	If legal problems can be overcome, it is possible that information delivery can be driven from its set cycles to real time.
Content variability	There are minimum standards in reporting. While some companies provide limited information, others offer more. No opinion is offered concerning the best mix, however, internet reporting does allow for the rapid evaluation of differences between companies.
Risks	For companies the risks of litigation arising from web-based disclosures are real. If disclaimers have to accompany every forward-looking statement, do the statements lose their value?

FASB (2000)

Pike and his colleagues warn that:

It is common to think that disclosure exclusively means information transmission to people or bodies external to the company. This is merely the most public mode of disclosure since many see information disclosure as a continuum problem beginning with those who collect the raw data inside the company and ending with world-wide disclosure on the internet web site. In practical terms, there are a variety of discrete levels through the company and then the outside world. The outside world has two groups. The first of these is the privileged relationship that an accredited analyst has with the company

and the second and final level of disclosure is the web site (Pike et al., 2002, p. 666).

Such a model has two disadvantages. The first is that as the levels are ascended within the company there is an inevitable blurring as data are interpreted and re-interpreted. The second and related reason is that use of information in this way is inconsistent with the management of companies in the knowledge era (Sveiby, 1997) because information is being used as a source of power in a hierarchy rather than as a company resource.

From the evidence that is amassing, it seems that the pressure on companies to report more is increasing. It is also clear that various levels of disclosure are possible and that companies must be clear about the distinctions if they are to proceed safely (Pike et al., 2002). Although FASB recommendations will emerge on the disclosure issues highlighted above, there is unlikely to be any attempt to make them mandatory. A code of voluntary disclosure will emerge which may evolve into a set of best practices by those in the field. The hope would be that other companies would feel the need to follow the best practice.

The CICA (Canadian Institute of Chartered Accountants) has also supported the intellectual capital reporting initiatives of their FASB cousins. Empirical research in Canada has shown that perceptions of the importance of intellectual capital disclosure are quite high. Waterhouse (1999) surveyed 114 Canadian companies and found some clear evidence of this support. Both CEOs and company boards considered intellectual capital issues to be of “above average” importance in terms of reporting (3.56 and 3.52, respectively, on a scale of 1 = not important to 5 = extremely important). In fact, intellectual capital reporting was the second most important issue on the list. Operating efficiencies head the list and innovativeness was third.

Governance guidelines and common sense suggest that there should be a fit between strategic priorities and performance measures provided to board members. In Waterhouse’s (1999) Canadian survey, a performance measure fits with a strategic priority if the priority is average or above average in importance and there is a performance measure for that item. A performance measure does not fit with a strategic priority if that priority is important and no performance measure is provided. In the case of intellectual capital reporting the prevalence of measures was lower than the percentage of board members that felt intellectual capital was important. Given the measurement challenges outlined above, this result is expected. However, the question still remains: how bad is it?

METHODOLOGY

The purpose of this study is to study the issue of Canadian corporate intellectual capital disclosure. The subjective impression from the evidence presented above is that, in principle, there is little to prevent real progress to be made in improving the information asymmetry between companies and stakeholders. The evidence suggests that there are many benefits to be gained by a more extensive disclosure of information (Pike et al., 2002). There would be beneficial effects both in terms of the effects on external reputation, market valuation and the ability to raise capital and internally in the esteem that internal stakeholders (staff) will have in the company and its management. That is not to say that there are no pitfalls; the FASB report and CICA highlight where some of them may lie.

In determining the level of intellectual capital disclosure provided by organisations content analysis was performed on annual reports. The first content analysis study was conducted by Govindarajan (1980), who focused on the importance of earnings as compared with cash flows. He found that analysts noted earnings significantly more often than cash flows. Using a word and phase count analysis, Previtts et al. (1994) report that analysts focus primarily on earnings and disaggregated performance as well as an array of non-financial measures. Most recently, Rogers and Grant (1997) coded analyst reports by sentences or clauses into six broad categories and then traced whether or not the information appeared in the annual report as part of the financial reporting process. Their sample was primarily companies in the manufacturing and retail industries. Roger and Grant report that about half of the information identified in analyst reports is found in the annual report and less than half of this is contained in the traditional financial statements. By looking at the disclosure of terminology within annual reports, one can examine the extent to which Canadian corporations publicly document the presence (or importance) of intellectual capital.

The electronic database used to perform the content analysis was *Compact D: Cancorp Plus*. This database maintains a collection of annual reports from approximately 11,000 Canadian corporations as required by the Canadian Business Corporations Act. The database files are obtained through submissions required by provincial legislation and submissions to Industry Canada – a federal government department. The Canadian Business Corporations Act requires all publicly traded companies to provide audited financial statements to Industry Canada. Before 1994, it also required large (assets greater than \$5 million or gross revenues greater than \$10 million) private corporations to do this as well.

In identifying companies disclosing intellectual capital, a list of related terminology was compiled. A review of several intellectual capital books and articles was conducted. A panel of researchers from the World Congress on Intellectual Capital summarised the list into a collection of 39 terms that encompassed much of the intellectual capital literature. The final list of terms is reported in Table 2.

Table 2: Intellectual capital search terms.

Business Knowledge	* Employee Productivity *	Intellectual Property
Company Reputation	Employee Skill	Intellectual Resources
Competitive Intelligence	* Employee Value *	KM
Corporate Learning	Expert Networks	Knowledge Assets
Corporate University	Expert Teams	* Knowledge Management *
Cultural Diversity	Human Assets	Knowledge Sharing
Customer Capital	* Human Capital *	Knowledge Stock
Customer Capital	Human Value	Management Quality
Customer Knowledge	IC	Organisational Culture
* Economic Value Added *	Information Systems	Organisational Learning
Employee Expertise	* Intellectual Assets *	Relational Capital
Employee Know-how	* Intellectual Capital *	Structural Capital
Employee Knowledge	Intellectual Material	Supplier Knowledge

Each of these terms was searched individually in the database. Only terms with asterisks were found in the database. Results were tabulated based on the number of companies that disclosed these terms in their annual report.

RESULTS

Appendix A outlines the results of this study. Only seven terms were disclosed from the total set of 39 intellectual capital terms. This relatively low number was a surprise. However, the seven terms that were disclosed are actually among the most popular concepts in the intellectual capital literature. A total of 74 counts of intellectual capital disclosure were evident across 10,000 annual reports.

Most intellectual capital terms were disclosed only once in each annual report. There were several companies that did not even disclose the number of employees that currently worked in the company. The most popular term disclosed was “intellectual property” which represents such intangibles as patents and the outcomes of R&D investment. However, this term also has a legal definition from an accounting perspective. The term “intellectual capital” was disclosed by only five companies out of a total population of 10,000 firms. These companies represented a wide range of industry sectors and some were not necessarily knowledge-based (e.g., petroleum and natural gas extraction). Francis and Schipper (1999) found mixed support for the view that this decreasing relevance is more pronounced for new economy companies. Frankel et al. (1999) report that firms which voluntarily disclose additional information via conference calls are more likely to be new economy companies. All these findings support the expectation of differential use of information sources for new versus traditional economy companies.

Statistical tests were conducted across this sample of 68 companies that disclosed intellectual capital terms versus the population of 10,000 to examine any significant differences. T-test results showed no statistically significant differences between the sample of companies that disclosed intellectual capital terms and the rest of the population in terms of employee size or shareholders equity (\$ millions).

A closer examination of the five companies that were identified to disclose the term “intellectual capital” showed that the presence of this term was generally used in the management discussion section. There was no evidence at all in any of the firms identified that an actual intellectual capital statement was developed or that any intellectual capital metrics were being published.

CONCLUSION

It is clear based on the results of this study that intellectual capital disclosure is still very much an academic discussion. There is no evidence at all that intellectual capital disclosure has garnered any traction for Canadian corporations. Only a small percentage of Canadian companies (68 out of 10,000) even used the terms in their annual reports. Obviously, using the language of intellectual capital is an important antecedent to developing intellectual capital statements, but Canada seems to be significantly behind its Scandinavian counterparts.

A useful extension of this study would be to conduct content analysis on annual reports of other geographical locations as well as examine the longitudinal changes of intellectual capital disclosure over time. One would assume that as the field of intellectual capital gains momentum, disclosure evidence would also increase.

While there is considerable work in progress concerning the separate issues of management and disclosure, there is little that brings them together (Pike et al., 2002). The OECD, however, has begun investigating the area as a whole and has reinforced the expression of the need to make progress (OECD, 1999). In Denmark, government sponsored research supported that companies could make external statements about their intellectual capital. Unfortunately, the model that underlay their research inevitably led to the conclusion that such statements could only be general in nature as the diversity of companies would prevent meaningful comparison between them (Larsen, Nikolaj, Bukh & Mouritsen, 2000).

In summary, intellectual capital has a very strong impact on the drivers of future earnings, but is largely ignored in financial reporting. A major recommendation for corporations that are concerned with their relationship with the capital markets is to develop strategic and tactical initiatives that provide for voluntary disclosure of intellectual capital. These initiatives may initially be used for internal management purposes only. However, an external stakeholder-focus report will more than likely be the ultimate goal.

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APPENDIX A – RESULTS

Search	Company Name	Count	Industry Sector	Equity	Employees
	ABL Canada Inc.	1	Mfrs Telephone & Telegraph Apparatus	7.5	110
	Agrium Inc.	1	Mfrs Nitrogenous Fertilizers	631.4	4,432
	ATI Technologies Inc.	1	Computer Integrated System Design	389.3	1,400
	Balard Power Systems Inc.	1	Mfrs Storage Batteries	308.8	375
	Biovail Corporation International	1	Mfrs Pharmaceutical Preparations	75.5	375
	Borealis Exploration Ltd.	1	Metal Mining - Gold Ores	(1.2)	
	Breckenridge Materials Ltd	1	Holding Company - Timeworks Inc.	1.4	
	Bridges International Inc.	1	Schools & Educational Services	1.0	31
	Bruncor Inc.	1	Holding Company - Telecommunications	302.0	2,485
	Canstar Sports Inc	1	Holding Company & Mfrs Sporting Goods	66.0	1,830
	CS Resources Ltd.	1	Crude Petroleum & Natural Gas Extraction	176.6	97
	Delrina Corporation	1	Computer Programming Services	89.3	450
	Drug Royalty Corporation Inc.	1	Patent Owners & Lessors of Pharmaceuticals	42.0	10
	Fantom Technologies Inc.	1	Mfrs Service Industry Machinery	34.4	450
	Gecamex Technologies Inc.	1	Mfrs Molded, Extruded & Lathe Rubber Goods	2.1	
	Great Canadian Gaming Corp.	1	Holding company	0.3	
	Guard Inc.	1	Commercial Physical & Biological Research	3.8	7
	Hemosol Inc.	1	Commercial Physical & Biological Research	15.2	84
Intellectual Property (49)	Heritage Concepts International	1	Retail Bakeries	6.2	12
	ISG Technologies Inc.	1	Mfrs Surgical & Medical Instruments	35.5	300
	Image Processing Systems Inc.	1	Packaged Software	15.3	90
	Imutech Pharma Inc.	1	Commercial Physical & Biological Research	3.9	
	Intasys Corporation	1	Radiotelephone communications	2.4	38
	IBM Corp.	1	Mfrs Electronic Computers	19,816.0	269,465
	International Murex Technologies	1	Mfrs Surgical & Medical Instruments	56.2	636
	Irwin Toy Ltd.	1	Mfrs Games, Toys & Children's vehicles	23.0	220
	IVI Checkmate Ltd.	1	Mfrs Computer Terminals	38.1	175
	Lumonics Inc.	1	Mfrs Electrical Machinery, Equip. & Supplies	192.0	1,053
	Maritime Telegraph & Telephone	1	Holding Company - Telecommunications	551.3	3,237
	Milltronics Ltd.	1	Mfrs Industrial Measurement Instruments	85.6	504
	Moore Corporation Ltd.	1	Mfrs Manifold Business Forms	1,185.6	20,084
	Mosaid Technologies Incorporated	1	Designs & Mfrs Advanced Memory Chips	47.0	160
	Needler Group Ltd.	1	Mfrs Concrete Block & Brick	21.3	
	NHC Communications Ltd.	1	Mfrs Telephone & Telegraph Apparatus	2.5	171
	NSI Communications Inc.	1	Communications Services	0.0	
	Onex Corporation	1	Holding Company - Retail Eating Places	966.5	43,000
	Paige Innovations Inc	1	Commercial Physical & Biological Research	(0.2)	
	Phoenix International Life Sciences	1	Commercial Physical & Biological Research	130.0	1,950
	Promatek Industries Ltd.	1	Mfrs Surgical & Medical Instruments	1.0	16

APPENDIX A – RESULTS (CONTINUED)

Search Term	Company Name	Count	Industry Sector	Equity	Employees
Intellectual Property (49)	QLT Phototherapeutics Inc.	1	Mfrs Pharmaceutical Preparations	94.8	147
	Stressgen Biotechnologies Corp.	1	Mfrs Biological Products	18.8	70
	Thomson Corporation	1	Travel Agencies	4,946.0	40,000
	Timminco Ltd.	1	Mfrs Rolling Drawing and Extruding of Metals	42.4	338
	Uc'Nwin Systems Corporation	1	Patent Owner of Video Slot Machines	4.4	
	Unique Broadband Systems Inc.	1	Radiotelephone communications	8.0	
	Vasogen Inc	1	Commercial Physical & Biological Research	10.7	18
	Viridian Inc	1	Mfrs Primary Smelting & Refining of Metals	650.1	4,500
Knowledge Management (3)	Engineering Concepts Ltd.	1	Mfrs Air-Conditioning, Warm Air Heating	0.6	35
	Open Text Corporation	1	Information Retrieval Systems	55.9	
	Peaksoft Corporation	1	Prepackaged Software	(0.1)	26
Human Capital (3)	Quorum Growth Inc.	2	Business Credit Institutions	68.4	30
	Synergystics Industries Ltd.	1	Mfrs Chemicals & Chemical Preparations	35.7	527
	Viking Gold Corporation	1	Metal Mining	2.1	5
Employee Value (1)	Bombardier Inc.	1	Mfrs Railroad Equipment	2,889.3	47,000
Employee Productivity (1)	Air Canada	1	Air Transportation	1,435.0	22,482
Economic Value Added (6)	Alcan Aluminum Ltd.	1	Mfrs Aluminum Sheet, Plate & Foil	5,074.0	33,000
	Ault Foods Ltd.	1	Mfrs Fluid Milk	286.3	2,800
	Canam Manac Group Inc.	1	Mfrs Fabricated Structural Metal	183.4	4,823
	Domtar Inc.	1	Mfrs Pulp & Paper	1,301.0	7,300
	PanCanadian Petroleum Ltd.	1	Extraction of Crude Petroleum & Natural Gas	2,619.4	1,931
	WIC Western Int. Communications	2	Television Broadcasting Stations	311.8	15
Intellectual Capital (5)	Alberta Research Council	1	Non-commercial Research	18.0	
	Intrawest Corporation	1	Hotels & Motels	653.5	3,700
	Pan Canadian Petroleum Ltd.	1	Petroleum & Natural Gas extraction	2,619.4	1,931
	Quorum Growth Inc.	2	Business Credit Institutions	68.4	30
	WIC Western Int. Communications	2	Television Broadcasting Stations	311.8	15
Intellectual Assets (2)	Biomira Inc.	1	Commercial Physical & Biological Research	82.5	180
	Dedicated Technologies Corp.	1	Mfrs Radio & Broadcasting Equipment	1.6	